The role of public health organizations in addressing public health problems in Europe

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Health Policy Series

The case of obesity, alcohol and antimicrobial resistance

Country Reports

Online Appendix

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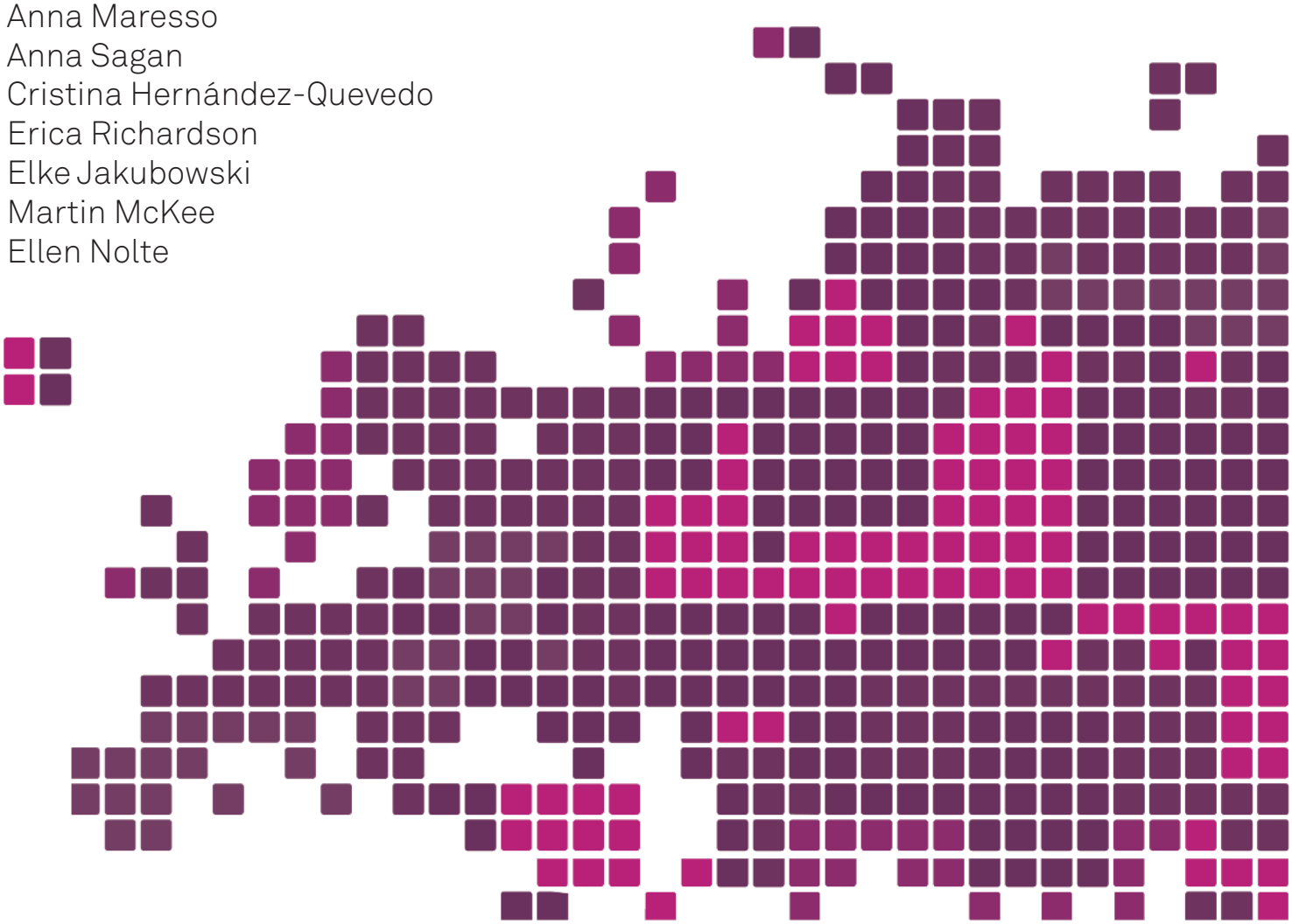

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The role of public health organizations in addressing public health problems in Europe: Obesity, alcohol and antimicrobial resistance

Country reports
(online appendix)

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Contents

England

Obesity

John Middleton

The scale of the challenge

The National Child Measurement Programme for 2014/15 found that around one in 10 children in school reception year (aged 4–5 years) in England was obese (boys 9.7%, girls 8.8%). By year 6 (aged 10–11 years), around one in five children was obese (boys 20.4%, girls 17.4%), where child obesity is defined as a body mass index (BMI) ≥ 95th centile of the UK 1990 growth chart (National Obesity Observatory, 2016). There are stark inequalities in levels of child obesity, with prevalence among children in the most deprived areas of England being double that of children in the least deprived areas (National Obesity Observatory, 2016).

Treating obesity and its consequences is currently estimated to cost the National Health Service (NHS) 6.1 billion pounds sterling every year. It is one of the risk factors for type 2 diabetes, which accounts for spending of 8.8 billion pounds sterling a year, almost 9% of the NHS budget (House of Commons Health Committee, 2015). The wider costs of obesity to society are estimated to be around three times this amount. By contrast, the UK spends only around 638 million pounds sterling on obesity prevention programmes (Health Select Committee, 2015).

In 2007 the government's Foresight report charted the rapid rise in obesity in the UK. It showed that by 2050 over half of the UK adult population could be obese. By 2050 the costs to the NHS were projected to double to 10 billion pounds sterling per year, while the wider costs to society and business were estimated to reach 49.9 billion pounds sterling per year (at 2007 prices) (Foresight, 2007).

The recognition of obesity as a national problem in England emerged in the late 1990s. Public interest in obesity accelerated, as indicated by the volume of press stories on the subject, from the end of the 1990s (HM Government, 2004: 11). Reasons given for obesity rates have included genetic theories, the obesogenic environment (Egger and Swinburn, 1997) and the "calories in – calories out" line exemplified by the Foresight report. Foresight also highlighted the obesogenic environment, the life-course component and the generational dimension, with parental obesity being a predictor of childhood obesity. The most significant predictor of childhood obesity was identified as parental obesity, which increased the risk of childhood obesity by 10% (Foresight, 2007).

The "calories in – calories out" model has been helpful to industries selling high-sugar products, as they have been able to maintain the line that there are "no bad foods only bad diets". More recently, in England, there has been a resurgence of interest in sugars as a causal factor for obesity. Under this theory propounded by John Yudkin (1972) and resurrected by Lustig and others, not all calories are equal – although sugary foods may not be as high calorie as fats, their effect on obesity may be profound through their impact on insulin sensitivity as they have a high glycaemic index (Lustig, 2014). This interest has encouraged systematic reviews of the role of sugar in obesity and diabetes (Te Morenga, 2013) and a report by Public Health England on the evidence for action (Tedstone et al., 2015). In England, the government has recently (2015) accepted the Scientific Advisory Committee on Nutrition's (SACN's) recommendations and revised national dietary guidelines

on carbohydrate and health for the first time in 20 years (SACN, 2015).

Policies and programmes

The first English health improvement strategy, Health of the Nation (1992), had five priorities – coronary heart disease reduction, cancer prevention, accident prevention, suicide prevention and HIV/AIDS and sexual health. Obesity hardly featured. By the time the Public Health Green Paper, "Saving Lives: Our Healthier Nation" (OHN) appeared in 1999, obesity had been recognized as a new priority.

OHN argued for a whole generation approach from pregnancy through childhood, adulthood and later life. It saw the need for combined actions by individuals, local communities and government to improve health, and proposed healthy schools and healthy workplaces. In this approach, a whole generation is needed to reduce the impact of such factors as smoking, poor nutrition, obesity and physical inactivity. Fundamentally it recognized the inequalities in the distribution of adverse behaviours and the need to tackle the underlying social, economic and environmental conditions (HM Government, 1999). The link between obesity, health variables and socioeconomic inequality was further highlighted in the Wanless Report (2002) which contributed to the debate and development of policy in this area.

In the 1990s, there was split responsibility for nutrition in government – the Food Standards Agency, an independent government department, had a significant role in diet and nutrition surveillance, policy, research and service delivery, including supporting the voice of the consumer around dietary health; their Nutrition Division was moved into the Department of Health only in 2010 to consolidate policy and programme delivery in England (Blackshaw, 2016).

By 2004, obesity was centre stage in the government White Paper "Choosing health: making healthy choices easier" but the emphasis was on supporting individuals to change their behaviours and on (primary care trusts') role in reducing inequalities, whereas OHN put in place a raft of supporting structures and initiatives to improve health – Health Action Zones, Healthy Living Centres, expert patients. The 2004 White Paper also set out a Public Service Agreement (PSA) on child obesity and included measures to improve school meals and the development of the Healthy Schools Programme. The aim was to halt the year-on-year increase in obesity rates among 11-year-olds by 2010 in the context of a broader strategy to tackle obesity in the population as a whole. "Choosing health" also introduced the new public health staff group: "health trainers". The idea drawn from the private sector was for a "personal trainer" for everyone with "lifestyle problems", particularly supporting those in poorer communities who would never be able to afford such services otherwise.

The Foresight report (Foresight, 2007), as mentioned in The scale of the challenge section, raised the profile of obesity as a national health problem even further and modelled scenarios of the growth of obesity and diabetes, through to 2050. It mapped the complexities of factors causing obesity and went into detail on obesogenic environments and sedentary lifestyles. This prompted the Department of Health initiative on Healthy Towns in 2008, focusing on healthy town planning, encouraging active travel and accessible physical activity (Cross-Government Obesity Unit, 2009). In 2008, there was also an ambitious cross-government strategy for England called "Healthy Weight, Healthy Lives", which set out to reverse increasing prevalence of obesity and overweight in the population by ensuring that everyone was able to achieve and maintain a healthy weight. The initial focus was on children, with the target of reducing the proportion of overweight and obese children to 2000 levels by 2020 (Department of Health, 2008).

In April 2007, broadcasting restrictions to significantly reduce the exposure of children to television advertising of foods high in fat, saturated fat, salt and sugar were introduced. The Food Standards Agency worked across government and with academics, industry, and non-governmental organizations (NGOs) to develop the nutrient profiling model which was implemented from 2010. This model is a tool to differentiate foods which are high in fat, saturated fat, salt or sugar and can be used by the media and communications regulator (Ofcom) to regulate the advertising and promotion of foods to children (Department of Health and Social Care, 2011a).

Under the coalition government (in place in 2010–2015) any central government pressure to control irresponsible fast food advertising dissipated. Organizational change created further uncertainty with regard to investment in obesity programmes, culminating in the transfer of public health departments to local authorities from 2013. For many involved in the organizational upheaval, it became difficult to plan and develop new

services, or advocate for national policy changes, such as the regulation of marketing of fast food to children. Furthermore, under the Health and Social Care Act 2012, certain public health services were mandated to be provided or commissioned by local authority public health services. However, obesity prevention and weight management were not among the mandated services.

More recently, the major national health policy effort with regard to food and, to a lesser extent, physical activity and alcohol was wrapped up in voluntary agreements with industry in the form of the "Public Health Responsibility Deal" (Department of Health, 2011). Introduced in 2011 after publication of the public health White Paper and with reforms moving towards the Health and Social Care Act of 2012, the Responsibility Deal was intended to be a partnership between government, industry and public health organizations to agree interventions by industry which would demonstrate their corporate social responsibility and promote health. However, the homepage (https://responsibilitydeal.dh.gov.uk/) praises relatively marginal action by industry, such as new formulations of ultra-processed food or small changes in alcohol marketing practices, while providing industry with a platform to gain credibility and free advertising. There was an overarching Responsibility Deal forum chaired by a senior civil servant and specific Responsibility Deal forums dealing with alcohol, food, physical activity and health in the workplace. Researchers from the London School of Hygiene & Tropical Medicine were commissioned to evaluate the initiative. They noted at the outset how the disparate and wide-ranging pledges suggested by industry presented a complex set of interventions of which it would be all but impossible to assess the effectiveness (Petticrew et al., 2013). They also reviewed 47 evaluations of previous voluntary agreements with industry and concluded that effective voluntary agreements are based on clearly defined, evidence-based and quantifiable targets, which require partners to go beyond "business as usual", and include penalties for not delivering the pledges (Bryden et al., 2013).

Many public health lobby organizations did not take part in the Responsibility Deal; more left the initiative in 2013 when it became clear that government commitments to legislate on plain packaging for cigarettes and on a minimum unit price for alcohol were sidelined and that behind-the-scenes lobbying by industry was preventing meaningful interventions by government, such as effective legislation, taxation and regulation.

Public Health England (PHE) published its physical activity evidence base and strategy in late 2014 (Public Health England, 2014). This comprehensive review described levels of inactivity and inequalities and set out four domains for getting society to be more active (Public Health England, 2014):

- active society: creating a social movement;
- moving professionals: activating networks of expertise;
- active environments: creating the right spaces;
- moving at scale: interventions that make us active.

Another noteworthy initiative is NHS England's Healthy New Towns which aims to promote the building of new healthy environments from scratch, with 10 demonstrator housing developments across England in 2016 (NHS England, 2016; Leeds Beckett University, 2015).

The NHS Commissioning Board produced commissioning guidelines for weight management in 2013 (NHS Commissioning Board, 2013). Its successor body, NHS England, along with Public Health England, in 2014 produced advice on commissioning obesity services (NHS England, 2014). Both documents refer to the Tiers Model for obesity management. Tiers 1 and 2 are seen as the preventive and early intervention tiers, generally through services funded by local authorities. Tier 3 involves clinical, non-surgical interventions, such as behavioural psychology and dietetics, and tier 4 is bariatric surgery which is NHS-funded. However, in practice there is scope to locally determine sources of funding and whether to establish pooled budgets. Buoyed by findings of the Lighten Up study (Jolly et al., 2011), weight management services provided by Weight Watchers, Rosemary Conley and other commercial providers are also being commissioned by local authority public health departments.

The UK's first food labelling regulation came into force in 1996. Front-of-pack nutrition information was first introduced by the food industry in the UK in 2005. To date, two systems have been used, Guideline daily amounts (GDAs) and Traffic-light colour coding. As part of the Responsibility Deal, in June 2013 standardized front-of-package labelling developed by the Food Standards Agency was introduced by those companies that had signed up to the voluntary pledge, including a traffic-light coding scheme for energy, salt, sugar and

fat. With the voluntary scheme, the UK has gone beyond European Union (EU) harmonized nutrition labelling, which does so far not provide for interpretative systems such as colour coding.

The national Office of Communications (Ofcom) is the independent regulator of television, radio, telecommunications and wireless communications services in the UK and sets standards for television advertising. Its regulatory objectives include the protection of children under the age of 16 from the overconsumption of high fat, salt and sugar foods. Since 2006, Ofcom does not allow TV advertisements for such foods to be shown in or around programmes specifically made for children (which includes preschool children) or in or around programmes of particular appeal to children under 16. The UK's statutory ban on television advertising of foods high in fats, sugar and salt during children's programming was a world first. It broke new ground for imposing more stringent conditions on the food and drink industries.

PHE produced their evidence for action on sugar reduction in November 2015 (Public Health England, 2015). In March 2016, the Chancellor of the Exchequer's budget statement launched a surprise introduction of a tax on sugar-sweetened drinks, which has been welcomed by the public health community. The revenue raised is to be committed to more physical activity in schools.

An action plan on tackling childhood obesity, "Childhood obesity: a plan for action", was adopted in August 2016, covering the period 2016–2026. Its key anticipated actions include the introduction of a levy on the soft drinks industry and the encouragement of the foods and drinks industry to voluntarily reduce the sugar content of their products. The overall emphasis on voluntary action and the failure to include further restrictions to advertising aimed at children in the action plan were criticized by public health experts and attributed to sustained lobbying by industry against regulatory measures. While PHE supported a sugar tax and reductions in the sugar content of foods, it had argued that banning price-cutting promotions of junk food in supermarkets, banning the promotion of unhealthy foods to children in restaurants, cafes and takeaways, and further restricting advertising of unhealthy food to children on TV, social media and the Internet were more effective measures of tackling childhood obesity. These measures were lacking in the action plan (Boseley, 2016).

In January 2018, PHE launched the Change4Life campaign. The campaign addresses the problem that, on average, half of children's sugar intake comes from unhealthy snacks and sugary drinks. The Change4Life campaign encourages parents to look for "100 calorie snacks, two a day max!" to help them purchase healthier snacks than the ones they currently buy.

Problem identification and issue recognition

The Secretary of State for Health and the Department of Health are responsible for setting public health policy for England. PHE is the national public health body charged with policy formulation and implementation; it advises the Department of Health on what policy should be taken and provides advice to local authorities, the NHS and others, on implementation. In 2013, PHE sought the views of the Directors of Public Health on what the priorities should be for PHE to tackle obesity in local communities; the output of this work helped to inform the PHE obesity workplan mentioned in the Policies and programmes section (Public Health England, 2014). PHE also published advice on early approaches to tackling obesity (Public Health England, 2013).

The Scientific Advisory Committee on Nutrition (SACN) is an advisory committee of independent experts which provides scientific advice on, and risk assessment of, nutrition and related health issues. It advises the governments of all four UK countries.

Other UK government departments have key roles to play in obesity policy, including the Department for Education, the Department of Culture, Media and Sport (physical activity and control of advertising/marketing standards), the Department for Communities and Local Government, and the Department for Environment, Food and Rural Affairs.

Local authorities are the lead body responsible for forming statutory Health and Wellbeing Boards which comprise local authority cabinet members for public health, children and adult's social services, GP members of the local Clinical Commissioning Group, the local HealthWatch patient's rights organization, and other health-related interests agreed by local partners. Priorities for Health and Wellbeing Boards are determined locally, but a survey of senior local government members in 2015 indicated that childhood obesity remained a priority

and that more needed to be done (Local Government Association, 2015).

Local authority public health departments are responsible for assessing the level of need with regard to obesity and for advocating effective interventions at the local level. They hold the budget for services for healthy public policy interventions, including obesity prevention and early intervention. It is up to local authorities to decide how well programmes are funded and what interventions are chosen, on what evidence, and relative to other competing local needs.

Local authorities (unitary, metropolitan councils and district councils within counties) are also the lead agency for food safety and inspection, the provision and commissioning of leisure services, and town planning. Local authority departments for environmental health and trading standards oversee some aspects of consumer protection, but have been subject to severe cutbacks in recent years as part of austerity policies. In some local authorities, there have been efforts to move food hygiene and safety inspection towards food quality inspection to address obesity and coronary heart disease (Saunders et al., 2014; Middleton and Saunders, 2015).

NGOs play a strong role in lobbying, policy advocacy and services on food, fitness and healthy environments. One of the longest established actors is the National Obesity Forum, a charity formed in 2000, with the remit of raising awareness of obesity in the UK and promoting ways in which it can be addressed. This includes public initiatives and the training of clinicians and health professionals on how to identify and address weight management issues and obesity (National Obesity Forum, 2016). The Obesity Health Alliance is a relatively new body seeking to coordinate policy lobbying. It is hosted by the Royal College of Physicians. To date, it comprises principally health professional bodies and some NGOs.

The industry and the private sector is also involved in a number of initiatives. Change4Life (http://www.nhs.uk/change4life), the national lifestyle health advice website and supporting resources, was established in 2008. It comes with a contribution from private sector industries, but is now managed by PHE. Commercial weight management services such as Weight Watchers and Rosemary Conley are increasingly being commissioned by local authority public health services, instead of or alongside NHS-provided services.

Policy formulation

In the area of obesity, the Department of Health is in charge of policy development at the national level, with PHE responsible for helping to inform national policy and for supporting delivery through the local public health and health system. NHS England is now taking a greater interest given the expectations for preventing ill-health in their Five Year Forward View. PHE and NHS England both see obesity as a major priority (Public Health England 2014b; NHS England, 2014b) and both are leading organizations in policy formulation. PHE develops, translates and assembles evidence, prepares policy advice and oversees surveillance data for England on all aspects of obesity. The chief medical officers of the UK's four countries have written guidance on physical activity (Department of Health and Social Care, 2011b) and on alcohol consumption (Department of Health, 2016). The Chief Medical Officer for England called for a discussion of a sugar tax in 2013. However, all the agencies and organizations identified above (see the Problem identification and issue recognition section) are involved in the formulation of policies. Local authorities, through their Health and Wellbeing Boards and public health departments, are charged with local needs assessment and local policy formulation. The Fingertips information system managed by PHE is a major intelligence resource for local authority public health (http://fingertips.phe.org.uk/search/obesity).

Decision-making

The Secretary of State for Health, the Department of Health and PHE set obesity health policies for England, but it is anticipated that the National Obesity Strategy will be cross-governmental and be owned by the Cabinet. Local authorities are free to determine local policies, based on needs.

The Department of Health and PHE are seen as leaders of obesity-related policy at the national level. However, the delay in bringing forward a National Obesity Strategy is thought to be due to the necessity of securing support, and action, from all government departments for the strategy and for ownership of the strategy from the Cabinet and prime-ministerial level.

Policy implementation

At the local level, local authorities are free to implement local policies. Local government seeks to manage obesity-related problems through its management of public health services, environmental licensing, consumer protection and social care and through its partnerships with health and community organizations. Since 2013, the responsibility of local authorities for public health has meant that they provide or commission client services, including weight management and local preventive campaigns and services. Public health agencies are vital, but their ability to act and be accepted in local partnerships is variable, depending on how their host councils view their importance and whether they view obesity as a priority.

Local authorities have a progressively declining influence on schools, which are now directly funded from central government as well as from local authorities. Many schools have moved entirely out of local authority control and authorities have been forced to divest themselves of many advisory functions, and of support services such as school meals.

Local authority funding to obesity services has not kept pace with the level of need. For example, there are over 1.2 million people in England with a BMI of over 40, but only about 8 000 bariatric procedures per year. However, with levels of obesity and overweight at more than 60% of the adult population, it is clear that individual and therapeutic interventions will not be sufficient to solve the challenge of obesity. Faced with funding cuts, many local authorities are looking at obesity services as a likely area to cut. Weight management services, often provided by private sector organizations, look particularly vulnerable. Birmingham has already announced that it will stop funding for weight management services.

Local authorities (in charge of public health, as well as adult and children social care) and NHS Clinical Commissioning Groups are able to collaborate through the Health and Wellbeing Boards, and through recommendations for the annual report of the Director of Public Health and the joint strategic needs assessment. Different Health and Wellbeing Boards may have different membership based on the different configuration of local services and may consider different partners relevant to their decisions, e.g. the food industry and agricultural interests may be relevant in some areas. Some Health and Wellbeing Boards do include representation from district councils – the so-called second tier councils within large county authorities. The district council portfolio includes town planning, housing, environmental health and trading standards and leisure and therefore will have a strong interest in obesity. Health and Wellbeing Boards have the potential to deliver joint programmes on obesity, through policies, as well as directly managed or commissioned services.

Monitoring and evaluation

PHE has a role in the overall monitoring of obesity prevalence and other important lifestyle factors, including dietary habits, through the National Diet and Nutrition Survey (NDNS) (https://www.gov.uk/government/statistics/national-diet-and-nutrition-survey-results-from-years-1-to-4-combined-of-the-rolling-programme-for-2008-and-2009-to-2011-and-2012).

The National Child Measurement Programme (NCMP) measures the height and weight of children in school reception year (aged 4–5 years) and year 6 (aged 10–11 years) to assess overweight and obesity levels in children in primary schools. Children's heights and weights are measured and used to calculate a BMI centile. These data can be used to support local public health initiatives and inform the local planning and delivery of services for children. Child obesity data from the NCMP 2006/2007 to 2014/2015 are now available online as a child obesity data tool for local authorities. The tool presents trend data and enables easy comparison of local authority data, allowing users to compare regional neighbours and local authorities with similar characteristics. The tool now includes inequalities data (by sex, deprivation and ethnic group) by local authority and information on the density of fast food outlets. These data are collected and analysed by the National Obesity Observatory. The National Obesity Observatory is now part of Public Health England's knowledge and intelligence function, which helps to assimilate evidence into relevant and useful analytical and evidential tools for the local system, including the dataset for local authorities known as Fingertips (Public Health England, 2015).

There are also Public Health Outcomes Framework profiles for the nine regions of England which collate local authority indicators for breast feeding rates, physical activity, fruit consumption, life expectancy and diet-related cancers (http://www.phoutcomes.info/search/obesity#page/0/gid/1/pat/15/par/E92000001/ati/6/are/E12000005).

Other relevant national surveys include the Health Survey for England, the Active People Survey, the National Travel Survey and the Labour Force Survey. There are also a wide range of web-based resources and infographics available from UK public health sources, including Change4Life (http://www.nhs.uk/change4life), the 5-A-Day advice (http://www.nhs.uk/Livewell/5ADAY/Pages/Tips.aspx), the Eatwell Guide (https://www.gov.uk/government/publications/the-eatwell-guide) and the NHS Choices website (http://www.nhs.uk/pages/home.aspx).

Change4Life, the national social marketing campaign promoting healthy lifestyles, was established in 2008 (Change4Life, 2018). It is part of a portfolio of lifestyle-focused campaigns, which are the responsibility of PHE and which now includes the adult One You campaign. Its obesity-related materials are extensive; both the Change4Life and One You campaigns have raised significant in-kind investment from the food, leisure and entertainment industry. A Sugar Smart app was launched early in 2016 (https://www.nhs.uk/change4life/food-facts/sugar). While this was a welcome innovation, there are still technical glitches (as the database for recognizing the bar codes of common foods is still limited). There has also been criticism of its proximity to industries viewed as guilty of causing the obesity crisis (Devlin, 2009), although internationally it has been viewed more favourably than other campaigns (Puhl et al., 2013).

The Eatwell Guide published in March 2016 (Public Health England, 2016a) has responded to consumer opinion and has removed junk foods high in fat, salt and sugar from the plate and placed them into a separate corner with the text "Eat less and in small amounts". There is a new recommendation that the consumption of fruit juice and smoothies should be limited to 150 ml per day and count as one portion of the "5 A Day" (regardless of how much is consumed or contained in one serving). The protein section heading begins with non-meat alternatives. The new hydration section promotes consumption of water, milk, sugar-free drinks, and tea and coffee. The plate also includes a section on traffic-light labels. New considerations of sustainable diets were informed by analyses undertaken by the Carbon Trust which looked at greenhouse gas, water and land use. The guidelines also promote consumption of sustainable fish.

"5 A Day" is a long standing programme promoting the consumption of five portions of fruit and vegetables a day as an important element of a healthy diet. New guidelines have been produced (Public Health England, 2016b), and a licensing arrangement exists for food industries wishing to badge their foods as part of the "5 A Day" programme (Public Health England, 2016c).

NHS Choices is a major online public and patient health information resource. Its information base on obesity is extensive, and written in accessible English (NHS Choices, 2014). There is also a specific weight loss support guide (NHS Choices, 2014b).

National monitoring also undergoes public scrutiny. The National Audit Office first picked up on obesity as a national priority in its report in 2001 (NAO, 2001). It produced a further report on childhood obesity in 2007, and an update on the government's approach to tackling obesity in 2012 (NAO, 2012). The Parliamentary Health Select Committee, which provides scrutiny to government policies and strategies reported in the Health Select Committee, continues to scrutinize childhood obesity and the national strategy on physical activity and diet (House of Commons Health Committee, 2015). Most recently, it joined calls for bold action on childhood obesity to help protect young people and future generations, including through curbing the excesses of food and marketing industries and implementing a sugar tax (UK Parliament, 2015a; 2015b).

Conclusion and outlook

The story of obesity and public health policy development in England is one of so-called slow burn: late recognition of the problem, followed by action directed mainly at individuals, blaming them for not changing their lifestyles. Successive governments have acknowledged the seriousness of obesity, but they have tinkered around the edges, in effect blaming individuals for their overweight, offering inadequately funded behaviour and treatment services, and avoiding regulatory action. Government relationships with industry have been close and complicit. This has hampered the effective control of sales of obesogenic foods and the encouragement of overconsumption by the food and marketing industries.

The Responsibility Deal was intended to bring the industry into discussions and to facilitate protection of the public from unhealthy foods and drinks. However, most observers think that it has failed to achieve this objective and that instead regulation, taxation and legislation are required to tackle complex issues such as obesity. Even industry now acknowledges this apparent

failure and, to some degree, asks for regulatory action, as they crave a level playing field in which the pledges they make become requirements for all businesses, not just those signed up to the Responsibility Deal.

The recent implementation of the sugar-sweetened beverage levy ("the sugar tax") is the first evidence of real government resolve to tackle childhood obesity. The government's position has been strengthened by the apparent failure of the Responsibility Deal, although the focus of the national childhood obesity strategy is again on voluntary action by industry.

The resurgent interest in reducing obesogenic environments is a welcome asset in English public health. Policies on public transport and the built environment policies in England have been going the wrong way for many years when viewed in the wider European context and there is much to be done to redress years of policy neglect. NHS England's initiative on Healthy Towns will offer the possibility to build new healthy environments from scratch, but it is confined to new developments, usually at the outskirts of towns and cities. The robust nature of NGOs lobbying on obesity policy nationally is another asset of the public health policy landscape in England.

Despite paper commitments to preventing ill-health in major national health strategies from NHS England and Public Health England, the reality on the ground is one of cuts to local authority funding in general and to public health budgets in particular, which also threatens the response to the obesity challenge. There is also a failure to recognize alcohol in policies to tackle obesity. Ironically, the four chief medical officers of the UK have included the obesogenic power of alcohol in their safe drinking guidelines, but the Eatwell Guide does not acknowledge the risks of alcohol with regard to obesity (Public Health England, 2016a).

In England, an effective obesity strategy has been long-awaited, first for children and then for adults. An action plan on childhood obesity published in August 2016 largely shied away from regulatory measures on industry, including marketing (Boseley, 2016). There was widespread condemnation of this from public health authorities and two years on, there is expectation that a Children's Obesity Strategy Mark 2 will be published very soon, which will take on concerns about the pervasive effects of food marketing to children. Whatever happens, undoubtedly more and stronger action will be needed, if the dire consequences of the obesity pandemic are to be avoided.

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Alcohol

John Middleton

The scale of the challenge

In England, alcohol is the leading risk factor for preventable death in 15–49-year-olds. Nine million adults (of an overall population of 53 million people, including children) are estimated to drink at levels that increase the risk of harm, and 1.6 million of those show signs of alcohol dependency. From 2001 to 2012, the number of people who died due to liver disease in England rose from 7 841 to 10 948 (Public Health England, 2014).

Overall, alcohol harm is estimated to cost England 21 billion pounds sterling a year, with the costs to the National Health Service (NHS) amounting to 3.5 billion pounds sterling. There are massive inequalities in where its impact is felt. People with mental illness are more likely to misuse alcohol, and the most deprived fifth of the population suffers a two to three times greater loss of life attributable to alcohol. In 2012/2013, there were 326 000 hospital admissions where alcohol was the main reason for admission (Public Health England, 2014).

Alcohol is one of the seven priority areas for action for Public Health England (Public Health England, 2014). Alcohol also features in the NHS England Five Year Forward View chapter on prevention of ill-health (NHS, 2014). There is considerable agreement across national health policy-makers about the significance of alcohol as a health problem that needs to be addressed. Most recently, the chief medical officers of the four nations of the United Kingdom (England, Wales, Scotland and Northern Ireland) have published new alcohol guidelines for public consultation (Department of Health, 2016). However, there is less agreement among policy-makers on the actions required, implementation of policies is uneven and there is considerable and very effective opposition, obstruction and policy obfuscation from vested interests for the alcohol, hospitality and advertising industries.

Policies and programmes

There has been a long history of professionally led calls for action on alcohol in England and in the UK more generally. The most celebrated among these calls has been the Royal College of Psychiatrists' publication "Our Favourite Drug" (Royal College of Psychiatrists. 1979; 2013). One of the main lobby organizations for alcohol control is the UK Alcohol Health Alliance, a robust coalition of nongovernment service providers and pressure groups concerned with alcohol problems and health policy organizations for whom alcohol is an important issue in their work (Alcohol Health Alliance, 2013).

However, there has been a notable absence of reference to alcohol problems in national health improvement, health promotion and public health policy statements. For example, the 1992 Health of the Nation strategy (Department of Health, 1998) identified five major national priorities: coronary heart disease reduction, cancer prevention, accident prevention, suicide prevention and HIV/AIDS and sexual health. Any of these might reasonably have identified alcohol as a risk factor but none did. The successor strategy of the Labour government in 1999, "Saving lives: our healthier nation" proposed a three-way contract of public health improvement between government, local agencies and individuals (Department of Health, 1999). It identified safer alcohol consumption as solely the responsibility of individuals. The NHS plan of 2000 was hastily conceived when the Labour government, which had been in power since 1997, considered itself freed of the shackles of previous government commitments and invested substantially in the NHS. It included a commitment to producing a national alcohol strategy by 2004. At the time commentators considered that a long way off. A review of alcohol licensing in 2003 led to a liberalization of public drinking hours and increased availability and accessibility of alcohol. The 2005 Licensing Act enabled, in effect, a 24-hour drinking culture to be established in the UK. Aspirations for this Act to create a "European café culture" and the implied sensible use of alcohol, however, were not delivered. The new licensing arrangements consolidated the image of inner city centres as no-go areas for all but hardened drinkers and enhanced problems for both police and regulatory authorities. In effect, the government had raised the degree of difficulty faced by public health and criminal justice services in dealing with alcohol harm.

In 2004, the long-awaited national Alcohol Harm Reduction Strategy for England was published. It sought to tackle alcohol-related disorders in towns and city centres; improve treatment and support for people with alcohol-related problems; clamp down on irresponsible drinks promotions by the industry and provide better information to consumers about the potential dangers of alcohol misuse. The report was published in the name of the Prime Minister's strategy unit and carried the Prime Minister's personal stamp of approval. It called for a social responsibility commitment from industry (Cabinet Office Strategy Unit, 2004). Later in 2004 the government published its White Paper on public health, "Choosing health: making healthy choices easier" (Department of Health, 2004). This White Paper followed an overall framework of supporting individuals to make healthier choices, but it lacked earlier public health policy references to the roles of wider health determinants and the responsibilities of the state, industry and commerce. In relation to alcohol it proposed (Public Health England Alcohol Learning Centre Archive, 2016):

- investing in early intervention measures through the NHS;
- providing guidance and training to ensure all health professionals are able to identify alcohol-related problems at an early stage;
- piloting approaches to targeted screening and brief intervention in both primary care and hospital settings;
- launching initiatives in partnership with the Criminal Justice System to reduce re-offending, by ensuring that alcohol treatment needs are met alongside drug treatment needs;
- developing a programme to improve alcohol treatment services, based on the Models of Care for Alcohol Misusers (MoCAM).

Brief interventions for alcohol problems proved an important element of the strategy (Public Health England Alcohol Learning Centre Archive, 2016). These developed into the Identification and Brief Intervention (IBA) and are likely to remain a key element of local and national strategy implementation. The Audit –C brief intervention audit tool is an important supporting resource for IBA and for extended brief intervention (Public Health England Alcohol Learning Resources, 2016; Alcohol Academy, 2015).

Together, the alcohol harm reduction strategy and "Choosing health" constituted England's first alcohol strategy. However, it was unfunded and lacked a strong focus on performance management at a time when the National Treatment Agency for Substance Misuse yielded considerable public funds for drug misuse and a strong performance management function from the centre, through regions to ensure service performance and outcomes. The MoCAM framework was drawn from a framework devised in 2002 for drug misusers. It proposed four tiers of alcohol prevention and treatment services, from tier 1, generic service provision, such as housing and social care where alcohol problems might be prevented or identified early, through tier 2, generalist alcohol advice services to people before they have alcohol problems, tier 3, specialized community providers for people with recognized alcohol problems and tier 4, highly specialized clinical inpatient services and residential alcohol rehabilitation programmes. The notion of tiers of services still has some currency for commissioning services, but is not mandatory and is limited from the viewpoint of effective public health intervention. The continued focus on individuals with problems distracts attention from the societal problem and the vested interests still profiting from damaging public health. Crucially, it also distracts attention from the most powerful, "upstream" interventions that can be summarized as the "3As": affordability, acceptability and availability.

The strategy was updated in 2007 with an emphasis on youth drinking. Again, the emphasis was on individual responsibility, damage limitation by policing and licensing authorities, and a voluntary code of practice from industry and retail (HM Government, 2007). Additional central government technical resources were forthcoming, including "Signs for improvement – commissioning interventions to reduce alcohol-related harm" (Department of Health, 2009) and high-impact interventions for reducing hospital-related alcohol admissions (Department of Health, 2008). The Public Services Agreements (PSA) initiative from 2007 gave local authorities the chance to propose local targets, which, if achieved, led to the payment of bonuses from central government.

In addition, the National Audit Office (NAO) report on alcohol (NAO, 2008) and the Chief Medical Officers (CMO) annual report in 2008 (Department of Health, 2009) both raised the profile of alcohol as a problem for England's health and health services.

The World Class Commissioning (WCC) initiative in 2008 encouraged local primary care trusts to develop ambitions and priorities for preventing ill-health and commissioning services setting their own local expectations for improving outcomes, as well as staying within their budgets. It was the first NHS initiative to propose targets based on health outcomes and to seek reductions in inequalities in health (Department of Health, 2008). Alcohol was the second most frequent priority for English primary care trusts in the WCC programme (Whittington, 2009). WCC only survived two years, up to the 2010 election, and was then dropped as being too bureaucratic, expensive to administer and burdensome in the eyes of the new coalition government of Conservatives and Liberal Democrats.

Under the coalition government any central pressure to extend alcohol services dissipated. Organizational change created further uncertainty with regard to investment in alcohol programmes which were to transfer to local authority-based public health departments from 2013. For many involved in the energy-sapping and hugely distracting organizational upheaval, it became difficult to plan and develop new services, or advocate for national policy changes, such as minimum unit pricing. A new government alcohol strategy came out in 2012. It was led by the Home Office and was pre-occupied with reducing alcohol-related violence in public places. The then Prime Minister, David Cameron, was in favour of minimum unit pricing for alcohol. In the introduction to the strategy he wrote:

> We are going to introduce a new minimum unit price. For the first time it will be illegal for shops to sell alcohol for less than this set price per unit. We are consulting on the actual price, but if it is 40p that could mean 50 000 fewer crimes each year and 900 fewer alcohol-related deaths a year by the end of the decade.
>
> This isn't about stopping responsible drinking, adding burdens on business or some new kind of stealth tax – it's about fast, immediate action where universal change is needed.
>
> And let's be clear. This will not hurt pubs. A pint is around two units. If the minimum price is 40p a unit, it won't affect the price of a pint in a pub. In fact, pubs may benefit by making the cheap alternatives in supermarkets more expensive (HM Government, 2012).

Yet, when the follow-up document "Next Steps" was published in 2013, it was clear that a minimum unit price had been thrown off the agenda – the then Home Secretary, Theresa May, had won out in her opposition to this policy measure. All efforts to reduce alcohol-related crime were to rely on local night-time economy partnerships and on voluntary agreements with industry to stop selling high strength alcohols and multiple sales. "A minimum unit price" was redefined to mean not selling alcohol below the price the retailer had bought it for (Home Office, 2013).

All national health policy efforts with regard to alcohol were then wrapped up in voluntary agreement with industry in the form of the Responsibility Deal (Department of Health, 2011). Introduced in 2011 after publication of the public health White Paper and with reforms moving towards the Health and Social Care Act of 2012, the Responsibility Deal was intended to be a partnership between government, industry and public health organizations to agree interventions by industry which would demonstrate their corporate social responsibility and promote health. There was an overarching Responsibility Deal forum chaired by a senior civil servant and more specific Responsibility Deal forums dealing with alcohol, food, physical activity and health in the workplace. Researchers from the London School of Hygiene & Tropical Medicine (LSHTM) were commissioned to evaluate the initiative. They described at the outset how the disparate and wide-ranging pledges suggested by industry presented a complex set of interventions for which it would be all but impossible to assess effectiveness (Petticrew, 2013; Knai et al., 2015a). They also reviewed the characteristics of 47 voluntary agreements with industry at the outset of the project and considered that effective voluntary agreements are based on clearly defined, evidence-based and quantifiable targets, which require partners to go beyond "business as usual" and include penalties for not delivering the pledges (Bryden et al., 2013).

Many public health advocacy organizations did not take part in the Responsibility Deal, and more left the initiative in 2013 when it became clear that government commitments to legislate on plain packaging for cigarettes and on minimum unit price for alcohol were sidelined and that these and other meaningful interventions by government were facing behind-the-scenes lobbying by industry. By 2016, the alcohol core group membership was dominated by industry partners, with the exceptions of Addaction (a drug and alcohol

treatment charity), Mentor UK (an NGO aiming to prevent drug and alcohol misuse among children and young people) and the Association of Chief Police Officers (Department of Health, 2016b). One specific expectation of the Responsibility Deal was that interventions could be delivered within the lifetime of a single parliament. That did not happen, and industry successfully delayed effective interventions such as legislation, taxation and regulation. On the alcohol Responsibility Deal specifically, an evidence synthesis showed that the alcohol pledges were unlikely to deliver the intended benefits to public health (Knai et al., 2015a). The most effective evidence-based interventions to reduce alcohol-related harm, such as interventions to make alcohol less available and more expensive, were specifically excluded from the Responsibility Deal terms of reference (Knai et al., 2015b).

Katherine Brown of the Institute of Alcohol Studies summarized the position of the Responsibility Deal forum dealing with alcohol as follows:

The Responsibility Deal is not endorsed by academics or the public health community. It has pursued initiatives known to have limited efficacy in reducing alcohol-related harm. The evidence on the effectiveness of the Responsibility Deal is limited and unreliable, due to ambiguous goals and poor reporting practices. Where evaluation has been possible, implementation has often failed to live up to the letter and/or the spirit of the pledges. The Responsibility Deal appears to have obstructed more meaningful initiatives with a stronger evidence base behind them (Institute of Alcohol Studies, 2015).

The first UK safe drinking guidelines were published in 1995 (Hunt, 1995). Unofficial sources close to the then Chief Medical Officer suggest that he was excluded from the revisions made by senior administrative officials in the Department of Health in "partnership" with industry representatives. The CMO was left to justify publicly how the guidance had come to be changed and issued so close to Christmas.

It is unclear why that guidance was then left unscrutinized or reviewed for over 20 years, but new guidance was issued for public consultation in January 2016 (Department of Health, 2016). In these new guidelines, supported by the four CMOs of the four UK countries, the evidence base and recommendations have been compiled through an expert health committee, with the alcohol and hospitality industry interests excluded. The committee has taken into account new evidence on overall population risks of excessive consumption, including research debunking the presumed health benefits of alcohol (Chikritzhs, 2009). The draft guidance acknowledges for the first time in a UK health policy statement the classification of alcohol as a class 1 carcinogenic substance by the World Health Organization (WHO). It is the first time a European country has judged the health risks of alcohol to be the same for men and women. The implications of the changed guidance may be considerable. Its statement, for instance, that there is no safe level of alcohol consumption might accelerate the drive for a minimum unit price and make more imperative the need to reinstate a retail price escalator for alcohol. It will also make it necessary to pursue higher real prices of alcohol through taxation and a higher taxation of higher strength alcoholic drinks. The guidance has also sparked calls for a different labelling and regulation of alcohol because of its carcinogenic status (Brown, 2016).

Problem identification and issue recognition

The United Kingdom Secretary of State for Health sets alcohol health policy for England through the United Kingdom Department of Health (DH) and Public Health England (PHE). The Home Office is responsible for licensing and aspects of alcohol control through policing and prevention of disorder. The Ministry of Justice is responsible for criminal justice responses to alcohol-related crimes and violence.

PHE develops and assembles evidence, prepares policy advice and oversees surveillance data for England on all aspects of alcohol health and safety concerns. PHE has also funded and piloted services, including an alcohol capital developments programme and alcohol action areas, for which an evaluation is awaited. PHE has commissioned return on investment studies and a capacity model for each local authority on the care of dependent drinkers.

Local authorities are the lead body responsible for forming the statutory Health and Wellbeing Boards which comprise local authority cabinet members for public health, children and adult social services, GP members of the local Clinical Commissioning Group, the local HealthWatch patient and public involvement organization and other health-related interests agreed by

the local partners. Alcohol is likely to be a high priority for these boards; but this is locally determined.

Local authorities are the lead local statutory agencies responsible for setting up and running the local community safety or Crime Reduction Partnership (CRP). This is a partnership between the police, health and other community agencies. Alcohol-related violence in domestic and public settings is often a major priority for CRPs. Local authorities also lead the multiagency Children and Adult Safeguarding Committees and alcohol is a major concern in all safeguarding work.

Local authority public health departments are responsible for assessing the level of need with regard to alcohol problems and for advocating effective interventions at the local level. Local authority public health departments hold the budget for local alcohol policies and are charged with delivering public health programmes for prevention of and early intervention in alcohol problems. The level of funding for programmes is locally determined as is the decision which interventions are chosen, on what evidence, relative to other competing local needs.

Local authorities are the lead agency for licensing alcohol sales from pubs and other places of public entertainment and for off-sales for home consumption. Local authorities have powers to limit public drinking. Local authority environmental health and trading standards departments oversee aspects of consumer protection and are generally the departments responsible for the licensing of alcohol outlets.

Public Health England and NHS England both see alcohol as a major priority. The Associations of Chief Police Officers and Chief Probation Officers and other bodies involved in alcohol-related crime and violence also recognize it as a major concern. There is also a robust NGO lobby for protecting people from the harms of alcohol. The Alcohol Health Alliance, mentioned in the Policies and programmes section, (http://ahauk.org) is an umbrella organization for over 40 public health, community and voluntary organizations; it is campaigning on all aspects of alcohol-related harm. In its "Health First" document (Alcohol Health Alliance, 2013) it advocates for strong evidence-based interventions, principally through national legislation, taxation and regulation.

Alcohol Concern is a charity aiming to reduce alcohol harm. It leads the national Dry January campaign, among other activities, through which people are encouraged to go the whole of January without alcohol as an extension of New Year resolutions to reduce their drinking. The campaign is gathering popularity but remains a source of professional debate and controversy, although the assertions on both sides are evidence-light (Hamilton and Gilmore, 2016). Other charities are also active in alcohol policy, including the British Liver Trust, Cancer Research UK and Breakthrough Breast Cancer. Other nongovernment initiatives on alcohol include Alcohol Research UK (http://alcoholresearchuk.org), the Institute of Alcohol Studies (http://www.ias.org.uk), the Alcohol Policy Network (http://www.alcoholpolicy.net), and the Alcohol Academy (http://www.alcoholacademy.net).

Public health departments at UK universities have been prominent in shaping understanding of alcohol problems and in proposing policy interventions.

The National Institute for Health and Clinical Excellence (NICE) is a national body charged with assessing the evidence for the effectiveness of clinical, public health and social care interventions. It has published extensive reports on the effectiveness, cost–effectiveness and return on investment for alcohol-use disorders, covering diagnosis, assessment and management of harmful drinking and alcohol dependence (NICE, 2011; NICE 2011b; NICE, 2014).

The alcohol and hospitality industry also has an influential role in policy formulation. The Portman Group (TPG) (http://www.portmangroup.org.uk) is an organization financed and founded by the alcohol industry that claims to promote social responsibility within the industry, primarily focusing on responsible marketing, labelling and speaking for its members. The Portman Group purports to "show leadership on best practice in the area of alcohol responsibility" and to "foster a balanced understanding of alcohol-related issues". However, many alcohol experts regard Portman as an attempt by the alcohol industry to portray alcohol as distinct from other kinds of drugs and to give it a respectable public face (Room, 2004; McCambridge, 2013; Powerbae, 2012). There is little doubt that the group has been beneficial to the alcohol industry. It also offers a front to enable high level access by industry to government officials. Reflecting on the role played by the Portman Group in the development of the English public health White Paper "Choosing health: making healthy choices easier" (2004), an alcohol industry executive told *The Grocer* magazine:

The Portman Group was set up as our insurance policy. Getting all the different competitors to work together has not been plain sailing but the creation of the group has definitely benefited us all. There was nothing in the White Paper that was a surprise. We are already ahead of the game in most areas (Powerbase, 2012).

Drinkaware (https://www.drinkaware.co.uk) is an allegedly independent trust which split from the Portman Group in 2004. It undertakes all the alcohol education work previously undertaken by the Portman Group. Drinkaware promotes an extensive body of so-called sensible drinking advice and projects that it delivers across the country. It is industry-funded and, although a separation is made from industry concerns, profound doubts remain about the true independence of the advice and information it provides (McCambridge, 2013). If nothing else, it enables the industry to present a respectable face and the impression of responsible marketing. Most notably, Drinkaware has not advocated any industry regulation or a minimum unit price for alcohol.

Policy formulation

PHE is in charge of alcohol policy development at the national level, but NHS England may begin to play a greater role in the future, given the expectations on preventing ill-health in their Five Year Forward View (2014). All the agencies described in previous sections as having roles in the identification of alcohol harms have similar roles in formulating national, regional and local policies. The Policies and programmes section described the 25-year history of ineffective alcohol policies in England (and the UK as a whole).

Decision-making

The Department of Health and PHE are the main public bodies in charge of decision-making for health-related alcohol policy. So far, however, the Treasury has not moved to implement the minimum unit price on alcohol that was recommended by the Chief Medical Officer, the NHS chief executive and PHE and it has removed the retail price escalator that would have increased alcohol-related revenue each year at the time of the budget. No other government department has argued for the need for alcohol control policies – even though many could reasonably recognize and acknowledge that their sector also experiences the adverse effects of alcohol harm – in terms of absenteeism from the workplace, crime and violence.

The Fingertips information system managed by PHE is a major intelligence resource for public health departments in local authorities and local government licensing and other departments. In some cases, local Directors of Public Health have used the data provided by PHE to inform their annual reports and recommendations regarding the pervasive negative effects of alcohol (Wood, 2014).

In December 2016, PHE published an evidence review on alcohol harm and its impact on England, as well as the effectiveness and cost–effectiveness of alcohol control policies (Public Health England, 2016c). The review concluded that policies that reduce the affordability of alcohol through taxation and price regulation policies are the most effective, and cost-effective, approaches to prevention and health improvement. The document also found evidence in favour of regulating marketing and availability, while providing information, education and labels on alcoholic beverages was not found to be effective or cost-effective (Public Health England, 2016c).

Policy implementation

Local government is charged with implementation, through the provisions of the 2012 Health and Social Care Act. They face an uphill task given the lack of support from effective national polices. Local government seeks to address alcohol-related harms, crime and disorder through its management of public health services, environmental licensing and consumer protection and social care and through its partnerships with the police, health and community organizations.

Public health agencies are vital, but their ability to act and be accepted in local partnerships is variable, according to how their host councils view their importance and how much they prioritize alcohol problems.

At local level local authorities are free to implement local policies in licensing and alcohol control, in providing community safety related services, trading standards and consumer protection services. Since 2013, their responsibility for public health has meant that they also provide or commission client services for problem drinkers and preventive campaigns and services.

Information on how well local policies have been implemented is patchy, but some local authorities have exercised their legal powers in relation to licensing and introduced restrictions on off-sales of high strength lagers and ciders (BBC News, 2013; McGill, 2015). Some councils have also introduced late-night levies into their business rates to cover the costs of late-night waste disposal and licensing and disorder issues (Islington LBC, 2014). Cheltenham's late-night levy scheme was reported to have failed to raise the expected level of income from licensees and a number of licenses were surrendered; the scheme did not have the desired outcomes and has already been replaced by a Business Improvement District in which all businesses will be asked to contribute to an improved night-time economy (The Publican's Morning Advertiser, 2015; 2016).

Community safety partnerships (formerly crime and disorder reduction partnerships) are the statutory partnerships based on local government boundaries, between local authorities, police, health and other criminal justice and community agencies (Williams, 2011). For most of these partnerships, alcohol-related violent crime will be a priority.

Since the 2011 Police Reform Act, an additional partnership has been formed which is not statutory. It is based on police authority areas and involves the police, criminal justice and offender management and the Police and Crime Commissioners. For most of these, alcohol has not been identified as a priority. Yet, issues such as victim support and offender management feature in the plans of most (HMIC, 2015).

An increasing number of local authorities, with their crime and disorder reduction partnerships, are implementing the "Cardiff model" (Public Health England Alcohol Learning Centre, 2016; Florence, 2011). These partnerships share local alcohol harm related data, such as last drink surveys in accident and emergency departments, as well as closed-circuit television (CCTV) evidence of disturbances, building a wider picture of where policing needs to take place and where licensing authorities need to exercise judgements on renewing licensing applications. There is widespread recognition of the need for multiagency responses to alcohol problems from crime reduction partnerships – examples include Cardiff, Oxford, Cambridge, Bristol (Public Health England Alcohol Learning Centre, 2016) and Brighton (Hardcastle, 2009). Partnership initiatives include "Night Safe initiatives", with one approach called "Best Bar None", seeking to support local licensees to promote safer drinking. This includes responsible beverage server training, substitution of plastic glasses, increased CCTV and other surveillance and support for security and taxi marshals to ensure safe passage home from a night out (County Durham Council, 2013).

One of the challenges to public health action on alcohol at the local level are the major reductions in funding for public health. In 2015–16, a one–off cut of 200 million pounds sterling took place, equivalent to a 6% cut across local authorities. Following the comprehensive spending review in the autumn of 2015, the public health grant to local authorities was then cut yet further; amounting to a cumulative reduction of approximately 10% by 2020.

Local authorities and NHS Clinical Commissioning Groups are able to collaborate through the Health and Wellbeing Boards, and through the expectation of a needs assessment and recommendations for the annual report of the Director of Public Health and the joint strategic needs assessment. Different Health and Wellbeing Boards may have different memberships based on different local services; they may also consider different partners relevant for their decisions, which means that the food industry and agricultural interests may be relevant in some local authorities. Some Health and Wellbeing Boards do include representation from district councils – the so-called second tier councils within large county authorities. The district council portfolio includes town planning, housing, environmental health and trading standards and they therefore often have a strong interest in alcohol-related issues.

Health and Wellbeing Boards have the potential to deliver joint programmes on alcohol harm reduction, through policies and directly managed or commissioned services. Some regional partnerships were created before introduction of the Health and Social Care Act (2012) which introduced the Health and Wellbeing Boards, to support alcohol control programmes across local authority boundaries. The most successful of these, "Balance", in the North-East of England, is now facing funding reductions. A similar programme, called Drinkwise North-West, has now closed. The South-West Office for Tobacco Control has now taken on alcohol control for the south-west.

Monitoring and evaluation

Public health services in England are involved in monitoring alcohol consumption and alcohol-related health problems. PHE is responsible for the overall monitoring of alcohol-related health problems and health service utilization and for collating data on community safety, collected by the police. Data compiled in relation to children and adult safeguarding come from children and adult safeguarding units, generally staffed by the multiple agencies involved in safeguarding. Public health is expected to exercise a central role in community safety, safeguarding and health and social care service commissioning and prevention. How this plays out in practice across 152 local authorities, however, is extremely variable.

The Local Alcohol Profiles England (LAPE) set up by the Liverpool John Moores University, initially on behalf of the Department of Health and subsequently for PHE, are now assimilated into the PHE dataset for local authorities known as Fingertips (Public Health England, 2016). It is an excellent tool for local needs assessment and for comparison with neighbouring authorities, comparable authorities ("the family") and with the country as a whole.

The National Audit Office has not picked up on alcohol as a national priority since its report in 2008 (NAO, 2008). The Parliamentary Health Select Committee which provides scrutiny of government policies and strategies reported in 2012 that the influence of the alcohol industry on policy-making was insidious and pervasive (UK Parliament, 2012).

Conclusion and outlook

The English story of alcohol public health policy development is one of too little action, too late. Alcohol has been avoided in major national policies for many years. As it has become necessary to acknowledge its importance, successive governments have tinkered around the edges blaming individuals for their alcohol problems, seeing them as feckless or reckless, offering inadequately funded and variably available individual behavioural and treatment services. More recently, both Labour and Conservative governments have concentrated on alcohol-related violence in public places. However, they have failed to implement the most effective interventions possible to limit the supply of alcohol, through regulation, taxation and legislation. There was also a lack of investment in the workforce for alcohol services, the training of staff, and in overall alcohol education.

There is a history of policy contradictions. The national strategy statements of successive governments state the importance of alcohol problems and the need for action, but some of the actions they have taken have gone in the wrong direction. The liberalization of alcohol sales has increased the problem; from the time of the Single Market Act in 1992, when the price of alcohol in the UK equalized rapidly with the European prices and alcohol harm rose in proportion to the reduction in alcohol price and increased availability. The Licensing Act in 2005 increased availability and accessibility, resulting in a perfect triangle for increasing alcohol consumption. Government relationships with industry have been close and complicit, and prevented effective control of excessive alcohol sales and consumption.

The Responsibility Deal which was intended to bring the industry into discussions and facilitate enhanced safe drinking and protection of the public has failed to reduce alcohol harms. The negative outcome of the Responsibility Deal suggests that voluntary agreements with industry do not work and that instead regulation, taxation and legislation are required (Bryden et al., 2013). This has even been acknowledged by some industry representatives who wish for a level playing field in which the pledge they made becomes a requirement for all alcohol businesses (Durand et al., 2015).

The Responsibility Deal, apart from failing to deliver health benefits, also provided an opportunity for the government to engage in obfuscation and avoid effective intervention and regulation. It led governments to remove the retail price escalator on excise duty for alcohol in each yearly budget. The government has stopped increasing the real price of alcohol, because industry-friendly advocates lobbied for the freedoms of "moderate drinkers" while purporting to protect the health of "heavy drinkers"; the blunt instrument of overall increases of alcohol prices, known to be effective, has therefore not been used for five years, leading to protracted health harms.

A major strength of the English public health system with regard to alcohol policy is a unified view from the public health community and the criminal justice authorities on the need for firm, effective action to control alcohol harm. If the health and criminal justice agencies can come together to make the same statements at the same

time it may be possible to overcome the undermining influence of vested interests.

Local community safety partnerships (formerly crime and disorder reduction partnerships) are an example of an overall success story in policy-making and local implementation and enforcement. These have survived since 1995 and through four different political administrations.

Excellent surveillance of alcohol health problems and crime exists, exemplified by the Fingertips local alcohol profiles maintained by PHE. Nongovernmental organizations play an important role in collating available evidence, lobbying on alcohol policy and in the provision of alcohol services. Academic institutions and public health services have also been instrumental in putting together the evidence base for interventions. Examples are the 2012 document published by the North West Public Health Observatory, "Protecting people, promoting health: a public health approach to violence prevention for England" (Bellis et al., 2012). Furthermore, the Alcohol Health Alliance has drawn up an evidence-based strategy for the UK (Alcohol Health Alliance, 2013), while a Scottish review strengthened the existing evidence base (SHAAP, 2016). Most recently, emerging findings from the PHE review confirm the power of the "3As" approach, targeting affordability, acceptability and availability.

Major threats and obstacles

Despite these evidence reviews, the absence of an effective national strategy and the pedigree of obstruction and effective lobbying by the industry does not auger well for the emergence of an effective national strategy in the foreseeable future. The policy contradictions in licensing law, reducing taxation and absent regulation make alcohol-related harm more likely in the future. There are welcome paper commitments to preventing ill-health in major national health strategies from NHS England and Public Health England. However, the reality on the ground is one of cuts to local authority funding in general and to public health budgets in particular. The response to the problem is the exact opposite of what is needed. There is a real prospect of increasing alcohol and other public health problems.

The Conservative government does not currently support minimum unit pricing of alcohol. However, it may be forced to follow actions by the Scottish and Irish governments. The European ruling in December 2015 that minimum unit pricing breaches EU free-trade laws effectively returns the decision to the Scottish government. The Scottish government has now won its case in its own High Court and is in the process of implementing a minimum unit price for alcohol (Scottish government, 2018). Wales will follow suit very shortly (Welsh government, 2017). Most UK national public health lobby organizations support minimum unit pricing and the UK government may be compelled to act bring in minimum unit pricing for England before the end of their term of office. It may offer the Exchequer a small increase in alcohol revenues, although that is not its prime purpose, but benefits will accrue, according to modelling and international evidence from Canada, to the health and social care systems. Minimum unit pricing has scored highly as a fiscal policy which can deliver its stated objective.

Expected future developments and lessons learnt

The PHE evidence review published in December 2016 was very important in terms of recognizing the evidence on which types of policies are effective and cost-effective and which are not. It is hoped to support policy efforts to address alcohol harm.

The idea of protecting the "rights" of moderate drinkers, as promoted by the Portman Group, may become less of a consideration as it becomes recognized that there is no safe level of drinking and that the whole population needs to be protected through raising the real price of alcohol. The recognition of alcohol as a carcinogen is renewing calls for controls on alcohol labelling, marketing and health warnings. There will be growing expectations for restrictions on sales and for restrictions on the timing and content of alcohol advertisements.

In England, as indeed in many other European countries, a new and effective national alcohol strategy that does not shy away from controlling industry is necessary. It would need to be properly resourced for prevention, education, treatment and rehabilitation and to be supported by research and surveillance data. Most of all, it would need to learn the lessons from the English experience of ineffective and lacking policy measures in the past and of the dangers to population health of colluding with the alcohol industry.

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Antimicrobial resistance

John Middleton, Ellen Bloomer

The scale of the challenge

The UK is a global leader on tackling antimicrobial resistance (AMR). It co-sponsored the resolution at the World Health Assembly to create the Global Action Package on AMR, is one of the leading countries for the Global Health Security Agenda AMR action package (World Health Assembly, 2013; HM Government, 2013a; G8, 2013) and contributes to international leadership of the global agenda through continued work with the World Health Organization (WHO), Global Health Security Agenda (GHSA), Food and Agriculture Organization (FAO), World Organisation for Animal Health (OIE) and the Organization for Economic Cooperation and Development (OECD).

In England, health care-associated infections (HAI) became headline news in the 1990s, with concern about methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*. Public and political pressure

expedited radical reform, especially in hospital infection control. Key changes included mandatory reporting, infection reduction targets and a requirement for the Chief Executive of NHS Trusts to manage, report and audit infection rates (CMO, 2013). New challenges are emerging, especially with the Gram-negative bacteria *Enterobacteriaceae* (including *E. coli, Klebsiella* and related species). These are now the most frequent cause of hospital-acquired infection. European data suggest a 30% mortality for patients with septicaemia due to multiresistant *E. coli*, compared with 15% for those with susceptible *E. coli*. This greatly exceeds current mortality due to MRSA and *C. difficile* (CMO, 2013).

Between 2012 and 2016, antibiotic prescribing declined by 5.1%, when measured as defined daily doses (DDD) per 1 000 inhabitants per day, with declines across the majority of antibiotic groups. However, there is significant regional variation in antibiotic use (Public Health England, 2017b). Antibiotic use in primary care when measured by DDD is higher than when measured by prescription, suggesting that longer courses or higher doses are being used. Penicillins are the most frequently prescribed antibiotic in general practice. Within secondary care, doctors tend to prescribe the "last line" broad-spectrum antibiotics (carbapenems and piperacillin-tazobactam), rather than narrow spectrum antibiotics (Public Health England, 2015a).

Many patients are being inappropriately prescribed an antibiotic, most commonly to treat upper respiratory viral infections. Estimates suggest that as many as half of all patients who visit their GP with a cough or cold leave with a prescription for antibiotics. A third of the public believe that antibiotics will treat coughs and colds and one in five people expect antibiotics when they visit their doctor. GPs commonly express concerns that they feel pressured by patients asking for antibiotics, particularly when prescribing for children (Public Health England, 2015a; Hawker et al., 2014). However, a positive development was observed in 2015, which saw a decline in the use of antibiotics across the health system, including both hospitals and primary health care. The number of antibiotic prescriptions declined by 2.2 million, equivalent to 6% of all prescriptions (Public Health England, 2016).

In England, *E. coli* is the most common cause of bacterial infection in the blood. Although the proportion of *E. coli* that are resistant to antibiotics used to treat infections has remained constant, the increased incidence of bloodstream infections means that more individuals have had a significant antibiotic-resistant infection. Increases in *K. pneumoniae* bloodstream infections and the proportion of these infections which were drug resistant means the number of individuals with antibiotic-resistant infections increased substantially between 2010 and 2014. Areas with high levels of antibiotic prescribing also have high levels of resistance (Public Health England, 2015a).

The highest combined general practice, hospital and dentist usage in England in 2014 was in Merseyside at 27.7 DDD per 1 000 inhabitants per day. This was 30% higher than in the Thames Valley, which had the lowest usage of antibiotics at 21.3 DDD per 1 000 inhabitants per day. The highest prescribing from general practice was in Durham, Darlington and Tees at 21.1 DDD per 1 000 inhabitants (Public Health England, 2015a). This was over 40% higher than in London which had the lowest level of antibiotic prescribing from general practice in England at 14.3 DDD per 1 000 inhabitants. This may reflect health care access and delivery in London, where there may be a shift from general practice prescribing to local hospitals and private health care (Public Health England, 2015a).

Antibiotics sold for use in food-producing animals has fallen by 27% since 2014 to a multi-species average of 45 mg/kg in 2016, exceeding a government commitment to an average of 50 mg/kg by 2018 two years early (Veterinary Medicines Directorate, 2017). Clinical resistance is uncommon in animal health in the UK and resistance in key veterinary zoonotic microorganisms (that can cause disease in humans) are generally among the lowest in the European Union (EU) (Veterinary Medicines Directorate, 2017). Furthermore, sales of certain critically important antibiotics remain low.

Policies and programmes

The Chief Medical Officer (CMO) for England highlighted the ever growing problem of AMR in her annual report for 2011 (CMO, 2013). As a result of the CMO's recommendations, antibiotic resistance has been added to the national risk register for major disasters and threats to health (Cabinet Office, 2015). This means it is prioritized alongside influenza pandemic, major flooding and terrorist threats. In July 2014 the UK Prime Minister commissioned Jim O'Neill to produce eight reports on AMR, which are informing government awareness and action on AMR (HM Government, 2014b; HM

Government, 2015a; HM Government, 2015b; HM Government, 2016a). The final report, published in 2016, included a number of wide-ranging recommendations around reducing demand for antimicrobials and increasing the supply of new antimicrobials. The government announced a key ambition later that year to halve the numbers of health care-associated Gram-negative bloodstream infections (GNBSIs) by March 2021 and to reduce inappropriate antimicrobial prescribing by 50% by 2021 (HM Government, 2016a; Public Health England, 2017a).

The UK has a cross-government National Antimicrobial Resistance Strategy "UK 5 Year Antimicrobial Resistance Strategy 2013 to 2018" (HM Government, 2013a). The strategy focuses activities around three strategic aims: improving the knowledge and understanding of AMR, conserving and stewardship of the effectiveness of existing treatments, and stimulating the development of new antibiotics, diagnostics and novel therapies. The three strategic aims of the AMR strategy are underpinned by actions in seven key areas, which were informed by the 2011 European Union Antimicrobial Resistance Strategic Action Plan (EU, 2011). The seven key areas for action are: improving infection prevention and control practices; optimizing prescribing practice; improving professional education, training and public engagement; developing new drugs, treatments and diagnostics; better access to and use of surveillance data; better identification and prioritization of AMR research needs; and strengthened international collaboration. The Strategy was also subject to an impact assessment (HM Government, 2013b).

An implementation plan for England was produced based on the strategy and there are annual reports on progress using a range of monitoring indicators (HM Government, 2014). The implementation plan follows a One Health approach seeking to implement the same actions in both the human and animal health sectors where appropriate (One Health Initiative, 2011). Some specific actions in the animal health sector are separately identified. Currently ongoing within the AMR programme, are multiple working groups looking at a range of policies on AMR. The devolved administrations (Scotland, Wales and Northern Ireland), while part of the UK strategy, have their own implementation plans.

Infection prevention and control

The National Infection prevention and control (IPC) Steering Group supports the development of a national framework for IPC across the health care system, providing strategic direction on leadership and governance, roles and responsibilities, quality and standards, education and training, streamlining and standardizing guidance. The National Institute for Health and Care Excellence (NICE) – the main health technology assessment agency in England – published new guidance around health care-associated infections in 2016 (NICE, 2016). The Royal College of Nursing and the Infection Prevention Society (IPS) have produced joint guidance to support commissioning of IPC in health and care settings (RCN, 2014). The Department for Environment, Food and Rural Affairs (DEFRA) provides guidance for on-farm biosecurity in relation to specific disease risks and, across livestock sectors, to encourage the prevention of disease introduction onto farms (https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/services-information).

Optimizing prescribing practice

Work on optimizing prescribing practice includes developing enhanced education and training in the prescribing and administration of antibiotics, identifying the optimum arrangements for recording and reporting of data as well as analysis of data on antibiotic use, resistance and clinical outcomes.

NICE has published a national guideline on antimicrobial stewardship (NICE, 2015). This recommends developing systems to provide regular updates to individual prescribers and prescribing leads on individual prescribing. These are benchmarked against local and national antimicrobial prescribing rates and trends collated by PHE. NICE has also published a guideline on changing risk-related behaviours in the general population (NICE, 2017). This guideline addresses how to make people aware of how to correctly use antibiotics and the dangers associated with their overuse and misuse.

Evidence suggests that informing prescribers of their prescribing patterns compared with peer professionals can then help them change their practices (Charani et al., 2011). Since April 2009 use of quality prescribing indicators in hospital and primary care settings in NHS Scotland has improved the quality of antibiotic use (Nathwani et al., 2012; NHS Education for Scotland, 2013).

In 2015, PHE advised NHS England on the development of a Quality Premium for antibiotic use (NHS England,

2015a). This encourages Clinical Commissioning Groups (CCGs) to reduce prescribing of antibiotics in primary care settings by at least 1% from 2013–2014 levels. CCGs have also been asked to reduce broad-spectrum antibiotic prescribing as a percentage of the total antibiotics prescribed in primary care by 10% from 2013–2014. Within secondary care, the Quality Premium aims to ensure that secondary care providers, with 10% or more of their activity being commissioned by the relevant CCG, have validated their total antibiotic prescription data. The validated total antibiotic prescribing data will be available for each Trust at the end of each financial year on the government website (NHS England, 2015b).

PHE has developed two national toolkits to support a reduction in inappropriate antibiotic prescribing in England. "Treat Antibiotics Responsibly, Guidance, Education, and Tools (TARGET)" for primary care was developed with the Royal College of General Practitioners and "Start Smart – then Focus" has been developed for secondary care (Royal College of General Practitioners, 2016; Public Health England, 2015b). NICE guidelines recommend that health care professionals use these toolkits as part of their improvement of practice to assess their antibiotic prescribing rates against others. The toolkits also provide advice on the importance of shared decision-making with patients.

In animal health, guidance has been strengthened to reflect the government position that routine preventive use of antibiotics is unacceptable. A position statement has been published advising vets on use of the "cascade" legislation to ensure responsible prescribing. In parallel to the revisions made to the Royal College of Veterinary Surgeons (RCVS) Practice Standards Scheme, "responsible use" has been included within the Veterinary Medicines Directorate (VMD) veterinary practice premises inspections to assess how practices implement responsible use principles. The Royal Veterinary College and Liverpool University operate veterinary audit programmes (VetCompass and Savs Net, respectively), which veterinary practices sign up to on a voluntary basis to receive comparative data on antibiotic prescribing for companion animals.

The UK participates closely in the development of EU guidance on responsible assessment, authorization and prescription of antibiotics, and contributed to the collation of the EU Commission Guidelines for prudent use of antimicrobials in veterinary practice.

Jointly with the Federation of Veterinarians of Europe (FVE), the VMD undertook a study involving more than 3 000 practitioners working in 25 countries to determine the factors that influence antibiotic prescribing habits. This study will inform interventions to help improve prescribing habits in veterinary medicine (De Briyne et al., 2014). The Responsible Use of Medicines in Agriculture (RUMA) alliance has published an action plan setting out education and engagement activities to promote responsible use of antibiotics in livestock production (RUMA, 2014). The Pig Veterinary Society (PVS) has published antimicrobial prescribing principles to inform veterinary surgeons treating pigs, adding to guidance already published by the British Veterinary Association (BVA), the British Small Animal Veterinary Association (BSAVA), British Equine Veterinary Association (BEVA) and RUMA.

Improving professional education, training and public engagement

Antibiotic awareness campaigns in England using posters or leaflets have had little or no impact on knowledge, behaviour or prescription rates (Akiru-Oredope and Hopkins, 2015). To change behaviour and reduce antibiotic use, a coordinated and comprehensive interdisciplinary and multifaceted (multimodal) approach using behavioural science and targeted at specific groups (both professional and public), is required. The Antibiotic Guardian Campaign is one such multimodal campaign which has been running since 2015 linked into the European Antibiotic Awareness Day (EAAD). The Antibiotic Guardians programme is urging all health care professionals and members of the public to sign up and help overcome AMR. Nearly 60 000 people and 263 organizations have already signed up. By encouraging people to become Antibiotic Guardians and collecting pledges, PHE expects to go beyond simply raising awareness and help people to take at least one concrete personal action, leading to much wider changes in behaviour (Antibiotic Guardian, 2018). An online survey of 9 016 Antibiotic Guardians in 2015 found that making the pledge increased commitment to tackling AMR in both health professionals and members of the public, increased self-reported knowledge and changed self-reported behaviour (Chaintarli et al., 2016).

In October 2017, Public Health England launched an awareness campaign, "Keep Antibiotics Working" following a pilot earlier in the year, to support national efforts

to reduce inappropriate prescriptions for antibiotics. The focus of this campaign was on tackling the lack of understanding and the inappropriate prescribing through reducing patient pressure for antibiotics. The aims of the pilot were to alert the public to the issue of AMR, reduce public expectations for antibiotics and support change among health care professionals.

Involving patients in shared decision-making can reduce the number of antibiotics prescribed for acute respiratory infections and is promoted in the TARGET toolkit and the NICE guideline on antimicrobial stewardship (Royal College of General Practitioners, 2016; NICE, 2015). However in a search of patient nationally representative bodies (Patients Association, National Voices, HealthWatch UK), only the Patients Association made any reference to the importance of AMR (Patients Association, 2015).

Under the national strategy, the Department of Health & Social Care (DHSC) is working with the royal colleges, which are the professional bodies for medical specialities across the UK, to incorporate more on antibiotic use and resistance in undergraduate and postgraduate curricula for practitioners. For example, a wide range of activities have been undertaken by the VMD with the Royal Veterinary College.

Developing new drugs, treatments and diagnostics

The final O'Neill review was published in May 2016. It calls for large incentives for entry into new antibiotic research and production and for large incentives to apply to antibiotics and alternative medical therapies. O'Neill suggests paying companies 1 billion US dollars (0.7 billion pounds sterling) for every new antibiotic discovered, financial incentives to develop new tests to prevent antibiotics being given when they will not work, and promoting the use of vaccines and alternatives to drugs. O'Neill calls for the programme to be funded from a small surcharge on all health expenditures, and from a tax on pharmaceutical companies not involved in antibiotic development. The report also asks why antibiotics should be prescribed at all in the absence of a definitive diagnosis (HM Government, 2016a).

There has been a research call for new diagnostics; the Longitude Prize will reward new innovations in treatments and diagnostics to reduce AMR, particularly encouraging point of care diagnostics for human health, and "pen-side" diagnostics for animal health. The European Medicines Agency (EMA) with the Medicines and Healthcare products Regulatory Agency (MHRA) reviewed licensing arrangements and introduced new flexibilities with regard to antibiotics (EMA, 2015). The UK Government Strategy for Life Sciences (HM Government, 2011) seeks to improve the long-term environment for UK health and life sciences. The research councils as the main national funders for academic research in the UK, are being encouraged to work cooperatively. The Small Business Research Initiative continues to support small and medium sized enterprises (SMEs) to overcome barriers and get new technologies to market. A joint Innovate UK/ MRC Biomedical Catalyst scheme provides responsive and effective support for the best translational life science opportunities arising in the UK, both academic and in SMEs, to move their research more quickly from discovery to commercialization. The DHSC supports the EU Innovative Medicines Initiative (EUIMI).

Better access to and use of surveillance data

The English Surveillance Programme for Antimicrobial Utilization and Resistance (ESPAUR), is the cornerstone of surveillance in England. Surveillance covers both resistant organisms and prescribing of antimicrobials, in primary and secondary care, using clinical and laboratory data (Akiru-Oredope and Hopkins, 2013). Further to this, the team are working on the development of surveillance programmes that can link to electronic prescribing systems as they are introduced. Much of the work aims to improve the quality and standardization of routine testing and the interpretation of results with the goal of being able to link human and veterinary data under a One Health approach. In animal health, improvement of surveillance capability is the highest priority and is moving towards specific diagnostic and prescribing data. The Veterinary Medicines Directorate has published two combined reports on antimicrobial sales and on antibiotic susceptibility of veterinary pathogens, the UK Veterinary Antibiotic Resistance and Sales Surveillance Report (VARSS) (Veterinary Medicines Directorate, 2017).

The UK supports the EU "Early Warning Response System" (EWRS-ECDC, 2016a) facilitating routine AMR data collection, risk assessments alerting Member States urgently to significant resistant infections, and the European Antibiotic Awareness Day (EAAD) campaign (ECDC, 2016b).

Better identification and prioritization of AMR research needs

New mechanisms are in place to improve collaboration between research bodies and fund new research spanning both human and animal health. To this end, the Medical Research Council (MRC) has established an Antimicrobial Resistance Funders' Forum which comprises all seven research councils, the Wellcome Trust, DHSC, the National Institute for Health Research (NIHR), the Innovate UK, DEFRA/ VMD, the Food Standards Agency (FSA) and health departments in Scotland, Wales and Northern Ireland. The forum is promoting and coordinating joint action to improve our understanding of AMR and address gaps in the evidence base. Two Health Protection Research Units have been set up at, one at Oxford University (genome sequencing) and one at Imperial College London (infection prevention and prescribing behaviours).

In animal health, a number of research projects have been funded to identify new approaches aimed at minimizing endemic disease impact, and to understand the factors which influence farmers' behaviour in relation to disease control. Current projects include a research fellowship focusing on the costs and cumulative benefits of specific biosecurity measures for farmers.

The UK is active in research collaborations in the EU, the USA, and the Commonwealth. On behalf of the UK, the MRC is leading the EU Joint Programming Initiative (JPI) on AMR which aims to coordinate research activity across 17 Member States, Norway, Switzerland, Canada, Israel and Turkey. The UK supports the EU sponsored Innovative Medicines Initiative (IMI) that involves working with small and medium sized businesses. The UK Government's Fleming Fund is making 265 million pounds sterling available to support surveillance of drug resistance and enhance laboratory capacity in low and middle income countries (Wellcome Trust, 2013).

AMR is a priority for the Foreign & Commonwealth Office, the Department for Business, Energy & Industrial Strategy and the Science and Innovation Network (SIN), with significant engagement globally. Projects supporting international collaboration between the UK and overseas researchers and policy-makers are being led by SIN teams in Japan, USA, Brazil and India. New partnerships have been developed with the Indian Department of Biotechnology in AMR. The British Embassy in Beijing is supporting work to inform the Chinese government's approach to containing AMR with UK experience.

The VMD has supported the Royal Veterinary College to undertake an economic review for the World Bank on the impact of AMR on livestock production, and is funding research into optimal prescribing of certain antimicrobials and the impact of prebiotics in turkey production. It is also funding EU research into novel methodologies for control of *C. difficile* enteritis in pigs.

In addition, it is funding research by Liverpool University into the "motivators" of antimicrobial prescribing in the pig sector (Coyne et al., 2014; 2016). The results from this study are being analysed, together with the results from similar studies in the equine and dairy sectors and the results of the VMD/FVE European wide survey of veterinary prescribing habits, to inform future interventions to encourage behaviour change.

Problem identification and issue recognition

The English CMO's report identified the problem and resulted in the creation of the Five Year UK strategy plan (DHSC, DEFRA, Welsh Government, Northern Ireland Executive, Scottish Government, 2013). The CMO is the most senior adviser to government on health matters; her post is in DHSC and she is on the board of the NHS in England. This is the high level agenda for the control of AMR in England. The strategy is overseen by a High Level Steering Group (HLSG) which agreed an implementation plan from which DEFRA, DHSC and Public Health England (PHE) set their departmental AMR policy agendas. The government departments and agencies reporting to the HLSG are the principal bodies involved in agenda-setting through the five-year strategy and the implementation plan arising from it. All these agencies are also involved in problem identification through the extensive surveillance programmes they have set up, and through the programme of research they have commissioned.

For AMR, collaboration occurs across DEFRA, DHSC, NHS England and PHE and equivalent devolved administration health bodies in Scotland, Northern Ireland and Wales. The AMR programme mechanisms for collaboration are described in detail in the section on Policies and programmes. There is also a DHSC, PHE

and NHS England liaison group and NHS England has representation on the AMR Programme delivery boards.

Policy formulation

DHSC is responsible for health policy in England. Governing the AMR Programme is the HLSG, to which DHSC, DEFRA and PHE are accountable. PHE is responsible for policy recommendations to DHSC and for policy implementation. The group holds overarching responsibility for the implementation of the National AMR Strategy across both human and animal sectors. PHE, jointly working with the equivalent public health and health protection organizations in Scotland, Wales and Northern Ireland, has overall responsibility for coordinating cross-government activity relating to delivery of the human health aspects of the AMR programme for the UK. Joint working with DEFRA and other relevant partners takes place on aspects relating to the human-animal interface. PHE is responsible for leading the human health aspects of AMR work, bringing together relevant partners to address the seven areas of the AMR strategy (HM Government, 2013a). In addition there is a robust third sector lobby, Save our Antibiotics, and the industry representative body, Responsible Use of Medicines in Agriculture (RUMA). A full list of the agencies is available online (http://www.saveourantibiotics.org/alliance-members/ and http://www.ruma.org.uk/about/ruma-members/).

Decision-making

Policy decisions on the strategy are made by relevant Ministers in the UK government and the devolved administrations in Scotland, Wales and Northern Ireland. More operational-level decisions are made at the HLSG, led and administered by the DHSC. The Advisory Committee on Antimicrobial Resistance and Healthcare Acquired Infections (ARHAI) provides expert independent scientific advice to the HLSG.

In spite of the strong body of policy and supporting resources at the national level in England, command and control structures are very limited. PHE advises and supports local public health activity in local authorities, NHS England and Clinical Commissioning Groups (the purchasers of many health services) but it is not in a direct management or command relationship. DEFRA has no regional structures. Much of the action possible through local actors is achieved through influencing and persuasion.

Supportive systems are in place which include information systems, decision tools and clinical audit tools to guide decision-making by public health services. ESPAUR provides national level surveillance for England for human pathogens – its annual reports provide recommendations for further action by primary and secondary health agencies and professionals. VARSS provides an integrated UK report on sales of antibiotics for all animals (including bees and fish) and for resistance in pathogens of livestock.

Since 2016, PHE has collected and published locally comparable data on the Fingertips Public Health Profiles for local government and health services. This summarizes health care-associated infections, antimicrobial prescribing, antibiotic resistance, infection prevention and control measurements and enables local action plans to be prepared.

Policy implementation

Implementation of AMR policies in England is through Public Health England, NHS England and the VMD (DEFRA). Local authorities are responsible for local public health policies and services. Local authority Directors of Public Health (DsPH) are expected to: work with local stakeholders to provide information and advice to the public regarding steps they can take to address AMR; work with CCGs to ensure effective antimicrobial stewardship and support the implementation of the NICE guidelines on antimicrobial stewardship; and ensure there are effective infection prevention and control governance arrangements in their local area. They can use their annual public health reports to inform AMR stewardship and they should also use the joint strategic needs assessment in which they play a key role, to inform local policy and priority for AMR. DsPH are statutory members of the local Health and Wellbeing Board. This is the body which oversees policy and investment in health and social care between local government and the local Clinical Commissioning Group (CCG). This key body needs to understand and agree local programmes for AMR stewardship and investment.

To date, the local authority roles and actions on AMR have been patchy and limited. PHE estimates that only one fifth of local authorities have antibiotic stewardship steering groups in place (Public Health England, 2015a).

Some local authorities and/or health economies have set up health protection committees which cover health protection, immunization and screening arrangements, following the reorganization of the NHS in England in 2013 (Public Health England, 2015a).

Budgets for AMR control are poorly defined with funds tied up in general microbial services, veterinary services and infection control and in training and the clinical governance budgets of individual public health and NHS services. Specific budgets are identified in research, surveillance and in the PHE central team. Within current reductions in budgets for PHE, AMR is being given priority, in recognition of the level of threat, and PHE is likely to extend its central coordinating, scientific and technical resources on AMR.

Enforcement responsibilities are held by the Veterinary Medicines Division, the Food Standards Agency and local authority environmental health services but enforcement is limited in its applications and under-resourced. Policies of persuasion and behaviour change are most favoured.

Monitoring and evaluation

Public Health England is the lead agency for the substantial surveillance programme in England. PHE has developed the English Surveillance Programme for Antimicrobial Utilization and Resistance (ESPAUR) (Ashiru-Orredope and Hopkins, 2013). This monitors the way antibiotics are prescribed and obtained from pharmacies across the NHS in England. Four annual reports have now been completed by ESPAUR with recommendations for further action. Veterinary prescribing is monitored through VARSS (Veterinary Medicines Directorate, 2017). Annual reports of progress on the full AMR strategy are also produced (HM Government, 2014a). The High Level Steering Group, and the agencies represented on it are responsible for monitoring progress.

Conclusion and outlook

In England (and in the UK), there is a high degree of cross-departmental collaboration which is evident in national policy documents. The UK also has a strong national policy framework and strategy. There is a clear commitment from politicians and from professionals and recognition of the One Health policy approach that is needed as animal and human health are inextricably related. There is also a strong research strategy, coherent across health and veterinary sciences. There is excellent research also in the environmental and ecological sciences to support policy-making.

The ambition of the current strategy is only to return antibiotic prescribing to 2010 levels (Department of Health, 2013). This may have been pragmatic and realistic given the trends and as a first stage in what will be a long-term strategy. However, the final O'Neill report injects a new level of ambition and challenge for the UK AMR strategy, in the UK and globally. It calls for an urgent and massive global awareness campaign as most people are ignorant of the risks; establishing a 2 billion US dollar Global Innovation Fund for early stage research; improved access to clean water, sanitation and cleaner hospitals to prevent infections spreading; reducing the unnecessary heavy antibiotic use in agriculture including a ban on those "highly critical" to human health; and improved surveillance of the spread of drug resistance. In 2016 the former Prime Minister proposed an ambition of halving inappropriate antimicrobial prescribing by 2020 and a sustained reduction in health care-associated gram negatives (Prime Minister's Office, 2016).

There are robust surveillance systems in the health services for AMR and for prescribing in primary and secondary care and for AMR and antibiotic sales in the animal health sector. These are summarized in the extensive annual reports of the ESPAUR system.

There have been major efforts to increase public and patient awareness about the need to protect antibiotics. The Antibiotic Guardian programme, social marketing and awareness campaigns, and the Longitude Prize are novel innovations raising public awareness of the problem.

Despite having many of the building blocks in place, suboptimal prescribing behaviours and antibiotic usage continue in the health care sector and animal health. It is clear that major change in prescribing behaviour and patient knowledge and expectations will be needed in health care settings to sustain reductions in prescribing (King's Fund, 2016). Senior officials in DHSC and PHE recognize this and there is no complacency. The Behavioural Insights team under the Cabinet Office are undertaking novel research into prescribing behaviours in the health sector.

In animal health, weaknesses in antibiotic prescribing surveillance are recognized and efforts are being made

towards more species-specific data and prescribing-dose data. At present only the weights of antibiotic sold and used are recorded. The extent of purchasing unauthorized or illegal antibiotics over the Internet is unknown, and with the current resources available for enforcement it is unlikely to be able to fully identify the scale of the problem and be able to deal with it effectively. Major concerns about the volume of antibiotic use in the agricultural sector and about the control of antibiotic waste remain (HM Government, 2015b). This is a major concern and while there appears to be strong political commitment from the top, resources committed so far are not commensurate with the scale of change required.

Antibiotic contamination of the environment is a growing concern internationally. This is primarily via agricultural run-off, wastewater treatment plants and industrial manufacturing of antibiotics. In 2016 the UK government published guidance on the handling of manure and slurry to reduce antibiotic resistance (HM Government, 2016b). Environmental contamination is likely to be a greater problem in countries with greater use of antibiotics in agriculture, more antibiotic production and lower environmental standards, yet the UK can help to address this through international leadership and antibiotic procurement practices. There appears to be a need to invest more in environmental and ecological studies looking at the impacts of antibiotic resistance in soils, beaches and other natural environments, from agricultural, patients and other sources. There is insufficient evidence of the scale of the problem or action to address it. However, waiting for a more robust evidence base may take too long and action should be taken based on the precautionary principle (Bloomer and McKee, 2018).

The Conservative government which came to power in 2015 continued the existing strategy and there is ongoing commitment from the Prime Minister. However, the health service reforms of 2013 (the Health and Social Care Act) greatly weakened coordinated local responses to infection control and health protection which had been in place from 2004 in the form of district control of infection committees with district infection control officers (DIPCs) in primary care trusts. Funding arrangements and responsibilities for local infection control have lacked clarity following implementation of the Health and Social Care Act 2013. Fewer than one fifth of CCG areas in England currently have an antibiotic stewardship committee or arrangements in place (Public Health England, 2015a). In addition, government cuts to local public health budgets make commitment to antibiotic stewardship less likely to happen. Cuts to the Public Health England budget reduce generic capacity in communicable disease control and weakens the translation of national policy to local action. There are weak lines of communication and command from national government to local, in public health, in the NHS and in rural affairs which limit the effectiveness of implementation at the local level. In 2016 PHE sought to stimulate local action plans on AMR by publishing its local Fingertips profiles on AMR and asking Health and Wellbeing Boards to act.

Despite the high quality of the strategy, the excellent science and surveillance systems, it is not yet translating to sustainable changes inpatient expectations and prescribing behaviours in primary care, at the bedside, or the pen-side.

The impacts of Brexit on AMR will depend on the nature of continued UK/EU and other international relationships going forward. Many of the initiatives and collaborations discussed in this case study are with the EU. International collaboration is crucial given the cross-border nature of AMR and the importance of global trade and travel, for example UK involvement in the EU "Early Warning Response System" allows countries to implement more effective communicable disease control. It is important that the UK maintains strong relationships with the EU and continues to share best practice on AMR.

In conclusion, policy commitment from the national level is strong but coordination could still be improved. The strengthened PHE AMR team needs to be able to take on the coordinating role, but needs support from NHS England. There is a need to engage health care providers in the private sector more strongly and other agencies such as the Food Standards Agency. There is a need for concerted efforts on public and patient education, and stronger efforts with patient representative groups. There should be growing emphasis on the co-production of healthier outcomes for patients and satisfaction for doctors and patients in overcoming illnesses, without routine antibiotic prescription. Greater engagement of patient representative organizations should be encouraged to support this. The need for clinical procedures which are undertaken under antibiotic protection, for example caesarean sections, need to be fundamentally reassessed. Preventive interventions such as influenza and pneumococcal vaccines need to be encouraged to

prevent illnesses, which may result in avoidable antibiotic prescriptions. Major investment in basic hand hygiene and personal hygiene measures will also be needed. If we are not able to rise to the challenge of antimicrobial resistance in human and animal health care, the era of antibiotics, and a century of individualized health care, may be over.

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France

Obesity

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The scale of the challenge

In France, the trends in improving health status, as reflected by the increase in life expectancy and the decrease in infant mortality, have not been equally beneficial across socioeconomic groups, with the greatest improvement being observed among the wealthiest. For example, life expectancy at 35 is seven years lower for working class men and three years lower for working class women compared with managers (Danet, 2012). These inequalities also exist when morbidities or risk factors such as obesity are examined.

The significant burden of chronic diseases such as diabetes, exacerbated by an ageing population and the increasing levels of obesity, have underscored the need for ongoing monitoring and treatment. Preventive strategies are also needed to reduce the incidence of these diseases. Since 2001, a National Nutrition and Health Plan (*Programme national nutrition santé* (PNNS)) has been implemented to improve the health of the entire French population by taking action on nutrition, along with other measures to improve the population's health (Ministry of Health and Social Affairs, 2011).

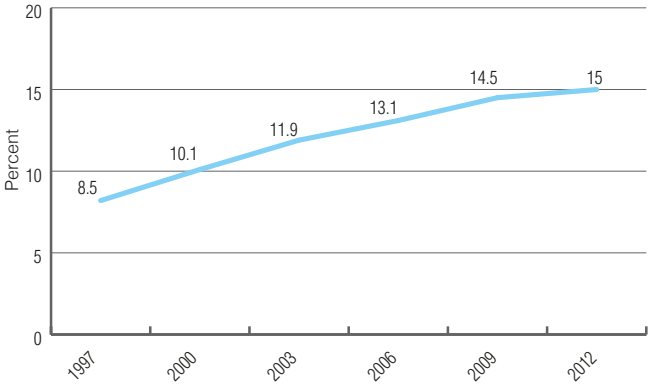
Data on the prevalence of overweight and obesity, based on measurements, suggest an increasing trend. The 2006–2007 National Survey on Nutrition and Health (2006–2007 *Etude nationale nutrition santé* (ENNS)) was based on weight and height measurements (Institut de Veille Sanitaire, 2006). This survey estimated that 32.4% of people aged 18–74 years were overweight (25 ≤ BMI < 30 kg/m2) and 16.9 % were obese (BMI ≥30 kg/m2). While the prevalence of obesity was very similar for men and women, the frequency of overweight is higher among men (41 % men vs. 23.8% women).

According to this study, the prevalence of obesity and overweight increases with age: in men, from 31.9% among 18–29-year-olds to 72.8% among in people aged 55–74 years, with a corresponding increase among women from 22.8 to 57.7%. It is also linked to social position and occupation. Farmers and artisans are the most overweight (70.3% of men and 44.4% women). The higher the level of education, the lower the prevalence of obesity and overweight, even though in men the prevalence of overweight does not decrease in those educated above college level (Institut de Veille Sanitaire, 2006).

The latest national data, from 2013, based on measured weight and height in a national cohort of adults aged 30–69 years, showed a prevalence of overweight of 41.0% in men and 25.3% in women and a prevalence of obesity of 15.8% in men and 15.6% in women (Matta et al., 2016).

Self-reported data on weight and height also suggest an increasing trend of overweight and obesity. A cohort study on a nationally representative sample of the population in 1997 to 2012, conducted every 3 years found an increase in the prevalence of obesity in adults, from 8.5% in 1997 to 15% in 2012 (Fig. 1). The study also found that, the more severe obesity was, the more rapidly it increased: the average yearly increase between these two dates was 1.4% for those overweight (25 ≤ BMI < 30), 3.7% for those in obesity class I (30 ≤ BMI < 35), 7.8% for those in obesity class II (25 ≤ BMI < 30) and 10.3% for those in obesity class III (BMI >40) (Moisan et al., 2012).

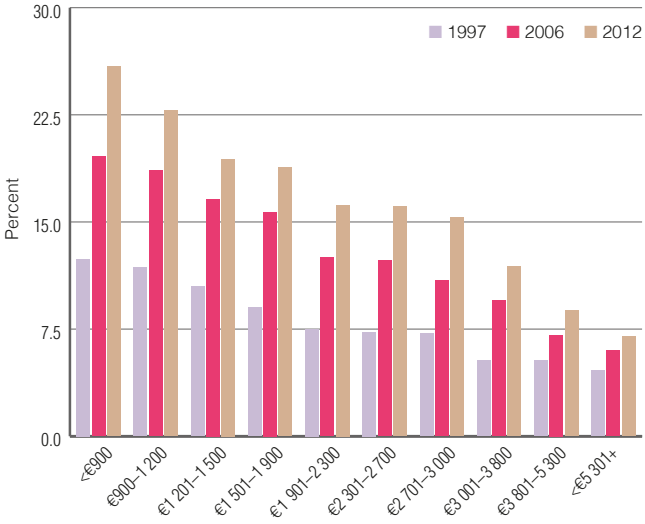
Fig. 1 *Prevalence of obesity in French adults, 1997–2012, selected years*



Source: Moisan et al. (2012)

The study found a widening gradient of obesity prevalence according to monthly household income (Fig. 2).

Fig. 2 *Prevalence of adult obesity according to the monthly household income, 1997, 2006 and 2012*



Source: Moisan et al. (2012)

France, with an adult obesity prevalence of about 15%, ranked below the Organisation for Economic Co-operation and Development (OECD) average of 18.4% and between the extremes of Norway (10%) and the United States (35.3%) (OECD, 2014). In France's overseas departments (in the Caribbean and the Indian Ocean), the prevalence of obesity, but also of other associated diseases (diabetes, hypertension and cardiovascular diseases), is much higher than in mainland France (Ministry of Labour, Employment and Health, 2011). For instance, in Martinique (the Caribbean), obesity among women is 27% (compared to 17.6% in metropolitan France).

Childhood overweight and obesity seem to have declined in recent years, with an obesity prevalence of 3.5% and an overweight prevalence of 11.9% among 5–6-year-olds in 2013, compared to 3.9% and 14.3% in 2000, based on measured data (World Obesity Federation, 2017). This places France among the European countries where overweight and obesity prevalence is lowest (World Obesity Federation, 2017). However, social inequalities are high, with an obesity prevalence of 1.3% in children from upper class and 5.8% in children from working class families (Chardon et al., 2015).

The official recommendation for physical activity is an equivalent of at least 30 minutes of quick walking at least five days a week for adults (ANSES, 2016). This level of activity in only reached by 60% of French adults (Institut de Veille Sanitaire, 2006). Between 30% and 50% of children spend more than three hours a day in front of a screen, excluding screen time at school or for homework (Institut de Veille Sanitaire, 2006). Only 40% of the population reaches the recommended consumption level for fruits and vegetables. Social inequalities are also huge for this aspect, in both adults and children (ANSES, 2012). Social inequalities in nutrition are high for all indicators, including overweight and obesity in children or adults and nutrient or food intake, for example, in terms of sugars, fruits and vegetables, fats and sugary drinks (INSERM, 2014).

Policies and programmes

The National Health and Nutrition Programme (PNNS) was launched in 2001 and still running. Its objective is to improve population health by acting on the nutritional determinant (Ministry of Health and Social Affairs, 2011). It is a multisectoral public health programme, included as a five-year governmental programme in the article L3231-1 of the Public Health Code. For PNNS, nutritional guidance includes nutritional intakes and physical activity. In a country where gastronomy and the pleasure of food is so important, the PNNS takes into account the various sociological, cultural, symbolic aspects of food and multidisciplinarity is its basis for action.

The PNNS is coordinated at the national level by the Ministry of Health (its General Directorate for Health). The Steering Committee includes many ministries (e.g. education, agriculture, consumption, sports and research) and the various national health agencies in charge of health promotion, health monitoring, assessment of health risks. Its area of action goes from the promotion of health to the management of nutritional diseases (such as

obesity) and from the national to the local level, involving the regional health agencies.

Public health nutrition goals are set by the High Council of Public Health (HCSP).

Objectives

The objectives are grouped in four axes. In each one, precise quantified objectives, a total of 30, are given for the 5-year period. Some examples are given below for the various axes.

1 Reduce obesity and overweight among the population.

- Within 5 years stabilize the prevalence of obesity and reduce overweight in adults;
- Within 5 years, reduce, by an average of at least 15%, the overall prevalence of overweight and obesity among children and adolescents aged 3 to 17;
- Within 5 years, reduce, by an average of 15%, the prevalence of overweight and obesity among children and adolescents aged 3 to 17 from disadvantaged homes.

2 Increase physical activity and reduce sedentary lifestyle in all age groups.

- increase physical activity in adults;
- increase physical activity and counter physical inactivity in children and adolescents:
  - for example, within 5 years, ensure that at least 50% of children and adolescents aged 3 to 17 practice some type of high-intensity physical activity for at least one hour three times a week.

3 Improving dietary practices and nutritional intake, particularly among at-risk populations.

- increase consumption of fruit and vegetables
  - for example, within 5 years, increase the fruit and vegetable consumption of the general adult population, so that:
    - at least 70% of adults eat at least 3.5 servings of fruit and vegetables per day;
    - at least 50% of adults eat at least five servings of fruit and vegetables per day.
  - within 5 years, increase the fruit and vegetable consumption of adults living in poverty, so that:
    - the number of adults declaring that they eat fruit and vegetables at least three times a day is doubled;
    - the number of adults declaring that they eat fruit and vegetables at least five times a day is increased fivefold.
- reduce salt intake;
- increase calcium intake in high-risk groups;
- address iron deficiency among women in poverty:
  - for example, within 5 years, reduce by a third the incidence of iron deficiency anaemia among women of childbearing age (15 to 49 years old) who are living in poverty.
- improve the folate status of women of childbearing age;
- promote breastfeeding.

4 Reduce the prevalence of nutritional diseases (including undernutrition and eating disorders).

Strategies

These nutritional objectives structure the strategic direction and the basis for defining the actions planned by the PNNS.

Five strategic levers for food intakes and physical activity are used:

- Information, communication and education to provide everyone with guidance on eating habits and physical activity;
- Improvement of the food and physical environment to facilitate the adoption of habits that are beneficial to everyone's health;
- Organization of the system for detecting and managing nutritional disorders;
- Training of professionals whose work influences people's eating habits and physical activity;
- Monitoring and evaluation to ensure operational management of the program.

At the national level, regulations are prepared, scientific expertise is organized, and mechanisms for voluntary actions are proposed to a variety of stakeholders (economic actors, local authorities, NGOs) in order to incite them to implement actions for the different groups of the population, coherent with the PNNS. For this, various charters are being proposed by public authorities.

Some examples of regulations are:

- the ban of vending machines in all school settings since 2005;
- the regulation on the nutritional quality of school meals since 2010;
- the prohibition of the supply of sweetened or sweetened drinks in catering establishments receiving minors since 2016;
- a tax on sweetened and artificially sweetened drinks since 2012.

Some examples of proposed national mechanisms for stakeholders: "Charters of commitments to nutritional improvement" are being proposed to food producers. These are based on analysis by independent experts, based on a guiding document of the proposals of agro-food business firms (small as well as big) (Ministère des Solidarités et de la Santé, 2013).

Monitoring is done through regular health and nutrition surveys managed by national agencies (for example DREES (2017)) and through the analysis of the evolution of the nutritional quality of foods on the French market (INRA, 2018).

Many practical tools, national communications campaigns and teaching tools are produced at the national level by Santé Publique France (SPF), the national agency in charge of health promotion. In 2005 a specific website was created on the subject: http://www.mangerbouger.fr (Santé publique France, 2018c). It is widely promoted because of Article 31 of the Public Health Law 9 August 2004, on all advertisements for manufactured foods.

There are eight different guides to help people choose food and eat according to their profile. These are all online on the PNNS website: www.mangerbouger.fr:

- You have questions on a balanced diet of your children? The nutrition guide for children and teens is for you.
- You are retired and want to make good habits for aging well? The nutrition guide from 55 is yours.
- You are expecting a happy event? Consult the "Guide to Nutrition" for pregnant women and you will know everything to treat your form and the baby.
- And for all, the famous "Green Guide" food guidance – a reference tool to put in each library! (Santé publique France, 2018a)

A specific tool helps families to decide on healthy daily menus "La fabrique à menus": with three mouse clicks, the web surfers choose a main dish and a dessert for lunch and dinner for two days to more than 7 days. If a specific dish does not satisfy one's taste it is possible to ask for an alternative. The "La fabrique à menus" gives the recipes for each dish and provides a shopping list (Santé publique France, 2018b).

There are also websites that provide advice and tools for local governments, education professionals, social workers and medical staff. Santé Publique France, for example, promotes interventions that are efficient and could be implemented at the regional and local level through regional health agencies (*agence régionale de santé* (ARS)) and NGOs. As an example, the ICAPS programme is an evidence-based programme for schoolchildren aiming to promote physical activity (INPES, 2012).

In overseas departments, nutritional behaviours and their consequences are a public health priority. The specificity of nutritional status is closely linked to cultural, economic, geographical, climatic and agricultural production. Therefore, a variation of the PNNS adapted to the individual circumstances of each territory was developed by the General Directorate of Health in consultation with local representatives of the State and each ARS (Ministry of Labour, Employment and Health, 2011).

At the regional level, through the ARSs, and based on local needs, actions are implemented using the national tools and the local network of professionals NGOs and local authorities.

For several years, numerous committees of national and international experts recommended the establishment of an improved nutrition information system enabling all consumers, including those whose level of education does not allow a comprehensive analysis of nutritional labelling, to make informed choices about their health. A working group was launched in March 2015 involving all stakeholders (representatives of the food industry and

distribution, consumer associations, representatives of scientific societies, the National Food Council and the directions of relevant ministries). The purpose of these meetings was to reach a common position between all the parties on complementary nutrition labelling. Article 14-II on the subject was adopted by the Parliament in the Health Law of 26 January 2016. A real-life evaluation of four different systems was decided on and implemented during 10 weeks in 60 supermarkets in France. The results showed that one of the four systems, the Nutri-Score, gave the best results in terms of its capacity to improve the nutritional composition of consumers' food baskets. On the basis of this result, in April 2017 public authorities recommended this system to food producers and retailers (Ministère des Solidarités et de la Santé, 2016).

Problem identification and issue recognition

The identification of obesity as a public health problem in France has mainly been accomplished at the national level by the National Public Health Agency (Santé Publique France (SPF)[1]) supervised by the Ministry of Health, which is part of the public health prevention and health safety surveillance network.

The National Public Health Agency is responsible for surveillance and alerts in all domains of public health. Its mandate includes: monitoring and permanent observation of population health conditions, health surveillance and health alerts. In particular, the National Public Health Agency is responsible for collecting, analysing and updating knowledge about health risks, causes and trends, detecting risk factors that may modify or alter the health of the population, and for each type of risk, studying and identifying the most vulnerable or most affected populations. The National Public Health Agency must immediately inform the Minister of Health in case of threats to the health of the population or to some sub-populations, whatever their origin, and recommend any appropriate measures or actions to prevent the realization or mitigate the impact of the threat.

Another mission of the National Public Health Agency is to conduct surveys, studies and barometers, which allow the understanding of the changing opinions and health behaviours of the French population, which are considered a prerequisite for the development and implementation of a consistent and effective public health policy. These publications are reference tools for decision-makers, researchers, stakeholders in the health field (see, for example, INPES (2016)).

At regional level, each of the 18[2] regional health agencies (ARS) are responsible for ensuring that the provision of health care services meets the needs of the population. Strategic planning requires the ARSs to assess population health needs based on regional data regarding health care utilization, mortality and morbidity. Data are analysed by region and compared across regions to identify demand and over- or undercapacity.

France adheres to the global recommendations on physical activity for health for children and adults, as set out by the World Health Organization (WHO) in 2010. The European Non-Governmental Sports Organisation (ENGSO), the French Society for Public Health, Institute of Engineering in Health of Lille, Faculty of Sports of the University of Lorraine and Centre for Research and Medicine for Obesity in France are members of the WHO's European network for the Promotion of Health-Enhancing Physical Activity (HEPA). In September 2015, the countries of the WHO European Region, including France, adopted the Physical Activity Strategy for the WHO European Region 2016–2025, with a specific focus on multisectoral collaboration (WHO, 2018).

Policy formulation

The Ministry of Health, which is the central level of the Administration of Health and Social Affairs (*Administration sanitaire et sociale*), is responsible for the formulation of overall national health policies, based on evidence provided by its subordinated agencies. It also has a role promoting interventions which are efficient and should be implemented at the regional and local levels through regional health agencies (ARS) and NGOs.

The Ministry of Health is responsible for preparing and implementing government policy in the areas of public health, being in charge of defining priority areas for national programmes. Since 2001, the Ministry of Health also launched the National Health and Nutrition Programme (see the Policies and programmes section)

1 Santé Publique France was created on 27 April 2016 as the national public health agency, resulting from the merger of the French Institute for Public Health Surveillance (InVS), the French Institute for Health Promotion and Health Education (INPES) and the Establishment for Public Health Emergency Preparedness and Response (EPRUS).

2 There are 12 regions within Metropolitan France plus Corsica plus five regions overseas.

in close cooperation with other ministries. In parallel, the Ministry of Agriculture has developed a National Programme for Food (*Programme national pour l'alimentation*), structurally linked to the PNNS, which is a framework for developing public policies in this area (article L230-1 of the Code *rural et de la pêche maritime*).

Tackling obesity is one of the areas in which intersectoral cooperation is better defined and developed. The Minister for Agriculture, Minister for Health and the Minister for Consumers collaborate on this regard, being part of the National Food Council (*Conseil National de l'Alimentation* (CNA)) which was created in 1985, as an independent advisory body. It is consulted on the definition of food policy and issues opinions to the attention of policy-makers and various stakeholders in the food chain on topics such as food quality, consumer information, nutrition, safety, access to food, crisis prevention.

While the increasing health care expenditure and increasing deficit of the Statutory Health Insurance (SHI) (and corresponding increase in tax financing) has increased the role of the State in planning and regulation since the mid-1990s (Chevreul et al., 2015), the ARSs still have a relevant role to ensure that health care provision meets the needs of the local population. For that purpose, the ARSs generate regional policies with consideration of the national orientations and priorities, which are reflected in their own regional health plans (*Plan régional de santé* (PRS)). The next PRSs cover the 2018–2022 period and each ARS will develop its own strategy to tackle overweight and obesity and to enhance health behaviours and environments.

Other key actors with whom French public health services interface in terms of problem identification and agenda-setting are the WHO and the European Commission (DG Santé); for example, through the WHO Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013–2020, which aims to stop the increase of obesity and diabetes through multisectoral collaboration, led by national governments and the EU Action Plan on Childhood Obesity 2014–2020.

Decision-making

All levels of government are involved in decision-making on obesity-related policies and programmes: the Ministry of Health at the national level and the ARSs at the regional level.

The national level is responsible for developing national health policy, enacting legislation that affects public health, guiding and regulating the regional and local levels in their delivery of public health services, and monitoring population health. It also coordinates national programs and supports and monitors their implementation. The ministry in charge of Health is responsible for preparing and implementing government policy in the areas of public health and organization and financing of the health care system within the framework of the Public Health Act. It controls a large part of the regulation of health care expenditure based on the overall framework established by the parliament. In June 2014 an Interministerial Committee for Health has been set up by decree with the goal of promoting health matters in all public policies.

At the regional level, the Administration of Health and Social Affairs is represented by the ARSs which fall under the administrative supervision of the National Steering Council (*Conseil national de pilotage* (CNP)). The CNP comprises delegates of the ministries of health, public accounts and social security, the SHI and the National Solidarity Fund for Autonomy (CNSA) (Chevreul et al., 2015). The ARSs have considerable autonomy in public health, setting priorities and implementing activities according to the needs of their local population, but have also to apply at regional level the national priorities and policies.

At local level, NGOs and local governments can decide by their own to set up programs and actions in order to promote health or to address specific public health issues. The École des hautes études en santé publique (EHESP) School of Public Health, the SPF and the Ministry of Health with many other partners, have launched a national initiative to help ARSs and NGOs have an easy access to the literature, data and transferability conditions of public health actions.

Policy implementation

The ministry in charge of health is the central level of the Administration of Health and Social Affairs (*Administration sanitaire et sociale*) and is responsible for preparing and implementing government policy in the areas of public health, and organization and financing of the health care system within the framework of the Public Health Act. Its specific responsibilities include defining priority areas for national programme and facilitating their implementation. The ministry in charge of

Health relies upon a number of health agencies, which are under its supervision, and other public bodies in the development and implementation of policies for which it is responsible. Some of these agencies are part of the public health prevention and health safety surveillance network. SPF, for example, is responsible for monitoring of health indicators (see the Problem identification and issue recognition section and the Monitoring and evaluation section) and implementing policies in areas of prevention and health education within the government's public health policy framework. It also has in its remit management of emergency or exceptional situations that have serious consequences on the health of the general population.

The Minister for Agriculture, Minister for Health and the Minister for Consumers collaborate in this regard; all being part of the National Food Council (*Conseil National de l'Alimentation* (CAN)). They are also part of the Interministerial committee for Health (see the Decision-making section). At the regional level, ARSs aims to ensure that health care provision meets the needs of the population by improving links between ambulatory and hospital sectors, and between the health and social care sector services, while keeping within national health expenditure limits. The ARSs coordinate ambulatory and hospital care for the population as well as health and social care for the elderly and the disabled through a regional health plan (*Plan régional de santé* (PRS)) based on population needs.

The ARSs monitor the regional health status of the population, ensure that hygiene rules are respected, participate in prevention and patient health education and assess health professionals' education. They also carry out SHI regional programmes, notably in risk management. They authorize the creation of new health services and social and health services for the elderly and disabled. In the environment and health sector, they oversee water and air quality.

The ARSs generate regional policies with consideration of the national orientations and priorities. For the prevention interventions, ARS mobilize the NGOs which are in charge of actions dedicated to different populations or environments such as schools, families, workplaces etc. Regarding obesity, the ARSs implement public health actions defined in the PNNS, in connection with all stakeholders. As such, they implement actions contributing to the reduction of social inequalities in health within the nutrition scope. The regional prefect (*Préfet de Région*) coordinates the action of other territorial state services involved in the implementation of the PNNS, such as environmental and agricultural services.

At the local level, since 2009, specific local health contracts (*contrats locaux de santé* (CLS)) can be finalized between ARS, local governments, State's services (under the authority of the préfet) and many other partners. There are several hundred contracts all over France and many of them have raised the issue of obesity, overweight and have agreed to develop local policies to tackle this problem, in accordance with the National Nutrition and Health Programme (PNNS).

Monitoring and evaluation

The ministry in charge of health relies upon a number of health agencies, which are under its supervision, and other public bodies for the responsibility for performing cross-sectoral follow-up studies and evaluations of national public health policies. This is the case of the National Public Health Agency (SPF).

Since the early 1990s, the French National Institute for Prevention and Health Education (INPES), now part of SPF, has been conducting, in cooperation with many institutions, a series of surveys. The health barometer is a telephone health survey of a representative sample of the population of mainland France: nearly 27 700 individuals aged 15 to 85 years took part in the 2010 survey. Conducted from October 2009 to July 2010, this survey was the most recent in a series of five, entitled, "Adult health barometers", conducted in 1992, 1993, 1995, 2000 and 2005 (INPES 2011; 2014). The survey collects information on various health behaviours and attitudes among French people (such as those pertaining to the use of treatments, depression, vaccination, screening practices, physical activity, violence and sexuality). SPF will continue this barometer using new methodology, from 2017.

These surveys and studies on the health of the French population provide information on the following topics: enable researchers to quantify indicators of attitudes, knowledge, opinions and attitudes of the population in the different areas studied; provide valuable insights on behaviour change and therefore the impact of public health policies over time; and enable the better understanding of the expectations of the population

and health professionals as well as the barriers in certain practices.

InVS, another agency under the ministry in charge of health supervision, which is also now included in SPF, is responsible for surveillance and alerts in all domains of public health. Its mandates include monitoring and permanent observation of population health conditions, health surveillance and health alerts, including the safety of products intended for human use. It is responsible for collecting, analysing and updating the knowledge about health risks, causes and trends; detect prospectively risk factors that may modify or alter the health of the population or some sub-populations, both sudden or diffuse; to study and identify, for each type of risk, the most vulnerable or endangered populations; and health alerts.

Part of the CNA mission is to give, from a civil society point of view (but actually mainly from the food economic chain actors) on the way PNNS and PNA are being implemented (CNA, 2018). At the regional level, the ARSs monitor the regional health status of the population. Strategic planning requires the ARSs to assess population health needs based on regional data regarding health care utilization, mortality and morbidity.

Conclusion and outlook

In France, the prevalence of obesity in adults as well as in children is among the lowest in OECD countries (OECD, 2014). But social and geographical inequalities in nutrition indicators and particularly in overweight and obesity remains a serious issue (Institut de Veille Sanitaire, 2006). The PNNS is one of the few public health programmes included in the Public Health Code, showing the priority given at government level. Since the launch of the PNNS in 2001, the prevalence of overweight and obesity in children started to level off during 2005–2007. Many indirect data suggest that the prevalence of overweight and obesity in adults had started to level off by 2012, although a direct causal effect cannot be pointed out as many factors can influence this situation. However, the PNNS has created a real dynamic movement not only among the health sector but also among other sectors such as education and sports, and among many stakeholders, including the economic actors. The synergy and complementarity between the strategies implemented at national and regional level help to give coherence for the promotion of healthy behaviours. Particularly, the increasing weight of actions aimed at improving the environment, through mandatory or voluntary mechanisms, in close coherence with strategic international recommendations, improves the capacity of information and education to be efficient both at the global and individual level.

However, the influence of many lobbies remains very strong, such as when there are plans to act on the food environment. When barriers are removed at the national level, they arise at the European level and lobbyists use all mechanisms to avoid, limit or delay the implementation of measures that should apply to all with a view to reducing inequalities. The public health sector appears to be very weak in the face of these opponents. The contradictions between the immediate interests of the various ministries involved in the necessary intersectorality of such public health prevention policies are strongly manifested at the time of national arbitrations. So even if the situation is improving slowly, current health prevention measures continue mainly to focus on individuals to reduce at-risk practices by changing their habits and lifestyle. De facto, they emphasize individual responsibility and autonomy, as patients are provided with information and health education, and continue to have most of their health expenses reimbursed by the health insurance system. Furthermore, the significant burden of chronic diseases, linked to their nutritional determinants, exacerbated by an ageing population, have underscored the need for ongoing monitoring and treatment as well as preventive strategies to reduce the incidence and burden of chronic diseases such as diabetes.

Combining individual and collective responsibility, in April 2017, a new recommendation has been made by public authorities, the "Nutri-Score" front-of-pack labelling allows an easy interpretation of the nutritional contents of foods. With this, consumers will find it easier to consider the health aspect in their food choices. This might also help health professionals to give clear and precise nutrition advice to their patients. Finally, producers will get an opportunity to improve the nutritional quality of the foods they produce.

Recently, the French Ministry of Finance published a study showing that the annual social cost of obesity in France is over 20 billion euros, and suggested various measures to improve the situation, including taxes on some foods or a regulation of marketing to children (Ministère de l'Economie et des Finance, 2016). It is to be hoped that these are the beginnings of a growing awareness of the need to invest in health in the

medium and long term, including through improved interministerial collaboration.

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Alcohol

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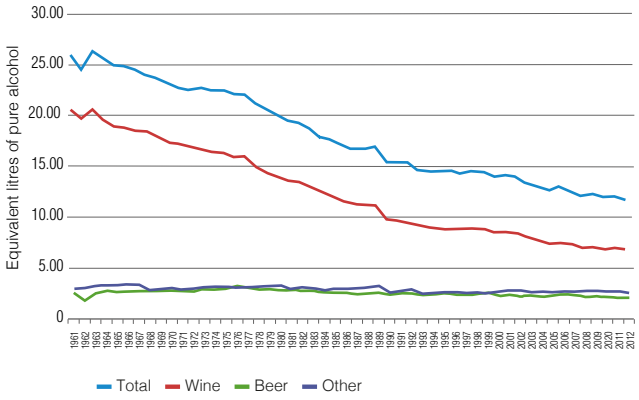
The scale of the challenge

Alcohol abuse has been recognized by policy-makers in France as a major public health problem, with alcohol consumption being the second most common cause of avoidable mortality (only surpassed by tobacco consumption) (OFTD, 2015). However, the alcohol industry is a powerful economic sector in France, and wine constitutes a particularly important produce: despite a significant drop in the volume of wine consumed in the last 50 years, France remains the world's greatest consumer of wine per capita (just under 47 litres per capita in 2012) and the top producer (with Italy). Wine consumption in France represents 58% of the total quantity of pure alcohol contained in alcoholic beverages, with spirits accounting for 22% and beer for just over 17% (OFTD, 2015). The wine industry provides 250 000 direct jobs, including 142 000 in viticulture and nearly 70 000 in the distribution and sale of wine (wine cooperatives, brokerage and trading, large distribution and wine shops, etc.). The number of indirect jobs is estimated at approximately 300 000 (tumbling, sheet metal, glass, logistics, etc.). As for beer, the Brewers Association of France claims to account for approximately 71 000 jobs, including 6 000 direct jobs. The French Federation for spirits industries claims to generate 100 000 jobs (OFTD, 2015).

A number of alcohol control policies based on the regulation of advertising and sales, as well as taxes, have been implemented in France to decrease consumption, with excessive alcohol consumption underlying a large share of morbidity, including cancers, chronic liver disease, psychiatric problems, violence, and consequences of accidents. However, in France alcohol consumption per inhabitant has decreased in the last 40 years (see Fig. 3); in particulare this has been driven by the substantial decrease in wine consumption following the 1991 Evin Law and consecutive regulations (see the Policies and programmes section). Nonetheless, France still has one of the highest pure alcohol consumption rates in the EU (11.4 litres per capita for those 15 years old and older in 2013 compared to the EU average of 9.9 in 2012 (WHO Regional Office for Europe, 2016)).

Fig. 3 *Alcohol sales figures: equivalent litres of pure alcohol consumed by people over 15 years old, 1961–2012*



Source: INPES (2010, 2014).

It has been estimated that alcohol caused 49 000 deaths in France in 2009 (Guérin et al., 2013), with approximately 33% from cancer, 25% from cardiovascular diseases, 17% from accidents or suicides, 16% from digestive disease and 11% from other causes. Alcohol-related deaths occur predominantly in men (75%). In total, 13% of male deaths and 5% of female deaths are related to alcohol (Guérin et al., 2013). Comparative data on alcohol-related mortality at the international level have to be

interpreted with caution, as differences in methodologies can introduce bias. A study of mortality data conducted in 2002 with the same methodology in eight countries (France, Sweden, United Kingdom, Hungry, Lithuania, Poland, Czech Republic and Russia) found a lower proportion of alcohol-related deaths in France when compared to Central European countries, but a higher one than in the United Kingdom or Sweden (Rehm et al., 2007). Altogether, the social costs of alcohol were estimated at 118 billion euros in 2015, as compared to 122 billion euros for tobacco (Kopp, 2015).

According to data provided by the 2014 Health Barometer for those 18–75 years old, 86% had drunk alcohol at least once in the past year; 38% had drunk alcohol less than once a week; 39%, at least once a week (but not daily); and 10% declared to drink daily (compared to 24% in 1992), with daily consumption concentrated among those 50 years and older. Furthermore, 38% declared at least one heavy episodic drinking (HED) compared to 36% in 2010 (INPES 2010; 2014).

Alcohol use in France is not independent of socio-economic status and is often higher in poorer regions affected by higher unemployment and other socio-economic indicators (INPES, 2013). There are also gender inequalities in alcohol use: men with a higher level of education and/or higher social position drink less, less frequently and have fewer episodes of drunkenness, while women with a lower social position consume less, except for the frequency of HED. No data are available regarding differences in engaging in HED by either socioeconomic or demographic factors (i.e. age and sex). Repeated or regular drunkenness is also increasing, particularly among women. However, the consumption of alcohol remains more important for men as daily drinkers (15% men vs. 5% women) and as weekly drinkers (63% men vs 36% women) (OFDT, 2015).

Focusing on people between 18 and 25 years old, 40% declared to have consumed alcohol every week, increasing for women compared to 2010 (30% vs. 24%). Between 2005 and 2014, the proportion of 18–25 years old reporting to have been drunk at least once in the past year increased from 33% to 46%, and the proportion of those reporting to have been drunk at least three times in the last year nearly doubled from 15% to 29%. Engaging in HED has also increased (56.8 % vs. 52.2 between 2010 and 2014) (INPES, 2010; 2014).

The situation is more alarming for the younger generations. In 2011, the ESPAD study showed that the frequency of engaging in HED among the young (15–16 year old children). French people is higher than the average level in Europe, placing France in 12th position (out of 33 countries) (Spilka and Le Nézet, 2012). Further, the ESCAPAD 2011 health and drug use survey showed that, for the period 2008 to 2011, regular alcohol use increased, as have HED, or repeated and regular drunkenness episodes for 17-year-old French nationals. The ESCAPAD 2017 survey showed a serious decrease for all indicators among the same population concerning alcohol consumption (Spilka et al., 2018).

Among people aged 18–25 years, the consumption and the frequency of HED are higher for employed men (versus students or unemployed men). Female students have more episodes of drunkenness and HED than unemployed or employed women (Legleye, 2015b). Consumption levels also follow a geographical gradient from the Northwest to the Southeast. Bretagne and Pays de la Loire are the two regions where the declared consumption is the highest (Legleye, 2015b).

Regarding French people's perceptions of alcohol consumption, 11% think that alcohol is dangerous from the first glass, according to 2012 data. After doubling between 2002 and 2008, this proportion seems to be stable. Alcohol is perceived especially dangerous at the stage of everyday use by 74% of the French (Tovar et al., 2013). Concerning persons who "drink a lot of alcohol", in 2011 a vast majority of people (91%) believe they can be "a danger for those around them". The proportion of the French population who consider that these consumers have a disease has declined from 36% to 24% between 2008 and 2012. However, half of the French people (a stable proportion) think that the consumption is due to family problems (Tovar et al., 2013).

In non-specialty hospitals (excluding psychiatric hospitals), approximately 147 000 stays with a primary diagnosis of mental and behavioural disorders due to use of alcohol were recorded in 2011 (93 000 in 2002) and about 48 000 stays (26 500 in 2002) for alcohol withdrawal. Stays for alcohol problems appearing as associated diagnosis leads to more significant figures with a number reaching 470 000 stays. All hospitalizations (including psychiatric hospitals and centres on care and rehabilitation for alcoholics) for primary diagnoses or associated mental disorders and alcohol-related behaviour leads to 900 000 in 2011, corresponding to 400 000

different patients (OFDT, 2015). The available hospital data, however, are partial. It is not possible to identify the number of patients seen by liaison and addiction care teams (*équipes de liaison et de soins en addictologie* (ELSA)) and in hospital consultations in addiction.

Nearly 60 000 people were arrested for public intoxication in 2015. In 2012, there were about 352 000 positive blood alcohol screenings on the roads. In 2011, the courts issued nearly 150 500 convictions for driving under the influence of alcohol (an increasing trend), 1 828 for unintentional injuries and 187 for unintentional homicide by driving under the influence of alcohol (a lowering trend) (OFDT, 2015).

Alcohol problems are frequently mentioned by the perpetrators of domestic violence. From 700 cases of domestic violence analysed by the courts of the Paris region, 28% mentioned that the perpetrators were heavy drinkers. With the survey *"Cadre de vie et sécurité"* (Life and security framework) conducted by the National Institute of Statistics and Economic Studies (*Institut national de la statistique et des etudes économinques* (INSEE)) and the National Observatory for Delinquency and Penal Responses (*Observatoire national de la délinquance et des réponses pénales* (ONDRP)), it was possible to determine that among the victims (aged 14 or more) of physical violence outside the household, 29% considered that the perpetrator was under the influence of alcohol (19% alcohol only, 10% alcohol and drugs). Among victims (aged 18–75 years) of physical or sexual violence by a household member, 34% considered that the perpetrator was under the influence of alcohol or drugs (for violence in the household, the reported results do not differentiate between perpetrators under the influence of alcohol and those who are under the influence of drugs) (OFDT, 2015).

Policies and programmes

Public policies tackling alcohol consumption have been part of the public health agenda in France, both in terms of specific alcohol control policies and actions as well as part of a more global regulation of drugs in the country.

Alcohol control policies and actions

For tax reasons and public order, trade and distribution of alcohol has been regulated for a long time, aiming to:

- reduce the accessibility and attractiveness of alcohol;
- inform on the risks and reduce the risks (especially on the roads);
- facilitate early detection of problems and provide support; and
- facilitate access to health care (Chaumontet et al., 2015).

For tax and public order reasons, the regulation of alcohol consumption has been implemented for a long time. The public health legal framework is relatively recent (the "ordonnnances" against alcoholism in 1960; Act of 10 January 1991, Evin Law; Hospital, Patient, Health and Territory (HPST) Act adopted 21 July 2009). The 1991 Evin Law imposed a partial ban on alcohol advertising and the permitted advertising requires the following health warning: "Alcohol abuse is dangerous for your health". The 2009 HPST Act increased the legal drinking age to 18, banned open bars and set limits on the sale of alcoholic beverages in petrol stations. However, these regulations have been challenged throughout their implementation: the public debate sets public health sector and addiction specialists or experts against producers, distributors and advertising companies (OFDT, 2015).

Alcohol and public order

Legislation against alcoholism was outlined in the 19th century through the provisions relating to the maintenance of public order, including the Law of 1873 prohibiting public drunkenness, now codified in Article L. 3341-1 of the Public Health Code (the Public Health Code compiles all regulation adopted and currently ongoing, being updated annually). Nowadays, public drunkenness is liable to a fine of 35 euros, according to the code for alcohol selling places (*code des debits de boisson*). In particular, drunkenness in a sports arena, since the Act of 6 December 1993 on the safety of sports events, can be punished with a prison sentence, particularly in case of violence.

Measures to protect minors

Until the 2009 HPST Act, only the sale of alcohol was prohibited to minors aged less than 16 years old. Since then, any form of offer to minors under 18 (including free offers) has been banned in pubs, shops and public places. The person who delivers the beverage may require

the customer to provide proof of age. A large majority of French (93%) support the ban on selling alcohol to minors (Tovar et al., 2013).

In case of noncompliance, the owner of the establishment serving alcohol risks a penalty of 7 500 euros. They can be punished with an additional penalty of temporary prohibition to serve any alcohol for a period of one year. In case of repetition, the owner risks a one year imprisonment and 15 000 euros penalty. A survey conducted in 2012 revealed that only 60% of the owners of such establishments systematically refuse to sell alcohol to minors (Diaz Gomez, 2013).

Road safety

Driving under the influence of alcohol has been punishable in France since the Act of 1965. The Law of 9 July 1970 set for the first time a legal blood alcohol concentration threshold above which using a motor vehicle is prohibited. It also introduced breathalyser tests. In 1978, the legislator established alcohol tests, even in the absence of crime or accident (Act of 12 July 1978). Sanctions continued to be strengthened throughout the 1980s.

Since the decree of 29 August 1995, driving a vehicle is prohibited for a blood alcohol concentration (BAC) at or above 0.5 grams of alcohol per litre of blood (0.25 mg per expired air). This is approximately two standard glasses of wine. For new drivers until the third year after getting the license, and for drivers of road transport (trucks, bus, taxis, etc.), the maximum acceptable BAC is 0.2 grams per litre (Decree of 25 October 2004).

Driving a vehicle with an alcohol level between 0.5 and 0.79 grams per litre of blood (or 0.25 and 0.40 mg per litre expired air) leads to the police court: the offender risks a penalty from 135 euros to 750 euros, a loss of six points (out of a total of 12) on their driving license, and a vehicle immobilization. From 0.8 grams per litre (0.4 mg per litre expired air), the driver is driven to the correctional court and risks a withdrawal of the driving license, a penalty up to 4 500 euros, a prison sentence of up to two years and the withdrawal. In case of injury, the penalties are increased and can reach 10 years of imprisonment in case of homicide.

In October 2009, the legislator established the development of "alcolock" device for professionals transporting children and for people who have already been prosecuted for driving under the influence of alcohol. In 2012, the spread of breathalysers in all motorized vehicles was decided; however, detention by drivers of these breathalysers (controversial for their reliability and price) was not controlled. In January 2013, the Minister of Interior postponed *sine die* this obligation.

Workplace and alcohol

Drinking at work is forbidden except for wine, beer, cider and "poiré" (a sort of cider made with pears). The prevention of alcohol and drug use in the workplace is under the responsibility of the occupational physician, who also provides care recommendations (Law 20 July 2011). Occupational health services aim to advise employers, workers and workers' representatives.

Restrictions on trade and distribution

The production and sale of alcoholic beverages are regulated by the Public Health Code. They are subject to authorization (Law of 24 September 1941). Only holders of fully licensed institutions are allowed, within certain time limitations, to sell alcohol.

A social contribution was established in 2009 on alcoholic beverages exceeding 25% alcohol by volume, and extended in 2011 to beverages containing more than 18° (Act of 21 December 2011). The tax leverage increases the prices levels (10% below the average for the European Union), as part of the fight against excessive alcohol consumption, particularly among young people.

Selling and serving alcohol is forbidden in so-called protected areas (near or inside schools, cultural and sports areas, places of worship, hospitals, etc.). In 2009, the HPST Act strengthened the supervision of the availability of alcohol: prohibition of selling and serving of alcohol to minors; ban on the open bars practice, which involves having customers pay a set amount of money to drink whatever quantity they wish; bans on the sale of refrigerated alcoholic drinks in petrol stations, not being able to sell alcoholic beverages in these premises from 18:00 to 8:00.

The Law imposes training to anyone who wants to sell take-away alcoholic beverages. It also reinforces the power of control agents and municipalities to ban the sale of take-away alcohol at night (from 20:00 to 8:00). All

pubs likely to close between 2:00 and 7:00 must hold certified chemical or electronic devices for screening for alcohol impregnation (Decree of 24 August 2011). Ignoring the prohibition of selling or offering for free alcoholic beverages is punishable by a penalty of 7 500 euros. Repeat offences can lead to one year imprisonment and a 15 000 euros penalty.

Advertising

Advertising of alcoholic beverages are prohibited on media such as television and cinema (Act of 10 January 1991, known as Evin Law). However, it is permitted in the press, by posting or direct mail, radio (for some categories and time periods determined by decree of the State Council) and at events such as agricultural fairs. However, the 2009 HPST Act allows online advertising for alcoholic beverages, except in "sites for youth", without clarifying the definition of such sites.

Advertising is limited in its form: advertising materials can mention the name of the product, its presentation, its conditions of sale, its patterns of consumption and production area. Nevertheless, in 2005, the legislature relaxed the rules for wine, allowing the reference to the olfactory and gustatory characteristics of the products (Act of 23 February 2005). Advertisements must mention that "Abuse of alcohol is dangerous for health" (art. L3323-4 CSP), urging the public to "consume in moderation". Since October 2007, under the decree of 2 October 2006, all packaging units of alcoholic beverages, sold, imported or distributed for free, have a pictogram or a health message calling for the total absence of alcohol consumption by pregnant women. Violation of these prohibitions is punishable by a penalty of 75 000 euros and the equivalent of 50% of the amount of expenditure on the illegal operation; the cessation of advertising may be ordered.

Even if the 1991 Evin Law remains a reality, it has been criticized on many occasions during the past years. The alcohol lobby and advertising companies use different strategies to counter it such as influencing public opinion, restraining the influence of public health actors to the health policies, frightening the politicians with threats of economic, budget and job issues.

A recent survey shows that 89% of the French consider that there is enough – even too much – alcohol advertising; 70% declared that adverting influences youth consumption and 60% appealed for new restrictions on advertising. But this survey reveals also that people are not well informed on the restrictions on advertising (in particular the fact that advertising on TV and in cinema is strictly forbidden) (INPES, 2015).

Detection and care

Since 2006, the Ministry of Health and national health agencies (such as INPES) have promoted the identification and brief interventions (*repérage précoce intervention brève* (RPIBs)) strategy especially for GPs, but also for pharmacists and nurses. The RPIBs strategy is still hard to implement, mostly due to difficulties health professionals still have in discussing alcohol problems with their patients: 60% of GPs declare that alcohol is one of the less easy issues to talk with their patients, according to the 2009 GPs Health Barometer (INPES, 2011).

The 400 "young consumers consultations" (CJC) are dedicated to all kinds of addictions. They are focusing on early detection, advice and orientation for 12–25 years old people. They are totally free and confidential. They can also give advice to parents. A new national campaign to promote these structures was launched in January 2015.

People in trouble with their drinking habits may contact professionals operating in three different institutional frameworks: either medical and social structures specialized in addiction (e.g. care support and prevention centres specialized in addictions (CSAPA)), hospitals (general or specialized in psychiatry), or GPs.

The CSAPA (*centres de soins, d'accompagnement et de prevention en addictologie*) welcome people with excessive consumption of alcohol, usually dependent (2/3 patients) or with harmful use, or at risk. The number of people consuming alcohol (current or having consumed before) received in these centres for an alcohol problem was estimated at 133 000 people in 2010 (Chaumontet et al., 2015).

Liaison and addiction care teams (ELSA) were created in 2000 to promote the management of substance use problems in hospital services, regardless of their specialties. These teams, ideally including a physician, a nurse and a psychologist and/or a social worker, move at the request of various services to inpatient or emergency services to assess their addiction problems, initiate treatment, and refer the patient to an appropriate care when leaving the hospital. The hospital consultations for

addiction can accommodate ambulatory patients with addiction problems. In 2010, 297 hospitals reported having an ELSA and 476, a consultation in addiction (OFDT, 2015).

Expected new measures

The government has decided to reinforce the legal basis to fight against alcoholism in the government's latest health care reform legislation (*projet de loi de modernization de notre système de santé*), adopted on 26 January 2016.

The new measures are focused on youth consumption, including:

- penalties set against hazing to be extended to any person who incites others to "consume excessive alcohol";
- to fight the festive and friendly image of drunkenness broadcast by many games or items that promote excessive consumption of alcohol by prohibiting their sale or free offer to minors (Smartphone's hull, T-shirt.) and introducing new penalties for offenders;
- distinguishing the offences inciting a minor to excessive consumption and to regular consumption of alcohol;
- to ensure a youth panel is included in alcohol prevention campaigns;
- making it compulsory for a person selling alcohol to require evidence of legal age.

Drug policy

The Government's drug policy is global and integrated. France's latest Government Plan for Combating Drugs and Addictive Behaviors 2013–17 was launched on 19 September 2013. It takes a comprehensive and global approach towards illicit and licit drugs (narcotics, alcohol, tobacco, psychotropic medicines and new synthetic products) and other forms of addictive behaviours (gambling, gaming, doping) (MILDECA, 2015).

The current strategy is built on an understanding of addiction as multidimensional problem that emerges from the interaction of complex factors, including the biological, psychological, family, socioeconomic and environmental status and contexts of individuals. The 2013–17 Strategy is based around three main priorities:

- to base public action on observation, research and evaluation;
- to take the most vulnerable populations into consideration to reduce risks and health and social harm;
- to reinforce safety, tranquillity and public health, both locally and internationally, by fighting drug trafficking and all forms of criminality related to psychoactive substance use.

These priorities are addressed across five areas of action, or pillars, that structure the Action Plan: intensifying prevention, care and risk reduction; stepping up the fight against trafficking; improving law enforcement; grounding policies for fighting drugs and addictive behaviours on research and training; and reinforcing coordination at the national and international levels. Through these domains of activity, the new strategy addresses, to different extents, illicit drug use, alcohol, tobacco, psychotropic medications and other addictive behaviours (doping, gambling, gaming).

The next government plan was going to be launched in 2018.

Problem identification and issue recognition

The identification of alcohol consumption as a public health problem in France is mainly accomplished at national level by a number of health agencies supervised by the Ministry of Health, which are part of the public health prevention and health safety surveillance network.

Santé Publique France (SPF)[3] is responsible for surveillance and alerts in all domains of public health. Its mandate includes: monitoring and permanent observation of the population health conditions, health surveillance and health alerts. In particular, SPF is responsible for collecting, analysing and updating the knowledge about health risks, causes and trends, detecting risk factors that may modify or alter the health of the population and study and identify, for each type of risk, the most

3 Santé Publique France was created on 27 April 2016 as the national public health agency, resulting from the merger of the French Institute for Public Health Surveillance (InVS), the French Institute for Health Promotion and Health Education (INPES) and the Establishment for Public Health Emergency Preparedness and Response (EPRUS).

vulnerable or affected populations. SPF must immediately inform the Minister of Health in case of threat to the health of the population or to some sub-populations, whatever their origin, and to recommend any appropriate measures or actions to prevent the realization or mitigate the impact of this threat.

SPF conducts also surveys, studies and barometers, which allow to understand the changing opinions and health behaviours of the French population, which are considered a prerequisite for the development and implementation of a consistent and effective public health policy. These publications are reference tools for decision-makers, researchers, stakeholders in the health field (SPF, 2016).

The National Institute of Statistics and Economic Studies (*Institut national de la statistique et des etudes economiques* (INSEE)) also contributes to identify the importance of alcohol consumption by collecting national data and producing reports on this regard (INSEE, 2016).

At the regional level, each of the 26 regional health agencies (*agence regionale de l'hospitalisation* (ARS)) are responsible for ensuring that the provision of health care services meets the needs of the population. Strategic planning requires the ARSs to assess population health needs based on regional data regarding health care utilization, mortality and morbidity. Data are analysed by region and compared across regions to identify demand and over- or undercapacity.

At international level, French public health services interface in terms of problem identification and agenda-setting on alcohol consumption with other European countries and the European Commission through the European Information Network on Drugs and Drug Addiction (REITOX). The French Observatory on Drugs and Addictions (*L'observatoire français des drogues et des toxicomanies* (OFDT)) is the French information centre acting as the focal point for the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), being responsible of coordinating the French information system and submitting annually updated and harmonized data to the EMCDDA and the Network. The statistical, documentary and technical documentation produced by OFDT provides its audience an overall picture of the drug phenomenon.

Policy formulation

The Ministry of Health, which is the central level of the Administration of Health and Social Affairs (*Administration sanitaire et sociale*), is responsible for the formulation of overall national health policies, based on evidence provided by its subordinated agencies (e.g. Institut de Veille Sanitaire (InVS), the National Institute for Prevention and Health Education (INPES)) (see the Problem identification and issue recognition section). For example, INPES has developed national communication campaign since 1984. It also has a role promoting interventions which are efficient and should be implemented at the regional and local levels through the ARSs and NGOs. For example, it has published a document to identify interventions to prevent alcohol consumption in young people of different ages (INPES, 2012).

The Ministry of Health is responsible for preparing and implementing government policy in the areas of public health, being in charge of defining the priority areas for national programmes. Alcohol consumption, and drug addiction in general, is one of the areas in which intersectoral cooperation is better defined and developed, based on the World Health Organization's (WHO's) Health in All policy approach. For that reason, 10 ministries are part of the Interministerial Mission for the Fight against Drugs and Addictive Behaviours (*Mission interministèrielle de lute contre les drogues et les conduites addictives* (MILDECA)). The interministerial Mission was created in 1982 with the objective of coordinating public policies on this matter but also providing funding and helping in the design of appropriate policies (MILDECA, 2015). MILDECA, an administration reporting directly to the Prime Minister, is preparing the next governmental plan against addictions to be launched in 2018. It works mainly with the support of the OFDT.

The increasing health care expenditure and increasing deficit of the Statutory Health Insurance (SHI) (and corresponding increase in tax financing) has increased the role of the state in planning and regulation since the mid-1990s (Chevreul et al., 2015). However, the ARSs still have a relevant role to ensure that health care provision meets the needs of the local population. For that purpose, the ARSs generate regional policies with consideration of the national orientations and priorities, which are reflected in their own regional strategic health plans (*Plan stratégique régional de santé* (PSRS)). For example, the 2012–2016 Regional Strategic Health Plan of Aquitain (ARS Aquitain, 2012) identifies

alcohol consumption as a behavioural determinant that influences premature mortality and it proposes measures focused on prevention, brief interventions and early care among alcohol users at risk (ARS Aquitain, 2012).

The European Union (EU) also contributes to national policy formulation to tackle alcohol consumption in France. For example, the Government Plan for Combating Drugs and Addictive Behaviors 2013–2017 (see the Policies and programmes section) follows the framework provided by the 2013 – 2020 EU Drugs Strategy and its 2013–2016 action plan (EMCDDA, 2015).

Decision-making

All levels of government are involved in decision-making on alcohol-related policies and programmes, the Ministry of Health and MILDECA at the national level and ARSs at the regional level.

The national level is responsible for developing national health policy, enacting legislation that affects public health, guiding and regulating the regional and local levels in their delivery of public health services, and monitoring population health. It also coordinates national programmes and supports and monitors implementation. The ministry in charge of Health is responsible for preparing and implementing government policy in the areas of public health and organization and financing of the health care system within the framework of the Public Health Act. It controls a large part of the regulation of health care expenditure based on the overall framework established by the parliament. Further, the Interministerial Mission for the Fight against Drugs and Addictive Behaviours (MILDECA) is in charge of coordinating public policies on this matter and providing funding and help in designing appropriate policies (MILDECA, 2015).

Policy implementation

At the regional level, the Administration of Health and Social Affairs is represented by the ARSs, which are not directly under the supervision of the Ministry of Health but fall under the administrative supervision of the National Steering Council (*Conseil national de pilotage* (CNP)). The CNP comprises delegates of the ministries of health, public accounts and social security, the SHI and the National Solidarity Fund for Autonomy (CNSA) (Chevreul et al., 2015). The ARSs have considerable autonomy in public health, setting priorities and implementing activities according to the needs of their local population.

The ARSs are still facing problems with knowing what kind of actions they have to support, regarding their precise context and the data in the literature: "What works there should work here?". This question is more and more acute in a time of decreasing (at least stable) public funding which obliges them to select actions according to their efficacy and efficiency, if possible. In the field of addiction, there are also strong debates between those who promote universal prevention actions and those promoting alcohol-centred prevention actions. EHESP, Santé Publique France, the Institute of Research in Public Health and the Ministry of Health, along with other national institutes, have launched a national initiative to help ARSs and NGOs have an easy access to literature, data and transferability conditions of public health actions. In the case of alcohol for example, an ARS who needs to develop prevention actions dedicated to students at the university could be helped to design and implement interventions in reference to those which have been found efficient (in the literature or in trials). This initiative of creating a "register" (like others already in place in the UK or Norway) will be set up in 2018.

Monitoring and evaluation

The ministry in charge of Health relies upon a number of health agencies, which are under its supervision, and other public bodies for the responsibility for performing cross-sectoral follow-up studies and evaluations of national public health policies. This is the case of Santé Publique France (SPF) which generally conducts surveys and studies on the health of the French, which: enables researchers to quantify indicators of attitudes, knowledge, opinions and attitudes of the population in the different areas studied; provides valuable insights on behaviour change and therefore the impact of public health policies over time; and enables the better understanding of the expectations of the population and health professionals as well as the barriers in certain practices.

The behaviour of the population regarding alcohol consumption is captured by the health barometers, published by SPF. SPF is also responsible for surveillance and alerts in all domains of public health. Its mandates include monitoring and permanent observation of

population health conditions, health surveillance and health alerts, including the safety of products intended for human use. It is responsible for collecting, analysing and updating the knowledge on health risks, causes and trends; detect prospective risk factors that may modify or alter the health of the population or some sub-populations, both sudden or diffuse; to study and identify, for each type of risk, the most vulnerable or endangered populations; and health alerts.

Other national-level institutions which are involved in the monitoring of alcohol, and drug consumption, in general, are the French Observatory on Drugs and Addictions (OFDT), which supports MILDECA in its mission. Established in 1993, the French Monitoring Centre for Drugs and Drug Addiction is a non-profit public interest group with a scientific mission. It disseminates scientifically validated information on drugs and drug addiction issues to public authorities, professionals working in the field and all concerned citizens. Its monitoring and survey system is built on in-house coordinated surveys as well as on other reliable sources on licit and illicit substances. The OFDT is also consulted for its expertise and methodology, for instance, in providing information to help prepare governmental policies and in monitoring or assessing the implementation of public responses.

At the regional level, the ARSs monitor the regional health status of the population. Strategic planning requires the ARSs to assess population health needs based on regional data regarding health care utilization, mortality and morbidity.

Conclusion and outlook

Alcohol is the second most consumed psychoactive substance in France (after tobacco), with 9.7 million regular users, corresponding to 21% of the population (OFDT, 2010). In 2012, annual alcohol consumption was 11.8 litres per inhabitant aged over 15 years (INSEE, 2013a).

Alcohol control implicates numbers of key actors both at the national and regional level (see Table 1) involved in different stages of the policy-making.

In France, alcohol control not only requires mobilizing public health actors and authorities. Alcohol is also an economic – even cultural – and tax funding issue with strong lobbies trying to mobilize politicians and influence public authorities in charge of economic development and employment policies. Despite strong resistance from the public health actors and professionals, the 1991 Evin Law was again weakened at the parliament on 23 November 2015 during the discussion of the new health law. Against

Table 1 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
MILDECA	++	+++	+++	++	+
Ministry of Health	++	+++	+++	+	+
Santé Publique France	+++	+	0	++	++
OFDT	+++	+	0	+	++
INSEE, ONDPR*	++	0	0	++	0
Health insurance	++	+	+	++	++
EHESP	0	+	+	++	++
ARS	++	++	++	+++	++
NGOs	0	0	0	++	+
Non-specialized health sector	0	0	0	++	0
CSAPA	0	0	0	++	0
CJC	0	0	0	++	
ELSA	0	0	0	++	0

Source: Authors' compilation

Note: Level of involvement from +++ (strong) to 0 (no involvement).

* Observatoire nationale de la délinquance et des réponses pénales

the advice of the government, the deputies have voted for the distinction between alcohol advertising and information which will lead to increasing the visibility of positive messages concerning wine's French culture.

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Antimicrobial resistance

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The scale of the challenge

Antimicrobial resistance (AMR) is a serious global public health problem which is growing rapidly.[4] In France, the Burden BMR study carried out in 2012 by the Institute for Public Health Surveillance (*Institut de Veille Sanitaire* (InVS)) estimated that 158 000 (127 000 to 245 000) multidrug-resistant bacterial infections occurred in France, including 16 000 invasive infections. Methicillin-resistant *Staphylococcus aureus* (MRSA) and third-generation cephalosporin-resistant (3GC-R) *Enterobacteriaceae* were responsible for 103 000 (90 000 to 172 000) infections; 65% of the total. The annual number of deaths directly attributed was 12 500 (11 500–17 500), and 2 700 were related to invasive infections (Colomb-Cotinat et al., 2015).

In addition, few antibiotics with new mechanisms of action have been developed in the last 30 years (Carlet and Coz, 2015). The investment in developing antibiotics has dropped considerably for the last 10 years. Indeed, pharmaceutical companies now regard the return on investment as too weak, as the selling prices of antibiotics are considered as too low, the treatment duration is short and the number of prescriptions issued is being reduced. So, recently, only a few new antibiotics have been put on the market, and, globally, very few are currently under development.

The losses of productivity generated by AMR are also significant. Several studies have tried to determine the cost of resistance. The cost would be more than 1.5 billion euros in Europe (RAND Europe, 2014) including 910 million euros for patient care and 600 million euros for loss of patient productivity (ECDC and EMA, 2009).

Since 2000, France has set up several plans to reduce the antibiotic consumption (see the Policies and programmes section). However, France still consumes 30% more antibiotics than the European average, and almost three times more than the Netherlands, Sweden or Norway. According to the National Agency of Medicine and Health Products Safety (*Agence nationale de sécurité des médicaments et des produits de santé*), after a significant decrease until 2009 (overall 11.4%), antibiotic consumption has increased again in France, especially in community and ambulatory care, while remaining stable in hospitals (ANSM, 2017). In 2013, France was the second ranked among European countries just after Greece for high antibiotic usage (ECDC, 2018). This overconsumption represents an additional expenditure for France of 71 million euros (compared to the European average) and 441 million euros (compared to less consuming countries).

Between 30 and 50% of antibiotic therapies are prescribed unnecessarily in France by GPs, in institutions for dependent elderly people (*Etablissements hébergeant des personnes âgées dépendantes* (EHPAD)), or in hospitals. In particular for the treatment of upper respiratory tract infections, which are mainly of viral origin. Fast diagnostic tests exist for certain diseases but those are not used enough. For example, only 30% of the GPs declare using the Fast Diagnostic Orientation Test for sore throats.

After stabilizing between 2005 and 2010, French antibiotic consumption is increasing again (ANSM, 2014). In ambulatory medicine, the average consumption in the EU27 was 21.5 defined daily doses (DDD) per 1 000 inhabitants in 2012, and was 29.7 DDD for France. In 2013, the consumption in France was 30.14 DDD, is just behind Greece's 32.24 DDD per 1 000 inhabitants. In 2013 in hospitals, France was ranked 7th, with a consumption of 2.17 DDD per 1 000 inhabitants. The reasons for this overconsumption in France are not clear though there is a French cultural phenomenon of drugs consumption, in particular for antibiotics, unlike other countries such as the Netherlands, Scandinavia or Germany in which the use of the antibiotherapy is much more careful.

However, the French AMR situation is not completely negative. Whereas certain countries such as the United States or Ireland saw a rapid increase in the prevalence of Enterococcus resistant to vancomycin (ERV) (ECDC, 2018a), in France, this problem has been limited to some controllable epidemics. In addition, hygiene policies, such as the use of alcohol-based hand rubs, are probably

4 In this chapter, most of the information and data come from the report of the special working group to preserve the efficacy of antibiotics directed by Dr. J Carlet and P. Le Coz (Carlet and Coz, 2015).

efficient. MRSA prevalence was halved between 2000 and 2015.

In 2010, France and the Netherlands were the largest antibiotic consumers in agriculture. More recent data (2014) show that these two countries have considerably reduced the use of antibiotics in the animal sectors and are now consuming less than Belgium, Germany, Spain, Italy, Hungary, Portugal or Cyprus (Grave et al., 2014). The EcoAntibio plan was set up in France in 2010 and two years later the plan made it possible to appreciably reduce antibiotic consumption, with a fall in exposure of the animals to antibiotics of 12.5% between 2012 and 2014 (Ministry of Agriculture and Food, 2017). This reduction varied according to the animal sectors, with a very important decrease in pig farming.

The presence of antibiotics in every aspect of human activity affects the presence of resistant bacteria in the environment. The effect of antibiotic traces found in the environment is still largely unknown, but most probably supports the development of worldwide resistance, including in European countries (Carvalho and Santos, 2016).

Policies and programmes

The first national plan to preserve the efficacy of antibiotics was published in 2001 (Ministry of Health, 2001). The second was created in 2007 (Ministry of Health, 2007) and the third was published in 2011 with a new title "National Alert Plan" (Ministry of Health, 2011). This plan is still in use.

These three plans were decided by the ministry in charge of health, in partnership with public bodies and partners from the health sector (health insurance – *Caisse nationale d'assurance maladie des travailleurs salariés*, different national agencies, etc.).

The third plan specially developed the European and international dimension of the policy. The major role of trade development between countries and continents contributes to an increasing globalization of circulating multiresistant bacterial clones (MRSA, *Enterobacteriaceae* New Delhi metallo-beta-lactamase-1 (NDM1) etc.). Facing this global threat, the European Centre for Disease Prevention and Control (ECDC) and the World Health Organization (WHO) have included bacterial resistance in their priority health concerns. Indeed, it is important that the fight against bacterial resistance is coordinated beyond the level of one individual country, and that France participates in actions undertaken within the framework of international bodies.

One of the main goals of the National Alert Plan was to ensure the continuity of the transmission of French data to the European monitoring networks (European Surveillance of Antimicrobial Consumption (ESAC) and the European Antimicrobial Resistance Surveillance Network (EARS-Net)); two networks which are now under the responsibility of the ECDC. The databases are therefore used as benchmarks for antibiotic consumption and AMR among EU members, including France.

The global strategy developed in the successive national plans is to promote prudent use of antibiotics. The success of this strategy should lead to lower prescriptions rates to reach the average consumption level observed in European.

In the 2011 National Alert Plan (2011–2016), the prudent use of antibiotics strategy is articulated around three axes, which are divided into eight measures and 22 actions.

Strategic Axis I: to improve the effectiveness of the treatments

One important issue is the quality of the dialogue between health professionals and patients. To be effective, it is necessary to provide the professional with the tools that enable them to make the right choices, whether or not they are trained in specific bacterial infections, antibiotic use and resistance phenomena, but also that the patient will be convinced by the professional approach and the therapeutic solution that is proposed.

Strategic axis I has three measures:

- improve the recommendations for antibiotics use;
- inform and train health professionals;
- inform the population on the harms of antibiotics use and promote the good use of antibiotics.

Strategic Axis II: to preserve the effectiveness of antibiotics

Beyond the question of the effectiveness of the treatment, it is also important to act specifically on the preservation of the effectiveness of antibiotics themselves by:

- strengthening the monitoring of consumption and resistance; improving the monitoring of the consumption of antibiotics in ambulatory medicine, in hospitals and in long-term care institutions; encouraging the development of information systems to avoid double prescriptions; using the consumption data at the local, regional, and national level and organizing feedback to the prescribers; adding a qualitative dimension by combining the surveillance of the antibiotic consumption and the evaluation of the prescriptions; participating in European and international projects.
- reducing the pressure of selection of antimicrobial agents; for this measure it is interesting to note that an EcoAntibio plan was published in 2012 by the Ministry of Agriculture to promote the good use of antibiotics in the veterinary sector.
- controlling the delivery of antibiotics.

Strategic Axis III: to promote research

Research issues are crucial. In basic research, this means improving the understanding of mechanisms of action against bacteria and causes and consequences of the emergence and spread of resistance, but trying to identify alternatives to the use of antibiotics in the treatment of bacterial infections.

In applied research, the main challenge is to overcome the downward trend in the number of effective antibiotics available, encouraging researchers and laboratories to reinvest in this field to discover and develop new molecules effective against bacteria that have now reached a high degree of resistance. It is also important to promote development of rapid diagnostic tests, and to strengthen the capacity of all microbiology laboratories to detect certain phenotypic resistance.

Finally, research actions are also conducted in the field of humanities and social sciences, for example, to better understand the determinants of antibiotic use and/or evaluate the health economic consequences of the development of bacterial resistance to antibiotics.

Even before the end of the present National Alert Plan, a special working group to preserve the efficacy of antibiotics coordinated by Dr. J Carlet and P. Le Coz (2015) was mandated by the Minister of Social Affairs, Health and Women Rights to formulate innovative, concrete and affordable proposals, which must play a part in reducing the antibiotic consumption in France by 25% by the end of 2016[5] and to prepare the next national plan. This plan is now being evaluated by the health authority.

The special working group reinforced the idea that only adoption of a global strategy with common concrete actions within the framework of international conferences, such as the G7 or G20, would make it possible to fight against the AMR, through a comprehensive approach which includes health, agricultural and environmental policies. It is necessary to understand the AMR phenomenon as a whole by supporting the development of new health care strategies, improving the antibiotic prescription and consumption behaviours, and understanding environmental factors. Beyond simply discovering new ways of treating the resistant infections, the special working group declared that it is time to learn how to prevent them. The promotion of hygiene and vaccinations are also an essential way to fight AMR.

At the end of the reflections of the SWG, four major axes were identified as being the indispensable conditions for the safeguarding of antibiotics. These reinforce the axis of the ongoing national plan.

- Axis 1: To adopt a national strategy for AMR research and the development of innovative products (including a special fund for the research program of 5 years duration).
- Axis 2: To propose a set of timed indicators allowing measurement and observation of AMR, such as its cost in the various sectors (human, animal and environmental).
- Axis 3: To improve the prudent use of antibiotics by financing structures of support to the regulation, by offering a set of educational tools to prescribers, and by reinforcing individual and collective professional responsibility.
- Axis 4: To better inform the public about AMR.

5 The working group and its sub-groups joined together more than 120 experts engaged in the fight against the AMR. http://www.social-sante.gouv.fr/IMG/pdf/rapport_antibiotiques.pdf

These orientations are accompanied by creation of four transversal tools necessary to implement the measures.

Tool 1. To set up an Interministerial committee, in charge of AMR.

Resistance to the anti-infectious agents is a global problem which involves many bodies, in particular the ministries for health, agriculture, environment, research, higher education and industry. The working group proposes to create an interministerial committee installed at the level of Prime Minister, coordinated by an interdepartmental deputy in charge of AMR.

Tool 2. To allocate, over 5 years, essential resources for the setting up of an intersectoral innovation and research plan on AMR.

Tool 3. To create a particular status for innovating products to fight against AMR.

The shortage of innovation in antibiotherapy research is explained by insufficient economic prospects for the industrialists. The working group proposes that innovative products in this area will be given a particular status. This statute will have to imply a set of concomitant incentive measures aimed at accompanying the product in each stage of its development, and offering a return on investment sufficient for the developing company.

Tool 4. To confer the statute of "Great National Cause 2016" on the fight against AMR

Each year, the Prime Minister allows this governmental label to be given to a public interest campaign on a given topic, and launches an invitation to tender which associations defending this cause can answer. Besides bringing a visibility to the action of these organizations, this label enables them to obtain free dissemination of the message on the radio and public television.

Problem identification and issue recognition

The identification of AMR as a public health problem in France is mainly accomplished at national level by the Ministry of Health and a number of health agencies (e.g. ANSM, InVS) supervised by the Ministry of Health, which are part of the public health prevention and health safety surveillance network. These national agencies have a role in public health dealing with health protection.

The National Institute for Public Health Surveillance (InVS[6]) is responsible for surveillance and alerts in all domains of public health. Its mandate includes: monitoring and permanent observation of the population health conditions, health surveillance and health alerts. In particular, InVS is responsible for collecting, analysing and updating the knowledge about health risks, causes and trends, detecting prospective risk factors that may modify or alter the health of the population and study and identify, for each type of risk, the most vulnerable or affected population. InVS must immediately inform the Minister of Health in case of threat to the health of the population or to some sub-populations, whatever their origin, and to recommend any appropriate measures or actions to prevent the realization or mitigate the impact of this threat (InVS, 2016).

L'Agence nationale de sécurité du médicament et des produits de santé (ANSM) provide equitable access to innovation for all patients; as well as guaranteeing the safety of health products throughout their life-cycle, from initial trials to surveillance after marketing authorization. The ANSM develops several activities in France and on behalf of the European Union: scientific and technical evaluation of the quality, efficiency and user safety of drugs and biological products; monitoring predictable or unexpected adverse effects of health products; inspecting establishments engaged in manufacturing operations; import, distribution, pharmacovigilance and conducting clinical trials; control laboratories for releasing batches of vaccines and plasma products, control of products on the market, collected during inspections, or seized by the judicial authorities or customs (ANSM, 2016).

At regional level, each of the 26 regional health agencies (*agence regionale de l'hospitalisation* (ARS)) are responsible for ensuring that the provision of health care services meets the needs of the population. Strategic planning requires the ARSs to assess population health needs based on regional data regarding health care utilization, mortality and morbidity. Data are analysed by region and compared across regions to identify demand and over- or undercapacity. The regional centres for the coordination of the fight against nosocomial infections

6 Santé Publique France was created on 27 April 2016 as the national public health agency, resulting from the merger of the French Institute for Public Health Surveillance (InVS), the French Institute for Health Promotion and Health Education (INPES) and the Establishment for Public Health Emergency Preparedness and Response (EPRUS).

(*Centre de Coordination de la Lutte contre les Infections Nosocomiales* (Cclin)) are in charge of the prevention of health care-associated infections (see, for example, CClin Paris Nord (2016)).

Other key actors with which French public health services interface in terms of problem identification and agenda-setting for AMR are the EU and the WHO. The French government strategies to tackle AMR follow the European Commission Recommendation 2002/77/EC on the prudent use of antimicrobial agents in human medicine (Gerards, 2011), as well as the 2001 WHO Global Strategy for Containment of AMR (WHO, 2001). France has also joined specific WHO campaigns aimed at reducing AMR, such as "Clean Care Is Safer Care": on 5 May 2009, the Minister in charge of Health formally signed the statement pledging support to address health care-associated infections (HAIs) and engage in nationwide hand hygiene campaigns (WHO, 2009).

In addition, the hospitality sector and accommodation facilities for elderly dependents (*établissement d'hébergement pour personnes âgées dependants* (EHPAD)), industry and work performed by research institutes also have an active role in identifying and recognizing AMR. Further, intersectoral collaboration exists with the Ministry of Agriculture in France, which is also responsible for surveillance and alert in this domain of public health.

Policy formulation

The Ministry of Health, which is the central level of the Administration of Health and Social Affairs (*Administration sanitaire et sociale*), is responsible for the formulation of overall national health policies, based on evidence provided by its subordinated agencies (e.g. InVS, ANSM) (see the Problem identification and issue recognition section).

The Ministry of Health is responsible for preparing and implementing government policy in the areas of public health, being in charge of defining priority areas for national programmes. AMR is one of the areas in which intersectoral cooperation is better defined and developed, and hence, the ministry in charge of Health works closely with the Ministry of Agriculture to formulate the relevant policies.

The increasing health care expenditure and increasing deficit of the Statutory Health Insurance (SHI) (and corresponding increase in tax financing) has increased the role of the state in planning and regulation since the mid-1990s (Chevreul et al., 2015). However, the ARSs still have a relevant role to ensure that health care provision meets the needs of the local population. For that purpose, ARSs generate regional policies considering the national orientations and priorities, which are reflected in their own regional strategic health plans (*Plan stratégique régional de santé* (PSRS)). Regional offices of Public Health France (called CIRE) have been set up over the last 20 years. These regional offices, act on behalf of the national institute at the regional level and coordinate a regional alert and surveillance program in close collaboration with the national centre of *Santé Publique France*/Public Health France. For the investigation of infectious disease outbreaks there is a close and frequent interaction between *Department des maladies infectieuses* (DMI) and the CIRE. In the field of nosocomial infections, the DMI collaborates closely within a structured network composed of five interregional centres (CCLIN) responsible for the interregional coordination of hospital infection control, prevention, surveillance and outbreak response.

The High Authority on Health (*Haute Autorité de Santé* (HAS)) is also involved in policy formulation in AMR. The HAS is an independent body created in 2005 to enhance the quality and efficiency of the health care system. Its main missions are: the evaluation of health products (drugs and medical devices) on a medical and economic point of view, the development and dissemination of evidence-based practices and quality and quality of care indicators, and the accreditation of hospitals and health professionals. At international level, the EU and the WHO contribute to setting objectives and identifying policy instruments for later implementation within the country. For example, as mentioned in the Problem identification and issue recognition section, France has endorsed the European Commission Recommendation 2002/77/EC on the prudent use of antimicrobial agents in human medicine.

Decision-making

All levels of government are involved in decision-making on AMR-related policies and programmes: the Ministry of Health and its agencies at national level (ANSM and to a lesser extent, Santé Publique France) and the ARSs at regional level.

The national level is responsible for developing national health policy, enacting legislation that affects public health, guiding and regulating the regional and local levels in their delivery of public health services, and monitoring population health. It also coordinates national programmes and supports and monitors implementation. The ministry in charge of Health is responsible for preparing and implementing government policy in the areas of public health and organization and financing of the health care system within the framework of the Public Health Act. It controls a large part of the regulation of health care expenditure based on the overall framework established by the parliament. Further, the Ministry of Agriculture enacts legislation to tackle AMR in the country.

At the regional level, the Administration of Health and Social Affairs is represented by the ARSs, which are not directly under the supervision of the Ministry of Health but fall under the administrative supervision of the National Steering Council (*Conseil national de pilotage* (CNP)). The CNP comprises delegates of the ministries of health, public accounts and social security, the SHI and the National Solidarity Fund for Autonomy (CNSA) (Chevreul et al., 2015). The ARSs have considerable autonomy in public health, setting priorities and implementing activities according to the needs of their local population. The structured network composed of five interregional centres (CCLIN) is responsible for the interregional coordination of hospital infection control, prevention, surveillance and outbreak response.

Policy implementation

The ministry in charge of Health is the central level of the Administration of Health and Social Affairs (*Administration sanitaire et sociale*) and is responsible for preparing and implementing government policy in the areas of public health and organization and financing of the health care system within the framework of the Public Health Act. Its specific responsibilities include defining priority areas for national programme and facilitating their implementation. The ministry in charge of Health relies upon a number of health agencies, which are under its supervision, and other public bodies in the development and implementation of policies for which it is responsible. Some of these agencies are part of the public health prevention and health safety surveillance network. Santé Publique France, for example, is in charge of implementing policies in matters of prevention and health education within the government's public health policy framework. It also has in its remit management of emergency or exceptional situations having serious consequences on the health of the general population.

The implementation of polices to tackle AMR also involve: ambulatory care, industry, research institutes and to a lesser extent, the public and patient organizations. The active participation of patients in the evolution of the health system is quite new in France, as it was assumed that elective bodies and social participation of trade unions in the management of the system were sufficient. This situation moved in the 80s, due to two simultaneous pressures: the crisis of contaminated blood and the onset of the AIDS epidemic.

At the regional level, the ARSs aims to ensure that health care provision meets the needs of the population by improving links between ambulatory and hospital sectors, and between the health and social care sector services, while keeping within national health expenditure limits. The ARSs coordinate ambulatory and hospital care for the population as well as health and social care for the elderly and the disabled through a regional strategic health plan (*Plan stratégique régional de santé* (PSRS)) based on population needs.

The ARSs monitor the regional health status of the population, ensure that hygiene rules are respected, participate in prevention and patient health education and assess health professionals' education. They also carry out SHI regional programmes, notably in risk management. They authorize the creation of new health services and social and health services for the elderly and disabled. In the environment and health sector, they oversee water and air quality. The structured network composed of five interregional centres (CCLIN) is responsible for the implementation at regional level of the strategies to tackle AMR.

Monitoring and evaluation

The ministry in charge of Health relies upon a number of health agencies, which are under its supervision, and other public bodies for the responsibility for performing cross-sectoral follow-up studies and evaluations of national public health policies. This is the case of *Santé Publique France*, which is responsible for surveillance and alerts in all domains of public health. Its mandates include: monitoring and permanent observation of

population health conditions, health surveillance and health alerts, including the safety of products intended for human use. It is responsible for collecting, analysing and updating the knowledge about health risks, causes and trends; detecting prospective risk factors that may modify or alter the health of the population or some sub-populations, both sudden or diffuse; to study and identify, for each type of risk, the most vulnerable or endangered populations; and health alerts.

Other national-level institutions which are involved in the monitoring of AMR are the ANSM, as well as HAS. At the regional level, the ARSs monitor the regional health status of the population. Strategic planning requires the ARSs to assess population health needs based on regional data regarding health care utilization, mortality and morbidity. In the case of AMR, the structured network composed of five interregional centres (CCLIN) is responsible for the implementation of the strategies to tackle AMR at regional level.

The hospitality sector and EHPAD, the ambulatory sector and research institutes are also involved in monitoring AMR in France.

Conclusion and outlook

The awareness of the French health authorities for the AMR issue is clear.

The increasingly dramatic titles of the national plans and reports reflect that AMR is considered not only as a priority but also as an emergency:

2001 and 2007: National Plans to Preserve Efficacy of Antibiotics;

2011: National Alert Plan on Antibiotics;

2015: Let's Save Antibiotics, All Together (report of the special working group).

These successive contents are now linked to a global strategy for combating AMR which are mainly included in the national programme for the prevention of health care-associated infections (Ministry of Health, 2015).

This AMR issue illustrates the difficulties France has in coordinating public actions.

Table 2 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Ministry of Health	+++	+++	+++	++	+
Ministry of agriculture	++	++	++		
ANSM	++	++	++	+	++
InVS	+++	+	+	+	++
INPES	0	0	0	++	
HAS	0	+	+	++	++
Health insurance	+++	++	++	+++	++
ARS	+	++	++	++	+
CCLIN	++			++	++
Hospitality sector and EHPAD	+	0	0	++	+
Ambulatory medicine	0	0	0	+++	+
Industry	+	0	0	++	0
Research institutes	+	0	0	++	+
Public	0	0	0	+	0
Patient organizations	0	0	0	+	0

Source: Authors' compilation

Note: Level of involvement from +++ (strong) to 0 (no involvement).

In the health sector:

- At the national and regional levels, between the State and the Statutory Health Insurance: although a national convention with regional declinations exists, it is obvious that many policies (including AMR) should be more coordinated between the two main actors of the health policy;
- At the regional level, the ARSs still have difficulties making hospitals, ambulatory medicine, institutions for dependent elderly people (EHPAD), the public health sector (in fact often focused on prevention) and patients working together on such an issue; many rules and tools have been elaborated at a time when all these sectors (with hundreds of different actors) were working totally independently.

The liberal culture of practitioners, especially within the ambulatory sector, also makes difficult the implementation of recommendations, although the Statutory Health Insurance can negotiate financial incentive measures with the national professional organizations.

At the government level:

- AMR is an issue not only for the Ministry of Health. The Ministry of Agriculture has already decided to set up a national plan. But other ministries must face the challenge and take actions in coordination. That is why the report of the special group urges French authorities to develop a whole government approach on this issue and to create, at the level of the Prime Minister, an interministerial committee, coordinated by an interdepartmental deputy in charge of AMR. We do not know yet if and when a new national plan will be decided.

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Germany

Obesity

Klaus Plümer

Introduction

Public health services (*Öffentlicher Gesundheitsdienst* (ÖGD)) in Germany have played no major role in putting obesity on the political agenda, or in formulating, implementing or evaluating policies on obesity. Public health services have mainly been confronted with obesity from three marginal points of view: (a) in child and adolescent health services, (b) as case-based nutrition counselling and (c) when hiring staff in the public service, particularly regarding permanent employment. Having a BMI in excess of 30 makes getting a job in public service difficult, even though dismissal due to obesity would contravene antidiscrimination legislation. A national obesity-related policy has been adopted, aiming to encourage healthy diets and physical activity, but it mainly focuses on individual behaviour change, and obesity levels continue to rise.

The scale of the challenge

Obesity has been on the health agenda in Germany for many years, with periodical debates about right and wrong diets flaring up in the media. The public debate is dominated by dietitians, nutritionists and sport scientists, as well as general practitioners (GPs) and health scientists, but has had little lasting effect on policies or obesity levels.

According to OECD data, the share of adults with obesity almost doubled between 1990 and 2015, from 12% to 23.6%, and, for the first time, in 2015 was well above the OECD average of 19.4% (OECD, 2018). A nationally representative health examination survey in 2011 found prevalence rates of overweight among adults of 53.0% among women and 67.1% among men, and prevalence rates of obesity of 23.9% among women and 23.3% among men (Mensink et al., 2013). A comparative survey in 1998 found slighty higher rates of overweight (54.5% in women and 68.8% in men), but slightly lower rates of obesity (23.1% in women and 19.5% in men). The increase in obesity between 1998 and 2011 was most pronounced in younger age groups (25–34-year-olds) and obesity was more common among those with lower socioeconomic status (Mensink et al., 2013). Lower rates of overweight and obesity were found in the micro census in 2013, which was based on self-reported data. This census found that 52% of the adult population (62% of men and 43% of women) were overweight (Westphal and Doblhammer, 2014).

It has been estimated that the economic costs of obesity in Germany (including treatment, medications, surgery, rehabilitation and sick pay) amount to up to 27 billion euros per year (Effertz, 2015). Most of these costs are borne by the Statutory Health Insurance funds.

While, in Germany, obesity is generally perceived as a problem, the level of recognition differs among and between stakeholders. Among the public, more than three quarters of survey respondents perceived obesity as one of the major health problems and an even higher percentage knew that obesity increases the risk of certain chronic diseases (Hilbert, 2007). Interestingly, the prevalence of obesity in adults and children is overestimated by the public by about 20 percentage points (Hilbert, 2007). This suggests that the population may define obesity differently from health professionals, basing their judgements on appearance and aesthetics, rather than an objectifiable status (Sikorski, 2012). The public in European Union (EU) Member States, as surveyed in the 2005 Eurobarometer, supported interventions for the prevention and reduction of childhood obesity, including the provision of information to parents, physical activity

in schools and advertising restrictions. There was less support in Germany for providing information to parents than in most other countries, but more support for educating children and restricting advertising (Suggs and McIntyre, 2011). As medical students are transitioning from being part of the public to joining the health profession, they are more likely than the public to perceive obesity as one of the major health problems and are more likely to know about associated health risks. Both groups seem to have a negative attitude towards obese people (Pantenburg, 2012).

Primary care physicians are usually the first health care providers obese people are in touch with. However, they often fail to correctly identify overweight or obesity. Only 20–30% of overweight patients are correctly classified as such by their GPs, a percentage increasing to 60–70% for obese people. Young overweight people are, for some reason, less likely to be recognized as such compared to their older counterparts (Bramlage, 2004).

A survey by the European Association for the Study of Obesity (EASO), conducted in 2013–2014 among 333 policy-makers in 11 countries (30–31 policy-makers per country), found significant gaps in knowledge (EASO, 2014). In Germany, fewer than 20% of policy-makers were familiar with the definition of obesity using the body mass index (BMI) (compared to 63% in Denmark and 52% in England) and 93% of respondents underestimated the prevalence of overweight in the country by more than a 5% margin, compared to an average of 84% of policy-makers from all countries combined.

Policies and programmes

Recognizing the importance of obesity as a health issue, in 2008 the German Government, led by the Federal Ministry of Food, Agriculture and Consumer Protection and the Federal Ministry of Health, set up the intersectoral National Initiative to Promote Healthy Diets and Physical Activity (*Deutsche Initiative for gesunde Ernährung und mehr Bewegung*), called IN FORM (2008). This initiative aims to achieve sustainable improvements in healthy diet and physical activity by 2020 (http://www.in-form.de). It frames obesity as a public health problem that requires government action to promote the population's health and well-being (Vallgårda, 2015). The initiative sets out subtle rather than statutory measures, mainly relying on health promotion, fostering an understanding of self-responsibility, changing preferences and encouraging individuals to adopt healthier life choices and lifestyles (Vallgårda, 2015). In contrast with England and France, the German approach does not focus explicitly on weight, but rather on physical activity and nutrition, the two main immediate factors that result in weight loss or gain. The initiative recognizes the broader social factors giving rise to obesity and expects voluntary action from other stakeholders, such as businesses and local authorities (Vallgårda, 2015). It contains five main areas for action:

- for the Federal Government, the states and communes to "set an example" (such as through Health Impact Assessments, in the allocation of public funds, as employers, and as funding bodies of community facilities);
- the provision of information on diet, physical activity and health;
- the promotion of physical activity in daily life;
- improving the quality of catering away-from-home; and
- providing a fresh impetus for research (IN FORM, 2008).

In 2008 the German government also included the reduction of the proportion of adults with obesity by 2020 among its key indicators for sustainable development. This indicator is being reported on every two years, most recently in 2016 (Federal Statistical Office, 2016).

A range of other federal policies have an impact on overweight and obesity, sometimes in line with a Health in All policies approach. Some of the most important are the National Cycling Plan 2020 (BMVBS, 2012), which promotes cycling, walking and the use of public transport, and two programmes of the Federal Centre for Health Education (FCHE): Gut Drauf (Feeling Well), which aim to improve the health of children and adolescents aged 12 to 18 years (www.gutdrauf.net), and Tutmirgut (Good For Me), aimed at children aged 5 to 11 years (EASO, 2014).

Many programmes to tackle obesity have been set up at the local level, and most focus on children and adolescents. These programmes usually aim to tackle the problem in a kindergarten or school setting and use a multiprofessional team, consisting of teachers, physicians, psychologists, nutritionists and other professionals (Sharma, 2007). Many rely on an educational approach and the training of existing teachers. In 2007, there were

708 programmes for overweight or obese children and adolescents in Germany, reaching approximately 44 000 persons (FCHE-report, 2007). However, their quality and the financial resources devoted to them differed greatly (Kliche and Mann, 2008). Calculations suggest that the programmes reached 33–55% of overweight or obese children at the time, indicating major gaps in coverage (Kliche, 2007).

One example of an early childhood intervention at the local level aimed to prevent obesity is ToyBox which has been implemented in kindergartens in Munich. It trains teachers in recognizing factors contributing to early childhood obesity, and changing the environment of kindergartens to support healthier lifestyles. The intervention also provides information to parents about the causes of obesity and the required lifestyle changes (Manios et al., 2014).

Another example for a local initiative is the StEP TWO programme in Cologne set up in 2003 and focusing on children in primary schools aged 7 to 9 years. The programme combines two interventions. It promotes physical activity to all children and provides overweight and obese children with special diets and physical activity classes, including soccer and dance (Sharma, 2007).

Problem identification and issue recognition

Although obesity was not included explicitly among the eight national health goals that were agreed on by 2015 (http://www.bmg.bund.de/en/health/national-health-goals.html), it is implicitly contained in the national health goal "Growing up healthily: life skills, exercise, diet" that was published in 2003 and updated in 2010. The health target "Healthy Ageing" that was published in 2012 is also relevant to obesity, although it does not refer to it explicitly, but instead emphasizes healthy lifestyles, including balanced nutrition and physical activity.

However, obesity has been increasingly recognized as an important public health problem in Germany in the routine school entry medical examinations conducted by the child and youth health service departments of local public health authorities. By the 1990s, the issue of childhood obesity was documented in local health reports and discussed at local and regional health conferences. Regional and local activities were set up, financially supported by health insurance funds and implemented in schools and kindergartens. Although the problem was thus recognized, the initiated activities were insufficient to halt or reverse the increase in childhood obesity.

The interventions focused mainly on changes in lifestyles, promoting a healthy diet and physical activity. In contrast, living conditions and socioeconomic status, as well as the wider social and physical environment, were not so much considered as factors giving rise to obesity, but as factors that could be used for interventions, such as through peer group approaches, or as the given organizational context for interventions.

At the same time, there was a recognition of the importance of promoting health in the settings in which people learn, live and work, in line with the 1986 Ottawa Charter for Health Promotion. This settings approach has been recognized as a promising avenue for interventions and is included in the "Prevention Guidelines" that set out the prevention activities to be funded by Statutory Health Insurance funds, in line with the relevant provisions (articles 20 and 20a) of the Sozialgesetzbuch (Social Security Code). The arrangements for the settings approach have been revised thoroughly in the December 2014 edition of the guidelines, specifying the types of activity to be funded, as well as eligibility and exclusion criteria. Measures that do not correspond to these guidelines and criteria may not be carried out or supported by Statutory Health Insurance funds. This applies to health promotion activities in day care facilities for children (Kindertagesstaetten, "Kitas"), schools and companies. The guidelines emphasize that the settings approach has the benefit of changing individual behaviour, as well as the environment itself, thus interlinking behavioural and environmental prevention (GKV Leitfaden, 2014).

Policy formulation

Public health services have not been involved in the policy formulation on obesity in Germany. A National Action Plan against Obesity was presented to the Federal Ministry of Health (BMG) and the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) in March 2007, following an initiative by the German Obesity Society (Müller et al., 2007). Tellingly, public health services had not been involved in the development of this action plan. However, as mentioned in the Policies and programmes section, no action plan on obesity was adopted, as the government instead established the

National Initiative to Promote Healthy Diets and Physical Activity (IN FORM), which does not focus specifically on obesity, but rather, more broadly, on nutrition and physical activity. The corresponding National Action Plan for the Prevention of Poor Dietary Habits, Lack of Physical Activity, Overweight and Related Diseases makes explicit reference to overweight in its title and also discusses obesity (Federal Ministry of Food, Agriculture and Consumer Protection and Federal Ministry of Health, 2013).

Preceding the development of a draft action plan on obesity, the German Platform for Diet and Physical Activity (PEB) was established in September 2004 (www.peponline.de). It aims to promote healthy diets and active lifestyles and to give consumers a voice in the discussion with policy-makers and representatives from industry. The platform promotes a number of programmes and is supported by a scientific committee. It brings together approximately 100 stakeholders, including representatives from the food industry, food producers, researchers, health insurers, sports unions and government representatives (EASO-Study, 2014, p. 22). The platform has been heavily influenced by the food industry, which dominates membership in the initiative. Out of more than 100 members, only six represent consumers and educators, eight come from the sports sector, 10 represent the public sector, 11 are from the sciences, 16 from the field of health, 20 represent companies, associations or foundations, and 31 represent the food industry, including Coca Cola and Danone (ZDF Frontal 21, 2014). "And they reject any proposal that might affect their sales," complained Margareta Büning-Fesel, the CEO of an independent information service (aid infodienst) on food, agriculture and consumer protection and a founding member of PEB, in a television interview in 2014. "There is a very strong lobby from the industry, which also sets the tone and shapes the content," noted Professor Martin Wabitsch from the German Obesity Society, another member of PEB (ZDF Frontal 21, 2014). Crucially, the public health services have not been involved in the policy formulation process, as they are not members of PEB.

As mentioned in the Policies and programmes section, the National Initiative to Promote Healthy Diets and Physical Activity (IN FORM) shies away from regulatory measures, and instead relies on informing consumers and freedom of choice (Vallgårda, 2015). The underlying expectation is that the various stakeholders, including individuals and industry, will opt for healthier nutrition and more active lifestyles, if they are well informed (Vallgårda, 2015). A traffic-light food coding system has been discussed, but not adopted. There has also been no ban on the sale of unhealthy foods in vending machines in schools.

Decision-making

The public health services are not involved in the decision-making process. Their expertise regarding obesity is limited to child and youth health, and only a few local public health departments have diet centres or offer explicit dietary advice to certain target groups.

Accordingly weak is the impact of public health services on decision-making even at the local level when it comes to a collaboration, for example with schools, kindergartens and day care centres for children. Public health services may address obesity in their local health reports and provide information for specific target-oriented areas and tailored interventions; for example, for migrants or deprived areas with specific needs.

The Action Plan for the National Initiative to Promote Healthy Diets and Physical Activity (IN FORM) was drawn up by a joint working group of representatives from the national government, the federal states and the local level. The joint working group will also be involved in the implementation of the Action Plan (IN FORM, 2008).

A national steering group oversees implementation of the Action Plan. It consists of one representative of each of the lead ministries of the Federal Government, one representative of each of the Conferences of the Ministers of Health, Consumer Protection and Agriculture and one representative of the municipal umbrella associations. Furthermore, it includes representatives of employer and employee associations, a representative of the Federal Association for Disease Prevention and Health Promotion, of the Platform Diet and Physical Activity, a representative of civil society and one representative of the main specialist associations and societies. The national steering group normally meets twice a year. It is responsible for proposing actions, the networking of the relevant social stakeholders and expert advice for the secretariat. The secretariat has been set up by the two lead ministries, the Federal Ministry of Food, Agriculture and Consumer Protection and the Federal Ministry of Health, to implement and develop the National Action Plan.

Policy implementation

The main institutions driving the implementation of national obesity-related policies (such as IN FORM, Gut Drauf and Tutmirgut) at the local level are the Federal Centre for Health Education at the national level, supported by the State Associations for Health and Health Promotion at the level of the states (*Länder*). The IN FORM stakeholder database (https://www.in-form.de/profiportal/projekte/projekte/akteursdatenbank.html) does not list any local public health services, but includes the Robert Koch Institute and several ministries of federal states, including an interministerial working group (IMAG) NRW IN FORM consisting of six ministries of North Rhine-Westphalia.

In the context of the National Initiative to Promote Healthy Diets and Physical Activity (IN FORM) a toolbox consisting of seven workbooks has been developed by the Federal Centre for Health Education and the State Association Health Berlin-Brandenburg (*Gesundheit Berlin-Brandenburg*) for practitioners in the field, entitled "Take Action for Health. Work tools for prevention and health promotion in the neighbourhood (*Aktiv werden für Gesundheit – Arbeitshilfen für Prävention und Gesundheitsförderung im Quartier*)". The seven workbooks provide background information, practical examples and checklists for daily activities in a practical ring folder. Hardcopies of the toolbox can be ordered for free from the Federal Centre for Health Education and are also available for free download (http://www.gesundheitliche-chancengleichheit.de/gesundheitsfoerderung-im-quartier/aktiv-werden-fuer-gesundheit-arbeitshilfen/).

The workbooks are titled:

Book 1	Creating healthy living environments
Book 2	Identify problems – find solutions
Book 3	Develop a project
Book 4	Preventive action: diet – exercise – stress management
Book 5	Use experience – strengthen quality
Book 6	Grow older healthy and active
Book 7	Act jointly – enhance odds.

As of 2015 the tool box had a print run of 32 000 copies, of which approximately 20 000 had been delivered to or were ordered by practitioners in the field. Training workshops according to the topics of the workbooks were organized and carried out in the first few years with the support of experts at the regional levels, and these workshops continue to be offered on demand.

The funding allocated to the implementation of national obesity-related programmes does not contain a share devoted to public health services. However, public health services can apply for financial support when a local public health department wants to run a prevention or health promotion project that is connected to obesity and physical activity. The National Action Plan for IN FORM envisaged that, initially for the period 2008–2010, 5 million euros would be earmarked each year from the budgets of the lead federal ministries for the implementation of the National Initiative. Furthermore, it anticipated that funds would be made available by other federal ministries, the *Länder*, civil society and industry through their respective activities and measures to support the National Action Plan (IN FORM, 2008, p. 31). It is unclear which resources were devoted to the implementation of the Action Plan, as no further information on allocated resources was available on the relevant website (https://www.in-form.de/profiportal/in-form/allgemeines/umsetzung.html) in December 2015.

Monitoring and evaluation

Support from the Federal Government for monitoring of obesity levels has been systematically extended in recent years (for example, through the German Health Survey, the German Health Survey for Children and Adolescents, the National Food Consumption Survey and nutrition monitoring), which is hoped to result in a strong health monitoring system based on regular surveys (IN FORM, 2008, p. 28).

The National Action Plan for the implementation of IN FORM anticipated scientifically validated quality assurance and evaluation of individual projects and measures, on the basis of previously stipulated indicators. This was hoped to allow judgements on effectiveness and cost–effectiveness which would then allow decisions on which projects would receive long-term support and which would be abandoned (IN FORM, 2008, p. 31). Quality assurance procedures and standards, as well as guidelines for evaluation and communication, have been

set up (https://www.in-form.de/profiportal/projekte/projektservice/in-form-leitfaden-qualitaetssicherung/werkzeugkasten.html).

It was also anticipated to document progress in the implementation of the National Action Plan at regular conferences and meetings and to identify new priority areas when needed. The states (*Länder*) in particular are involved in this, as numerous relevant activities take place at their level. An interim report was planned to be published in 2011 but was only released in December 2017. In addition, a population-wide monitoring of obesity-relevant factors in childhood – called AdiMon – was set up by the Robert Koch Institute (https://www.in-form.de/materialien/in-form-zwischenbericht-kurzform/).

At present, the initiative on "health promoting day-care facilities for children", pursuing the settings approach, mentioned in the Problem identification and issue recognition section, is being evaluated. The working group undertaking the evaluation includes representatives of the German public health services (ÖGD). A 2007 assessment of programmes for overweight and obese children and adolescents in Germany concluded that most of the programmes lacked proper evaluation, had only short-term effects and that the actual impact on BMI was low (Kliche, 2007).

Conclusion and outlook

Obesity is still an underestimated public health problem in Germany; the policy response has so far been insufficient and obesity levels continue to increase dramatically. However, along with Canada and the United States, Germany is one of the countries that has an explicit state-level obesity policy, although it is framed more widely, aiming to encourage healthy diets and physical activity.

The Robert Koch Institute has launched the German Health Interview and Examination Survey for Children and Adolescents (the KiGGS-Study, *Studie zur Gesundheit von Kindern und Jugendlichen in Deutschland*) as part of its health monitoring programme, with a baseline study in 2003–2006 and a follow-up study in 2014–2017 (KiGGS Wave 2). The results of the second study were published in March 2018. Compared to the baseline study (2003–2006), there was no further increase in overweight and obesity prevalence among children and adolescents, with a prevalence of overweight of 15.4% and of obesity of 5.9%. However, the study pointed to a strong social gradient, with the prevalence of overweight (including obesity) reaching 27.0% in girls and 24.2% in boys aged 3 to 17 years with low socioeconomic status compared to 6.5% in girls and 8.9% in boys with high socioeconomic status (Schienkiewitz et al., 2018).

Furthermore, some ministries in several federal states have provided explicit support to the National Initiative to Promote Healthy Diets and Physical Activity (IN FORM). At the national level the Ministry of Food, Agriculture and Consumer Protection is in charge of that programme, in cooperation with the Ministry of Health.

Public health services have only played a rather marginal role in putting the topic of obesity on the agenda and shaping policy responses. The alliance Platform on Diet and Physical Activity (PEB) is dominated by representatives from the food industry, while public health services are not involved at all. This may be partly related to the organizational set up of the public health services in Germany, as they are subordinate to the country's federal states and only operate at the municipal level.

Within the public health services (ÖGD), obesity is mainly dealt with in child and adolescent health services, in case-based nutrition counselling, and in hiring staff on permanent contracts. The child and youth health service is, in many places, involved in local prevention activities in schools, kindergartens, and day care centres for children, providing information on healthy eating and physical activity.

IN FORM, as the main obesity-related policy and programme, has had some encouraging impact in terms of attempts to enhance the quality of local interventions and health promotion activities. Toolboxes and instruments for practitioners in the field have been developed, and databases of activities and models of good practice have been set up, providing an overview of what is going on in the country. However, a first interim report, originally planned to be published in 2011 was only released in December 2017.

The report is interesting reading, not least because the Platform on Diet and Physical Activity (PEB) was heavily criticized in 2014 by some of its public health members in Frontal21, a feature of the German TV channel ZDF. In view of the dominant approach in the framework of IN FORM of focusing on individual behaviours in

addressing obesity and neglecting social and political determinants, most notably the roles of the food industry and agriculture, outcome measures on obesity levels are unlikely to be encouraging.

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Alcohol

Klaus Plümer

The scale of the challenge

Alcohol consumption is on the political agenda in Germany. In April 2015, "Reducing Alcohol Consumption" was declared as the country's eighth National Health Target (*gesundheitziele.de*). It has been estimated that 9.5 million people in Germany consume alcohol in a manner that poses risks to their health (Drogenbeauftragte, 2015). An annual average of 9.7 litres of pure alcohol per capita were consumed in 2013, declining from a peak of 12.9 litres in 1980 (Robert Koch Institute, 2015). Approximately 1.3 million people are considered to be dependent on alcohol. Only about 10% of them are undergoing treatment – often much too late, after 10 to 15 years of dependence (Drogenbeauftragte, 2015). Every year approximately 42 000 to 74 000 people die from the direct and indirect consequences of alcohol consumption (Robert Koch Institute, 2015). The economic costs are estimated to amount to 26.7 billion, including 7.4 billion euros direct costs for the health system (Drogenbeauftragte, 2015). Almost all adults consume alcohol at least occasionally, with only 3.6% of adults being lifelong abstainers in 2012 (Robert Koch Institute, 2015). Drinking alcohol is thus a generally accepted part of modern life in Germany, including for adolescents.

Risky alcohol consumption is defined by the Federal Centre for Health Education (*Bundeszentrale fuer gesundheitliche Aufklaerung*) as consumption of more than 12 g of alcohol per day for healthy adult women and 24 g for healthy adult males, equivalent to 0.25 litres of beer for women or 0.5 litres of beer for men (BZgA, 2015).

Results of a large-scale survey on the health of adults in Germany in 2013 confirm that risky consumption and binge drinking are very common. Risky consumption is most common in people aged 19 to 29 years (men 54.9%, women 36%). Overall, 41.6% of men and 25.6% of women engage in risky alcohol consumption. The prevalence of binge drinking (heavy episodic consumption of alcohol at least once in a month) was 31.0% in men and 10.8% in women (Hapke et al., 2013).

A study on alcohol-attributed mortality and morbidity in 2006 and 2012 in Germany (Kraus and Rehm, 2015) found a strong correlation between alcohol consumption and alcohol-related mortality. Taking into account a time lag between consumption and mortality, the decrease in per capita consumption since 1980 corresponds with a decline in alcohol-attributed mortality between 1995 and 2012, decreasing from 37 to 25 per 100 000 population in men and from 12 to 8 in women.

Policies and programmes

In line with the EU's alcohol strategy (European Commission, 2006), the German Federal Government relies on a combination of circumstantial and behavioural prevention (*Verhältnis- und Verhaltensprävention*) to tackle alcohol abuse. This involves both legal restrictions and public awareness campaigns about the dangers of hazardous alcohol consumption. A responsible attitude towards alcohol is to be promoted by a nationwide awareness campaign that builds on the previous measures for the prevention of alcohol abuse by the Federal Centre for Health Education (BZgA).

The BZgA provides information on alcohol consumption on their Internet site (https://www.bzga.de/) as well as dedicated websites for the prevention of hazardous alcohol consumption among adults (http://www.kenn-dein-limit.info/) and children and adolescents (http://www.null-alkohol-voll-power.de/). BZgA also produces a variety of print media (such as brochures) which are mostly available free of charge and are intended to support regional and local projects and campaigns. National campaigns include "Zero alcohol – Full Power", which is directed at children and adolescents aged 12 to 16 years, and "Know your limit!", directed at adults. Furthermore, the BZgA produces public awareness materials for other alcohol prevention campaigns (e.g. "Blood Alcohol Level"), background materials for physicians ("Alcohol Dependency – Addiction Medicine Series"), and easy-to-understand information materials about the dangers of alcohol consumption ("Alcohol is Dangerous"). The BZgA also runs mass-media campaigns using TV-spots and billboard advertising.

Alcohol consumption has been banned by local municipalities in trams and busses, but is still allowed in trains of the German Railways (*Deutsche Bahn*).

Alcohol control in Germany mainly takes place in four contexts of public health action: youth and alcohol (e.g. binge drinking); drinking and driving; alcohol consumption in families with children; and alcohol consumption during pregnancy and breastfeeding. The latter two are subjects of the Child and Youth Health Services (KJGD) and the family midwifes in the local public health services, respectively.

Since 2001, there has been a general legal drink-drive limit of 0.5 g blood alcohol content per litre, with no permissible blood alcohol content for commercial or novice drivers. The general drink-drive limit only applies where there are no signs of unsafe driving or involvement in any accidents. Driving under the influence of alcohol is classified as a regulatory offence if the blood alcohol level is between 0.3 and 0.5 g per litre and the individual has caused an accident or appears unfit to drive.

Regarding youth and alcohol, the Youth Protection Act (JuSchG) regulates at what age certain alcoholic beverages may be sold to young people or consumed in public. However, the regulations are among the least restrictive in Europe. Underage consumption in private is not subject to any restrictions. At 14 years old, young people are allowed to consume beer and wine in public if they are in the company of their parents. At 16, young people are allowed to purchase and consume beer and wine without their parents. At 18, young people are allowed to purchase and consume all types of alcoholic beverages. Vendors of alcohol are obliged to control the age of buyers by checking their ID cards.

National Health Target "Reducing Alcohol Consumption"

The latest National Health Target "Reducing Alcohol Consumption" has 14 aims, all of which, except one, has several objectives (GVG, 2015):

Aim 1: Increasing public awareness among policy-makers and society at large.

- Objective 1.1: Improve knowledge about the harmful effects of alcohol among policy-makers, the general population and relevant target groups.
- Objective 1.2: Increased recognition among the population of the risks of alcohol use.

Aim 2: Reducing the social acceptance of alcohol consumption and binge drinking.

- Objective 2.1: Reduce social acceptance of misconduct under the influence of alcohol.
- Objective 2.2: Strengthen the motivation of the population to engage in low-risk alcohol consumption.
- Objective 2.3: Reduce the prevalence of risky drinking and alcohol-related disorders in men and women.

Aim 3: Decreasing the number of women who drink alcohol during pregnancy and breastfeeding.

- Objective 3.1: Reduce the number of fetal alcohol spectrum disorders.
- Objective 3.2: Increase awareness of the risks of alcohol consumption during pregnancy and breastfeeding by the partners and social environment of pregnant women.

Aim 4: Reducing alcohol consumption and binge drinking among adolescents and young adults.

- Objective 4.1: Delay initiation of alcohol consumption.

- Objective 4.2: Increase the proportion of alcohol-abstinent adolescents among those under 16 years of age.
- Objective 4.3: Increase the proportion of young people aged between 16 and 18 years who are alcohol-abstinent or drink less alcohol.
- Objective 4.4: Reduce the incidence of alcohol intoxications in adolescence and young adulthood.

Aim: 5: Improving the identification of alcohol problems and ensuring early interventions.

- Objective 5.1: Increase knowledge and expertise on methods of early identification and intervention among health, psychotherapeutic and social workers, as well as among school teachers and professionals in counselling centres.
- Objective 5.2: Improve linkages between primary health care and addiction treatment.
- Objective 5.3: Increase the number of people with alcohol problems who receive treatment.

Aim 6: Improving client centredness of counselling and treatment options through tailor-made services (e.g. age-appropriate services, taking into account gender-based content, specifying options in terms of the severity of cases and special treatment requirements such as co-morbidities).

- Objective 6.1: Ensure that treatments are in line with current scientific standards.
- Objective 6.2: Ensure that patients receive advice and treatment that have the best chance of success.
- Objective 6.3: Ensure a seamless transition from successful treatment to after-care, follow-up and self-help groups.

Aim 7: Ensuring the professional (re)integration of people with alcohol-related disorders.

Aim 8: Ensuring joint action of stakeholders and existence of structures for networking.

- Objective 8.1: Further develop coordinated action at the federal, state and local level.
- Objective 8.2: Design seamless interfaces between support systems.

Aim 9: Creating health-promoting living environments.

- Objective 9.1: Use stage-of-life and living world-oriented setting approaches for alcohol prevention in the areas of education, vocational training, leisure, community and the workplace.
- Objective 9.2: Ensure that the living environments of schools and vocational training are alcohol-free.

Aim 10: Ensuring that workplaces are alcohol-free.

- Objective 10.1: Ensure that employers are aware of the problem of alcohol at the workplace and that managers are aware of their responsibilities.
- Objective 10.2: Increase the knowledge regarding preventive measures and assistance in companies of all sizes and make sure they are implemented.
- Objective 10.3 Reduce alcohol-related absenteeism and presenteeism.

Aim 11: Reducing drinking and driving.

- Objective 11.1: Raise awareness among the general population about the risks of alcohol consumption in road traffic and promoting alcohol abstinence in traffic.
- Objective 11.2: Reduce traffic accidents under the influence of alcohol.
- Objective 11.3: Reduce the number of alcohol-related accidents caused by young drivers.
- Objective 11.4. Reduce the number of alcohol-related accidents caused by cyclists.

Aim 12: Ensuring that less damage is caused under the influence of alcohol.

- Objective 12.1: Reduce the damage to third parties or employers under the influence of alcohol.
- Objective 12.2: Reduce the severity and frequency of interpersonal violence under the influence of alcohol.
- Objective 12.3: Reduce the extent self-destructive behaviour due to alcohol consumption.

Aim 13: Supporting families with addiction problems and their children.

- Objective 13.1: Increase the use of family-oriented approaches in addiction treatment.
- Objective 13.2: Support children of addicted parents.
- Objective 13.3: Implement successful flagship projects nationwide.

Target 14: Reducing negative consequences resulting from chronic alcohol dependence disorders.

- Objective 14.1: Reduce the number of people dropping out of their personal networks.
- Objective 14.2: Ensure community participation for people with advanced alcoholic diseases.

Competition on Municipal Drug Prevention

Another relevant programme is the Competition on Municipal Drug Prevention (*Wettbewerb Kommunale Suchtprävention*; http://www.kommunale-suchtpraevention.de/), which since 2001 has been held by the Federal Centre for Health Education (BZgA). While the first competition (Model Strategies of Municipal Drug Prevention), in 2001, was aimed at the entire field of drug prevention, the following competitions in 2003 and 2005 concentrated on tobacco prevention and the prevention of harmful alcohol consumption, with a focus on local level campaigns and interventions. All German cities, counties and municipalities were invited to participate in the competition.

At the suggestion of the Drug Commissioner of the Federal Government, and with the support of the three central municipal organizations (the German Association for Cities and Towns, *Deutscher Städtetag*, the German Association of Towns and Municipalities, *Deutscher Städte- und Gemeindebund*, and the German County Association, *Deutscher Landkreistag*) and the National Association of Statutory Health Insurance Funds, the Federal Centre for Health Education launched the seventh Federal Competition "Model Strategies of Municipal Drug Prevention", entitled Innovative Drug Prevention Locally, in 2015. The national competition seeks to identify cities, districts and municipalities that provide innovative activities in the area of drug prevention that could provide a useful example to other municipalities.

A total amount of 60 000 euros prize money is provided by the Federal Centre for Health Education (BZgA). In addition, the National Association of Statutory Health Insurance Funds offers a special prize of 10 000 euros for the topic "Participation of Health Insurance Funds in Innovative Municipal Activities on Drug Prevention". The successful competition projects, their local activists and representatives of the municipalities were invited to the final award ceremony in Berlin inclusive of hotel accommodation, as an appreciation for their commitment at the local level (Difu, 2015).

Topics for the Competition on Municipal Drug Prevention (2001 to 2015) from the most recent to the oldest:

- Innovative Drug Prevention Locally (2015/2016)
- Alcohol Prevention in Public Spaces (2012/2013)
- Children and Young People in Special Life Situations (2010/2011)
- Addiction Prevention for Children and Adolescents on Site (2008/2009)
- Alcohol Prevention on Site (2005/2006)
- Tobacco Prevention on Site (2003/2004)
- Model Strategies of Municipal Drug Prevention (2001/2002).

National Centre for Early Prevention

In 2007 the National Centre for Early Prevention (*Nationales Zentrum Frühe Hilfen* (NZFH)) was established to tackle alcohol-related problems in families with children, and issues with alcohol use during pregnancy and breastfeeding. The centre is sponsored by the Federal Ministry of Family Affairs, Senior Citizens, Women and Youth (BMFSFJ) as a joint project of the Federal Centre for Health Education (BZgA) and the German Youth Institute (DJI). The National Centre for Early Prevention supports the federal states (*Länder*) and municipalities in providing tailor-made support services to parents and children during pregnancy and in early childhood. It undertakes research and qualification programmes, and offers workshops, conferences and meetings to make findings available to actors in the field and give them the opportunity to exchange their experience, ideas and knowledge on best practices for the further development of the programme. In addition to knowledge transfer through conferences and workshop, the centre also provides an Internet-based platform for information exchange on early prevention at the local level.

Problem identification and issue recognition

Problem identification and issue recognition of relevant public health problems in Germany is mainly a classical top-down process: from the national level (e.g. via the National Health Targets or reports of the Advisory Council on the Health Care System), to the regional level (the country's federal states), and from there trickling down to the local (municipal) level. However, there is no centralized process or actor who would identify and agree on targets at all levels. Joint workshops on health targets between the Federal Government and the federal states (*Bund-Länder*-Workshops) took place in 2008, 2010 and 2014. The latest workshop discussed the findings of an evaluation of the relevance and usefulness of national health goals for federal, state and local authorities, associations and organizations. The evaluation (Evaluation Gesundheitsziele, 2014), carried out by external researchers, found an encouragingly high level of support for the work of *gesundheitsziele.de*.

Gesundheitziele.de (health-targets.de) is a collaboration that started as a joint pilot project of the German Federal Ministry of Health and the GVG (Association for Social Security Policy and Research) in December 2000. Since 2007, *gesundheitziele.de* (health-targets.de) has been a forum of more than 120 member organizations aiming to advance the development of the national health target process. Among them are the Federal Government, the *Länder*, municipal associations, statutory and private health insurance organizations, pension insurance organizations, health care providers, self-help and welfare organizations and research institutes. There is also one representative of the Federal Association of Physicians of the Public Health Service (BVÖGD) on the committee that serves as a discussion forum for all technical questions of National Health Targets and oversees the development of their content. For specific tasks, the committee sets up working groups that assess the scientific basis for the respective health target and formulate specific objectives.

Among the 33 members of the working group on "Reducing Alcohol Consumption" were two members from the public health service (ÖGD): Matthias Albers, from the Public Health Office in Cologne and the Federal Association of Physicians of the Public Health Service, and Katja Quick, from the State Public Health Office in the federal state Baden-Württemberg. Chair of the working group was Elisabeth Pott, Director of the Federal Centre for Health Education.

The public health service was thus actively involved in the agenda-setting for this topic. However, how far the National Health Target will have an impact on the local level depends very much on local agendas, on how far alcohol consumption has been recognized as a problem, and on the amount of project funding that is available for alcohol prevention.

The media has been important in bringing the topic of alcohol abuse on to the local agenda. Binge drinking in Germany was often present in the media in the second half of the 2000s when, usually following weekends, headlines of local newspapers often reported stories of young people being rushed to hospitals after binge drinking sessions, and some of these young people died. The media focus has now changed to drinking events, such as stag and bachelorette parties that happen almost every weekend in major cities and towns. These parties are very noticeable on Friday afternoons at railway stations in cities such as Düsseldorf, Cologne, Hamburg, Munich or Berlin. Local policy-makers are discussing how to counteract this development, for example by establishing areas where public drinking is prohibited.

However, the advertising campaigns of leading breweries are very influential and shape public perceptions. These campaigns includes billboards, but also the sponsoring of major sports events, such as the German Football League (*Bundesliga*), Formula 1 races and other national or international sports events that are broadcast on German television channels. The message is clear: visiting or watching sports events and consuming alcohol belong together, and consuming alcohol will guarantee having a good time. Some advertising campaigns (e.g. Krombacher) also try to make use of environmental concerns, such as protecting the rain forests or improving the quality of water. Another brand (Becks) often shows young people having fun and enjoying life on a sailing boat. There is evidence that exposure to alcohol advertising decreases the age at which adolescents start to consume alcohol and increases the amounts they consume, and there are very few restrictions on alcohol advertising in Germany (Deutsche Hauptstelle für Suchtfragen, 2011).

Policy formulation

As mentioned in the Problem identification and issue recognition section, policy formulation in the area of alcohol control can be described as a top-down process, with a certain time lag between actions from the different

layers of administration. There are chances that the municipal public health service will pick up on the topic and find windows of opportunity to run local alcohol prevention projects.

Competition for project funding between different providers of prevention measures makes it more difficult to fund these activities, since they do not belong to the compulsory tasks of local public health services, in contrast to crisis interventions or medical checks by local child and youth health services.

Furthermore, only a few (typically 1 to 3) employees within the local public health service, such as social workers, health workers or social medical assistants, are in charge of running alcohol prevention projects, even if they get the go ahead from the head of department or the local public health office.

In some federal states, such as North Rhine-Westphalia, the situation might be different. North Rhine-Westphalia introduced health conferences at the level of its federal state, followed by health conferences at the local level. Where alcohol prevention has been included on the agenda of these conferences, activities in this area would gain a major boost. However, not all federal states use the tool of regional or local health. They are established at the level of federal states in North Rhine-Westphalia, Baden-Württemberg, Berlin, Saxony-Anhalt and Mecklenburg-Western Pomerania. In addition, there are approximately 130 local health conferences in about one third of the cities, towns and rural districts in 13 of the country's 16 federal states (Hollederer, 2013). However, ultimately it depends on the municipal level whether a project will be launched, by whom and what its scope will be.

Decision-making

The role of public health services in decision-making on alcohol control is limited to the regional or local level; for example, through regional or local health conferences or by providing expert opinions in topic-related meetings. However, the decisions itself are made on a political level in the municipal administration, following mostly an expert-driven top-down process.

Good examples for this are local health conferences or so-called prevention councils. If these identify alcohol consumption as a critical local issue and put it on the municipal agenda (violations of the Youth Protection Act or cases of alcohol abuse are administrative offences), then this might encourage local stakeholders to set up preventive activities. Local public health services would then lead some information events and small projects in schools and youth centres.

Overall, however, the power and influence of public health agencies vis-à-vis other key actors tends to be rather weak. Drug commissioners and addiction counselling centres have a more professional stake in this issue. As far as children and adolescents are concerned, the local youth service and the police are in charge of dealing with alcohol-related problems, and in some special cases the social psychiatric service might be needed.

In some areas of Germany, such as in the federal state of Lower Saxony, local prevention councils have been set up that discuss and monitor activities in the field. Sometimes they even formulate local policies based on successful local initiatives. However, attempts to promote these positive examples through the competition series "Model Strategies of Municipal Drug Prevention" have not been successful.

Policy implementation

The role of public health services in policy implementation is confined to setting up and running some local projects or being involved in local activities. However, the main actors in the field are not local public health services, but schools, youth clubs, social workers and youth centres. At the level of the federal state, the state association for health or health promotion usually runs any projects and programmes.

The level of coordinated action tends to be low, because of the competition for project funding. As already mentioned, the dominant model in prevention and health promotion involves many uncoordinated small projects that often have no clear concept or goals, will not be monitored or evaluated, and cannot give any evidence on their outcomes, and sometimes not even on how many people they have reached. The "Competition on Municipal Drug Prevention" is an attempt to improve the quality and impact of these prevention measures.

Monitoring and evaluation

Monitoring and evaluation are not routinely done within the public health services, except where they are involved

in scientifically accompanied research projects. There is a lack of expertise, skills and commitment in putting those methods in practice. Particularly here, a large gap between public health services and public health as a university discipline is noticeable. Monitoring and evaluation are not part of the professional culture within the public health services. Improvements would require more collaborations between public health practitioners and researchers.

However, the problem has been recognized and in 2003, in the context of the National Cooperation Network "Health Equity" (*Gesundheitliche Chancengleichheit*), a toolbox for practitioners in the field was developed in order to make progress in this area. The toolbox is called "Take Action for Health. Work tools for prevention and health promotion in the neighbourhood", consists of seven workbooks, and is available for free to practitioners in the field. It provides background information, practical examples and checklists for daily activities contained in a practical ring folder.

An impact analysis of the competition series on Municipal Drug Prevention was carried out in 2009 on behalf of the BzgA (2009). It reached a somewhat disappointing and disillusioning conclusion: the expected networking effect between the project communities involved (intended as a snowball effect for models of good practice) did not materialize, despite the widely used online project database. Models of good practice were not replicated elsewhere (BZgA, 2009, p 104ff).

Conclusion and outlook

Alcohol control is not one of the key tasks of local public health services in Germany and therefore is not explicitly on their agenda. As far as alcohol abuse and addiction are concerned, the public health service is confronted with this issue specifically in their child and youth health services and their social psychiatric service, but the issue is encountered more in terms of crisis intervention or child protection than as part of broader prevention activities.

The experience of the Competition series on Municipal Drug Prevention suggests that copy–paste strategies do not work, even when following the good practice approach. However, the instrument of a national competition at least provides a platform for those who took part and were rewarded by the jury as winners of that competition. This helps to empower local initiatives and projects, but will probably not be the best strategy to overcome the widespread "projectitis" in Germany.

In a federal system such as Germany the political environment and institutional framework always play a key role. On a political level the risks and costs of alcohol consumption have been put on the agenda with the national health goal "Reducing Alcohol Consumption", but alcohol at the workplace, for instance, is a well-known problem that is not adequately addressed in the private or public sector.

This is likely to be related to the general cultural attitude towards alcohol consumption in Germany. There is practically no restriction on drinking alcohol for those who have become adults, i.e. are older than 18 years of age. Furthermore, drinking alcohol is a widely accepted habit, even considered good manners, not only for men, but also for women, and across all social groups. Indicative of this are popular beer festivals, such as the Munich Beer Festival in October (*Oktoberfest*), with 5.9 million guests in 2015 who consumed 7.7 million litres of beer (http://www.oktoberfest.de/en/).

Counteracting alcohol consumption in public could be a starting-point to improving alcohol control and reducing alcohol consumption in Germany. However, this will be no easy task. One reason is the pervasive presence of alcohol advertising, often depicting young and healthy people as having fun and enjoying life with bottle of beers in their hands. Addressing current consumption patterns and cultural attitudes would be an important public health task, but has not been embraced as a field of action for the public health service.

Table 1 *Involvement of main actors in different stages of the policy cycle in addressing alcohol control*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
National parliament	+	+	+++		
Federal Government	++	++	++	+	+
Ministries					
• Federal Ministry of Health	+++	+++	++	+++	+++
• Federal Ministry of Family Affairs, Senior Citizens, Women and Youth			++		
• Ministry of Labour and Social Affairs		+	+		
• Ministry of Internal Affairs		+	+		
National public health agencies					
• Federal Centre for Health Education	+	+	+	+++	+
• Robert Koch Institute	++	++	+	+	+++
• National Centre on Early Prevention	+			+++	
• Federal Association of Physicians of the Public Health Service					
Drug Commissioner of the Federal Government	++	++	+	+	+++
National Health Targets project	+++	+++			+++
Federal state governments	++	++	++	+	+++
Municipalities	++	+	+	+	+
Local public health services	++	+	+	++	++
Alcohol industry	+++	+			
Scientific or research associations	+	+			+
Health professionals	+			+	
Police forces				+	+
Media	++				+
NGOs	+				+
Patient organizations	+				+

Note: +: little involvement; ++: some involvement; +++: very involved; ++++: extremely involved.

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Antimicrobial resistance

Klaus Plümer

The scale of the challenge

In Germany an estimated 400 000–600 000 hospital patients are affected by hospital-acquired infections each year, resulting in 10 000–15 000 deaths (BMG, 2016). Approximately 29 000 hospital-acquired infections annually are caused by multiresistant pathogens (RKI, 2015b), and these infections are increasingly being acquired by outpatients. The main reasons for the increase of antimicrobial resistance (AMR) include the inappropriate prescribing and use of antibiotics, and deficiencies in hospital hygiene. Hospital hygiene is one of the core functions of the public health service (*Öffentlicher Gesundheitsdienst* (ÖGD)) in Germany, as is the fight against infectious diseases more generally. There is also a widespread use of antimicrobials in the veterinary sector. In terms of milligrams of veterinary antimicrobial agent per population-corrected unit (adjusting for the size of the animal population), Germany ranks in the middle of European countries (European Medicines Agency, 2015).

Policies and programmes

At the G7 summit in Elmau, Germany, in June 2015, AMR was one of the topics for discussion. All G7 countries expressed their determination to support the WHO Global Plan of Action on Antibiotic Resistance from May 2015 and to develop their own national action plans. Germany also participates in the European Union (EU) research coordination on antibiotic resistance, the Joint Programming Initiative on Antimicrobial Resistance (http://www.jpiamr.eu/), as well as the relevant

EU surveillance networks (EARS-Net, ESAC-Net, HAI-Net and ESVAC).

Antimicrobial resistance had already been put high on the political agenda in Germany in 2008, when the government approved the National Antimicrobial Resistance Strategy (*Deutsche Antibiotika-Resistenz-strategie* (DART)), a joint strategy of the Federal Ministry of Health, the Federal Ministry of Consumer Protection, Food and Agriculture and the Federal Ministry of Education and Research. The central aim of that strategy is to reduce AMR. The strategy was launched on 18 November 2008, the first European Antibiotic Awareness Day, at a symposium in Berlin organized by the Federal Ministry of Health in collaboration with the World Health Organization (WHO) (BMG, 2008).

Since 1 July 2009, reporting of MRSA detected in blood or cerebrospinal fluid has become obligatory. In 2010 antibiotic guidelines for veterinarians were revised comprehensively. On 16 March 2011, the government adopted an amendment of the Infection Protection Act, aiming to improve hospital hygiene. Prior to this law, hospital hygiene was mostly regulated at the level of Germany's federal states, and most federal states had no such regulation at all. Following the legislative change in 2011, all federal states in Germany adopted new hygiene regulations or adapted existing ones, creating the conditions for improved hygiene in health facilities (BMG, 2015).

The 2011 amendment of the Infection Protection Act also established the Commission "Anti-infectives, Resistance and Therapy" (*Antiinfektiva, Resistenz und Therapie* (ART)) at the Robert Koch Institute (http://www.rki.de/DE/Content/Kommissionen/ART/ART_node.html). The commission is tasked with making recommendations for preventing and combating resistant pathogens.

The National Antimicrobial Resistance Strategy (DART) defined 10 goals for 42 areas of actions in the health sector (BMG, 2008). Special attention was also paid to animal husbandry (factory farming), the food chain and the activities of veterinarians. In these areas, the focus of DART is on:

- the detection and monitoring of antibiotic resistancies;
- promoting the responsible use of antibiotics by veterinarians and farmers, as well as management measures to minimize resistance;
- strengthening of measures to prevent infectious diseases;
- cooperation with human medicine.

The strategy thus aims to reduce the use of antibiotics in humans and animals and to limit transmission by improved hygiene (Meyer, 2015; Blickpunkt, 2015).

In May 2015, the government adopted an updated national strategy "DART 2020 – Fighting Antibiotic Resistance for the Good of Both Humans and Animals", specifying six main goals in the fight against antibiotic resistance in humans and animals (Federal Government, 2015):

- strengthening the One Health approach nationally and internationally;
- recognizing changes in resistance at an early stage;
- retaining and improving therapy options;
- breaking chains of infection early and avoiding infections;
- raising awareness and strengthening skills;
- supporting research and development.

In March 2015, the Federal Ministry of Health launched a 10-point plan to combat AMR. It included the following action points:

1. Prevent the spread of multiresistant pathogens: all hospitals are required to test patients at high risk and isolate them until AMR can be excluded. Federal states are in charge of ensuring compliance of hospitals. The Robert Koch Institute (RKI) supports regional networks of local health authorities, physicians and hospitals to combat AMR. The Federal Government has created the legal basis for risk-based screening for multiresistant Gram-negative pathogens (4MRGN) for pilot testing.

2. Improve hygiene standards in all health facilities: hospitals are supported by a hygiene programme amounting to 365 million euros up to 2016, in order to employ hygiene personnel and educate doctors and nurses in the hospital hygiene.

3. Better information on hygiene standards in hospitals: hospitals are required to supplement their quality reports with information about hygiene standards that is easily understood by patients.

4. Tighten reporting requirements for the early detection of resistant pathogens: dangerous resistant pathogens, such as multiresistant Gram-negative pathogens (4MRGN), are in future reportable at the first detection of the pathogen. This is expected to afford local health departments more time to mount a quick response.

5. Mandatory training of medical personnel: mandatory training on AMR of medical staff in outpatient and inpatient settings is to be introduced.

6. Improve health care research for preventing nosocomial infections: research projects on nosocomial infections and AMR are to be promoted more intensively over a period of three years. A joint "Task Force for Antibiotic Research" will be set up by the Federal Ministry of Education and Research and the Federal Ministry of Health.

7. Strengthen One Health and update DART: the aim is to better monitor the occurrence of antibiotic resistance and consumption in both human and veterinary medicine and agriculture and to take further measures to prevent and combat resistances.

8. Enabling research and development of new antibiotics (Pharma Dialogue): as part of the Pharma Dialogue of the Federal Government, obstacles are to be identified in research and development and solutions developed together with the scientific community and the pharmaceutical industry, on how they can meet their responsibility.

9. Use the global health policy to combat antibiotic resistance: Germany is to continue to support partner countries to develop and implement national strategies to combat antibiotic resistance in the next five years.

10. Combat antimicrobial resistance through cooperation of G7 countries: Germany made health one of the priorities of its G7 presidency and will decide jointly with its partners on concrete measures to advance the fight against resistant pathogens (BMG, 2015).

Overall 45 institutions, including scientific associations and institutes at the federal and state level, as well as several ministries, have participated in developing the National Antimicrobial Resistance Strategy (DART) and DART 2020. The public health service is listed among them.

The Federal Ministry of Food and Agriculture has adopted a strategy against the inappropriate use of antibiotics in agriculture and AMR. It comprises legal requirements, information campaigns, research activities and risk-oriented monitoring. The ministry also aims to better record the use of antibiotics in livestock husbandry. Germany is one of the few countries in Europe where the National Action Plan on AMR was endorsed jointly by three line-ministries: Agriculture, Health and Science, and Education (see the Policy formulation section).

Problem identification and issue recognition

The problem identification regarding resistance pathogens in Germany was very much triggered by the cases of methicillin-resistant *Staphylococcus aureus* (MRSA) in the 1990s and in the context of some EUREGIO MRSA-net cross-border projects (e.g. MRSA-Net Twente-Münsterland) which also placed the issue on the agenda of local public health authorities. International agencies and forums have also contributed to problem identification and issue recognition in Germany, including the EU, the United Nations and the G7. As mentioned in the Policies and programmes section, AMR was one of the main topics discussed at the G7 summit in Germany in June 2015. As a result, the "Berlin Declaration on Antimicrobial Resistance" was adopted, in addition to the summit declaration whose appendix contains important agreements on the subject of AMR.

Regional networks on multidrug-resistant pathogens (*Multiresistente Erreger* (MRE)) have formed an important element for the successful management of MRSA. Regionally coordinated action has made this possible within existing structures of health care provision and financing, including hospitals, rehabilitation facilities, practices of general practitioners or specialists, long-term care homes, and other bodies concerned.

This approach based on regional networks has been incorporated into national strategies to control the spread of MRSA, such as the symposium on MRSA at the Robert Koch Institute in 2004; Decision 10.1 of the 79th Conference of Health Ministers in 2006 and the

National Antimicrobial Resistance Strategy (DART) in 2008. Within the framework of regional networks, the knowledge about the local situation in the various health facilities is an important basis for the activities of the public health service (ÖGD).

Public awareness campaigns have raised the profile of AMR and the need for infection control and the topic has also been very present in the media. One of the newspapers pointed, for example, to the risks to patients from ill-informed physicians (Biermann, 2014).

In the autumn of 2013, 20 physicians started a spontaneous protest against the planned construction of a large slaughterhouse in the district of Oldenburg and signed an advertisement in the press that drew attention to the medical consequences of factory farming. This led to the establishment of the "Doctors against factory farming" initiative. Several hundred physicians have signed the position paper ().

Policy formulation

The role of public health services (ÖGD) in Germany regarding policy formulation to tackle AMR is divided into two levels of operation: first, the public health service is explicitly involved in shaping the national strategies to combat AMR as documented in DART and DART 2020; second, the public health service is recognized as a relevant player at the level of federal states (state health departments) and at the local (municipality) level in creating and moderating MRE and MRSA networks. Furthermore, the monitoring of hospital hygiene and hygiene standards in other medical facilities is a mandatory task of the public health service. The public health service is also involved in the development of professional guidelines and medical curricula, as well as public information campaigns.

In the DART strategy a large number of players are listed who have been involved in the policy formulation process at the national and subnational level (BMG, 2011b):

National level:

- Advisory Council of the German Medical Association
- German Agency for Quality in Medicine (ÄZQ)
- Association of the Diagnostics Industry Association (VDGH)
- Commission for Antibiotic Therapy
- Commission for Hospital Hygiene and Infection Prevention (KRINKO)
- Commission for Infection Epidemiology
- Drug Commission of the German Medical Association (AkdÄ)
- Federal Institute for Risk Assessment (BfR)
- Federal Centre for Health Education (BZgA)
- Federal Institute for Drugs and Medical Devices (BfArM)
- Federal Joint Committee (G-BA)
- Federal Ministry for Education and Research (BMBF)
- Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMU)
- Federal Ministry of Health (BMG)
- Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)
- Federation of Medical Microbiology and Infectious Disease Epidemiology (BÄMI)
- German Hospital Federation (DKG)
- German Medical Association (BÄK)
- German Society for Hygiene and Microbiology (DGHM)
- Institute for Quality and Efficiency in Health Care (IQWiG)
- National Association of Statutory Health Insurance Physicians (KBV)
- National Reference Centre for Surveillance of Nosocomial Infections (NRZ)
- Robert Koch Institute (RKI)
- National Association of Statutory Health Insurance Funds (GKV)
- Association of Private Health Insurance Funds (PKV)
- Professional associations
- Professional societies

- Pharmaceutical industry
- Federal Association of Veterinarians.

Subnational level:

- Academy for Public Health in Düsseldorf
- Associations of Statutory Health Insurance Physicians at the level of federal states
- Centre for Clinical Infectious Diseases, Freiburg
- Coalition for Patient Safety e. V.
- Consultant laboratories
- Hospitals
- Institute for Intersectoral Quality in Health Care
- Microbiological centres and laboratories
- Outpatient clinics
- Public health service (ÖGD)
- Rehabilitation facilities and nursing homes
- Research institutions, such as network coordinators for Community-Acquired Pneumonia (CAP)
- Federal state authorities
- Federal state Chambers of Physicians
- State Institute of Health and Labour of North Rhine-Westphalia (LIGA)
- Universities
- Local health authorities and public health departments
- Local veterinary inspection offices.

Despite these large number of actors involved in the development of the strategy, it is quite clear that the strategy was mainly developed by three federal ministries: the Federal Ministry of Health, the Federal Ministry of Food and Agriculture and the Federal Ministry of Education and Research, including their subsidiary bodies.

Decision-making

The three lead federal ministries are also the most important agencies in terms of decision-making on national policies and programmes. The public health service, however, plays an important role at the regional and local level. One of the key roles of the public health service in tackling AMR is to create and moderate MRSA and MRE networks at the local level. Furthermore, it is tasked with preventing and monitoring the occurrence of infectious diseases and supervising hygiene standards in hospitals and other health facilities. The local health authorities and public health departments function as a kind of sentinel control system.

Due to its position in the health system, the public health service has potential power and influence, in particular in terms of agenda-setting on the local level, if it exercises its role as initiator and moderator of networks on AMR. This is most evident in the well-functioning Euregio Net projects. The coordinator of MRSA-net, a Euregio Net project in the German-Dutch area Münsterland/Twente, explained:

The prerequisite for successful infection control is the consistent cooperation of all participants in patient care, namely a collaboration that extends beyond the boundaries of individual institutions and countries. Only in this way is it possible to counteract effectively the spread of infectious diseases (Blickpunkt, 2014).

He further stated that network organizations cannot be organized hierarchically, but need to be based on mutual trust and the recognition that the whole is more than the sum of its constituents. Decisions are based on the consensus of all stakeholders involved in the project.

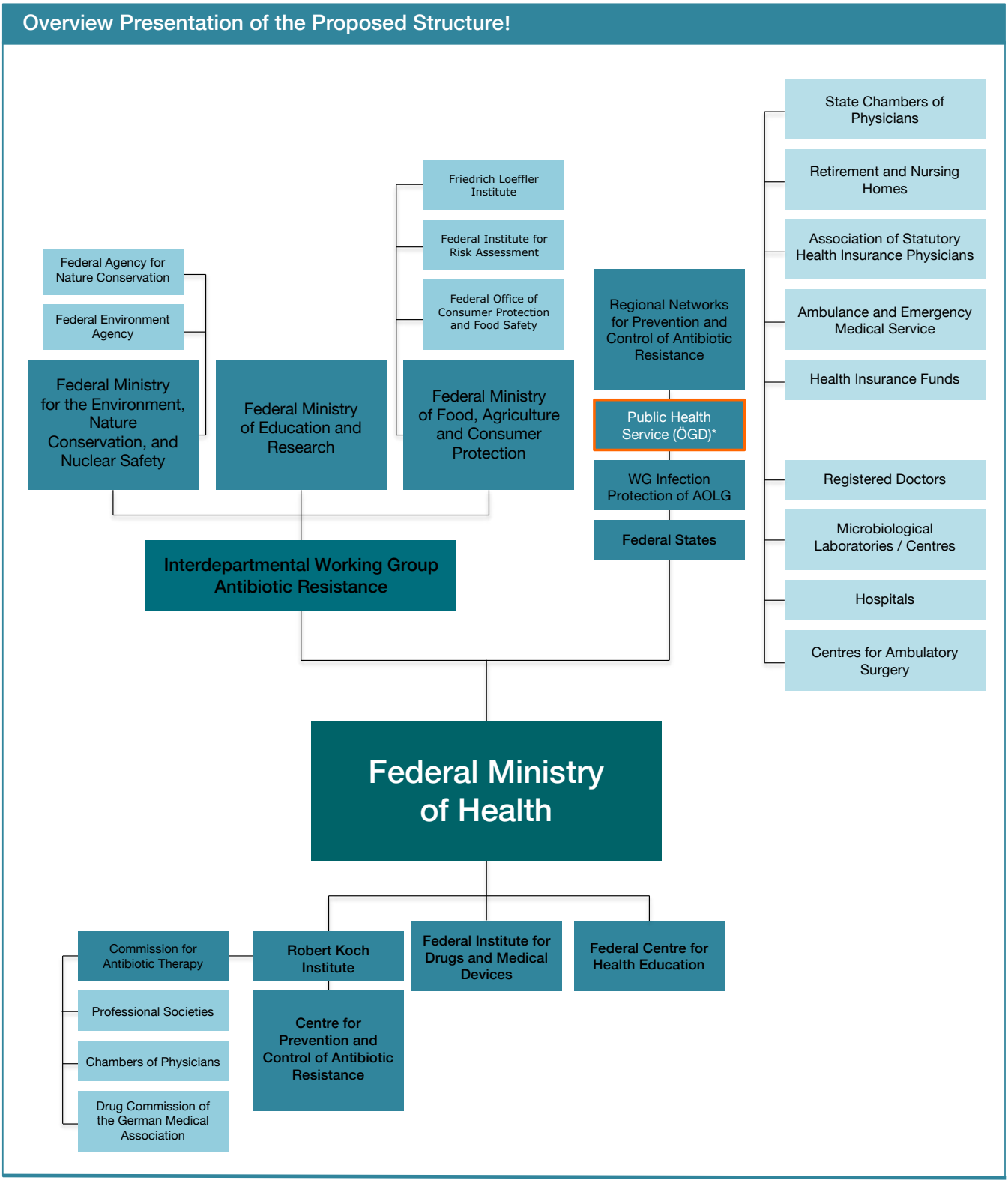
Policy implementation

The implementation of the National Antimicrobial Resistance Strategy (DART) is envisaged as a concerted interaction of a variety of stakeholders (BMG, 2008). The anticipated collaboration between the different actors is shown in Fig. 1.

In 2011, the Federal Ministry of Health noted that the implementation of prevention and control measures in hospitals and other medical facilities and their monitoring by the public health service (ÖGD) was often insufficient. It also stated that the financing of regional networks for the prevention and control of antibiotic resistance was still unclear and that the public health service (ÖGD) needed further strengthening (BMG, 2011a).

In 2015, the government noted that, despite the range of measures taken in recent years, “achievements so far have not been satisfactory” (BMG, 2015). It acknowledged that further measures are required beyond those outlined

Fig. 1 *Overview of the proposed structure for intersectoral collaboration for implementation of the DART strategy*



Source: BMG (2011a) – *German Public Health Service ÖGD highlighted by the author

in the national strategy DART and that monitoring of implementation by the relevant authorities of federal states assumes particular importance (BMG, 2015).

Information on the relevant institutions at the level of Germany's federal states (including regional health authorities, municipal health departments, hospital hygiene regulations and university-based institutes of medical microbiology), as well as information on existing MRSA and MRE networks, has been published on the website of the Robert Koch Institute (RKI, 2015a). Local public health services are either members of, or are at least involved in, the MRSA or MRE networks.

The public health service (ÖGD) is explicitly mentioned in the national strategy (DART) in connection with goal 1 (strengthening surveillance and monitoring systems), subgoal 2.3 (setup of an early warning system), subgoals 3.1 and 3.2 (development and promotion of structures for the application of guidelines and recommendations), goal 4 (ensuring diagnosis), subgoal 6.1 (cooperation at the regional level), and subgoal 6.3 (coordination of activities at the federal level). In the updated national strategy (DART, 2020), the public health service is mentioned in goal 4 (breaking chains of infection early and preventing infections). In addition, the Federal Association of Physicians of the Public Health Service (BVÖGD) is mentioned as a relevant player in the field in both national strategies.

In relation to DART's subgoal 6.1, some action points and milestones of proposed actions in the field of human medicine have been particularly relevant for the public health service (ÖGD). These concern the pilot projects for the establishment of regional networks for the prevention and control of antibiotic resistance in selected districts:

- **Milestone 1:** the Academy of Public Health in Düsseldorf and the State Institute of Health and Labour of North Rhine-Westphalia (LIGA) conducted, in 2009, workshops for network facilitators of the public health service (ÖGD).
- **Milestone 2:** by the end of 2009 under the leadership of the federal states (work group infection control) and the public health service (ÖGD) establishment of regional networks for the prevention and control of antibiotic resistance in selected districts.
- **Milestone 3:** from 2012, setting up an evaluation group composed of representatives of the federal states, the public health service (ÖGD), universities, and the Robert Koch Institute in order to evaluate regional networks and adapt intervention measures (BMG, 2011b).

The public health service seems well placed to play a key role in establishing and taking forward local networks to tackle AMR. The public health service is regarded as impartial, is present in each locality and has the required expertise. Alexander Friedrich opined: "I cannot imagine a better network moderator in infection control than the ÖGD" (Blickpunkt, 2014). However, he argued that the involvement of the public health service in coordinating networks should become mandatory rather than optional and that the federal ministries should provide the necessary seed funding for this to happen. He also pointed to the need for building bridges between the public health service and universities.

DART 2020 and the One Health approach raise the additional challenge of how to combine human and veterinary medicine at the intersection of food and nutrition. Furthermore, as DART and DART 2020 recognize, the fight against AMR has to be a global one (Meyer, 2015).

Monitoring and evaluation

The role of the public health service regarding monitoring and evaluation is determined by the Infection Protection Act. In the area of AMR, evaluation is the responsibility of a number of scientific institutes and professional agencies (BMG 2011a; 2011b; 2015).

In accordance with paragraph 23 of the Infection Protection Act from January 2001, the surveillance of hospitals with regard to infection control measures and hygienic standards is one of the monitoring tasks of the local public health services. In addition to hospitals, they are also responsible for the monitoring of day clinics, dialysis centres, facilities for outpatient surgery, maternity facilities and ambulatory care facilities. This responsibility has remained unchanged in the 2011 revision of the Infection Protection Act. According to the new law, hospitals and other medical facilities are obliged to follow the hospital hygiene regulations of their respective federal states and create their own hygiene plans.

Work tools and checklists for the inspection of hospitals by the public health services have been developed by the Robert Koch Institute and state health departments

(e.g. the State Health Department of Lower Saxony) in collaboration with the Technical Committee for Infection Control of the Federal Association of Physicians of the Public Health Service (BVÖGD). The aim is to define standardized evaluation criteria to provide professional support, in particular to the public health offices (*Gesundheitsämter*) at the municipal level, where no in-house specialists for this complex task are available (NLGA, 2015).

The public health service also offers training sessions; for example, at the Academy for Public Health in Düsseldorf. Since 2006, the Academy has offered and run a programme for the required medical certificate "Hospital Hygiene" in collaboration with the State Chambers of Physicians in North Rhine-Westphalia and the regional Hospital Federation.

As already mentioned, one of the key roles of the public health service is to moderate MRSA and MRE networks. In this context, the public health service also organizes meetings and symposia. One example of this is the requirement for an MRSA Seal of Quality developed within the EUREGIO MRSA-net (Blickpunkt, 2012). This sets out 10 quality objectives:

1. Participation in the quality composite events of the EUREGIO MRSA-net project.
2. Collection of epidemiological data.
3. Training with health department.
4. Prevalence and entrance screening (commitment, implementation, analysis).
5. Specifying the number and type of house-specific risk groups and screening.
6. Typing of selected MRSA (e.g. outbreak strains).
7. Implementation of recommendations from the Robert Koch Institute (hygiene measures, isolation, remediation).
8. Implementation of § 23 of the Infection Protection Act and concomitant legal requirements (using EPI MRSA software).
9. Transfer of information at discharge.
10. Screening of patients at risk.

Conclusion and outlook

The role of the public health service in Germany in addressing AMR is much clearer and better defined than in the areas of obesity and alcohol control. This is demonstrated in the relevant legal acts. While the 2015 Act to Strengthen Health Promotion and Prevention does not even mention public health services as partners or stakeholders, the 2001 Infection Protection Act and its amendment in 2011, as well as the National Antimicrobial Resistance Strategy (DART), afford the public health service with clear tasks. One major reason why this is the case might be that hygiene and the control of infectious diseases belong to the traditional remits of public health and are part of the statutory duties of the public health service. In addition to the surveillance of AMR and the monitoring of hospital hygiene, the public health service can have real impact on the local level as a coordinator of AMR networks. It also plays important roles in campaigns against antimicrobial consumption, directed at the general population as well as health professionals, and in reducing antimicrobial consumption in the veterinary sector.

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Italy

Obesity

Elena Azzolini, Walter Ricciardi

The scale of the challenge

Obesity is having a serious impact on the physical health, as well as the well-being, of the Italian population. It is also driving a health and financial crisis that is threatening the sustainability of the health system. However, despite being considered an important issue, with numerous obesity-related organizations and initiatives, the true extent of the problem is often not properly considered. For example, the data on the number of people who are overweight and obese reported by the National Institute for Statistics (*Istituto Nazionale di Statistica* (ISTAT)) (National Institute for Statistics, 2016) are based on the results of surveys where anthropometric values are self-reported by respondents, thus making them biased in terms of accuracy (Elgar et al., 2005). Moreover, such data are not congruent with the data recorded by general practitioners (GPs), which portray a more serious health burden (Health Search, 2014). Consequently, accurate knowledge of the national obesity rate is very low among policy-makers and there is a lack of awareness that national obesity targets exist (EASO, 2014).

Efforts to tackle child obesity are seen as more successful than adult obesity efforts but a high percentage of policy-makers are not sure about the impact of policies. This uncertainty is particularly alarming in a country where, although adult obesity is one of the lowest in the OECD (9.8%) (Osservasalute, 2016), rates of child obesity are among the highest in Europe: in 2010, 11.1% of children were obese, and a further 22.9% were overweight, with large variations between regions (in Calabria 49% of children are overweight or obese, compared with 15% in Bolzano) (Ministry of Health, 2011; 2014).

Individuals, families and the food industry are seen by policy-makers as having responsibility for reducing future obesity levels (EASO, 2014). However, there is less consensus on the extent of support that people should receive from other groups, such as government, society and health care professionals. Similarly, while physical activity, marketing and access to unhealthy food are seen as being important drivers of obesity, there is less agreement on the strength of the role played by issues such as low household incomes and genetics. Economic factors also play a role: few years ago the Italian Minister of Health did not agree with proposed new guidelines by the World Health Organization (WHO) to halve consumption of daily sugar intake from 10% of total daily calories to 5%, worried that the effects of such a policy would be likely to affect many national brands (Health News Today, 2014).

Policy-makers believe that Italians have an insufficient understanding of the risks associated with obesity. What is more, this means that public campaigns do not appear to be working in practice. In contrast to other European countries, policy-makers in Italy also believe that lifestyle interventions and weight-loss maintenance tools and policies are successful and have a considerable impact, despite evidence that suggests that weight loss is, in practice, extremely challenging to maintain (EASO, 2014).

Policies and programmes

In the last decade many policies and programmes involving multiple strategies have been adopted, focusing on both the prevention of obesity and the treatment and management of the condition (WHO, 2007). At the national level, the Ministry of Health, has progressively become more active in addressing obesity. In 2004 it established the National Centre for

Disease Prevention and Control (CCM), whose main objective is active prevention through the promotion of healthy lifestyles and screening. While Italy does not have a plan specifically to tackle obesity, in 2005 an Agreement between the central government and the Regions (*Conferenza permanente per i rapporti tra lo Stato le Regioni e le Province Autonome di Trento e Bolzano*, 2005), established the first National Prevention Plan committing regions to implement prevention programs, steered by their own cross-sectoral Regional Prevention Plans. Consequently, all Italian regions have adopted at least one intervention specifically aimed at controlling obesity, albeit with great diversity between regions (Nicolucci et al., 2015). These developments spearheaded the widespread use of health promotion throughout the country and seven regions have adopted the national Gaining Health programme (*Guadagnare Salute*; www.guadagnaresalute.it/programma), whose main objectives are to prevent and change unhealthy behaviours that promote increases in degenerative and chronic diseases.[1]

In 2007 a ministerial decree established the National Platform on Diet, Physical Activity and Tobacco with the task of proposing and implementing actions, in line with the Gaining Health program. Over the last decade National Prevention Plans have consistently addressed the problem of obesity. The Plan for 2010–2012 included a target to reduce obesity by 10% (particularly focusing on a reduction in child obesity) (Ministry of Health, 2010) while the last National Prevention Plan for 2014–2018 confirms the national goal of reducing the preventable and avoidable burden of noncommunicable diseases, with obesity being mentioned as a major preventable risk factor (Ministry of Health, 2014b).

Thanks to fruitful and steady intersectoral collaborations, many programs have flourished and have been implemented in the last few years. Box 1 lists many that deserve to be mentioned. Other contributions include those of the Food and Nutrition Health Services (*Servizio di Igiene degli Alimenti e della Nutrizione* (SIAN)) on the prevention of obesity and overweight and the research activities promoted by the National Institute for Food and Nutrition Research (INRAN; http://nut.entecra.it/) as well as the work of the think-tank, Italian Barometer Diabetes Observatory Foundation (IBDO; http://www.ibdo.it/).

Box 1 *Intersectoral collaborations in obesity programs in Italy*

- Development of national guidelines on breastfeeding, school meals and hospital catering;
- School activities to raise awareness of children, parents and teachers and to test educational interventions on diet and physical activity;
- The National Plan for the promotion of sport in schools, the new Youth Games and the intervention for the promotion of Student Sports Games (De Feo and Sbraccia, 2014);
- Two hours of physical education per week are compulsory in Italian primary and secondary schools (European Commission and WHO, 2015);
- The Walking School Bus and the Children Walking To School programmes which are examples of promoting physical activity in urban environments (European Commission, DG SANTÉ, 2010);
- Some municipalities have adopted traffic reduction measures, infrastructure such as cycle lanes, tracks and paths, and policy changes at the local level to increase pedestrian and bicycle travel;
- The information campaign, SMS Consumers, enabling consumers to check the price of fruit and vegetables (WHO Regional Office for Europe, 2006);
- The National Project for the Promotion of Physical Activity;
- The Joint Action on Nutrition and Physical Activity (JANPA) to stop the rise of overweight and obesity in children and adolescents by 2020 through the development of a multisectoral joint effort (European Commission, 2015–17);
- The AZIONI project (http://www.azioniperunavitainsalute.it/pagine/il-progetto-azioni), aimed at acquiring methodologies to promote physical activity among the population, in partnership with the WHO program Housing and Health; this initiative also collects a list of projects on promoting physical activity that have been developed by a group of Regions since 2007;
- The Department of Youth has supported actions for the prevention of eating disorders and has promoted being active during all stages of life;
- The constant and constructive dialogue between the Ministry of Health and the food industry to promote increased consumption of fruit and vegetables;
- Development of dietary guidelines in partnership with the Ministry of Agriculture and Forestry, as well as the work of the National Committee for Dietetics and Nutrition, an interministerial working group for cross-sectoral policies (WHO, 2007);
- Agreements with the private sector, in particular, with the trade and food chain associations to adapt products to the needs of a healthy diet, through the reformulation of certain foods (e.g. reduction of fatty acids and sugar) and increased attention to health in disclosure advertising/food labelling.

1 This national program contains strategies in line with the WHO's 2006 Gaining Health Strategy, the *European Strategy for the Prevention and Control of Noncommunicable Diseases*.

National monitoring systems for adults and children have also been established to collect evidence on the spread of unhealthy lifestyles and diseases, including:

- Keep an Eye on Health (*okkio alla Salute*; http://www.epicentro.iss.it/okkioallasalute), coordinated by the National Institute of Health (ISS), in collaboration with the Ministry of Education, University and Research, INRAN, the Regions and local health authorities, provides an updated epidemiological picture of nutrition and the behaviour of children in primary schools, weighed and measured with a standardized methodology by trained personnel.
- The Health Behaviour in School-aged Children (HBSC) study (www.hbsc.unito.it/it/) promoted by the WHO provides data on the lifestyles of children aged between 11 and 15.
- The Health Progress in Italian Local Authorities (PASSI) system (*Progessi delle Aziende Sanitarie per la Salute in Italia: sorveglianza* PASSI; www.epicentro.iss.it/passi/) provides information about risk factors (including obesity), people's perception of health, and the delivery of health services to people aged 18 to 69.
- The PASSI Silver system (PASSI d'Argento; www.epicentro.iss.it/passi-argento): a surveillance system on the health and quality of life of people over 64.
- The Heart project (*Progetto* CUORE; www.cuore.iss.it/): a large prospective cohort follow-up study of cardiovascular risk factors and high-risk conditions (such as obesity) in the Italian population through periodic standardized, rigorous and accurate physical examinations.

Problem identification and issue recognition

The Italian Constitution (1948) enshrines the right to health in Article 32 and the Ministry of Health exercises the core public health function of identifying health problems and priorities. In 2001, changes to the Italian Constitution to decentralize more powers to the Regions shifted responsibility for the management of the National Health Service from the central to the regional level of government. Today, Italy's 19 Regions and two autonomous provinces have significant autonomy in determining the macro structure of their health care systems and in the delivery of health services through local health authorities (*Azienda Sanitaria Locale* (ASLs)). Therefore, problem identification and the resulting agenda-setting for obesity policy is discussed simultaneously within working groups at both the national and regional levels.

The National Centre for Disease Prevention and Control (CCM) is the country's public health agency with a clear mandate to detect (and prevent) major health problems and potential threats to public health, including obesity. Since its establishment in 2004, it has operated as a coordinating body between central and regional health institutions for surveillance, prevention and effective emergency response activities. Other local and national bodies responsible for obesity are the Food and Nutrition Health Services (*Servizio di Igiene degli Alimenti e della Nutrizione* (SIAN)) located within each local health authority and the National Institute for Food and Nutrition Research (*Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione* (INRAN)), which is responsible for the national guidelines on healthy diets.

In terms of problem identification and agenda-setting, these public health bodies interact with a number of other bodies, including international organizations, such as the WHO (through the HBSC study and the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020); many scientific associations (such as the Italian Barometer Diabetes Observatory Foundation, IBDO; the Italian Obesity Association (*Associazione Italiana Obesità*, AIO), the Italian Human Nutrition Society (*Società Italiana di Nutrizione Umana*, SINU), the Italian Obesity Society (*Società Italiana dell'Obesità*, SIO), the Italian Association for Eating Disorders and Weight (*Associazione Italiana disturbi dell'alimentazione e del peso*, AIDAP), the Italian Foundation for the Fight Against Childhood Obesity (*Fondazione Italiana per la lotta all'obesità infantile*), the Italian Association for Dietetics and Clinical Nutrition (*Associazione Italiana di dietetica e nutrizione clinica*, ADI), and the Italian Society for Obesity Surgery and Metabolic Diseases (*Società Italiana di Chirurgia dell'Obesità e delle malattie metaboliche*, SICOB); and GPs and paediatricians, who are involved daily in dealing with this issue.

Formal collaboration mechanisms are established with the National Institute of Health (*Istituto Superiore di Sanità*, ISS), the National Health Service's leading technical and scientific body. The ISS supports the Ministry of Health and the Regions through national population monitoring

systems and data collection, coordinating the Keep an Eye on Health, PASSI and PASSI d'Argento monitoring systems.

Informal mechanisms are established with the National Institute of Statistics (ISTAT; http://www.istat.it), the country's main supplier of official statistical information (e.g., ISTAT produces the multipurpose Aspects of Daily Life Survey) and the National Observatory on Health Status in the Italian Regions (*Osservatorio Nazionale sulla Salute nelle Regioni Italiane*; http://www.osservatoriosullasalute.it/)[2] which collects comparable regional data from different sources and monitors population health status in the Italian regions. Other informal mechanisms are established with regional health agencies and, when present, their respective regional epidemiological observatories, epidemiological systems or multizone epidemiological services.

Policy formulation

Responsibility for formulating health care policy is divided between the central government and the Regions. Within Italy's quasi-federal arrangements, the Ministry of Health fulfils the function of being the overall steward of the health system and therefore is also in charge of policy developments to tackle obesity. Key departments within the Ministry are the General Directorates for Planning, for Health Prevention and for Food Safety and Nutrition, which liaise with international bodies and promote policy discussion. The central government sets the main policy directions while the Regions are responsible for the formulation of their respective local policies and for the organization of regional public health care.

The National Platform on Diet, Physical Activity and Tobacco, established and chaired by the Ministry of Health, is a technical committee composed of representatives from central administrations, regions and autonomous provinces, institutes and research centres, GPs and paediatricians, as well as manufacturers' and consumers' associations and most representative trade union organizations. The Platform is tasked with formulating policies and implementing actions, in line with the Gaining Health programme, and all of the public health agencies appointed by the Ministry of Health to participate in the Platform have a clear policy mandate to deal with obesity issues. The Platform also provides the arena for defining cross-sectoral strategies and for developing synergies among all stakeholders according to the principle of Health in All policies.

Regional departments of health and public health observatories are also key actors involved in formulating policies on obesity. In some regions a regional agency for health has been established to provide technical support to regional health departments, also in terms of policy formulation. In addition, an advisory role is offered by the main scientific associations (IBDO, AIO, SIO, AIDAP, ADI, SICOB and *Cittadinanzattiva*) involved in obesity issues.

A few national arms-length bodies formally also contribute to policy formulation in this area, with the National Health Council (*Consiglio Superiore di Sanità*) providing scientific and technical advice to the Ministry of Health and the National Agency for Regional Health Services (*Agenzia Nazionale per i Servizi Sanitari Regionali* (AGENAS)) conducting comparative effectiveness analysis for both the Regions and the Ministry of Labour and Social Affairs. The National Institute of Health also conducts publically-funded clinical and health services research.

Decision-making

Decision-making takes place at both national and regional level. The "Conference system" is the main mechanism to achieve coordination across levels of government and is based on three coordination bodies: 1) the Conference between the State, Regions and Autonomous Provinces (State-Regions Conference, for short), is the permanent interface where central and regional governments discuss, negotiate and make agreements on public policy where their mandates overlap; 2) the Conference between the State, Municipalities and other local authorities, whose functions include coordinating the relations between the central government and local authorities, as well as analysing and serving as a forum to discuss issues of interest to local authorities; and 3) the Unified Conference between the State, Regions, Municipalities and local authorities, the institutional mechanism that coordinates the relationships between the central government, the Regions and the local authorities. In addition, one of the most important mechanisms through which the Regions and central authorities engage with each other is through discussions that lead up to the ratification of the Health Pact (*Patto per la Salute*), and

2 *Osservasalute*, as it is known, is a cooperative venture between the Hygiene Institutes of the Catholic University of the Sacred Heart and other Italian universities, as well as several national, regional and corporate public institutions.

three-year agreements on health care.[3] Negotiations between the state and regional governments also result in the ratification of National Prevention Plans, the most recent of which covers the period 2014–2018 (see the Policies and programmes section).

The National Centre for Prevention and Disease Control (CCM) decides on an annual program of prevention-related activities. Its partner institutions (the Regions, the ISS, the National Institute for Insurance against Accidents at Work (INAIL), the National Institute for the Promotion of Migrant Health and to Fight Poverty-Related Diseases (INMP) and AGENAS) submit project proposals that, if approved by the CCM's Scientific and Strategic Committee, are given financing.

Other key actors involved in decision-making are the health professionals who provide primary care services and more generally, the district-level service networks set up under local health authorities which manage services for chronic diseases and disabilities.

Finally, the national lifestyle and disease monitoring systems that collect data on adults and children (Keep an Eye on Health, HBSC Study, PASSI and PASSI d'Argento systems) provide the necessary data to guide decision-making and to provide useful information for all stakeholders (policy-makers, administrators, health workers, citizens). These information systems allow decision-makers to obtain data on the prevalence of overweight and obesity, monitor trends over time, assess the need for interventions and gauge the effectiveness of implemented actions in different areas of the country.

Policy implementation

The Ministry of Health and the Regions share responsibility for policy implementation. Regional Health Departments implement national guidelines and laws and may directly fund some regional projects, which are all detailed under Regional Prevention Plans. An important partner is each region's network of local health authorities and hospital trusts (*Aziende Ospedaliere* (AOs)) to which executive functions are largely delegated. Local Health Authorities provide primary care, secondary care, public health, occupational health and health care related to social care at the local level, with the Regions providing technical support.

Regions are also responsible for facilitating collaboration among various stakeholders and for the pooling of available resources. They are required to promote contact between social and health services and schools, businesses, the youth entertainment sector, sports associations, the voluntary sector and patients' associations.

The National Centre for Disease Prevention and Control (CCM) is attached to the Ministry of Health's General Directorate for Health Prevention, and provides operational support for project implementation and for identifying and disseminating best practices, in order to promote the sharing of objectives and tools across regions. In addition, public health agencies and services interact with a large number of health professionals (e.g. GPs, paediatricians, nutritionists) and other involved stakeholders (e.g. trade and food chain associations, the private sector).

Formal mechanisms for collaborations are established with the National Institute of Health (ISS), AGENAS, the National Medicines Agency (*Agenzia Italiana del Farmaco*), the Ministry of Education, University and Research (e.g. Keep an Eye on Health, HBSC), the European Network for the Promotion of Health-Enhancing Physical Activity (HEPA), the Department of Youth Affairs, the Ministry of Agriculture (e.g. the development of dietary guidelines), the food industry, trade and food chain associations, and the National Committee for Dietetics and Nutrition. The projects carried out within the Regional Prevention Plans, in turn, clarify the expected formal mechanisms for collaboration.

Informal collaboration mechanisms are established with the media, which pays a high level of attention to obesity initiatives. Using the media is a powerful way of taking forward public health initiatives, as well as disseminating information emerging from social research in the field.

With regard to funding, there is no specific budget allocation to address obesity. Although for years the national Gaining Health program and the National Prevention Plan have focused attention on the importance of primary and secondary prevention activities, very little of the health budget (on average about 3.5%) is dedicated to the implementation of such important and pressing activities (De Fiore et al., 2015). Health programmes and research projects are mainly funded by the Ministry of

3 Health Pacts are separate to National Health Plans and tend to focus on cost-containment issues. The most recent covers the period 2014–2016 (*Conferenza Permanente per i rapporti tra lo Stato, le Regioni e le Province Autonome di Trento e Bolzano*, 2014).

Health and CCM on the basis of annual competitive bids by research teams working on different aspects of health care and prevention. Some surveillance systems are funded by the Ministry of Health and CCM (e.g. Keep an Eye on Health, HBSC, PASSI, PASSI d'Argento). In addition, several million euros per year have been assigned to reinforce organizational and professional resources involved in the implementation of activities coordinated or financed by the CCM, including planning, monitoring and evaluating Regional Prevention Plans. Other financial support for prevention initiatives or chronic disease research projects has come from European Union Structural Funds or research funding (e.g. *Horizon 2020*) (Joint Action CHRODIS, 2015).

Monitoring and evaluation

Monitoring and evaluation of policies addressing obesity are directly undertaken by regional health departments. In some regions, regional health agencies have been specifically funded to provide technical and scientific advice to the regional health departments and to the local health authorities. Furthermore, some public health observatories have been set up in different regions, provinces and local health authorities to deliver a range of quality indicators for planning and monitoring purposes. As a further initiative, in November 2014 the State-Regions Conference approved the issuing of a decree that will provide an improved instrument for the evaluation of Regional Prevention Plans for 2014–2018, extending to some of the most significant areas of prevention. The actual instrument, in accordance with one of the objectives in the National Prevention Plan, includes performance measurement to some extent, but in a rudimentary fashion (*Conferenza Permanente per i rapporti tra lo Stato, le Regioni e le Province Autonome di Trento e Bolzano*, 2011; *Conferenza Permanente per i rapporti tra lo Stato, le Regioni e le Province Autonome di Trento e Bolzano*, 2014).

Another example of routine monitoring is the Ministry of Health's annual monitoring of the delivery of the health benefits package, known as the Essential Levels of Assistance (*Livelli Essenziali di Assistenza* (LEA)) across the country. Obesity is included as part of the descriptive lifestyle indicators and as a risk factor for chronic noncommunicable diseases. Therefore, the prevalence of overweight or obese people is monitored. In addition, ISTAT as well as the National Institute of Health (ISS) coordinate the main national surveillance systems for children and adults. These national surveillance systems provide useful information for planning preventive and protective measures for population health. Another actor in monitoring and evaluation is the operational directorate of the CCM, which drafts an annual activity plan and supports the organization's committees in checking the results of projects.

In the nongovernmental sector, Active Citizenship (*Cittadinanzattiva*; www.cittadinanzattiva.it/), is a non-profit organization that provides an overview of the health status of the country, including obesity-related issues, and monitors the delivery of health services from the citizen's point of view.

Conclusion and outlook

Several policies and programmes have been adopted and implemented in Italy to tackle obesity. The main strengths of this variegated strategy include the increased prominence given to this public health issue and the substantial steps undertaken over the last 30 years to improve population health through preventive and therapeutic measures (Lo Scalzo et al., 2009). In addition, these developments have been underpinned by policy-makers' strong advocacy for more public health-oriented policies and practices at the national and regional level and have given rise to well-coordinated national surveillance systems. The existence of a National Prevention Plan can be considered a major success, as can the Regional Prevention Plans which increasingly concentrate on the prevention of noncommunicable diseases and the promotion of healthy lifestyles.

However, several weaknesses need to be addressed, including the existence of strong regional disparities in health status and in the quality of public health services. A lack of experience with the application of Health Impact and Health Needs Assessments is also a cause for concern, as is the unacceptable budget cuts to prevention funding over the last few years, which have left fewer resources to be allocated to tackling obesity. Furthermore, health information and monitoring systems are not always fully capable of translating findings to aid decision-makers; and government mechanisms to support high quality research are lacking (Aluttis et al., 2013). Finally, there are no innovative strategies to use cities as open-air gyms (De Feo and Sbraccia, 2014); that is, although there are many examples of the integration of urban planning and health promotion, the problems involved with making structural and systematic changes to urban environments to encourage people to improve

Table 1 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Parliament	+	+	+++		
Italian Government	+	++	++	+	+
Ministries					
• Ministry of Health	++	+++	+++	+++	++
• Ministry of the Economy and Finance	+	+++	++	+	+
• Ministry of Labour and Social Affairs		++		+	
• Ministry of Agriculture and Forestry		+	+	++	
• Ministry of Education, Research and University	+	+	+	++	
National PH Agencies					
• National Health Council		++	+		
• National Institute of Health	+++	++	++	++	+++
• National Centre for Disease Prevention and Control	+++	+	++	+++	+++
• National Platform on diet, physical activity and tobacco	+	+++	+	++	++
• National Institute of Research in Food and Nutrition	++	+		+	+
National Institute for Statistics	++	++			++
Permanent State Region Conference	++	+++	+++	++	+
Regional governments	++	+++	+++	+++	+++
Municipalities	+	+			+
Local health authorities	++	+	+++	++	++
Food industry	+	+		++	+
Media	++			+++	+
International organizations	++			+	+
Scientific and Research associations	+++	++		++	++
National Observatory on Health Status in the Italian Regions	+++	++			++
Health care professionals	+++		+	+++	++
Patient organizations	++	+		+++	++

Note: +++: actor is strongly and clearly committed to the issue; ++: actor clearly plays an important role; +: actor plays a marginal role.

their leisure and physical activity, to use bicycles or to walk to schools and workplaces, remain unsolved.

A major threat is that public health thinking is still largely based on infectious or environmental disease pathways and is less oriented towards integration, multidisciplinary approaches and efforts to address the social and behavioural determinants of health and disease. Moreover, a major obstacle is represented by the high cost of "healthy" foods and the relatively easy accessibility of junk food.

There is clearly still more to be done to raise awareness among policy-makers of the extent of obesity and overweight, the effectiveness and reach of different interventions, and the impact that obesity prevention and management programmes are having (and could have) nationally. If policy-makers have solid knowledge of the extent of the challenges posed by obesity, and the existing evidence for what can be done and who needs to be involved, national policies are more likely to be put in place that adequately address the reality of tackling obesity in the population. Future developments are likely to focus on increasing the number and improving the governance of intersectoral plans/actions on obesity; increasing integration between stakeholders in accordance with the Gaining Health programme; strengthening health financing to allocate more funds to prevention; addressing important gaps in health status between Regions; increasing evidence-based health promotion and prevention (in priority-setting, planning and evaluation); and strengthening support from, and collaboration with, the food industry.

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Alcohol

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The scale of the challenge

In Italy, alcohol abuse has long been perceived by policy-makers as a major public health problem. Since 2001, the Minister of Health has provided detailed annual updates on alcohol-related measures to the Italian parliament (Ministry of Health, 2016). During the 2000s, Italy managed to steadily reduce the annual per capita consumption of pure alcohol: in 2010 it was 6.10 litres, which was among the lowest recorded levels in the World Health Organization (WHO) European Region, where the average value in 2010 was 8.71 litres (WHO, 2016). However, despite recent declines in consumption and the fact that Italy compares favourably with most other European countries, there is a strong awareness among public health practitioners of the need to further strengthen alcohol policies at the national and regional level. In fact, a recent national report placed alcohol among the top 10 priorities for health policy action (Scafato et al., 2013).

In Italy, the assessment of alcohol-related risk is based on a number of indicators that describe the levels and patterns of consumption among the population (with a specific focus on young people and the elderly) and alcohol-related morbidity and mortality (i.e. hospital admissions for conditions totally attributable to alcohol, traffic accidents and alcohol dependence) (Ministry of Health, 2018). Over a ten-year period, the National Institute for Statistics (*Istituto Nazionale di Statistica* (ISTAT)) has observed a decrease in total consumption – defined as consumption of at least one alcoholic beverage annually – from 69.7% of the population in 2005 to 64.5% in 2015; a decrease in the proportion of daily users (from 31% in 2005 to 22.2% in 2015); an increase

in the proportion of occasional users (from 38.6% in 2005 to 42.3% in 2015); and an increase in outside-of-meals consumers (from 25.7% in 2005 to 27.9% in 2015) (Ministry of Health, 2018).

Habitual heavy consumption and binge drinking raise the greatest concerns. The National Observatory on Alcohol (*Osservatorio Nazionale Alcol* (ONA)) of the National Institute of Health (*Istituto Superiore di Sanità* (ISS)) recently integrated these two indicators into an overall risk indicator that in 2015 showed that 23% of males and 9% of females are at risk due to alcohol consumption (totalling over 8.5 million individuals) (Ministry of Health, 2018). People deemed at highest risk are those aged between 16 and 17 years of age who should never consume alcoholic beverages, those between 18 and 24 years of age (at risk especially for binge drinking) and older people aged 65 to 74 years of age (at risk especially for heavy drinking). In all age groups (except between 11 and 15 years of age), males are more frequently at risk than females (Scafato et al., 2013; Ministry of Health,2018).

Since 2003, hospital admission data have shown a reduction in the diagnosis of diseases totally attributable to alcohol, totalling 63 666 in 2013 (Ministry of Health, 2015). Similarly, the number of deaths totally attributable to alcohol has decreased slightly over the last few years, falling to 1 543 people over 15 years in 2011 (Scafato et al., 2013). A further reduction has been recorded in 2013 (1 180 deaths totally attributable to alcohol), mainly due to hepatopathies and alcohol-related psychotic syndromes (Ministry of Health, 2018).

In addition, the *Progressi delle Aziende Sanitarie* (PASSI), the Italian Behavioural Risk Factor Surveillance System, reports a reduction in the number of people who said that they would drive a car or motorcycle after consuming at least two units of alcohol (8.7% in 2013 compared to 11.8% in 2008) (PASSI, 2013). However, another report indicated a higher prevalence (13.8%) of people who do not abstain from consuming alcohol even when they know that they are going to drive (ACI-CENSIS, 2012).

Even though general practitioners (GPs) do not generally ask about alcohol consumption patterns of their patients, with only 14.2% of GP patients being asked about their alcohol consumption in 2013 (Ministry of Health, 2014b), the number of alcohol-dependent patients treated within dedicated health services had increased to an all-time high of 72 377 individuals in 2015. Similarly, the use of drugs to treat alcohol dependency has been increasing over the last few years (Ministry of Health, 2018).

Policies and programmes

Two important pieces of legislation have been adopted to combat alcohol abuse: Law 125/2001 which contains measures on the prevention, treatment and social reintegration of people with alcohol problems, and Law 189/2012 which bans the sale of alcoholic beverages to people under 18 years. In particular, protection from underage drinking and the prevention of drink-driving[4] are the two main policy targets. To protect teenagers from alcohol abuse, Italy has restricted alcohol advertising, especially in programmes broadcast during family viewing hours, and in public places used by young people. Responsible drinking campaigns have also been promoted.

Emanating from Law 125/2001 are the Ministry of Health's health promotion initiatives for the prevention of alcohol-related harm, which focus mainly on young people. Among the most recent ones are the information campaign "Do not lose yourself in a glass!" for high school students and "Alcohol distorted (a special evening)", in collaboration with a famous Italian band that is very popular among young people, and the "Sanit-Run-Alcohol Prevention race" organized under the Italian Presidency of the EU Council. In addition, at the end of 2008, the Department for Youth, seriously concerned with the problem of drinking and driving among club goers, and in cooperation with the ISS, funded the national "*Nasorosso*" (Red nose) project to raise awareness on alcohol use in recreational situations and driving under the influence of alcohol. All these activities were carried out through disseminating information and materials, supporting and counselling individuals attending recreational sites and people working at clubs and bars, and setting up a dedicated website (Pacifici et al., 2013).

In recent years the Ministry of Health has supported action plans, programmes and projects to further the adoption of best practices for preventing and combating alcohol-related harm in various population groups. Since 2003, all National Health Plans have included the reduction in the consumption and abuse of alcohol as a

4 Legislation sets the acceptable blood alcohol limit when driving at under 0.05% for the general population and at zero for drivers with less than 3 years' experience and for professional drivers. People driving under the influence of alcohol are punished, according to the blood alcohol level, with fines, license suspension/revocation, vehicle seizure and confiscation, or imprisonment.

specific objective to be achieved through a set of actions aimed at acquiring lifestyles compatible with maintaining a good level of health.

More specifically, the National Alcohol and Health Plan (*Piano nazionale alcol e salute* 2007–2009), launched in 2007, promoted a series of coordinated regional government activities for the prevention and treatment of alcohol-related problems, and facilitated the involvement of the National Health Service (NHS) and other entities, including Departments/Services for addictions (SER.T.) and mental health departments; regional alcohol services; local health authorities (known as ASLs); hospitals; GPs; mutual aid associations and non-profit organizations; schools and sports associations; trade unions and worker representatives; recreational centres for the elderly; police services; and businesses and for-profit organizations.

The National Alcohol and Health Plan formally ended in 2009, but its approach was preserved in the subsequent National Prevention Plan (Piano Nazionale della Prevenzione) 2010–2012 and endorsed in the new National Prevention Plan 2014–2018, where alcohol is mentioned as an important risk factor in all the main goals and explicitly addressed in two main goals: to "Reduce the burden of preventable and avoidable morbidity, mortality and disability of noncommunicable diseases" and "Preventing drug addiction". The objectives call for actions carried out in specific settings to impact young people particularly. The strategies essentially focus on the individual and on personal capacity (such as socio-emotional and relational skills), as well as on community actions to reinforce living environments through "life skills education" and "peer education" methods. Furthermore, the plan provides prevention strategies targeting the early detection of behavioural risk factors and lifestyle modifications, and secondary and tertiary prevention through integrated diagnostic and therapeutic pathways for people with alcohol-related diseases (i.e, the plan supports the application of the Early Identification and Intervention instrument in the most appropriate health care settings such as GP practices, and by occupational physicians working in workplace health and safety). The objectives of the National Prevention Plan are also implemented via operational projects within the respective Regional Prevention Plans.

Finally, the government programme Gaining Health (*Guadagnare Salute*), approved in 2007 by the national government in agreement with the regions and autonomous provinces, is characterized by a cross-sectoral approach involving various stakeholders and follows the principles of Health in All policies. The programme requires close cooperation with schools and is also characterized by interaction with businesses producing and distributing alcoholic beverages. The Gaining Health website (www.guadagnaresalute.it/alcol/alcolProgettiIta.asp) contains a detailed list of projects and initiatives on alcohol carried out at the national level since 2001. Most of these initiatives are tailored to raise awareness about the risk of driving under the influence of alcohol (e.g. the "I Drive with Caution" campaign in 2010) or about the risk of alcohol consumption in pregnancy (e.g. the "Mummy drinks – Baby drinks" campaign in 2010).

Problem identification and issue recognition

The most important actor in setting the public health agenda is the Ministry of Health, especially its directorates that, along with the Minister of Health, are represented in the National Platform on Diet, Physical Activity and Tobacco. The directorates are the Directorate General (DG) for Disease Prevention; the DG for Communication and Institutional Relations; the DG for Hygiene, Food Safety and Nutrition. Other ministries are also involved, for example, the Department for Youth's Red Nose project in 2008, targeting drinking and driving by club goers (see the Policies and programmes section). Finally, in line with Italy's devolution process, Regional Governments have a role in setting the public health agenda and the State-Regions Conference[5] is an important permanent institution in which policies are discussed.

Since 1998 the National Observatory on Alcohol (ONA) (www.epicentro.iss.it/alcol/default.asp) has been the official reference point for research, prevention and training on alcohol and alcohol-related problems. Together with ISTAT, ONA is the most relevant public health agency for the assessment of alcohol-related exposure. ONA and ISTAT reports, based on a system of indicators validated at national and European level, are included in the National Statistical Programme.

Because alcohol is considered a food, defining reference values for nutrient intakes (recommended daily allowances (RDAs)) is the task of the research centre for food and

5 The State-Regions Conference is a permanent interface for consultation and communication between the state and Italy's 19 Regions and two autonomous provinces in the domains of public policy where their mandates overlap, including shaping and confirming the National Health Plan

nutrition of the Council for Agriculture Research and Agricultural Economy, the former National Research Institute for Food and Nutrition (*Istituto nazionale di ricerca per gli alimenti e la nutrizione* (INRAN)). Over the last decade, national and international scientific evidence and new regulations on prohibiting the sale and supply of alcohol to minors have provided the opportunity to update existing guidelines.

In terms of issue recognition, the Ministry of Health has supported alcohol policy in line with the guidelines established in the international arena, both at European Union (EU) level and following WHO strategies. Examples include the 2006–2012 EU Community Strategy to reduce alcohol-related harm; the WHO's Global Strategy in 2010 to reduce the harmful use of alcohol; and, more recently, the WHO's Global Action Plan for the Prevention and Control of NCDs in 2013–2020 and the new European Action Plan to reduce the harmful use of alcohol in 2012–2020 (Ministry of Health, 2015).

Awareness of alcohol-related issues is also raised by non-profit or scientific organizations working with people who have alcohol problems. For example, the Italian Association of Clubs for Alcoholics under Treatment (AICAT) collaborates with public institutions in several national initiatives to raise awareness about alcohol abuse: the most important is Alcohol Prevention Day, organized annually by the National Health Institute (ONA) and the WHO Collaborating Centre for Research and Health Promotion on Alcohol and Alcohol-related Health Problems, in collaboration with the Ministry of Health, the Italian Society of Alcohol Research and Eurocare (European Alcohol Policy Alliance, an alliance of nongovernmental public health and social organizations working on the prevention and reduction of alcohol-related harm in Europe).

AICAT is a non-profit organization that brings together over 2 000 Clubs for Alcoholics in Treatment, which are community groups, composed of 2 to 12 families with alcohol-related problems, and a facilitator who aims to support lifestyle changes. In the field of scientific research, an independent research group interested in workers' safety (the LaRA Group) has recently raised the importance of regulating alcohol use and abuse in the workplace to safeguard the health and safety of both workers and third parties, without impinging upon the civil rights of workers. Its most recent consensus paper, formulated with a number of other stakeholders, such as physicians, public health officials, researchers, lawyers, bioethicists and social partners, concludes that a better definition of the roles of monitoring bodies and occupational physicians is needed, along with a shift from a reactive to a proactive attitude by all parties involved in the workplace in order to monitor alcohol-related risks (Magnavita et al., 2014).

Collaboration among public health agencies and other institutions involved in problem recognition is ensured by formal and informal cooperation. ONA supplements the annual statistics provided by the ISTAT report "The use and abuse of alcohol in Italy" (ISTAT, 2014) and the Ministry of Health synthesizes the data from different sources (ISTAT, ONA, ACI, CENSIS, Hospital Discharge Records) in its annual report to the Italian Parliament. Informal collaborative mechanisms among the Public Health Institutes of the Catholic University of the Sacred Heart and other Italian Universities, and several national, regional and corporate public institutions are established within the National Observatory on the Health Status in the Italian Regions (*Osservatorio Nazionale sulla Salute nelle Regioni Italiane*, known as *Osservasalute*; http://www.osservatoriosullasalute.it) which collects comparable regional data from different sources and monitors population health in the Italian regions (Osservasalute, 2014). Informal mechanisms are also established with the regional health agencies and, when present, their respective regional epidemiologic observatories, regional epidemiologic systems or multi-zonal epidemiological services.

Important cooperation also takes place with the industry. For example, the Italian Wine Union (*Unione Italiana Vini*) works with the police and public health agencies in initiatives aimed at reducing alcohol-related harm and promoting responsible and moderate wine drinking. These actions are in line with the comprehensive pan-European programme called Wine in Moderation – Art de Vivre (http://www.wineinmoderation.eu/en/content/Commitment-to-the-European-Alcohol-Health-Forum.33/).

Policy formulation

Within Italy's quasi-federal arrangements, the Ministry of Health fulfils the function of being the overall steward of the health system and therefore is also in charge of policy development to tackle alcohol control. Several public health agencies, scientific organizations and other key actors are involved, mainly in two national committees

with a clear mandate in this area: the National Platform on Diet, Physical Activity and Tobacco and the National Consultation on Alcohol and Alcohol-related Problems.

The National Platform on Diet, Physical Activity and Tobacco is a technical committee composed of representatives from central administrations, regions and autonomous provinces, institutes and research centres, GPs and paediatricians, as well as manufacturers' and consumers' associations and most representative trade union organizations. The platform provides the arena for the definition of cross-sectoral strategies and for the development of synergies among all stakeholders according to the principles of Health in All policies. The Minister of Health chairs the platform and every three years appoints its members. The platform makes important contributions to formulating guidelines and promoting initiatives aimed at the adoption of healthy lifestyles, as in the Gaining Health programme. The reduction of alcohol abuse and education on responsible and moderate alcohol consumption are some of the platform's specific objectives and are pursued in accordance with the 2006 EU Strategy to reduce the harm associated with alcohol.

The National Consultation on alcohol and alcohol-related problems was established in 2001 but, following the government's spending review in 2010, funding for the programme was not renewed. More recently, some associations (i.e. AICAT) have asked for its reestablishment (AICAT, 2015). The consultation, chaired by the Minister of Labour and Social Policy, was composed of 18 members, including representatives of the Ministry of Labour and Social Policy; the Ministry of Agriculture and Forestry; the Ministry of Education; the Ministry of Health; the State-Regions Conference; the National Institute of Health; the Centre for National Research (CNR); the Italian Association of Clubs for Alcoholics under Treatment (AICAT); the Association of family groups (Al-Anon); the Alcoholics Anonymous Association (AAA); the associations of producers and traders of alcoholic beverages (Confindustria); the Italian Society of Alcohol Research; trade unions; and the consultation group of experts and social workers working on drug addiction. Its responsibilities included cooperation with international organizations that deal with alcohol and alcohol-related problems and the formulation of proposals and opinions for ministers and regional governments.

Collaboration in policy formulation among institutions, from national to local administrations, NGOs and other research organizations, is ensured mainly by formal mechanisms that regulate the committees mentioned above. Both these committees have played a key role in the initiation of new policies on alcohol, bringing together representatives of civil society, the scientific community, manufacturers and members of key institutions. Furthermore, the National Conference on Alcohol has served as an informal mechanism that promoted debate among key stakeholders.

Linkages with European policies are pursued by the National Observatory on Alcohol (ONA), which (since 2007) has represented the Ministry of Health on the EU Committee on National Alcohol Policy and Action (CNAPA), in the European Alcohol and Health Forum and in the Working Group on Alcohol and Health. In addition, ONA provides a continuous connection and engagement with European and international initiatives. It has been designated a WHO Collaborating Centre on epidemiology and public health issues related to alcohol.

Decision-making

The most important actors in the decision-making process are the Italian parliament and the national and regional governments. The Italian parliament has passed several laws mainly targeted at protecting minors and prohibiting driving and working under the influence of alcohol. Important laws regulate alcohol advertising (alcohol advertisements targeted at young people are prohibited by Law 125/2001); the sale of alcoholic beverages (the sale of alcoholic beverages is forbidden in discos after 2:00 by Law 117/2007 and the serving of alcohol to intoxicated persons and to minors is prohibited by Law 189/2012); the blood alcohol content allowed in drivers (Road Traffic Code, July 2011); the blood alcohol controls that are mandatory for drivers in public transport and for work considered to be crucial for community safety (State-Regions Agreement of 16 March 2007). The parliament also regulates excise duties on alcohol to limit its use.

Objectives and indicators to measure the progress of prevention are defined jointly between the national and regional governments through the State-Regions Conference, which recently approved the new National Prevention Plan for 2014–2018. Considering Italy's quasi-federal system, regional governments play a crucial role in

deciding which programmes should be carried out within their territories through their Regional Prevention Plans.

In addition, municipalities are able to contribute to the decision-making process related to alcohol control because mayors can introduce within their territorial jurisdiction stricter regulations for the consumption of alcoholic beverages on roads and in parks and other public places (Allamani et al., 2002).

The National Observatory on Alcohol has a clear mandate to participate in the alcohol-related, periodic national monitoring system that provides useful information to guide national and local decision-making.

Finally, the decision-making process is heavily influenced by alcohol policy at the EU and the WHO level. As a matter of fact, EU directives have had the biggest impact on and have directly shaped all Italian legislation regulating alcoholic beverages. Furthermore, the Ministry of Health has signed up to the European Alcohol Action Plan 2006–2012, the WHO Global Strategy on Alcohol, the European Alcohol Action Plan 2012–2020, the WHO Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Disease 2013–2020, the European Joint Action on Reducing Alcohol-Related Harm, and the European Action Plan on Youth and on Binge Drinking 2014–2016 (Ministry of Health, 2018).

Within Italy, the National Centre for Prevention and Disease Control (CCM), the coordinating body between central and regional health institutions for the surveillance, prevention and emergency response on health matters, decides on an annual programme of activities. Under this programme, partner institutions (regions, ISS, INAIL, INMP and AGENAS) submit project proposals that, if approved by the CCM's Scientific and Strategic Committee, are given financing.

Policy implementation

As already mentioned, regions have autonomy in the implementation of strategies and programmes contained in the National Health Plan and the National Prevention Plan. Regional Health Departments implement national guidelines and legislation through funding from the national government. In addition, they are responsible for their regional health budgets and may directly fund some regional projects. Treatment and preventive activities are mainly delegated to the local health authorities.

In the area of alcohol control, Law 125/2001 gives the Regions the responsibility for planning interventions for prevention, treatment and rehabilitation, the organization of dedicated services and for staff training. In 1999 a State-Regions agreement tasked the ASL's Departments for Drug Addiction with the role of coordinating activities for patients with alcohol problems. The ASLs are required to ensure the provision of integrated multidisciplinary interventions and the availability of adequate resources to tackle the complexity of the problems. Their alcohol abuse services, despite marked regional heterogeneity, ensure diagnosis, treatment and rehabilitation for service users. Most ASLs assist patients with alcohol problems within local drug addiction recovery services (*Servizi per le Tossicodipendenze* (SERT)), but hospitals also contribute to alcohol treatment activities and in some regions hospitals host the Regional Alcohol Centre (e.g. in Tuscany). In 2015 the annual census carried out by the Italian Ministry of Health identified 514 alcohol services or working groups: 94.9% run by local health authorities, 3.3% hospital-based and 1.8% university-based (Ministry of Health, 2010b). Moreover, several public and private organizations, mostly in northern Italy, offer free phone lines to help people with alcohol-related problems. At the national level, the Italian Observatory on Tobacco, Alcohol and Drugs (Oss.F.A.D; www.iss.it/ofad/) runs a free telephone "drinkline" that is for both patients and professionals.

It should be noted that the implementation of policies to tackle alcohol abuse requires the involvement of a great number of actors, not limited to the health sector. Police forces (the national police, Italy's military police – *Carabinieri* – and the local police) have increased blood alcohol controls in drivers, especially among younger drivers, to prevent road accidents (ACI-CENSIS, 2012). Furthermore, the police forces cooperate at the local level with ASLs and schools in several projects within high-risk settings. Moreover, within the framework of devolution on safety and security matters, mayors of municipalities[6] can address local problems related to alcohol (such as violence and crime, or road safety) using the various social, economic, cultural policies at their disposal.

Regions are responsible for facilitating collaboration among all stakeholders and for the pooling of available resources. They are required to promote contact between social and health services and schools, the police, businesses, the youth entertainment sector,

6 For historical reasons, in Italy mayors represents the highest health authority at the local level.

sports associations, the voluntary sector and patients' associations. Moreover, a specific Interregional Technical Group on Alcohol has been created within the Health Committee of the State-Regions Conference to ensure the coordination of alcohol control interventions.

Public health agencies and services interact with a great number of health professionals (e.g. GPs, gastroenterologists, psychiatrists); NGOs, such as Alcoholics Anonymous (AA) and its derivatives such as AlAnon (relatives of alcoholics), and AlAteen (children of alcoholics), the Clubs for Alcoholics in Treatment (CAT), the Italian Association of Clubs for Alcoholics under Treatment (AICAT); and other stakeholders. This cross-sectoral collaboration is well developed in the projects carried out within the Regional Prevention Plans.

In addition, engagement with European and international initiatives is ensured by the National Observatory on Alcohol (ONA) through communication, information and awareness activities; training; prevention; and health promotion activities. ONA is also a member of the International Network on Brief Interventions for Alcohol & Other Drugs (INEBRIA) aimed at identifying strategies for early detection and brief interventions to reduce risk and alcohol-related harm. It disseminates procedures to identify and implement brief interventions (http://www.epicentro.iss.it/alcol/default.asp) through national training courses for health and social workers.

Several sources of funding are dedicated to the problem of alcohol. However, due to reductions in public expenditure over the years, the allocation of these funds has diverged considerably from the maximum amounts allowed by different laws. In general, under Ministry of Health budget specifications, 5% of all annual health care funding should be allocated to public health services and preventive medicine. Within this public health category a precise estimate of the funding dedicated to alcohol control is difficult to obtain and presumably also varies widely by region.

Unlike many other European countries, Italy does not earmark any of the high revenues from alcohol excise duty for public health activities. However, in 2014 the Minister of Health launched a proposal to hypothecate a small percentage for the prevention alcohol-related problems, but this proposal has not yet been implemented.

In terms of dedicated funds, since 2001, Law 125/2001 has allocated 2 million euros annually to implement:

- the monitoring of data related to alcohol abuse and alcohol-related problems (up to 516 457 euros assigned to the Ministry of Health);
- information and prevention activities in schools, military units, prisons, youth centres (approximately 1 million euros assigned to the Ministry of Health);
- a large number of drink-driving controls on roads when the risk of accidents related to the use and abuse of alcohol is higher (516 457 euros assigned to the Ministry of Internal Affairs).

Furthermore, the Ministry of Health supported three projects funded within the National Fund for the Fight Against Drugs (Ministry of Health, 2013). Finally, with funding from the CCM and in support of the National Alcohol and Health Plan, the Ministry of Health supported five projects carried out by several of the Regions to implement strategic actions for the prevention of alcohol-related diseases and problems (Ministry of Health, 2013).

Monitoring and evaluation

Overall evaluation of alcohol policy occurs at the national level. The Ministry of Health's Directorate for Health Prevention produces the Minister's annual report to Parliament, detailing the interventions carried out under Law 125/2001. The report is compiled based on information sent by the Regions and Autonomous Provinces to the Ministry of Health (Ministry of Health, 2016). This activity is mandatory under Law 125/2001 and forms the basis for the allocation of resources to the monitoring system. In fact, Law 125/2001 allocates specific funding for the monitoring of data related to alcohol abuse and alcohol-related problems at the regional level. However, due to reductions in public expenditure in recent years, actual allocations from the Ministry of Health budget for this purpose were much lower than the maximum amount set by law (516 457 euros). In 2013, only 72 227 euros were allocated to the regions for the alcohol control monitoring system.

Although health care and social activities for people with alcohol problems have been included in the health benefits package (*Livelli Essenziali di Assistenz* (LEAs)), there is no specific evaluation of the efficacy of the different interventions carried out at the national and regional level. Nevertheless, routine data collection on a set of indicators (the use and abuse of alcohol; alcohol-

Table 2 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Parliament	+	+	+++		
Italian Government	+	++	++	+	+
Ministries					
• Ministry of Health	+++	+++	+++	+++	+++
• Ministry of the Economy and Finance			++		
• Ministry of Labour and Social Affairs		++	+		
• Ministry of Internal Affairs		+	+		
National PH Agencies					
• National Institute of Health (ONA; Oss.F.A.D.)	+++	+++	+	+	+++
• National Centre for Disease Prevention and Control	+	++	++	+++	+
• National Institute of Research in Food and Nutrition	+	+		+	+
National Platform on diet, physical activity and tobacco	++	+++	+	++	++
National Institute for Statistics	+++				+++
Permanent State Region Conference	++	++	+++	++	+
Regional governments	++	++	+++	+++	+++
Municipalities		+	+	+	+
Local health authorities (Departments of Prevention)	++	+	++	+++	++
Food Industry	+	++		+	
Scientific/Research associations	+++	++		++	+
National Observatory on Health Status in the Italian Regions	++	++			++
Health care professionals	+	++	+	+++	+
Police forces				+	+
Media	+			++	
NGOs (AICAT; AAA)	++	++		+++	
Patient organizations	+	++		++	+

Note: ONA: National Observatory on Alcohol; Oss.F.A.D.: Italian Observatory on Tobacco, Alcohol and Drugs of Abuse; AAA: Alcoholics Anonymous Association; AICAT: Italian Association of Alcoholics in Treatment.

+++: actor is strongly and clearly committed to the issue; ++: actor plays an important role; +: actor plays a marginal role.

related morbidity and mortality; and the number of patients under treatment) that are used by the Ministry of Health for the annual report to the Parliament (see The scale of the challenge section) allows the scale of the problem to be monitored. This data also facilitates the development of national and regional standards, and allows monitoring of time trends and the effect of preventive health policies.

Two main agencies are involved in the monitoring system: the National Institute for Statistics (ISTAT) and the National Observatory on Alcohol (ONA). ISTAT produces the annual report "The use and abuse of alcohol in Italy" (ISTAT, 2014), and, since 2006, the National Observatory on Alcohol has supplemented the annual statistics provided by ISTAT with data derived from the national alcohol-related monitoring system. The analysis by the National Observatory on Alcohol is published annually; the last available report is from 2015 (Scafato et al., 2015).

Conclusion and outlook

Italy has responded to the challenge of alcohol-related problems with a wide-ranging strategy that involves many actors at different government levels. Multisectoral actions, ranging from primary to tertiary prevention, are reinforced by the presence of a national platform that ensures a multi-stakeholder debate and an institutional setting for policy formulation. Targeted and long-term national policies, such as the National Alcohol and Health Plan and subsequent National Prevention Plans, which have been adopted to different degrees by the regions, have helped to achieve a progressive reduction in the annual per capita consumption of pure alcohol, reaching one of the lower values in the WHO European Region. Nevertheless, there is a strong awareness of the need for the further strengthening of policies, especially to address the strong regional disparities in terms of alcohol consumption and treatment.

Several factors could hamper progress in alcohol control in Italy. The main risk is linked to financial constraints that have been present over the last few years. In times of economic crisis, prevention is one of the first targets in the health budget: in 2010 the National Consultation on Alcohol and Alcohol-Related Problems was discontinued, while the funds allocated for the prevention of alcohol-related harm, including through traffic controls by the police, were considerably lower than the maximum amount allowed by different laws. An important contextual factor is the historical, social and economic value of alcoholic beverages in Italy, in particular for the wine sector, which is representative of traditional Italian drinking patterns. Expected future developments may see greater integration between all stakeholders according to the objectives of National Prevention Plans, as well as strategies to reduce the existing inequalities among Regions, and increase evidence-based health promotion and disease prevention activities to reduce alcohol-related morbidity and mortality.

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Antimicrobial resistance

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The scale of the challenge

In Italy, antimicrobial resistance (AMR) is perceived as a serious public health issue. During the Italian Presidency of the European Council, the Ministry of Health organized an international conference on AMR entitled "Fighting Antimicrobial Resistance: smart weapons against smart microorganisms" (Ministry of Health, 2014a). In addition, in July 2015 the Ministry of Health's General Directorate on Animal Health and Veterinary Drugs provided a detailed update for the Italian parliament on the reduction of the use of antibiotics in animal husbandry and the fight against AMR (Ministry of Health General Directorate on Animal Health and Veterinary Drugs, 2015). In 2017 the National Plan on Antimicrobial Resistance (*Piano Nazionale di Contrasto dell'Antimicrobico Resistenza* (PNCAR)) 2017–2020 was approved (Ministry of Health, 2017). The aim of PNCAR is to provide a coordinated and sustainable approach to tackle AMR at national, regional and local level, following the One Health approach.

Despite this increasing policy focus, AMR continues to represent a serious and pressing public health problem, as underlined by an OECD report in 2015 (Cecchini et al., 2015). Indeed, according to the European Centre for Disease Prevention and Control (ECDC; 2016), in 2015 Italy had the second highest percentage of resistance to third-generation cephalosporins for *Escherichia coli* (30.1% versus an EU/EEA average of 13.1%), the second highest percentage of combined resistance to fluoroquinolones, third-generation cephalosporins and aminoglycosides for *Escherichia coli* (14.6% versus an EU/EEA average of 5.3%), the second highest percentage of resistance to carbapenems for *Klebsiella pneumonia* (33.5% versus an EU/EEA average of 8.1%), and 34.1% of methicillin-resistant *Staphylococcus aureus* (MRSA) compared to an EU/EEA average of 16.8%.

Moreover, levels of resistance to vancomycin for *Enterococcus faecium* showed a rising trend between 2012 (6.0%,) and 2015 (11.2%). Furthermore, in 2016 the total consumption of antibiotics for systemic use in Italy, expressed as the defined daily dose (DDD) per 1 000 inhabitants per day, was higher (26.9) than EU/EEA average (21.9), despite a decrease in antibiotic consumption in Italy since 2012 (27.5) (ECDC, 2017).

Policies and programmes

There are two main targets for tackling AMR: the fight against improper use of antimicrobials in animal husbandry and the reduction of antibiotic consumption in humans, both in primary and hospital care (ECDC, 2015).

Over the years, there have been a number of initiatives in this area in Italy. In 1999, Italy established an Antimicrobial Resistance Surveillance System (AR-ISS) within the National Institute of Health (*Istituto Superiore di Sanità* (ISS)) which also participated in the European Antimicrobial Resistance Surveillance project, established by the European Union (EU) (Moro et al., 2002). In 2001 this programme became the European Antimicrobial Resistance Surveillance Network (EARS-Net), which is now coordinated and funded by the ECDC. The AR-ISS collects data and disseminates information on AMR from invasive infections (blood and cerebrospinal fluid) isolated in humans from 40 laboratories and 60 hospitals in Italy.

In February 2012, the Ministry of Health published guidelines on biosafety and the appropriate and rational use of antibiotics in animal husbandry to improve the appropriate use of antibiotics in this area (Ministry of Health, Department for Veterinary Public Health, Food Security and Collegiate Bodies for Health, 2012). In addition, given the increase in the inappropriate use of antibiotics even in domestic pets, the Ministry of Health published a special booklet to raise awareness among pet owners on the proper use of these medicines (Ministry of Health, 2015a).

Italy has also adopted legislation to combat the inappropriate use of antimicrobials in animal husbandry and the farming sector: Law 193/2006, the "Community Code on Veterinary Medicinal Products", regulates the marketing, possession, prescription, delivery and administration of veterinary medicinal products.

In November 2017 the Government, the Regions and the autonomous provinces approved the National Plan on Antimicrobial Resistance (PNCAR) 2017–2020 prepared by the Ministry of Health. The plan illustrates the main actions to be carried out at national, regional and local level to promote an effective defence against AMR using surveillance, prevention and control both of AMR and health care related infections and of animal husbandry infections. Furthermore, PNCAR outlines the aims and actions needed to encourage appropriate consumption of antimicrobials both for human use and in animal husbandry. This will be achieved by training health workers, providing information and educating the population, and research and development in the field of AMR (Ministry of Health, 2017). The plan is coordinated by the Ministry of Health and involves all the Italian Regions and Autonomous Provinces, which have to implement the actions outlined by national level.

In terms of policies, in recent years the Ministry of Health has supported specific action plans, programmes and projects to disseminate best practice for reducing and fighting AMR, in adherence to the One Health approach established by the United Nations (2011) and transposed into the European Action Plan against AMR, issued in 2011. In addition, the Ministry of Health oversees compliance with the European Commission Guidelines on the control of antibiotic resistance in animal husbandry in the development and production of veterinary medicines containing antibiotics.

Specifically, the National Prevention Plan 2014–2018 (Ministry of Health, 2014b) includes interventions designed to prevent antimicrobial resistance and associated infections among its general objectives. Interventions should be aimed at:

- monitoring the consumption of antibiotics in hospital and primary care settings;
- promoting awareness among the population on the use of antibiotics;
- defining a programme of surveillance and control of hospital-acquired infections;
- reducing the problem of AMR through the proper management of drugs used in animal husbandry.

The objectives of the National Prevention Plan are incorporated into operational programmes within Regional Prevention Plans. Moreover, following the agreement of the State-Regions Conference of 7 February 2013, every region is required to adopt an Integrated Regional Regulation Plan aimed at translating and implementing the provisions of the Multiannual National Control Plan, 2015–2018. This national plan guides official regulation of food safety and aims to combat fraud along the entire food production chain. It also aims to implement the National Prevention Plan through actions and programmes against the improper use of antimicrobials in animal husbandry (Ministry of Health, 2015b).

In addition to the national surveillance programme AR-ISS, the National Reference Laboratory for Antimicrobial Resistance (CRN-NRL-AR) is a programme that has been run since 2006 by the Experimental Institute for Animal Disease Prevention (belonging to the regions of Lazio and Tuscany). The programme collects isolated bacteria of animal origin and data from all Experimental Institutes for Animal Disease Prevention laboratories in Italy to monitor AMR patterns in bacterial pathogens, as set out by EU directives (Directive 99/2003/EC and Community Decision 407/2007/EC). The CRN-NRL-AR collaborates with the Ministry of Health in drafting and updating the "Biosafety and rational and appropriate use of antibiotics in animal husbandry" guidelines, produces reports for the purposes of national and EU-wide compulsory surveillance of AMR patterns (but not antibiotic consumption) in farm animals and carries out intensive training and information dissemination in the areas of animal husbandry and pet care.

The Italian Medicines Agency (AIFA) is the national authority responsible for regulating medicines. AIFA guarantees access to drugs, including antimicrobial agents, informs about their safe and appropriate use, and promotes knowledge on drugs through the collection and evaluation of international best practices. Since 2006, AIFA has monitored and reported on antimicrobial consumption in Italy through its OsMed report (AIFA, 2017). In addition, since 2008, it has promoted campaigns for the responsible use of antibiotics, such as: "Antibiotics do not work without rules" (2014–2015); "Antibiotics? Use them only when necessary" (2012); "Antibiotics. Defend your defences. Use with caution" (2010); "Antibiotics? Use them with care" (2009); and "Antibiotics? Yes, but with caution" (2008).

Box 2 *AMR projects in Italy*

The HALT2 Project, financed by the ECDC and developed by the Scientific Institute of Public Health in Brussels, the Health Protection Surveillance Centre in Dublin and the Regional Healthcare and Social Agency of the Emilia-Romagna Region, promotes control of health care-associated infections and the spread of antibiotic-resistant microorganisms in long-term care facilities of EU Member States (Regione Emilia-Romagna, 2015). The project started in 2010 and is still ongoing; now in its third edition.

Since 2003, the ProBa Project, promoted by the Regional Healthcare and Social Agency of the Emilia-Romagna region, has encouraged the responsible use of antibiotics in children to prevent the development of infections by resistant bacteria. This project led to the creation of two guidelines, on "acute otitis media in children" and on "acute pharyngitis in children" (Regione Emilia-Romagna, 2003).

The Best Practices for Monitoring and Control of Antimicrobial Resistance project, run by the CCM (National Centre for Disease Prevention and Control, 2014), promotes the harmonization of existing experiences of surveillance and control of AMR and identifying best practices transferable to other contexts. The project, starting in 2014 with a duration of 24 months, was coordinated by the Emilia-Romagna region and involved the ISS, the National Institute for Insurance against Accidents at Work (INAIL), National Institute for Migrants' Health and Fight Against Poverty Diseases (INMP), AGENAS and six other Regions.

The project "Development of an information system for the collection and statistical analysis of data on microbiological surveillance in the region of Tuscany" was initiated in 2012 by the region of Tuscany (Regione Toscana, 2012) and established the Antimicrobial Resistance Surveillance Network in Tuscany (SART). The project, completed in 2014, involved both primary care and hospital settings and aimed to implement a microbiological surveillance system that is both efficient and sustainable.

The National Centre for Disease Prevention and Control (CCM), the coordinating body between national and regional health institutions for the surveillance, prevention and emergency responses on health matters, has financed several programmes for the surveillance of antibiotic resistance in the community, in hospital settings and in foodborne infections. These projects have involved the National Institute of Health, the regions, universities, and other public agencies, such as the National Agency for Regional Health Services (AGENAS).

A number of other national or international initiatives, sometimes coordinated by regional governments, have been implemented over the last decade. Box 2 outlines some of them.

Problem identification and issue recognition

The most important actor in setting the public health agenda for AMR is the Ministry of Health, in particular its Directorates General on Animal Health and Veterinary Drugs; Hygiene, Food Safety and Nutrition; and Health Protection. The directorates coordinate and fund the activities of the Experimental Institutes for Animal Disease Prevention and related research in the food and animal husbandry sectors. In addition, regional governments have a role in setting the public health agenda at the State-Regions Conference, a permanent interface for consultation and communication between the state and Italy's 19 Regions and two autonomous provinces in the domains of public policy where their mandates overlap.

Issue recognition is ensured through the Italian Medicines Agency and its AMR monitoring role via the AR-ISS surveillance system. This is reinforced by the nationwide work of the Lazio and Tuscany regions' Experimental Institute for Animal Disease Prevention, which coordinates monitoring and data reporting on AMR in animal husbandry (see the Policies and programme section). In addition, the Ministry of Health supports AMR policy in line with the guidelines established at the EU level (Ministry of Health, General Directorate of Animal Health and Veterinary Drugs, 2015; European Commission, 2011). Moreover, awareness about AMR-related issues is being raised through several national initiatives supported by public agencies, regions and hospitals, the most important of which is the European Antibiotic Awareness Day, organized on 18 November of each year by the ECDC and several Italian public agencies, such as the Italian Medicines Agency, the National Institute of Health, and the Ministry of Health, along with many hospitals.

Collaboration between agencies and sectors involved in problem identification is mainly achieved through formal mechanisms. For example, the Ministry of Health monitors and manages educational and training initiatives for farmers and veterinarians on the rational use of antibiotics, in collaboration with farmers' and veterinarians' organizations and associations (Ministry of Health, Department for Veterinary Public Health, Food Security and Collegiate Bodies for Health, 2012). There are also a number of informal cooperation mechanisms among public health agencies and other institutions involved in issue recognition. For example, data on AMR in primary care and hospital settings collected by AR-ISS come from the same laboratories that provide information for regional reports on AMR, such as the 2013 "Report on Antimicrobial Resistance and Use of Antibiotics Detected in Campania's Hospitals" (Regione Campania, 2014).

Policy formulation

Responsibility for formulation of health policy, including for AMR, is divided between the central government and the regions. Within Italy's quasi-federal arrangements, the Ministry of Health fulfils the stewardship role within the health system and therefore is also in charge of policy development to tackle AMR, through its key directorates on Animal Health and Veterinary Drugs; Hygiene, Food Safety and Nutrition; and Health Protection. The Ministry of Health has adopted several national plans to combat AMR:

- The National Plan on Antimicrobial Resistance 2017–2020 (PNCAR).
- The National Prevention Plan 2014–2018 (PNP).
- The National Plan on Animal Food Control 2015–2017 (PNAA), focused on control of antibiotics in animal feed.
- The National Plan on Residues 2017 (PNR) aims to counteract the use of banned substances in animal feed, including certain antibiotics.

- The Zoonotic and Commensals Bacteria Monitoring Plan 2018 (AMR Plan) aims to improve the monitoring of AMR of zoonotic and commensals bacteria in animal husbandry and pets.

Even though central government sets the main policy directions, the Regions are responsible for formulating their respective local policies and for the organization of health services. Treatment and preventive activities are mainly delegated to the local health authorities (*Aziende Sanitarie Locale* (ASLs)).

A key role is also played by the National Core of Pharmaco-Surveillance of Veterinary Medicine (*Nucleo Nazionale di Farmacosorveglianza sui medicinali veterinari*), composed of the Ministry of Health, the regions, the Police Unit for the Protection of Health (*Comando Carabinieri per la Tutela della Salute* (NAS)), the Financial Guard (*Guardia di Finanza*), and the Experimental Institute for Animal Disease Prevention of the National Institute of Health. This team, established in 2006, has a clear mandate to tackle AMR, promulgating national guidelines on regulating the distribution and use of veterinary medicinal products (General Directorate of Animal Health and Veterinary Drugs, Ministry of Health, 2015).

At the international level, the Ministry of Health represents Italy in the European Commission's (EC) Action Plan against the rising threats from AMR; for example, the above-mentioned Zoonotic and Commensals Bacteria Monitoring Plan is one of the initiatives formulated under the Action Plan. The Ministry also collaborates with other international bodies, such as the World Health Organization (WHO), the World Organisation for Animal Health (OIE), the United Nation's Food and Agriculture Organization (FAO) and the Organisation for Economic Co-operation and Development (OECD).

Collaboration among institutions in policy formulation, from national to local administrations, NGOs and other research organizations, is ensured both by formal and informal mechanisms. The National Core of Pharmaco-Surveillance on Veterinary Medicine (*Nucleo Nazionale di Farmacosorveglianza sui medicinali veterinari*) represents an example of formal collaboration across sectors and administration levels. Examples of informal mechanisms of collaboration are the partnerships between different hospitals or scientific societies in formulating their respective internal policies.

Decision-making

The most important actors in the decision-making process for AMR in Italy are the parliament and the national and regional governments. As mentioned in the Policies and programmes section, in 2006 the Italian parliament passed Law 193/2006, the "Community Code on Veterinary Medicinal Products", which regulates all aspects of veterinary medicinal products, including antimicrobial agents. Moreover, the national and regional governments, through the State-Regions Conference, recently approved the new National Prevention Plan 2014–2018 and the Multiannual National Control Plan (2015–2018), which define the objectives and indicators needed to measure progress on prevention. In addition, regional governments, through their Regional Prevention Plans, decide which programmes should be carried out within their territories.

Others key actors in the decision-making process are the EU institutions which have issued directives that have affected almost all Italian legislation on the regulation of veterinary antimicrobial agents (Directive 2003/99/EC; Directive 2004/28/EC; Reg. 1831/2003).

In addition, under the CCM's national health surveillance and coordination activities, several of its partner institutions (the Regions, ISS, INAIL, INMP and AGENAS) submit project proposals aimed at tackling AMR. The CCM's Scientific and Strategic Committee decides on which proposals will receive funding. Finally, access to medicines and, thus, antimicrobial agents is determined by the Italian Medicines Agency, the national regulatory authority for medicines.

Different public agencies have support systems and provide information to guide national and local decision-making on AMR, namely:

- the Italian Medicines Agency, which monitors antibiotics consumption;
- Lazio and Tuscany regions' Experimental Institute for Animal Disease Prevention of the regions, which monitors nationwide AMR in pathogens of animal origin; and
- the Antimicrobial Resistance Surveillance System (AR-ISS), which monitors AMR in pathogens of human origin.

Policy implementation

The Ministry of Health and the Regions are formally in charge of policy implementation. Italy's devolution process has given the Regions autonomy to implement the strategies and programmes shaped by the National Prevention Plan. Regional Health Departments implement national guidelines and laws and may directly fund some regional projects, which are all detailed under Regional Prevention Plans. As mentioned in the Policy formulation section, preventive activities are mainly delegated to local health authorities (ASLs). In particular, the Regions constantly monitor compliance with provisions concerning the prescription of veterinary medicinal products and carry out monitoring activities as delineated in regional pharmaco-surveillance plans, in accordance with Law 193/2006 (Ministry of Health, Department for Veterinary Public Health, Food Security and Collegiate Bodies for Health, 2012). In addition, Lazio and Tuscany regions' Experimental Institute for Animal Disease Prevention supports veterinary surgeons in their activities, providing clinical diagnostic services for the identification of pathogenic bacteria in animals, while the ASLs supervise monitoring activities on the distribution, possession, supply and use of veterinary antimicrobial agents (Ministry of Health, Department for Veterinary Public Health, Food Security and Collegiate Bodies for Health, 2012). The Regions are also required to facilitate collaboration among various stakeholders and to integrate available resources; for example, by promoting connections between veterinary and health services with international agencies, farm animal owners and the veterinary pharmaceutical sector.

Other actors involved in policy implementation are the police forces, in particular the Police Unit for the Protection of Health and the Financial Guard, which carry out monitoring activities on antimicrobial agents for veterinary use in accordance with Law 193/2006 (Ministry of Health, Department for Veterinary Public Health, Food Security and Collegiate Bodies for Health, 2012), and hospitals, which contribute to tackling AMR by promoting best practices and issuing or adopting specific guidelines. An additional key actor is the CCM, which is connected to the Ministry of Health's General Directorate for Health Prevention The CCM provides operational support for project implementation and identifies and disseminates best practices, to promote the sharing of objectives and tools across Regions. In addition, the Police Unit for the Protection of Health and the Financial Guard improve the efficiency of monitoring activities on the distribution, possession, supply and use of veterinary drugs as part of National Core of Pharmaco-Surveillance on Veterinary Medicine (*Nucleo Nazionale di Farmacosorveglianza sui medicinali veterinari*).

International agencies, such as the ECDC, also interact with Italian public health services, particularly with the Ministry of Health, given the latter's wide remit covering surveillance, responses to health threats, providing scientific and technical opinions and assistance, collecting data, identifying emerging health threats and implementing public information campaigns. Cooperation in surveillance activities takes place between the national AR-ISS and EARS-Net, regarding AMR in humans, and between the Italian Medicines Agency and ESAC-Net with regard to antimicrobial consumption.

In terms of funding, under Ministry of Health specifications, 5% of the annual health budget is envisaged to be allocated to public health services and preventive medicine. Within this broad category, the funding dedicated to AMR is quite difficult to ascertain. However, in 2012 the State-Regions Conference allocated 240 million euros to finance the activities and programmes of the Experimental Institute for Animal Disease Prevention. Moreover, several million euros are allocated each year to reinforce organizational and professional resources involved in the implementation of CCM-funded activities, including planning, monitoring and evaluating Regional Prevention Plans.

Physicians and nurses, in particular epidemiology nurses, play an important role in implementing local and/or hospital policies to tackle AMR. However, the implementation of local and/or hospital policies to tackle AMR is monitored at the regional level and, so, there are several differences in actors involved in implementation plan between the Regions and the autonomous provinces.

Monitoring and evaluation

Several actors are involved in monitoring and evaluation for AMR:

- Since 2001 the National Institute of Health's AR-ISS has collected information from 40 laboratories and 60 hospitals on antimicrobial resistant pathogens isolated from invasive (blood and cerebrospinal fluid) infections;

- The Italian Medicines Agency annually collates data on antimicrobial consumption in Italy and participates in the European Surveillance of Antimicrobial Consumption Network (ESAC-Net) that collects data for ECDC;
- Lazio and Tuscany regions' Experimental Institute for Animal Disease Prevention is the national reference centre (CRN-NRL-AR) for antibiotic resistance. CRN-NRL-AR collects and reports data on national patterns of antibiotic resistance in pathogens of animal origin but does not report data on antibiotic consumption for farm animals;
- The Emilia-Romagna Region, since 2003 (Regione Emilia-Romagna, 2012), the Campania Region, since 2010 (Regione Campania, 2014), and the Tuscany Region, since 2013 (Regione Toscana, *Osservatorio qualità ed equità*, 2014), have monitored and reported data on AMR in primary care and hospital settings collected by regional laboratories.

Other key actors that play a role in monitoring and evaluation are the operational directorate of the CCM, which drafts an annual activity plan and supports the organization's committees to monitor the results of projects, and the ECDC, which at the European level monitors and reports annual data on AMR in humans and antimicrobial consumption in Italy based on information provided by AR-ISS and the Italian Medicines Agency.

Additionally, physicians play a role in monitoring and evaluating AMR hospital plans in health care structures that have adopted some type of AMR prevention plan.

Conclusion and outlook

A main strength of AMR policy in Italy is the growing recognition of the issue, shown by the steps undertaken to reduce human antibiotic consumption, involving

Table 3 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Parliament	+	+	+++		
Ministry of Health	+++	+++	+++	+++	+
Ministry of Agriculture and Forestry		+	+	+	
Public Health Agencies					
• National Institute of Health	+++	+++	++	+	+++
• National Centre for Disease Prevention and Control	+	+	+++	++	++
• National Drugs Agency	+++		++		+++
• Experimental Zooprophylactic Institutes	+++	+++	++	++	+++
• National Core of Pharmaco-Surveillance on Veterinary Medicine	++	+++	++	++	+
Regional governments	++	+++	+++	+++	+++
Police forces			+	+	
International organizations	+++	+++	+++	++	++
Scientific and research associations	++	++		++	++
Local Health Authorities	+	++	++	+++	+
Farmers associations	+			++	+
Hospitality sector	+	+	+	++	++
Media	+			+	
Physicians	+			++	++

Note: +++: actor is strongly and clearly committed to the issue; ++: actor plays an important role; +: actor plays a marginal role.

various awareness campaigns, and the approval of the National Plan on Antimicrobial Resistance. Other positive factors include the measures adopted to control antibiotic consumption in farm animals and pets; the growing adoption of guidelines at the national and local level, aimed at decreasing the presence of antimicrobial resistant bacteria in hospital care; and the presence of well-coordinated and structured national surveillance systems. The main weaknesses are the high prevalence of AMR in Italy; the persistently high levels of human consumption of antibiotics; the absence of a well-structured system for issuing guidelines on how to treat resistant infections, which has led to differing levels of uptake among the Regions (Regione Emilia-Romagna, 2003); and unacceptable budget cuts for preventive activities in recent years.

The National Prevention Plan and the Regional Prevention Plans represent some success, and these plans are increasingly concentrating on tackling the problem of AMR from the perspective of the UN's One Health approach (United Nations Food and Agriculture Organization, 2011). However, the high demand for antibiotics among the Italian population is still a major threat.

A major contextual factor that affects this policy area is the overall reduction in national health expenditure in recent years, which has also reduced the funds allocated to prevention programmes aimed at lowering the number of health care-acquired infections. There are also strong regional disparities in the provision and quality of public health services in Italy. Moreover, there is still an uneven awareness among stakeholders about AMR and this is a barrier to the adoption of national policies that adequately address antibiotic consumption in humans, both in hospital and primary care. In fact, several programmes and initiatives have remained local, though one of the objectives of PNCAR is to replicate at the national level the best initiatives in tackling AMR.

Future developments that can be expected in this area include increased intersectoral plans and actions; improved collaboration between stakeholders in accordance with the EU Action Plan Against the Rising Threats from Antimicrobial Resistance; and improvements in the financing of AMR-related policies and programmes.

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The Netherlands

Obesity

Hans Maarse, Maria Jansen, Mariëlle Jambroes and Dirk Ruwaard

The scale of the challenge

According to Statistics Netherlands, in 2015 46.3% of all men were overweight and 10.3% of them could be classified as obese. For women, these figures are 39.3% and 12.9%, respectively. The percentage of people who are overweight has significantly increased in recent years. Between 1981 and 2015, the percentage of people with obesity increased from 4.4 to 11.4%. Another alarming aspect is overweight among children. In 2014 the percentage of children with overweight was around 11%. For children with obesity this percentage was about 4%. There is also a socioeconomic gradient for overweight. For instance, 63.1% of people with only primary school education are overweight compared with 40.7% of people with a university education. For obesity these percentages are 23.1 and 8.4%, respectively (www.cbs.nl/statline, accessed 21 February 2018).

Overweight is a costly problem. The total direct costs have been estimated at 2.2% of total health expenditure. Furthermore, 51% of the costs of diabetes can be attributed to overweight. For acute myocardial infarction, 15% of costs are attributable to overweight, 12% of costs for chronic heart failure and 29% for knee arthrosis (Panhuis-Plasmans et al., 2012). Furthermore, there are high indirect costs (e.g. higher sick leave, lower labour productivity, lower performance at school).

Policies and programmes

The Dutch approach to overweight has been predominantly to emphasize individual responsibility. "The government assumes that people themselves are best capable of making their own choices in accordance with their own preferences …. This also applies for lifestyle" (MoH, 2007; 2013). In line with this attitude, emphasis has been placed on providing the population with information on healthy diets and physical activity. Two independent agencies working in this area are the Food Centre and the Netherlands Institute for Sport & Physical Activity. These agencies have started various campaigns to inform the public on healthy eating and physical activity. Personal programmes in both of these areas are available on the Internet. The national government also spends resources on the implementation of local sport activities to make "the healthy choice the easy choice". Furthermore, it ensures that the food industry meets its responsibility to provide reliable, comprehensible and uniform information on the calorie content of all prepacked food products (Hendriks et al., 2013).

The promotion of healthy eating (intake of calories) and physical activity (expenditure of calories) is seen as the shared responsibility of public–private partnerships. Each participant in these partnerships is expected to take responsibility to address the problem and urge its members to start promising projects and take further measures. The main form of governance in addressing obesity in the Netherlands has therefore been by Covenants involving public–private partnerships. A first Covenant on Overweight ("Fit for the Future") was signed in 2005 by a diverse coalition of 10 parties including, among others, government departments, municipalities, the food industry, schools, sport organizations, and employer and employee organizations. This Covenant lasted until 2010, during which time various other parties joined it. The covenant formulated the willingness of the signatories to initiate overweight-reducing programmes. Sub-covenants were signed for schools, workplaces, canteens and recreational facilities. A well-known former politician was nominated as the "public face" of the

partnership. The covenant was renewed for the period 2010–2015 and renamed "Healthy Weight". This time it was signed by 27 organizations. A sub-covenant, inspired by the French EPODE-approach (*Ensemble Prévenons l'Obésité Des Enfant* – Together Let's Prevent Childhood Obesity), was started in 2010, named "Youth at a Healthy Weight" (*Jongeren op Gezond Gewicht*) which is focused on childhood obesity prevention.

Under the banner of these Covenants a diverse set of programmes were started at school, at home, at work and in recreational facilities. Another initiative was knowledge sharing and information. A few examples of initiatives are the healthy school canteen, Fine Fit at School, the promotion of vegetables in supermarkets, the national sport week, super shopper (to teach children to find healthy products), fitkids, healthy food labels, Rotterdam Fine Fit helpdesk, healthy playgrounds and, last but not least, the candidacy for the Olympic games in 2028.

The 2013 National Programme on Prevention included five spearheads, including two related to obesity: overweight and physical activity (MoH, 2013). The national programme was further specified in the government document "Everything is Health 2014–2016 (*Alles is Gezondheid*)", published in 2015. Municipalities are requested to address the public health spearheads in their 4-year public health plan, pursuing an intersectoral approach that covers health care, schools and education, workplaces and neighbourhoods. It is the government's conviction that the problem of overweight can only be effectively addressed through an integrated approach by municipalities at the local level. The municipalities are best informed about the local situation and most capable of setting up cooperative networks with private partners for local projects, for instance in the neighbourhood and at schools. Municipalities are also assumed to be in the best position to pursue an integrated approach because of their responsibility for various adjacent policy areas, including housing, welfare programmes, sport facilities and the planning of the local physical infrastructure. They can thus make neighbourhoods in cities less obesogenic, for instance by creating playgrounds for children or planning sufficient green spaces.

A regular task of the public health service is youth health care (*jeugdgezondheidszorg* (jgz)) which includes preventive care for all children (aged 0–18 years). The regular preventive check-ups allow the identification of overweight and obesity.

Finally, the government seeks to better integrate overweight prevention into health care. An example of this is the care standard "Obesity", developed by Partnership Overweight Netherlands, a collaborative organization of professionals and patient organizations. This care standard aims to intensify primary prevention for persons with overweight-related health risks. An example is the prescription of a physical exercise programme (Beweegkuur) by general practitioners (GPs). However, this programme is not covered by the basic health insurance scheme (Faddegon, 2011).

Until now there has been no political majority for proposals to introduce a "fat tax" or a ban on advertisements for sweets for children under 12 years.

Problem identification and issue recognition

Overweight is a challenging issue, not only because of the multitude of (interrelated) determinants, but also because of a normative dilemma. How far should the government go in influencing its population's behaviour? How should it stimulate healthy behaviour without patronizing the population?

In spite of earlier reports of research institutes and advisory agencies on overweight, it was only in 2003 that this problem reached the political agenda. In its policy document "Living Longer Healthy" (*Gezond Langer Leven*) (MoH, 2003) the government explicitly identified overweight as a public health problem (Faddegon, 2011). Ever since, it has been selected as one of the spearheads in the government's public health prevention programmes. However, as mentioned in the Policies and programmes section, the main emphasis has been on public–private partnerships and efforts to inform the public about healthy diets and physical activity.

Policy formulation

The National Programme on Prevention is drawn up every four years by the Ministry of Health. Municipalities are then expected to translate it into their municipal public health plans that specify how the national spearheads in public health are converted into concrete activities at the local level.

The Covenants on obesity have been drawn up in public–private partnerships involving a range of

organizations, including government departments, municipalities, sport organizations and the food industry. These Covenants signify that the combat against overweight requires cooperation between the public and private sectors. The government can never be successful on its own.

Decision-making

The leading decision-makers on the national public health plan and its national priorities are the government and the Ministry of Health. Decisions on obesity-related Covenants are taken in a collaboration between the public and the private sector (see the Problem identification and issue recognition section).

Policy implementation

Responsibility for implementation of the national public health plan and the corresponding municipal public health plans rests with the municipalities. However, an evaluation by the Healthcare Inspectorate of the content and quality of local health plans in 2009 found that these were often insufficient, did often not include all spearheads and were poorly implemented (Health Care Inspectorate, 2009).

A major weakness of the Covenants on obesity has been their implementation. The Covenants are based on a moral commitment and implementation cannot be enforced. The effectiveness of the Covenants is thus surrounded by many uncertainties. Nevertheless, there are some indications that an intensive local or regional approach in collaboration with private partners may work. For instance, the city of Utrecht claims that its project "Healthy Weight in Overvecht" (*Gezond gewicht Overvecht*), which started in 2005, has reversed the trend of increasing overweight in Overvecht (one of 10 districts of the municipality of Utrecht) (www.utrecht.nl).

Monitoring and evaluation

The development of the national public health plan is based on the regular publication of the National Public Health Status and Foresight Report by the National Institute for Public Health and the Environment (*Rijksinstituut voor Volksgezondheid en Milie* (RIVM)).

Table 1 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Ministry of Health	+++	+++	+++	+	+ +
National Institute for Public Health and the Environment	+++	+		+	++
"Dutch Food and Product Safety					
Authority"	+	+		+	+
NGOs	++	++		++	++
Health Council	+				+
Regional governments					
"Municipalities					
(focus: policy process at local level)"	+	+	+	+++	++
Public Health Service	+++	++		++	+
Industry	+	+		++	
Hospitality sector	+	+		++	
Media	+				
Professional associations	+	+	+	+	
Public	+	+		+	+
Patient organizations	+	+		+	+

Note: += weak; ++= medium; +++=strong involvement.

One of RIVM's main responsibilities is data collection on population health, including obesity.

The evaluation of the national public health plan is the responsibility of the Health Care Inspectorate. An evaluation of the Healthcare Inspectorate of the content and quality of local health plans in 2009 found that 50% of municipalities did not monitor and evaluate their activities in public health (Health Care Inspectorate, 2009).

Conclusion and outlook

The approach to obesity in the Netherlands has been mainly based on the provision of information and on obesity Covenants, based on voluntary collaborations between the public and the private sector. The use of public–private partnerships is not uncontested. On the one hand, it is clear that the government can never effectively address the problem of overweight on its own. Given so many determinants, it is highly dependent on other public and private actors. On the other hand, the effectiveness of public–private partnerships in preventing obesity is uncertain and these partnerships may offer the food industry respectability and new channels for selling their products to young (and old) people.

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Alcohol

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The scale of the challenge

For many decades in the 19th century, the state did not see the protection of its citizens against the harmful effects of alcohol abuse as its responsibility. The first Drinking Act of 1881 marked an important turning point. The sale of liquors to children under 16 years of age was forbidden, sellers needed a license, and municipalities could restrict the number of points of sale. In the course of time the scope of legislation was gradually extended. For instance, the sale of beer and wine was regulated in 1904 (www.jellinek.nl).

Nowadays, alcohol abuse is perceived as a serious public health problem. Particularly, the increasing level of alcohol abuse by children under 16 years of age has been identified as a great concern. Evidence shows that children start drinking at an ever younger age and at an ever larger scale (MoH, 2005). In 2007, 9.3% of the population aged 16–69 was considered to have an alcohol problem (MoH, 2007). In 2013, a report from the National Institute for Public Health and the Environment (*Rijksinstituut voor Volksgezondheid en Milieu* (RIVM)) estimated the net social costs of alcohol abuse at between

2.3 and 2.9 billion euros. The costs of alcohol use include, among others, lower labour productivity and the costs of police activities and traffic accidents; the benefits include, among others, tax revenues and the users' feelings of happiness (RIVM, 2016).

Policies and programmes

The 2013 National Programme on Prevention included five spearheads, including one on alcohol (MoH, 2013). The national programme was further specified in the document "Everything is Health 2014–2016 (*Alles is Gezondheid*)". Municipalities are requested to address the public health spearheads in their 4-year public health plan, pursuing an intersectoral approach that covers health care, schools and education, the hospitality sector, advertising, supermarkets, workplaces and neighbourhoods.

A national policy document, published in 2007, stated the three main objectives of the government's alcohol policy (MoH, 2007):

1. to prevent young people from consuming alcohol before 18 years of age;
2. to prevent people becoming alcohol-dependent; and
3. to reduce the harmful effects of alcohol on family and society.

The first two objectives were quantified as follows: a reduction of the percentage of young alcohol users (under 18 years of age) from 82% in 2007 to 62% in 2011 and a reduction of the percentage of problem drinkers from 9.5% to 8.0% in the same period (MoH, 2007). To achieve these objectives a mix of instruments were used. They can be classified into five main categories:

Regulatory instruments

- A ban on alcohol advertisements on radio and TV between 18:00 and 21:00 (in effect since 2009).
- A ban on the sale of alcohol to persons under 18 years of age (in effect since 2014). The previous minimum age was 16 years.
- Children under 18 years face sanctions if carrying alcoholic drinks on the street, in railway stations, bus stations and shopping centres.
- Municipalities are permitted to restrict the so-called happy hours and other price-lowering activities.
- Municipalities must take regulatory measures, for instance with regard to the time in which alcoholic drinks may be sold, not only in bars and restaurants but also in sport canteens and other places.
- Municipalities are charged with the supervision of the revised and tightened Drinking Act. They may take administrative measures and impose fines in case of noncompliance. Until 2014, this task was performed by a state agency under the Ministry of Economic Affairs. It is hoped that the transfer of supervisory tasks from the state to the local level enable the municipalities to set up an integrated approach to combat alcohol abuse in their locality.

Financial instruments

- Increasing excise duty on alcoholic drinks.
- Tightening sanctions on alcohol-related traffic offences.

Information campaigns

- Information campaigns directed at children, schools and parents ("Say no to alcohol damage to your growing child") and car drivers (The "Bob campaign").

Health services

- Facilities in hospitals to treat persons with acute alcohol intoxication.
- Specialized clinics to treat persons with alcohol addiction.

Governance

- Several policy networks have been set up for a coordinated fight against alcohol abuse. Various organizations participate in these networks including the Ministries of Health and Justice, several research institutes and private foundations (often state-sponsored). Other participants are the national umbrella organizations representing the interests of, among others, municipalities, sport organizations, bars and restaurants, and producers of alcoholic drinks.

Problem identification and issue recognition

The objectives of the national policy on alcohol control and its main instruments demonstrate that the state is heavily involved in alcohol control. Policy documents are clear in assigning the state a key responsibility in this regard. A paternalistic stance is considered to be particularly justified with regard to children (MoH, 2007). At the same time, the struggle against alcohol abuse is presented in national policy documents as a shared responsibility of the state, municipalities, interest organizations and other private participants, including the hospitality sector, restaurants and bars. This shared responsibility takes the form of public–private partnerships or networks.

Policy formulation

The National Programme on Prevention is drawn up every four years by the Ministry of Health. The programme is the result of intense consultations with a number of public and private stakeholders including the RIVM, the representatives of the alcohol branch and the hospitality sector. Other participants are representatives of the police, the department of Justice, schools, municipalities and regional public health services. After the final decision-making, municipalities are expected to translate it into their municipal public health plans that specify how the national spearheads in public health are converted into concrete activities at the local level.

Decision-making

The leading decision-makers on the national public health plan and its national priorities are the government and the Ministry of Health. Notice, however, that alcohol policy in the Netherlands has always sparked off a political debate on the role of the state in the fight against alcohol abuse. This is hardly surprising, given the values and conflicting interests involved. Illustrative of this debate is the further tightening of the Drinking Act. Whereas the government proposed an optional increase of the minimum age for the sale of alcoholic drinks from 16 to 18 years (to be decided upon by each municipality), the parliament called for a general ban of the sale of alcohol to all persons under 18 years of age. This parliamentary initiative followed the lobbying of city mayors and some other interested parties. However, lobbying for an even stricter approach has not been successful. Calls for a significant increase of the excise duty on alcohol, by up to 50%, have failed to be successful so far, partly because of effective counter-lobbying by the producers of alcoholic drinks and the hospitality industry.

Policy implementation

Responsibility for the implementation of the national public health plan and the corresponding municipal public health plans rests with the municipalities. For this purpose, most municipalities have worked on a regional alcohol-intervention plan in collaboration with the regional public health services, the police, regional representatives of Justice, schools and other stakeholders. The broad participation highlights that alcohol prevention requires cooperation. Municipalities are also responsible for overseeing the implementation, for which they have appointed specific civil servants. Nevertheless, implementation may be somewhat problematic because of capacity problems. In particular there are concerns about the effectiveness of the municipal control on the ban on sale of alcoholic drinks to persons under 18 years of age.

Monitoring and evaluation

Development of the national public health plan is based on the regular publication of the National Public Health Status and Foresight Report by the National Institute for Public Health and the Environment (*Rijksinstituut voor Volksgezondheid en Milie* (RIVM)). One of RIVM's main responsibilities is data collection on population health, including alcohol use. It performs this task in close collaboration with the regional public health services.

Evaluation of the implementation of national public health plan at the municipal level is the responsibility of the Health Care Inspectorate. An evaluation by the Healthcare Inspectorate of the content and quality of local health plans in 2009 (not specifically focused on alcohol) prevention found that 50% of municipalities did not monitor and evaluate their activities in public health (Health Care Inspectorate, 2009).

Conclusion and outlook

After a slow start in the 19th century, alcohol control has gradually become an important element in the government's public health prevention programmes. The general trend is that alcohol control becoming ever stricter. Given the widespread availability of alcohol, the role of alcohol in current social life and the alcohol-related

Table 2 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Ministry of Health	+++	+++	+++	+	+ +
National Institute for Public Health and the Environment	+++	+		++	+++
"Dutch Food and Product Safety					
Authority"					
NGOs	++	++			+
Health Council	+	+			+
Regional governments					
"Municipalities					
(focus: policy process at local level)"	+	++	++	+++	+
Public Health Service	++	++		++	++
Industry	+	+		+	
Hospitality sector	+	+		+	
Media	+				
Professional associations	+	+	+	+	
Public	+	+		+	+
Patient organizations					

Note: += weak; ++= medium; +++=strong involvement.

problems in private life and society, there are reasons to expect that alcohol control might become even more strict in future. Though alcohol is a public responsibility, the government seeks close collaboration with a multitude of public and private actors to set up and implement programmes for alcohol control. Alcohol control has become more than ever a matter of cooperation; however, the challenge remains to find a balance between public and private responsibility.

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Antimicrobial resistance

Hans Maarse, Maria Jansen, Mariëlle Jambroes and Dirk Ruwaard

The scale of the challenge

In comparison to other countries in Europe and beyond, the use of antibiotics in the Netherlands is very low (OECD, 2015). As a consequence, the Netherlands has one of the lowest percentages worldwide of resistant microbes in the human population. Nevertheless, an increase of antimicrobial resistance (AMR) has been observed in hospitals, nursing homes and general practices.

In 2014, levels of consumption of antibacterial drugs in the community (i.e. outside of hospitals) in the Netherlands were lower than in any of the other countries considered in this volume. There was an almost threefold difference between the Netherlands, at just over 10 defined daily doses (DDD) per 1 000 inhabitants per day, compared to Italy and France, at 28–29 DDD per 1 000 inhabitants per day, and compared to a (population-weighted) EU/EEA mean consumption of 21.6 DDD per 1 000 inhabitants per day (ECDC, 2015).

Whereas the use of antibiotics in the medical sector is comparatively low in the Netherlands, it is high in the veterinary sector. The frequent use of antibiotics in this sector has been identified as a serious public health threat, because it may lead to AMR, in particular via the food chain. In 2013, animal population-adjusted sales of veterinary antimicrobial agents (expressed as milligrams per population-corrected units) were among the highest in the Netherlands (European Medicines Agency, 2015).

Policies and programmes

In 2015 the Netherlands adopted the National Action Plan on AMR (*Kamerbrief over aanpak antibioticaresistentie*). Responsibility for the Action Plan lies jointly with the Ministry of Health, the Ministry of Infrastructure and Environment, and the Ministry of Economy. Various organizations have been involved in the development of AMR policies, including the Working Party on Antibiotics Policy (SWAB), the Healthcare Inspectorate, and the National Institute for Public Health and the Environment (RIVM). The National Institute for Public Health and the Environment is also charged with AMR surveillance. The national action plan sets out specific targets, activities, timelines and responsible organizations.

There are six policy objectives (MoH, 2015):

- A reduction of avoidable infections in health care by 50% in the next five years.
- A reduction of at least 50% of inappropriate prescriptions of antibiotics in health care.
- A demonstrable further delay in the rise and spread of multiresistant microbes.
- More international collaboration in the fight against AMR.
- To keep the number of infections and deaths due to AMR to the present or a lower level.
- To prevent a further decline of possibilities to effectively treat patients with infections due to AMR.

The government further maintains that the struggle against AMR requires innovation, for instance by developing new antibiotics, alternatives for antibiotics, and new techniques for the prevention of infections. For this purpose it has set up the research programme "Priority Medicines Antimicrobial Resistance" and intensified the collaboration between the medical sector and the industry (life sciences and health, chemistry and agricultural sector). Food safety has been identified as another essential component in the prevention of infections. There are also public information campaigns that aim to make the public more aware of the effects of large-scale use of antibiotics.

The call for more international collaboration reflects the fact that the Netherlands has been assigned as the leading country in the struggle against AMR at the Global Health and International Security Agenda, initiated by President Obama in Washington in 2014. The Dutch government also used its Chairmanship of the European Council in the first half of 2016 to organize an international conference on AMR.

The problem of AMR has received much attention in the Dutch medical community. Various initiatives have been taken to tackle this problem. One of these initiatives is the development of professional guidelines for the proper prescription of antibiotics. Incorrect use of antibiotics

(e.g. wrong indication, wrong doses, wrong antibiotics) may cause AMR. Hospitals, general practitioners and other health care provider organizations are requested to use these guidelines in their antibiotics policy. One guideline is to install antibiotics teams in hospitals. Another strategy is the "search and destroy policy" against the methicillin-resistant *Staphylococcus aureus* (MRSA) in hospitals and nursing homes by isolating and aggressively treating infected patients. This strategy is shown to be cost-effective.

Initiatives to restrict the use of antibiotics in the veterinary sector have been rather successful. From 2009 to 2014 their use declined by 58%. The target was then a further reduction to at least 70%, when compared to 2009, by 2015. Various strict measures have been taken to regulate and restrict the use of antibiotics in the veterinary sector:

- only veterinarians may prescribe antibiotics;
- holders of poultry, dairy cattle, calves and swines must register the use of antibiotics, and may only administer antibiotics under strict conditions;
- antibiotics used as last resort for humans may not or only under very strict conditions be used for animals;
- farmers are not allowed to deliver animals that contain residues of antibiotics for slaughter.

Problem identification and issue recognition

Antimicrobial resistance is increasingly identified in the Netherlands as a serious problem for public health, not only by health professionals but also by the government. If no effective action is undertaken, according to a recent government policy document (MoH, 2015), bacterial infections might become epidemic again, because the widespread use of antibiotics has led to growing resistance of microbes to this type of medicines. The problem is seen as being aggravated by the low willingness of the pharmaceutical industry to invest in the development of new antibiotics and alternatives for antibiotics.

Recently, the Medicines Evaluation Bureau (*College ter Beoordeling van Geneesmiddelen*) expressed its concerns on the increasing shortage of small-spectrum antibiotics in the Netherlands. This shortage compels physicians to prescribe broad-spectrum antibiotics, increasing the risk of AMR. The Bureau attributes this problem not only to the industry's lack of economic interest in investing in new antibiotics. It is also the result of the effectiveness of professional measures in the Netherlands to restrict the prescription of antibiotics and the result of the insurers' policies to reimburse only the costs the lowest-priced antibiotics. In other words, the Netherlands is not an interesting market for the producers of antibiotics (CBG, 2018).

Policy formulation

The development of antibiotics policies in the health sector in the Netherlands has benefited from intersectoral and interprofessional collaboration in policy networks. Various organizations have been involved, including the Working Group Antibiotics Policy, the Healthcare Inspectorate, the National Institute for Public Health and the Environment, the Dutch College of General Practitioners, the Foundation for Pharmaceutical Statistics and hospital antibiotics teams. The role of the government has been rather limited so far. However, it has recognized AMR as a major threat for public health in future and called for international collaboration to set up an effective approach. Its role could be described as agenda-setting.

Decision-making

As outlined before, the problem of AMR has been recognized by the medical community. The community also introduced guidelines for the prescription of antibiotics and installed antibiotics teams. The role of the government was largely restricted to facilitation. The government's latest plan is to reduce the use of antibiotics in the veterinary sector.

Policy implementation

Policy implementation is mainly a matter of self-regulation in professional networks. The government's involvement in implementation is limited. The government relies upon the collaboration of the medical and veterinary community to combat AMR.

Monitoring and evaluation

Various surveillance systems have been set up to monitor the prescription of antibiotics and the incidence of AMR in hospitals, nursing homes and general practices. Furthermore, a specific network has been created to signal

Table 3 Involvement of main actors in different stages of the policy cycle

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Ministry of Health	+	+	+	+	+
National Institute for Public Health and the Environment	++	+		+	+
Dutch Food and Product Safety Authority				++	++
NGOs	+	+			+
Health Council	+	+			+
Regional governments					
"Municipalities					
(focus: policy process at local level)"					
Public Health Service	+	+		+	+
Industry	+	+		+	
Hospitality sector					
Media	+				++
Professional associations	+++	+++	+++	+++	+++
Public					
Patient organizations					

Note: += weak; ++= medium; +++=strong involvement.

the outbreak of infections, assess infection incidents, coordinate activities and inform medical professionals and health care organizations (www.nationaalkompas.nl; or http://www.zorgatlas.nl/zorg/). The Netherlands Foods and Product Safety Authority is in charge of the supervision of the registration of the use of antibiotics in the veterinary sector.

Conclusion and outlook

Given the widespread (worldwide) use of antibiotics, AMR is expected to develop as a major threat for public health in the future. It is also a global problem requiring international collaboration. The problem can only be effectively tackled if the medical and veterinary communities takes responsibility by adopting restrictive prescription of antibiotics. Also needed is the pharmaceutical industry to take an active role in developing alternatives for antibiotics.

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Poland

Obesity*

Michał Brzeziński

The scale of the challenge

Overweight and obesity are public health challenges of growing importance in Poland. While the self-reported obesity rate in Poland, at 15.8% in adults (2009 data), is close to the OECD average of 15.5% (2006–2013 data), it has been increasing in the last 20 years (only 11.4% of adults were obese in 1996; OECD, 2015). The fastest increase has been observed in children and adolescents. Some studies show that 22% of elementary school children are currently (2013) overweight or obese (IZZ, undated), compared to no more than 15% in 1990 (WHO Regional Office for Europe, 2012). This is among the most rapid increases in Europe – based on self-reported data (UNICEF Office of Research, 2013). Unfortunately, there is a lack of good quality, longitudinal data on obesity prevalence for both children and adults.

In spite of these negative trends, the problem of obesity appears to be underestimated by medical professionals and policy-makers. Obesity is mainly seen as an individual lifestyle responsibility and not as a population health issue. While the problem of obesity is recognized in Poland's strategic health documents (see the Policies and programmes section), obesity-related goals included in these documents have not been translated into actions and few measures have been undertaken to address this problem. There are also no clear protocols for assessing and treating obesity and both prevention and treatment of obesity are severely underdeveloped. Health education is the primary approach to the obesity problem promoted in national health policy documents, such as the National Health Programmes (NHPs) for 2007–2015 and 2016–2020 (see the Policies and programmes section). However, there are no publicly financed education programmes for children and young people dedicated to obesity, nor are there any large-scale national education campaigns for the general population. The only medical obesity treatment (primary obesity) that is available under the public system is bariatric surgery. Little attention is being paid to policy tools such as legislative changes, marketing bans or fiscal instruments such as taxes. The focus of health policy debates on lifestyle choices is partly due to the active role of food industry representatives in the policy debates who have been successfully arguing that the responsibility for health choices lies with individuals and not with the state.

On the whole, the problem of obesity attracts little attention in public policy debates in Poland. More controversial issues, such as in vitro fertilization, tend to command more public interest. Although some actions were taken in 2015 (notably, the introduction of a ban on high salt, sugar and fat (HSSF) food in schools, which has since been mostly withdrawn) there is a lack of a clear strategic plan for obesity prevention. However, the implementation of the new Act on Public Health and its executive document (i.e. the NHP 2016–2020) may help to focus more attention on public health problems such as obesity, physical inactivity, tobacco and alcohol consumption.

Policies and programmes

The problem of obesity has been recognized by the key public health institutions, the National Institute for Public Health–National Institute of Hygiene (NIPH–NIH) and the National Food and Nutrition Institute (NFNI); it has also been included in key strategic documents at the national level, including the National Health Programme (NHP) 2007–2015 and the NHP 2016–2020, and the national prevention programmes, in particular the National Programme for the Prevention of Overweight

* This chapter reflects data available in June 2016.

and Obesity and Chronic Non-communicable Diseases through Improved Nutrition and Physical Activity 2007–2011 and 2012–2014 (both were part of the National Programme for the Prevention of Non-communicable Diseases). The NHP 2007–2015 was the first NHP that explicitly mentioned reducing the prevalence of obesity as one of its operational goals (Goal 4). Previous editions of the NHP only mentioned obesity in connection with increasing physical activity or improving nutritional habits and it was only included as a separate goal in 2007.

The NHP 2007–2015 aimed to achieve the goal of reducing the prevalence of obesity through the following means:

- the establishment of a programme implementing the WHO Global Strategy on Diet, Physical Activity and Health;
- the introduction of an effective interministerial cooperation that would take into account the recommendations included in the above-mentioned strategy;
- the establishment of a National Nutrition Council (*Narodowa Rada Żywienia*) and of a national action platform for diet, physical activity and health;
- dissemination of knowledge about nutrition, especially in schools;
- developing programmes for feeding those in need.

These tasks were to be implemented by the central government administration, local self-governments, the NFNI and NGOs. Only some of the measures foreseen in the NHP 2007–2015 have actually come to fruition. In 2007, the Ministry of Health appointed the Council for Diet, Physical Activity and Health which represents governmental and nongovernmental organizations acting in the fields of health, nutrition and physical activity. The Council included representatives from other ministers, scientific institutions, NGOs, professional organizations, and the industry (with a total of 25 members). It was conceived as an advisory body to the ministry and was supposed to set priorities for the ministry in the areas of its remit, as well as supporting local and national activities. However, the role of the Council has remained marginal. This is likely because the ministry did not have a clear vision for the Council becoming the key reference point in the areas of health, nutrition and physical activity. Furthermore, members of the Council represent different interest groups with opposing interests, including scientists, politicians, NGOs and representatives of producers; and without clear leadership and goals most of its activities were fruitless. Its last meeting took place in December 2014. The NHP 2007–2015 itself has not been evaluated in terms of attaining its goals.

The current National Health Programme, in place since 2016, has the operational goal of changing nutritional patterns and physical activity. It also includes plans for policy changes (taxation of HSSF food, decrease of food marketing to children, labelling systems). This is the first time that such a programme has been included in a NHP. The goal is to be implemented mainly by the Minister of Health in cooperation with the ministers responsible for sport, tourism and education, the National Health Fund and local authorities. The NHP foresees the establishment of the National Education Centre for Nutrition. The Centre's main objectives are anticipated to be: interactive education, nutrition counselling, cooperation with the industry and research. However, the Centre does not have a clear mandate to interfere in school education programmes, health services or the legislative process. Although stated in the National Health Programme there are not many measures such as taxation or other evidence-based interventions, such as dietitian consultations or intervention programmes for the obese. This means that the Centre's actual impact on population health may be limited.

The two National Programmes for the Prevention of Overweight and Obesity and Chronic Non-communicable Diseases (2007–2011 and 2012–2014) foresaw an active, albeit optional, role for local self-governments in formulating health polices and promoting prevention in the field of noncommunicable diseases (NCDs), including obesity. However, tackling obesity was not seen as a priority and the amount of funding that was allocated for the realization of these programmes was much less than what had been anticipated by public health experts (less than 4 million złoty for the 2012–2014 period); overall, the Ministry of Health and its subordinated institutions undertook very few initiatives in this area. The special parliamentary group focusing on the prevention and treatment of obesity did not submit any legislative proposals to the parliament in the 2011–2015 parliamentary term. The group was not part of the Parliamentary Commission of Health and thus had no formal influence on the legislative process, being more a discussion forum for politicians interested in the topic. Its activities focused on organizing conferences and discussions and gathering data end expert opinions.

As a European Union (EU) member state, Poland has to comply with EU legislation on labelling and health and nutrition claims. Poland is also one of the participating countries in the Choices Programme, an initiative introduced in the Netherlands in 2006 in response to the WHO's call for the food industry to take an active voluntary role in tackling obesity. The programme has since been expanded to the Czech Republic and Poland (http://www.choicesprogramme.org/).

Regional and local self-governments are responsible for developing their own health policies and health programmes, depending on the needs of their populations. These policies and programmes are usually part of their wider development strategies and reflect the strategic national goals included in the NHP. Since they are mainly financed from local budgets and since developing prevention and health promotion policies and programmes is not mandatory, only a few self-governments have introduced such policies and programmes in the area of obesity and other related areas.

Key actors involved in the various stages of the policy process are mapped out in Table 1 and described in more detail in the sections below. The entire policy process is heavily concentrated in the hands of the Ministry of Health.

Problem identification and issue recognition

Problem identification and issue recognition are concentrated in the Ministry of Health. The Minister[1] of Health is the main authority responsible for identifying problems and setting the agenda in the field of public health, including in the area of obesity. The Department of Public Health within the Ministry of Health has primary responsibility for all activities in the area of public health. For example, all activities undertaken within the NHP are initiated by this department. The department is also responsible for the implementation of the Public Health Act. Nevertheless, many other departments within the Ministry of Health undertake activities in the area of public health, including obesity. For example, the Department of Mother and Child is responsible for preventive health care for children and pregnant women and the Department of Science and Higher Education supervises the NIPH–NIH and the NFNI.

The most important advisory body to the Ministry of Health in the field of obesity was, at least in theory, supposed to be the Council for Diet, Physical Activity and Health, established in 2007 by the Ministry for Health. However, as explained in the Policies and programmes section, its real influence has remained marginal.

The NFNI and the NIPH–NIH, both subordinated to the Ministry of Health, are the two key national institutes that undertake relevant epidemiological research in the area of obesity and related issues, such as nutrition, and provide data that support the Ministry of Health in problem identification and issue recognition. Both institutes undertake this work both on their own initiative and on the order of the ministry. Most of their activities are financed from national sources (for example, the MoH and the National Science Centre) or with the support of EU funds. However, there is little systematic data collection on the prevalence of obesity and overweight in Poland and the data that is gathered is often not representative of the whole population or not comparable across surveys. Except for the international Health Behaviour in School-aged Children (HBSC) survey, there are no systematic national surveys on obesity in Poland. None of the major national population surveys (NatPol, NatPol 2011, WOBASZ, MONICA) focuses on obesity (they mainly look at the prevalence of cardiovascular diseases and their treatment outcomes) and collected data is confined to selected regions or populations (e.g. various age groups) and based on different methodologies (e.g. some use self-reported data). The key source of information on obesity-related diseases is the National Health Fund (NHF), which collects data on the provision of publicly financed health services to patients with obesity-related diseases.

Some relevant data (mainly survey data on consumption preferences, or assessments of the quality of health care or treatment effectiveness) may also be collected by professional associations, patient associations and NGOs and used in the public debate. The most important associations in this context are the Polish Association for the Study of Obesity, the Bariatric Surgery Group, the WE PATIENTS Foundation, and the Foundation for People with Obesity. However, these actors have little impact on problem identification and issue recognition. The food industry also collects relevant data on consumption, product preferences, and the effectiveness

1 The terms Minister and Ministry are here used interchangeably. The Minister of Health is the head of the Ministry of Health and is personally responsible for all activities of the ministry.

of advertising, but such data are usually not made public. The food industry plays an important role in the public health discussion, however, promoting the idea that the solution to the obesity problem lies in health promotion, education and personal responsibility for making decisions on nutrition and physical activity.

Regional and local self-governments may contribute to problem identification and issue recognition at the regional and local levels. All regional self-governments must set their medium-term strategic goals for health and social policies. There are no clear rules on what this process should look like and what should be included in these goals. In order to be able to tap into EU funding, most regional self-governments have created regional operational programmes with strategic priorities for the health sector, including for public health. The goals are largely tailored towards obtaining EU funding but also depend on the particular priorities of the self-governments. Yet, only a few self-governments have recognized public health (including obesity) as an important issue and this is reflected in their budgets.

The Act on Public Health adopted in September 2015 foresees the establishment of the Public Health Council, which will act as an advisory body to the Ministry of Health, providing opinions but also suggesting new activities in the area of public health. The main activity of the Public Health Council foreseen in the Act will be the drafting of the NHP 2016–2020. The Public Health Act commits the Ministry of Health to allocating 10% of NHP funds to research and analysis in the area of public health and to the monitoring and evaluation of the NHP.

Policy formulation

The main actor responsible for policy formulation is the Ministry of Health, and the Departments of Public Health and Health Policy within the ministry. The Ministry of Health formulates policy mainly by issuing ordinances and adopting National Health Programmes, such as the National Programme for the Prevention of Overweight and Obesity. There is no formal process for the formulation of new policies or programmes, except for the National Health Programme for which this process is stated in the new Act on Public Health. According to this Act, a new government's plenipotentiary for public health can and should be appointed. The tasks will mainly focus on developing and coordinating the NHP. The plenipotentiary will be supported in this task by a Steering Committee of the National Health Programme representing all ministries and by the Public Health Council (see the Problem identification and issue recognition section).

New policies can also be proposed by members of the parliament and the Prime Minister. Neither the NFNI nor the NIPH–NIH have a mandate for policy formulation in the field of obesity.

Data on clinical and cost–effectiveness of interventions in the area of obesity is missing in Poland and is generally not used to support the policy formulation process. International evidence is not gathered regularly in any reports by the Ministry of Health or its dependent institutions.

Regional self-governments develop regional health policies and health programmes. They follow local priorities and may be influenced by local stakeholders. Regional policies are formulated independently from the national policy (there are no policy obligations or recommendations from the national level) and they are not coordinated by the Ministry of Health. However, they have to be in line with the strategic goals set out in the NHP. Only a few regional self-governments include obesity in their health policies. These policies mainly focus on health promotion and education, encouraging physical activity as well as creating a healthy environment (e.g. through public transportation or recreational areas). There are currently no data on the level of regional spending on obesity prevention and treatment.

Counties and municipalities can also produce their own health policies and strategies in areas of particular concern for their local populations but these must normally be in line with the respective documents at the regional and national level. The policies are usually financed from the counties and municipalities' own budgets. Examples of quasi-policies in the area of obesity can be found in cities such as Warszawa, Gdańsk, Kraków, Częstochowa. These cities have implemented local health programmes focusing on obesity prevention and treatment (Gdansk, Kraków), school food-schemes (Warszawa, Gdańsk) or nutritional education in schools (Częstochowa, Kraków, Gdańsk, Warszawa). Other localities do not have clear policies on obesity but rather health programmes with some references to obesity.

Very few NGOs have any influence on policy formulation in the area of obesity. The influence of other actors in the policy formulation process is negligible.

Decision-making

The decision-making process is coordinated by the Ministry of Health. After a preliminary draft of a new legal act is developed (in the case of obesity issues this would be done by either the Department of Public Health or the Department of Health Policy), it is submitted to public consultation. The Minister of Finance plays a major role by giving their opinion on the draft act in an internal process of negotiations (prior to the public consultation process), mainly focusing on the financial side of planned actions. Public consultations are coordinated by the Government Legislation Centre. All governmental, public and private institutions are allowed to submit their opinions. These opinions are easily accessible on the Centre's webpages. However, the ministry is not obliged to take any of these opinions into consideration or to give any feedback on these opinions. For example, during the consultation process for the new NHP over 80 opinions were received and the ministry only acknowledged their receipt, without explaining how it would address any of them.

All new laws must be accepted by the Prime Minister and the government, then passed by Parliament and signed by the President. However, most key decisions in the area of obesity prevention and treatment are made by the Ministry of Health through executive regulations, ordinances, rather than through parliamentary bills.

The representatives of the food industry, such as the Polish Federation of Food Industry, play a major role in the decision-making process. The food industry is one of the most influential lobbying groups, with well-organized representation and significant financial resources. Its influence on the decision-making process has been most visible during the public consultation process, which is obligatory for all legal acts, although it may not have led to substantial changes. Other stakeholders, such as NGOs, are less well organized and have little influence on decision-making in the field of obesity.

The 2015 Act on Public Health has not brought any changes to the decision-making process.

Policy implementation

At the national level, policy implementation is mainly focused on delivering actions proposed in one of the national programmes (see the Policies and programmes section). Most of the actions are coordinated by the Ministry of Health, mainly the Department of Public Health, and supported by other departments, such as the Department of Mother and Child Health or the Department of Health Care Organisation, depending on the scope of the policy. The ministry may organize calls for tenders for the realization of selected parts of these national programmes by external bodies. These bodies may be subordinated to the ministry or independent. Some activities are not subject to such tenders and are directly allocated to one of the public institutions, such as the NFNI, the NIPH–NIH, or the Chief Sanitary Inspectorate. Both the NFNI and the NIPH–NIH are involved in activities focusing on health promotion and education in the area of obesity. The NFNI is responsible for the implementation of activities focused on reducing morbidity and mortality from nutrition-dependent diseases. These activities may include publication of guidelines and other materials on nutrition and organization of scientific and educational conferences. Most of these activities are financed from the budget of the Ministry of Health and, in the last 5 years, also from the budgets of various EU programmes. So far, there has been no dedicated financing for obesity prevention and treatment, but the new National Health Programme (2016–2020) foresees 60 million złoty for being required for obesity prevention and treatment (equivalent to 12 million złoty per year). Most of this money is likely to be allocated to finance the activities of the National Education Centre for Nutrition (see the Policies and programmes section).

The food industry is involved in the implementation of many policies regarding promotion of physical activity and health education. In the area of obesity, the food industry is closely cooperating with the Ministry of Health, as well as with the NFNI and the Chief Sanitary Inspectorate. For example, the food industry contributes to public health education campaigns aiming to raise awareness on obesity, such as the "Trzymaj Formę" (Keep the Shape) campaign run by the Chief Sanitary Inspectorate (http://www.trzymajforme.pl/). The food industry also promotes individual responsibility for health and health choices by mass-media campaigns or health education activities in schools. Most of the large private or public food industries in Poland support actions aimed at raising awareness in the area of nutrition and physical activity, such as through sponsoring sport events organized at the local or national level, e.g. football championships for school pupils.

The involvement of NGOs in policy implementation is limited. There is no NGO involved with obesity that is large enough to cooperate with the Ministry of Health. Furthermore, NGOs have only limited finances. The ministry does not provide stable funding to any third-party organization and NGOs must provide 30% of the overall financing of projects cofinanced by the Ministry of Health if they win a tender. This discourages NGOs from becoming involved in the implementation of public health programmes. However, their involvement may include local activities in the areas of education and promotion of healthy nutrition and physical activity. NGO activity at the national level is rare, both in the area of obesity and in public health in general. According to the new Act on Public Health, different activities foreseen in the NHP could be delegated to public institutions and local governments if this is explicitly stated in the NHP. The ministry will then have to provide financial resources for their implementation. In all other situations, a public tender needs to be announced. So far (June 2016), no tenders for the implementation of the new NHP have been announced.

Monitoring and evaluation

The monitoring and evaluation of national obesity programmes in Poland is mainly based on the final reports on activities performed within these programmes that are prepared by the Ministry of Health, its subordinated institutes (such as the NIPH-NHI) or other institutions involved in the implementation of these programmes. Reporting is usually limited to information on issues such as the number of participants or the volume of provided services. They are mainly used by the Ministry of Health to justify extending national programmes and can only be accessed by the public during the consultation process on new draft programmes. To date, no such report has been made publicly available.

As mentioned in the Decision-making section, the 2015 Act on Public Health requires the Ministry of Health to allocate at least 10% of the funding designated to the NHP to monitoring and evaluation, as well as to scientific research in the area of public health. This is the first time in the history of the NHPs that such an allocation has been made.

Conclusion and outlook

The potential role of public health services in creating a healthy society and contributing to economic development remains poorly recognized by the majority of political and governmental institutions in Poland. This attitude, however, seems to be slowly changing and the importance of public health problems, including obesity, is being increasingly recognized. Yet, there is still little understanding among policy-makers of the effectiveness of various policy tools that could be used to tackle public health problems, in particular with regard to legal and fiscal measures.

Systematic monitoring of obesity prevalence in the population and evaluation of implemented programmes are still missing. The new Public Health Act states that at least 10% of resources allocated to the implementation of the NHP will be dedicated to monitoring, evaluation and scientific research in the field of public health, including obesity. If this target is met, significant improvements could be made to data collection and evaluation in this area.

The new Public Health Act and National Health Programme 2016–2020 promises to introduce many other improvements in the area of obesity policy: a dedicated institution responsible for the development of policies in this area and dedicated financing for research and data analysis on obesity. Unfortunately, the anticipated financial resources fall short of what was recommended by experts and remain politically dependent (as the annual amounts will be determined by government). Moreover, while there are many organizations that are willing to play a major role in the area of public health, none of them, including the NIPH–NIH, are fully prepared to assume a leading role. This lack of preparedness is due to a lack of knowledge, resources, staff and experience as well as the political will of the ministry. Future developments will very much depend on building a clear mandate for the government's new plenipotentiary for public health, created by the Act on Public Health. Much can be learnt from other countries with regard to establishing effective prevention programmes (including both screening and counselling), fiscal and legal instruments to encourage people to be physically active and eat healthily, and intervention programmes for obese people and for their next of kin, covering medical, social and educational aspects.

Table 1 *Key actors involved in the policy process*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
President	-	- / (+)	+	-	-
Parliament / Special parliamentary group on obesity problems (2011–2015)	+	+	+	-	-
Government	+	++	+++	++	++
Ministry of Health	+++	+++	+++	+++	+++
NIPH–NIH	+++	++	+	++	++
NFNI	+++	+	+	++	++
Council for Diet, Physical Activity and Health	++	++	(+)	-	(++)
Chief Sanitary Inspectorate	-	-	-	++	-
Regional self-governments	(++)	(+)	(++)	(++)	(+)
Local self-governments	(+)	(+)	(+)	(++)	(+)
Schools	-	-	-	++	-
Professional associations	(+)	-/(+)	-	+	(+)
Industry	(+)	++	-	++	(+)
NGOs	(+)	-/(+)	-	+	(+)
Patient organizations	(+)	-/(+)	-	(+)/+	-
Churches and church associations	-	-	-	-	-
General public	-	-	-	-	-

Source: Authors' compilation

Notes: - = no role; () = possible involvement; += weak; ++= medium; +++=strong.

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Alcohol*

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The scale of the challenge

Problems associated with excessive alcohol consumption are one of the most important social and public health issues in Poland. The social and economic costs caused by alcohol-related problems include health care costs, productivity losses, and various additional costs such as those associated with public safety violations, motor vehicle accidents, domestic violence, alcohol-related crime, poverty and unemployment. While the overall economic costs of alcohol-related problems are difficult to measure, estimates range from between 1.3% and 3% of gross domestic product (GDP) (Kolasa, 2015; IOOZ, 2013) or between 6 and 12 billion euros in 2014 (based on Eurostat, 2016).

Poland is one of the few countries in Europe where alcohol consumption has increased in recent years (OECD, 2015). In 2013, the annual consumption was 10.8 litres of pure alcohol per capita compared to 10.3 litres in 2007 (OECD, 2016). However, consumption is lower than in a number of other EU Member States included in the OECD database (Austria, Czech Republic, Estonia, France, Germany, Hungary and Luxembourg). Consumption increased after 2003, following a reduction in excise duty on spirits in 2002, and dropped after 2009, when excise duty on all types of alcohol was increased (PARPA, 2011). Since then, alcohol consumption has been increasing again, albeit at a decreasing rate (Minister of Health, 2015).

Policy debates since 2014 have focused on amending the 1982 Act on Upbringing in Sobriety and Counteracting Alcoholism. Proposals have called for the introduction of a total ban on the advertising of alcoholic beverages, including cider; changing the requirements with regards to presenting the documents confirming the age of the buyer and the restrictions on the hours when alcoholic beverages can be sold; as well as reducing the physical availability of alcohol by limiting the number of outlets. In Poland, there is one registered alcohol outlet per 273 people, which is much higher than one outlet per 1 000 people recommended by the WHO (Infos, 2016); furthermore, the number of outlets has been increasing over the years (PARPA, 2011). Policy-makers have also called for the reduction of the economic availability of alcohol as over the years alcohol has become more affordable; for example, as measured by the number of bottles of various types of alcohol that can be bought for an average salary (PARPA, 2011), and work has started (2015) on the preparation of guidelines on the minimum unit price. Moreover, in early 2015, during the parliamentary debate on the ratification of the Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence in Parliament, politicians emphasized the strong relationship between violence and alcohol and thus the need for action in this area. These debates have so far not resulted in any legislative changes.

Policies and programmes

The legal basis for the prevention and resolution of alcohol-related problems in Poland is the Act of 26 October 1982 on Upbringing in Sobriety and Counteracting Alcoholism. The latest important amendment of this act permitted consumption of beer during sport events prior to Poland's hosting the UEFA 2012 Euro Championships. This permission has not been withdrawn after the championships and is still in place.

According to the 1982 Act, prevention and resolution of alcohol-related problems should be implemented at the national, regional (*voivodeship*) and municipal/local (*gmina*) levels, within complementary action programmes at these three levels:

The National Programme for Preventing and Resolving Alcohol-Related Problems 2011–2015

The first National Programme for Preventing and Resolving Alcohol-Related Problems was introduced in 1994 and since then there have been five such programmes. The National programmes provide the strategic objectives of the state policy on alcohol-related problems and specific objectives for all levels of public administration. The latest programme, which covered the 2011–2015 period, had eight objectives:

1 Reducing health harms caused by alcohol consumption;

* This chapter reflects data available in June 2016.

2 Reducing the availability of alcohol and changing the patterns of alcohol consumption;

3 Limiting alcohol-related problems in families;

4 Reducing alcohol consumption in teenagers;

5 Limiting the scale of domestic violence and improving assistance for families;

6 Increasing the quality of activities undertaken by the municipalities within municipal programmes for preventing and resolving alcohol-related problems and reducing the allocation of funds for activities not related to preventing and resolving alcohol-related problems;

7 Reducing the number of alcohol-related law violations; and

8 Estimating the economic costs of alcohol-related problems.

Every objective has been assigned a number of goals and planned activities, designated agencies responsible for their implementation, and indicators. For example, objective 2 has three goals: (a) Decreasing the economic availability of alcohol; (b) Decreasing the physical availability of alcohol; and (c) Reducing the share of spirits in the alcohol consumption. The suggested agencies for their implementation are the Finance Minister (for goals "a" and "c") and self-governments (for goal "b") and the indicators are: the rates of excise duty on various types of alcoholic beverages; number of inhabitants per alcohol outlet; and the number of bottles of various alcoholic beverages that can be purchased for the average monthly salary (PARPA, 2011).

Financing of the National Programme is covered from the budgets of the agencies that implement it. One per cent of the revenue from excise duty on alcoholic beverages is allocated to the financing of the programme. Apart from their own budgets, regional self-governments finance the programme from the funds obtained from issuing the authorizations for the wholesale of alcoholic beverages and the municipalities from the funds obtained from authorizations for the retail sale of alcoholic beverages.

The State Agency for the Prevention of Alcohol-Related Problems (PARPA), a government agency subordinated to the Ministry of Health, is responsible for drafting the National Programme, coordinating the implementation of the Programme, including collecting information for monitoring its implementation, and preparing annual reports on the implementation of the Act on Upbringing in Sobriety and Counteracting Alcoholism, which includes information on the implementation of the Programme.

The Ministry of Health and PARPA have prepared the next National Programme for the 2016–2020 period. The National Health Programme (NHP) 2016–2020, incorporated the National Programme for Preventing and Resolving Alcohol-Related Problems. The new NHP unifies the monitoring of all public health services that it covers. All public health activities are now coordinated through mechanisms set out in the new Act on Public Health passed in November 2015. The National Programme for 2016–2020 will have to be consistent with the new Act on Public Health.

Regional Programmes for Prevention and Resolution of Alcohol-related Problems

All *voivodship* (i.e. regional) self-governments must implement[2] their own Programmes for Prevention and Resolution of Alcohol-related Problems as part of the *voivodeships*' strategies for development and growth. The goals and activities included in these programmes must be in line with those of the National Programme. The regional programmes are implemented by the regional centres for social policy or other bodies designated in these programmes. These centres or bodies provide assistance to the municipal councils, and regional institutions and NGOs that specialize in prevention and resolution of alcohol-related problems.

Municipal Programmes for Prevention and Resolution of Alcohol-related Problems

Municipalities must establish annual Programmes for Prevention and Resolution of Alcohol-related Problems. These programmes are based on general recommendations issued every year by PARPA. They are implemented by the municipal centres for social assistance or other bodies designated in these programmes. The mayors appoint municipal boards for addressing alcohol-related problems (see Policy implementation section).

Key actors involved in the various stages of the policy process are mapped out in Table 2 and described in more detail in the sections below.

2 Self-governments may also choose to appoint plenipotentiaries to implement the programmes on their behalf.

Problem identification and issue recognition

While the responsibility for problem identification and issue recognition formally lies with the Ministry of Health, this task is largely delegated to PARPA. This agency initiates, supports and funds research on a range of alcohol-related problems and consumption patterns, and conducts analyses of activities and resources in place for preventing and addressing alcohol-related problems. This research informs the National Programme for Preventing and Resolving Alcohol-Related Problems (see Policies and programmes section). PARPA may cooperate with relevant experts and research centres in the field and may use data collected by the Central Statistical Office of Poland and the National Institute for Public Health–National Institute of Hygiene (NIPH–NIH).

Regional and municipal self-governments are not very active in supporting PARPA or the Ministry of Health in problem identification and issue recognition. While other actors such as the professional associations and the alcohol industry may collect relevant data and undertake analyses, there is no evidence that this plays any role in problem identification and issue recognition.

Policy formulation

PARPA is the key actor responsible for policy formulation. It fulfils this task mainly by drafting the National Programme for Preventing and Resolving Alcohol-Related Problems but also by preparing drafts of legal acts and action plans on alcohol and alcohol-related problems. The Minister of Health with the help of the Department of Public Health is responsible for ensuring coherence of national policy on alcohol and alcohol-related problems. The National Programme must be approved by the government.

Various other ministries, such as the Ministry of Education, can formulate policies aimed at preventing and solving alcohol-related problems. However, their role is limited, due to their much smaller scope of activities in the area of preventing and addressing alcohol-related problems.

Regional and municipal self-governments play a role in policy formulation by preparing the regional and municipal programmes for Preventing and Resolving Alcohol-Related Problems. These programmes must be in line with the objectives set in the National Health Programme and the National Programme for Preventing and Resolving Alcohol-Related Problems.

Other actors, such as the alcohol industry, may influence policies during the public consultation process, though it has to be noted that the opinions of interest groups may not necessarily be taken into account.

Decision-making

The Ministry of Health is the key decision-maker in the area of alcohol policy. The ministry ensures legislative and executive approval of legal acts and programmes and seeks consent through public consultations with interest groups.

Regional and municipal programmes are not subject to public consultations. While regional and municipal self-governments do not have to seek any approval of their programmes they mostly follow PARPA guidelines in designing them. This is because the Supreme Audit Office and the Regional Chambers of Accounts use these guidelines to monitor how self-governments spend their financial resources.

Policy implementation

At the national level, the National Programme for Preventing and Resolving Alcohol-Related Problems assigns the implementation of specific activities to various ministries (including the Ministry of Health), agencies (including PARPA and the National Broadcasting Council (KRRiT)), regional and municipal self-governments, and other actors, such as health care providers, NGOs, schools and universities, churches and religious organizations. Special tasks in the area of prevention and resolution of alcohol-related problems are also foreseen in the 1982 Act, with the following actors explicitly mentioned: the Minister of Health and other ministers, units of public administration and self governments.

Apart from implementing specific activities envisaged in the National Programme, such as carrying out surveys on alcohol consumption patterns, PARPA carries out informative and educational activities, develops and implements new methods of preventing and resolving alcohol-related problems, provides factual support to local authorities, institutions, associations and individuals who implement tasks in the area of prevention and resolution

of alcohol-related problems, as well as commissioning and financing such activities. PARPA also drafts documents on the distribution of funds for the implementation of the National Programme and is in charge of the overall implementation of the National Programme.

The regional and local self-governments are responsible for implementing policies within the scope of regional and municipal programmes for Preventing and Resolving Alcohol-related Problems. *Voivodeship* self-governments, or their plenipotentiaries appointed for the purpose of executing the *voivodships*' Programmes for Preventing and Resolving Alcohol-Related Problems (see the Policies and programmes section), cooperate with government bodies and PARPA to ensure that dependence treatment is available in the *voivodships* and is effective. They also support municipal self-governments in developing and implementing their Local Programmes for the Prevention of Alcohol-Related Problems. The implementation of selected goals is achieved through cooperation within institutions across municipalities. While self-governments are able to establish alcohol-free zones and withdraw alcohol sales licences, they rarely do so.

Every municipality has a municipal board for addressing alcohol-related problems (see the Policies and programmes section). The boards are interdisciplinary teams composed of specialists in the field of prevention, sociotherapy, counteracting domestic violence, addiction therapy, public order and justice. These boards carry out activities related to the prevention and resolution of alcohol problems (included in the municipal programmes) and social integration of people with alcohol dependence problems, as set out in the 1982 Act. They are also responsible for undertaking activities aimed at obtaining court injunctions on starting compulsory treatment in alcohol addiction centres by persons addicted to alcohol. For example, representatives of the boards hold talks with alcohol addicts and the members of their families to try and convince them to start the detoxification treatment or to participate in support groups.

The involvement of KRRiT in policy implementation is mainly through education campaigns on the harms associated with alcohol use and the related problem of domestic violence. NGOs and other non-public institutions may also play a role in policy implementation. The state administration and local institutions cooperate with NGOs (addiction treatment centres and Alcoholics Anonymous groups) in the implementation of the National Programme. NGOs also undertake activities at their own initiative. As well as NGOs, the National Programme explicitly mentions churches and religious organizations, dependency treatment centres, schools and other actors as agencies responsible for its implementation (see the Policies and programmes section). Like the NGOs, some of these actors also undertake activities at their own initiative.

According to the Ministry of Health's 2012 regulation on the organization, staff qualifications and functioning procedures of dependence treatment centres, Regional (*voivodship*) Centres for Therapy of Alcohol Dependence and Co-dependence (WOTUW) have been set up in each region. In addition to the WOTUWs, there are four other types of dependence treatment centre: outpatient clinics, day centres, 24-hour hospital centres and centres for treatment of alcohol withdrawal syndromes. Dependency treatment services are financed by the National Health Fund. Dependence treatment of alcohol-dependent people may be undertaken exclusively by public or non-public health care centres and is free of charge, even for people without health insurance. Dependence psychotherapy is the main therapeutic method used in dependence treatment centres. Dependence treatment is voluntary, with the exception of the legal obligation to treatment that was defined in Article 24 of the 1982 Act. Alcohol-dependence treatment has been organized separately from the treatment of dependence from other psychoactive substances. However, within both systems it is possible to treat people who are dependent on multiple substances (mixed dependence).

A number of general and special prevention programmes, especially in the area of alcohol and drug use, have been implemented in schools over the last few years. According to the Regulation of the Minister of National Education and Sports of 26 February 2002 on the core curriculum and general education in particular types of schools, schools are obliged to implement prevention programmes. Local authorities are the main source for funding for school-based prevention activities. Provision of preventive activities in schools is decentralized and schools are responsible for choosing prevention activities based on their own needs assessments. Most of these programmes, however, are not theoretically or empirically informed and interventions implemented in schools and in communities are often based on preconceived ideologies (e.g. the ideologies of sobriety groups, such as Alcoholics Anonymous). The use of best practice programmes (such as FreD goes net; http://ec.europa.eu/chafea/documents/projects/highlights/Addiction_Prevention_25-26_

January_2010/405_FRED_Wirth.pdf) is limited, as such programmes are usually more difficult to implement and more expensive for local authorities.

Monitoring and evaluation

The Ministry of Health supervises the implementation of the alcohol policy at the national level. The monitoring of the implementation of the National Programme for Preventing and Resolving Alcohol-Related Problems is delegated to PARPA. Each year, based on internal analyses and materials submitted by the ministries, central administration agencies, regional and municipal self-governments and NGOs, PARPA prepares a report on how the tasks set out in the 1982 Act have been met, including the implementation of the National Programme. The report is submitted to the government for approval and subsequently for acceptance to Parliament.

The reports are created on the basis of data obtained from municipal and regional authorities. Self-governments are obliged to prepare annual reports on their activities in preventing and resolving alcohol-related problems (activities conducted under the scope of the 1982 Act and within their municipal or regional programmes). These reports are based on data collected within the Public Statistics Research Programme by the special *voivodeship* plenipotentiaries (see the Policies and programmes section). Data on actions undertaken within the 1982 Act are gathered by other units of the *voivodship* self-governments according to their internal schedules and are submitted to PARPA.

Table 2 *Key actors involved in the policy process*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
President	-	-	-	-	-
Parliament	-	+	-	+	+
Government	-	+	+	+	+
Ministry of Health	<+++>	<+++>	+++	<+++>	<+++>
Other Ministries*	-	+	+	+	+
PARPA	+++	+++	-	+++	+++
NIPH–NIH	(+)	-	-	-	-
Central Statistical Office	(+)	-	-	-	-
KRRiT	-	-	-	++	-
Regional self-governments	-	+	+	++	++
Municipal self-governments	-	+	+	++	++
Schools	-	(+)	-	(+)	-
Service providers: WOTUWs and other types of dependence treatment centres	-	(+)	-	(+)	-
Alcohol industry	-	(+)	-	(+)	-
NGOs	-	(+)	-	(+)	-
Churches and church associations	-	(+)	-	(+)	-
Professional associations	-	(+)	-	(+)	-
Patient organizations: self-help groups	-	(+)	-	(+)	-
General public	-	(+)	-	-	-

Source: Authors' compilation

Notes: - = no role; () = possible involvement; += weak; ++= medium; +++=strong; < > = delegated to another agency.

KRRiT = National Broadcasting Council; PARPA = State Agency for the Prevention of Alcohol-Related Problems; WOTUW = Regional Centre for Therapy of Alcohol Dependence and Co-dependence. *Ministries of Education, Labour and Social Policy, Justice, National Defence, and the Interior.

The data of provincial programmes for the prevention and treatment of alcohol problems are provided by the survey PARPA W1 which is completed by those responsible for the implementation of the programmes.

As well as monitoring the implementation of the activities within the National Programme, PARPA also monitors the effectiveness of addiction and co-addiction treatment and the scale of domestic violence related to alcohol consumption, as captured by police statistics.

Other actors play no significant role in monitoring and evaluation.

Conclusion and outlook

According to PARPA, the Polish system of preventing and addressing alcohol problems can potentially become highly effective. Prevention of alcohol problems is based on three complementary programmes that are implemented at different levels of administration. The 1982 Act obliges municipal self-governments to undertake a number of activities for which there is a clear and stable source of financing (see the Policies and programmes section). PARPA oversees and supports the work of municipal self-governments, assessing the results in its annual reports on the implementation of the 1982 Act. The organization of the system ensures consistency in the implementation of tasks among the three levels and cooperation of all institutions involved in dealing with alcohol problems.

However, the system of preventing alcohol problems is mainly focused at children and adolescents from families with manifest problems of alcoholism in bigger cities, as more funding is available there. One of the challenges is to extend this system to all children and adolescents, including in rural areas and smaller cities of Poland.

The level of alcohol consumption in Poland remains high and alcohol policy should be more restrictive, for example via higher taxation, limiting the availability of alcoholic beverages as well as implementing a more effective ban on advertising and sponsorship. So far, there have been few policy discussions about these measures. This is because of the key role of the alcohol industry in these discussions. The industry has emphasized measures such as promoting so-called wise consumption and fighting drink-driving (as opposed to more restrictive measures, such as increasing excise duty). Moreover, measures recommended by the WHO are criticized in the media by the alcohol industry and liberal parties on the grounds of limiting freedom of choice and reducing tax revenues.

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Antimicrobial resistance*

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The scale of the challenge

While there are no official documents that explicitly recognize antimicrobial resistance (AMR) as a major public health threat in Poland, the existence of programmes, such as the National Programme for the Protection of Antibiotics, and institutions, such as the National Reference Centre for Antimicrobial Susceptibility Testing, indicate that the importance of AMR has been recognized by the authorities. Yet, despite the relatively high consumption of antibiotics and some alarming trends for certain infectious strains (see below), the provision of the health services is overwhelmingly focused on the treatment of infections rather than their prevention. AMR surveillance is largely underdeveloped, in both human medicine and even more so in veterinary medicine (see the Monitoring and evaluation section) and the scale of AMR may therefore be underestimated.

Information campaigns on AMR have been organized within the framework of the National Programme for the Protection of Antibiotics (NPPA) (see the Policies and programmes section), including as part of the European Antibiotic Awareness Day established by the European Centre for Disease Prevention and Control (ECDC) (NPPA, 2010; 2014). However, it is difficult, if not impossible, to say anything about the effectiveness of these campaigns. No steps have so far been taken to develop a National Antimicrobial Resistance Action Plan in Poland within the global action plan on AMR adopted by the 68th World Health Assembly in May 2015. There is also no national coordination group for AMR. The key intersectoral coordinating mechanism for AMR is the NPPA (see the Policies and programmes section).

At 24 defined daily doses (DDDs) per 1 000 inhabitants per day in 2010, consumption of antibiotics in Poland is high compared to other countries in the EU. Consumption was on average 20 DDDs per 1 000 inhabitants a day for the 23 EU countries for which there was data, and only seven EU Member States had a higher average consumption of antibiotics than Poland (OECD, 2012). In 2013, consumption of antibiotics for systematic use in primary care was, at 22.8 DDDs per 1 000 inhabitants per day, the tenth highest in the EU, with consumption ranging from 10.6 DDDs in the Netherlands to 34.0 DDDs in Greece (ECDC, 2015b). Antibiotics account for the highest share of the National Health Fund's (NHF) spending on the reimbursement of outpatient drugs (NFZ, 2015).

The prevalence of methicillin-resistant strains in invasive infections caused by *Staphylococcus aureus* (MRSA), which is one of the most important epidemiological indicators for AMR, is within the average values observed in EU Member States: in 2013, the MRSA prevalence rate in Poland was 16%, with higher prevalence rates noted in the Mediterranean countries and lower ones in the north of the continent; prevalence rates exceeded 25% in many EU Member States. More importantly, the prevalence of MRSA in Poland has been falling in recent years; it has reduced from 23% in 2002 (ECDC, 2010; ECDC, 2015a; 2015b).

Another equally important antibiotic resistance indicator are multidrug-resistant tuberculosis (TB) strains. The prevalence of resistance among new cases of TB in Poland was 6.1% in 2000 (nearly double the 3.6% in 1997); while multidrug resistance prevalence was 1.2% in 2000 versus 0.6% in 1997. In 2000, 15 cases of four-drug resistance were found, while no such strains were reported in 1997 (Augustynowicz-Kopeć and Zwolska, 2009). Drug resistance in secondary TB was more frequent (average 17.5%) than in primary TB (average 5.0%). The highest level of resistance was observed for isoniazid: 5.6% (Augustynowicz-Kopeć et al., 2003; Augustynowicz-Kopeć and Zwolska, 2009). The multiple drug resistant-tuberculosis (MDR-TB) was associated with 1.4% of isolates between 2004 and 2011 (Jagielski et al., 2015). Among MDR-TB strains in 2000–2009: 12.1% were pre-extensively drug resistant (pre-XDR), 6.4% were extensively drug resistant (XDR) and 0.3% were pre-totally drug resistant (pre-TDR) (Kozińska et al., 2011). Therefore, TB drug-sensitiveness observed in Poland cannot be considered as an overwhelming problem. It remains on an average level as compared with many regions of the world, especially in eastern Europe (Kozińska et al., 2011; WHO, 2004).

The incidence rates of *Clostridium difficile* (CDI) infections, a proxy for measuring overuse of antibiotics in hospital settings, were 6.1, 8.6 and 9.6 CDI per 10 000 patient-days in 2011, 2012, and 2013 respectively in a

* This chapter reflects data available in June 2016.

sample of 13 hospitals in Poland (Pituch et al., 2015). This is very high compared to other countries. For example, the incidence of CDI in intensive care units was 3.2 per 1 000 hospitalizations in the USA in 1997–1999 (Lawrence et al., 2007) and 3.6 per 1 000 hospitalizations in Spain in 2010–2011 (Salva et al., 2014).

The alarming status of AMR is underlined by the data on *A. baumannii* (ACI) infections in Poland, given that ACI strains are some of the most important opportunistic pathogens responsible for the most severe infections, characterized by high level of resistance to commonly used antibiotics. According to data from southern Poland, more than 75% of ACI strains of *A. baumannii* from pneumonia cases among hospitalized patients were resistant to 14 out of 16 antimicrobials tested (Chmielarczyk et al., 2016). About 60% of *A. baumannii* strains isolates originating from patients with invasive infections, pneumonia, bloodstream infections and meningitis, were resistant to all the antimicrobials tested with the exception of colistin. Extensively drug resistant (XDR) strains accounted for 80.8% of the isolates tested (Chmielarczyk et al., 2016).

The largest AMR outbreak in Poland in recent years was observed between 2012 and 2014 in Warszawa and Poznań. It concerned New Delhi metallo-beta-lactamase (NDM)-producing *Enterobacteriaceae*. Of 374 cases of infection/colonization with NDM-positive *Enterobacteriaceae* identified in 2012–2014, 370 cases (mainly occurring in hospitals) were associated with a *Klebsiella pneumoniae* outbreak (Baraniak et al., 2016). *K. pneumoniae* is one of the most common organisms causing infections in hospitalized patients, especially including severe infections such as pneumonia, bloodstream infections and urinary tract infections. The ability of this organism to spread rapidly often leads to nosocomial outbreaks, especially in intensive care and neonatology units (Podschun et al., 1998).

In terms of consumption of antibacterial veterinary medicinal agents, applicable mainly for food-producing farm animals, sales in Poland in population correction units (PCU) in 2013 were higher than in most EU countries: Poland ranked seventh highest out of 26 EU countries, after France, Germany, Italy, the Netherlands, Spain and the United Kingdom (listed in alphabetical order), in terms of sales, in tonnes of active ingredient, of veterinary antimicrobial agents (EMA, 2015). According to the European Medicines Agency (EMA), the shares of different groups of antibiotics consumed in Poland were similar to those observed in other EU countries (EMA, 2011; MARD, 2014).

According to the "EU Summary Report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2013", testing isolates from broiler meat revealed that while ciprofloxacin resistance was generally extremely high in the *S. infantis* isolates (with the exception of Belgium), cefotaxime resistance was typically not detected, except in six (out of a sample of 30) isolates in Poland (EFSA and ECDC, 2015). Microbiological[3] resistance to cefotaxime was only rarely reported in *S. enteritidis*, whereas ciprofloxacin resistance varied markedly between EU Member States, being more than 45.0% in only three of them, including Poland (with Romania and Spain being the two others) (EFSA and ECDC, 2015). With regards to data on *Campylobacter spp.* susceptibility in broilers, full susceptibility was generally found in more than 10.0% of the *C. jejuni* isolates tested in the reporting EU Member States. In Poland, the proportion of fully susceptible isolates was 3.4%, but the multidrug resistance (MDR) was 1.1% (EFSA and ECDC, 2014).

According to the same report, testing isolates from turkeys showed very high to extremely high occurrences of microbiological resistance to ciprofloxacin. They were observed in *Salmonella spp.* in isolates from the Czech Republic, Hungary, Poland and Spain, while the clinical resistance reported from the Czech Republic, Hungary and Poland was at moderate to high levels (EFSA and ECDC, 2015). Levels of microbiological resistance and clinical resistance to cefotaxime in *Salmonella spp.* were low; however, they were reported only in France (1.3% vs. 1.3%) and Poland (3.2% vs. 1.6%) and not in other countries (EFSA and ECDC, 2015).

Policies and programmes

Antimicrobial resistance in humans

The coordinated system of monitoring drug resistance in human medicine has been implemented in Poland since 1997 with the establishment, by the Minister of Health, of the National Reference Centre for Antimicrobial Susceptibility Testing (*Krajowy Ośrodek Referencyjny ds.*

3 i.e. acquired resistance in bacteria with harmonized epidemiological cut-off values used to interpret the results of susceptibility testing in isolates. The breakpoints for clinical resistance are, in many cases, less sensitive than the microbiological (epidemiological) cut-off value for a specific bacteria–drug combination; see EFSA and ECDC (2015).

Lekowrażliwości Drobnoustrojów (KORLD)) (www.korld.edu.pl). Since 2002, information on the consumption of antimicrobial agents in hospitals and primary care settings has been gathered under the Centre's auspices. The Centre is also in charge of identification and susceptibility testing of bacterial strains from serious and difficult to diagnose infections, with a particular focus on certain pathogens, such as MRSA, and monitoring of the spread of resistant strains in hospitals and ambulatory care across Poland. A close cooperation has been established with two European monitoring networks, the European Antimicrobial Resistance Surveillance Network (EARS-Net) in the area of drug resistance and the European Surveillance of Antimicrobial Consumption Network (ESAC-Net) in the area of consumption of antibiotics. Data is provided by the National Institute of Medicines and the State Consultant for Microbiology (they also provide data to ECDC).

In 2004, on the initiative of the State Consultant for Microbiology, the Minister of Health established the National Programme for the Protection of Antibiotics (NPPA) (www.antybiotyki.edu.pl). The rationale behind this initiative was the extremely high share of MRSA in invasive infections (23% in 2002) (ECDC, 2010; ECDC, 2015a) and high extended-spectrum-beta-lactamase (ESBL) resistance in the 1990s (37% in 1997) (Patzer et al., 2008). The main goal of the Programme is to monitor AMR in Poland (see the Monitoring and evaluation section). The Programme is financed directly by the Ministry of Health and coordinated by the National Institute of Medicines (*Narodowy Instytut Leków* (NIM)). The Programme formulates the national policy on AMR. It is divided into five thematic components, with distinct tasks and institutions assigned to their implementation (see Table 3).

Table 3 *Thematic components of the National Programme for the Protection of Antibiotics and their respective implementing institutions*

Programme's thematic component	Implementing institutions
Antibiotics in human medicine	• Ministry of Health • Main Chamber of Physicians • National Health Fund • Main Sanitary Inspectorate • Centre of Postgraduate Medical Education • National and *Voivodeship* Consultants
Antibiotics in veterinary medicine and agriculture	• Ministry of Agriculture and Rural Development • Main Veterinary Inspectorate • National Chamber of Veterinary Physicians • State Veterinary Institute – State Research Institute • Institute of Food and Nutrition
Monitoring of resistance of human and animal pathogens	• National Reference Centre for Microbial Drug Resistance at the National Medicines Institute • State Veterinary Institute – State Research Institute • National Institute of Public Health – National Institute of Hygiene • Microbiological laboratories throughout the country
Education and promotion of the rational use of antibacterial medicines	• Centre of Postgraduate Medical Education • Polish Society of Health Education • WHO Liaison Officer's Office • Higher education institutions for human and veterinary medicine • Team of Clinical Microbiology and Infections Prevention of the National Medicines Institute • National Chamber of Laboratory Diagnosticians
Information on antibacterial medicines and cooperation with the pharmaceutical sector	• Department of Pharmaceutical Policy at the Ministry of Health • Main Pharmaceutical Inspectorate • National Chamber of Pharmacists • Office for Registration of Medicinal Products • Medical Devices and Biocidal Products

Source: Based on NIM (2015).

Two Orders of the Minister of Health (Ministry of Health, 2010a; 2011) and the Law on the Prevention and Control of Infections and Infectious Diseases in Humans of 5 December 2008 impose a number of obligations on health care providers in the area of monitoring and prevention of drug resistance.

Antimicrobial resistance in animals

Regulation of AMR surveillance and control in the area of veterinary medicine is very weak (see also the Monitoring and evaluation section). The 2010 Regulation of the Minister of Agriculture and Rural Development on the scope and methods of conveying data on the turnover of veterinary medicinal products by pharmaceutical wholesalers of veterinary medicinal products is the key legal act regulating the collection of data on sales and distribution of veterinary medicinal products (MARD, 2010). The Regulation facilitated international cooperation in this area, including at the level of the EU where monitoring of trade in veterinary medicines is coordinated by the European Medicines Agency (EMA). Since 2009, Poland has participated in EMA's European marketing monitoring programme for veterinary drugs. This programme is run by the National Veterinary Institute–National Research Institute in Puławy (NVI–NRI Puławy).

The key actors involved in the various stages of the policy process with regard to AMR are mapped out in Table 4 and described in more detail in the sections below.

Problem identification and issue recognition

Antimicrobial resistance in humans

At the central level, the overall formal responsibility for policies in the area of AMR in human medicine, from problem identification and issue recognition to policy implementation and monitoring, rests mainly upon the Minister of Health.

In practice, it is the State Consultant for Microbiology, nominated by the Minister of Health, who plays the main role at every stage of policy-making in the area of AMR in human medicine. This role is not formally regulated in legislation but becomes apparent when looking at the various responsibilities that the Consultant (and their team) holds: being head of the NPPA, which formulates the national policy on AMR (see the Policies and programmes section); being in charge of the National Reference Centre for Antimicrobial Susceptibility Testing, which monitors consumption of antimicrobial agents and the spread of resistant strains in health care settings (see the Policies and programmes section); overseeing specialty training programmes for physicians (see the Policy implementation section); issuing recommendations on AMR diagnostics (adaptations of EUCAST guidelines); and running a programme called POLMICRO that controls the quality of microbiological diagnostics in laboratories (COBJDM, 2016) (see the Policy implementation section). In the area of problem identification and issue recognition, the Consultant relies on AMR monitoring using EARS-Net within the NPPA, which is based on yearly reports from microbiological laboratories, and on the National Reference Centre for Antimicrobial Susceptibility Testing (see the Monitoring and evaluation section).

At the regional level, the responsibility for problem identification and issue recognition rests upon the *voivodship* consultants for microbiology, and other *voivodship* consultants who are responsible for medical specialties where microbial illnesses are a major risk factor, e.g. surgery, gerontology, midwifery, neonatology, paediatrics. One of their tasks is to control their subordinate units, i.e. laboratories. The control is based on the Order of the Ministry of Health on The Quality Standards for Medical Diagnostic and Microbiologic Laboratories (Ministry of Health, 2006). Unlike the *voivodship* and county sanitary inspectorates, the *voivodship* consultants have not been provided with legal tools allowing them, for example, to withdraw permission to operate a laboratory. The *voivodship* consultants are appointed by the *voivodes* and there is no direct relationship between *voivodship* consultants and the State Consultant.

The Chief Sanitary Inspector, nominated by the Minister of Health, is the head of the State Sanitary Inspection, which performs its statutory tasks through the Chief Sanitary Inspectorate (more specifically, through the Inspectorate's Department of Prevention and Combatting Infections and Infectious Diseases in Humans). The Inspectorate plays a role in problem identification and issue recognition at the central level by collecting data (e.g. demographic data; case characteristics, i.e. whether the strain was isolated from an infection/colonization or from a hospital/ambulatory care facility) on strains from a special list developed by the Ministry of Health

(2011). There is no direct relationship between the State Consultant for Microbiology and the Sanitary Inspection. *Voivodship* as well as county (*powiat*) sanitary inspectorates contribute to problem identification by providing sanitary monitoring (through numerous epidemiological reports, e.g. on the incidence of vaccine-preventable infections) and the control of health care facilities.

Antimicrobial resistance in animals

At the central level, the Minister of Agriculture and Rural Development has the overall formal responsibility for policies in the area of AMR in veterinary medicine. *Voivodship* as well as county (*powiat*) veterinary inspectorates contribute to problem identification in a very limited way, by providing sanitary monitoring and control of veterinary clinics. There are some areas where the activities of the sanitary and veterinary inspectorates are complementary. For example, the sanitary inspectorate controls food products of animal origin, while the veterinary inspectorate controls animal slaughter for human alimentary purposes and veterinary clinics.

According to the recent report of the Supreme Audit Office (Najwyższa Izba Kontroli (NIK)) following inspection in Lubuskie Voivodship, antibiotics are commonly used in animal breeding (NIK, 2018). They were used by 70% of breeders, including more than 80% of breeders of turkey and chicken for slaughter. The current surveillance system of use of antibiotics in animal production in Poland is ineffective. The scale and seriousness of the irregularities and shortcomings found are so great that NIK has concluded that the official picture of the use of antibiotics in animal husbandry may not reflect reality. The method of keeping records of the treatment of animals did not allow for effective supervision of the use of antibiotics. The institutions supervising the use of antibiotics in animal production have been found to perform their duties in accordance with the formal and legal requirements in force, but their actions, carried out controls and monitoring did not allow for a reliable assessment of the legitimacy and correctness of the use of antibiotics by farmers. The remarks of NIK concerned mainly the form and method of keeping records of animal treatment. In Poland, there are no legal tools and organizational solutions, nor clearly defined rules of rational and safe use of antibiotics in the production of food of animal origin (NIK, 2018).

Policy formulation

Antimicrobial resistance in humans

According to the 2008 Law on the Prevention and Control of Infections and Infectious Diseases in Humans, the main actor in charge of policy development is the Minister of Health. The Minister is responsible for providing the legal framework, i.e. legal acts and executive regulations pertaining to hospital infection control.

In practice, not much is done by the Minister of Health in the area of AMR. Rather. it is the State Consultant for Microbiology and the Chief Sanitary Inspectorate who, acting on behalf of the Minister, formulate policies on AMR. This is mainly done by the State Consultant who prepares Polish adaptations of international recommendations (within the NPPA), issued by international organizations such as the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) or the United States' Centres for Disease Control and Prevention (CDC). These adaptations are approved by the Ministry of Health. While financed by the Minister of Health, the NPPA pursues policies developed by the State Consultant.

The Chief Sanitary Inspectorate can prepare proposals for legal solutions (Ministry of Health, 2010a; 2011; 2014a). For example, the draft Order of the Ministry of Health on infection control teams and cooperation between infection control teams and the Chief Sanitary Inspectorate was prepared by the Chief Sanitary Inspectorate (Ministry of Health, 2014a).

The role of other actors in policy formulation, such as scientific research centres and scientific associations, can be considered as advisory.

Antimicrobial resistance in animals

Policy formulation in the area of AMR in animals takes place at the NVI–NRI Puławy. For example, the National Veterinary Institute participates in international projects, like the EFFORT (Ecology from Farm to Fork Of microbial drug Resistance and Transmission) project that is co-funded by the European Union. The participation in international projects enables knowledge transfer and provides support in the implementation of international recommendations.

Decision-making

Antimicrobial resistance in humans

The NPPA is a platform for seeking consent through consultations with different interest groups and stakeholders (e.g. orthopaedists, anaesthesiologists, urologists). Numerous national level recommendations, such as those on anti-infective treatment focusing on, for example, treatment of pulmonary infections outside of hospitals, diagnostics, therapy and prevention of urinary tract infections in adults or the use of antibiotics in hospitals, have been issued within the NPPA. Some of these recommendations have been prepared jointly with the Chief Sanitary Inspectorate or the Ministry of Health.

The Minister of Health can issue executive orders based on the 2008 Law on the Prevention and Control of Infections and Infectious Diseases in Humans. They are usually related to the surveillance of infections and drug resistance (e.g. Regulation of the Minister of Health of 27 May 2010 on the scope, manner and frequency of internal audits of measures aimed at preventing the spread of infections and infectious diseases; Regulation of the Minister of Health of 23 December 2011 on the list of multidrug-resistant organisms (MDRO), registers of hospital infections, and reports on the current epidemiological situation in hospitals) and are predominantly executed by the regional organizational units of the Sanitary Inspection (Ministry of Health, 2010a; 2011). All legislative acts, including executive regulations, undergo public consultations. However, public consultations are often a formality and their influence on the final version of the legal act can be rather small.

Involvement of stakeholders such as professional or scientific associations (including the Polish Society of Microbiologists, the Polish Society of Hospital Infections and the Society of Clinical Microbiology), NGOs, higher education institutions and research institutes, in the decision-making process is limited to providing opinions during the public consultation process, which is built into the overall process for all legislative acts.

Antimicrobial resistance in animals

Decision-making in this area at the national level is rather scarce as there is not much activity in the area of AMR in animals in terms of issuing new policies. One example is the introduction of obligatory reporting of data on trade in veterinary products, including antibiotics (MARD, 2010).

Policy implementation

Antimicrobial resistance in humans

The Minister of Health and the Minister of Agriculture and Rural Development execute their duties related to policy implementation through their respective inspection bodies: the State Sanitary Inspection and the State Veterinary Inspection. However, the role of the latter is rather limited in the area of AMR. The Chief Sanitary Inspection is considered in practice as both a monitoring (gathering reports on multi-resistance strains) and control (controlling hygienic and sanitary conditions of health care units) body. The Chief Sanitary Inspectorate can employ administrative measures in special situations, such as epidemics. For example, it can close a hospital department, or impose a financial penalty, etc.

Hospitals

According to the 2008 Law, any acute hospital or long-term care facility (LTC) is responsible for controlling drug resistance (antimicrobial surveillance) at its premises. For that purpose, each hospital should have an infection control team. The team should include a microbiologist (not necessarily a physician) and should provide yearly reports to the Chief Sanitary Inspectorate on the occurrence of certain strains. Hospital formularies are prepared by individual hospitals and introduced as orders of the hospital directors. They are not closely monitored by any external body (although they are to some extent audited during the hospital's accreditation process).

The Centre for Monitoring Quality in Health Care (CMQHC), which was established in 1994 in Kraków, is in charge of initiating and supporting actions aimed at improving the quality of medical services provided by Polish health care facilities. One of its tasks is the accreditation of health care facilities (mainly hospitals) based on a publicly available set of standards.

Questions related to AMR are included among the accreditation questions in the hospital accreditation process. They are related to the control of infections and the composition of infection control teams. The weakness of the current accreditation system is that these

questions are often not detailed enough to tease out all the important matters related to the quality of AMR control in hospitals.

Microbiological diagnostics

Hospitals in Poland usually outsource microbiological diagnostics to laboratories. The *voivodeship* consultants provide opinions on whether a laboratory fulfils conditions set out in the Law on Laboratory Diagnostics. Every diagnostic laboratory must meet these conditions in order to be able to operate. Periodic audits of laboratories are carried out by the CMQHC. Such audits are necessary for obtaining further certification provided by the Central Unit for Quality Studies in Microbiological Diagnostics in Warsaw. This body was established in 1997 by the Minister of Health and runs a programme called POLMICRO. This Programme is coordinated by the State Consultant for Microbiology and is focused on maintaining the quality of microbiological diagnostics.

Medical education

The State Consultant for Microbiology acts as a coordinator in the field of education, being in particular responsible for overseeing education and training programmes in clinical microbiology and in microbiological diagnostics. He or she also grants accreditation to training centres, can audit them, and is responsible for state exams in clinical microbiology. The State Consultant is supported in this role by counterparts at the *voivodship* level. The Minister of Health has a role in the implementation of the education policy through the approval of physicians' specialization programmes in clinical microbiology, training in microbiological diagnostics for microbiologists and specialization programmes for nurses and midwives.

Professional training for health workers involved in the control of AMR is performed differently for different professional groups. Pre- and postgraduate (specialist) training of physicians and nurses follows standardized training programmes developed by the Minister of Health in cooperation with the relevant professional self-government authorities (for physicians, nurses, microbiologists, and diagnosticians). Education standards for the undergraduate level set out that at the end of their undergraduate training, medical students should be familiar with the genetic mechanisms of AMR development in microorganisms, understand the problem of AMR, including multidrug resistance, and how it develops. These standards were developed by the Minister of Health and apply nationally. They were first developed in 2012 and have not been updated since. At the postgraduate level, specialist training in the area of AMR is only required for clinical microbiologists. There are no separate Continuous Medical Education (CME) points for AMR.

The other stakeholders within the health system, such as educational institutions, mainly play a role in education. These include the NIPH–NIH, the National Reference Centre for Antimicrobial Susceptibility Testing, the Chief Sanitary Inspectorate, the NIM, the CMQHC, the Central Unit for Quality Studies in Microbiological Diagnostics, the regional consultants, medical schools, the professional associations, the NGOs and the industry. They organize training courses for health professionals within their specialty training (physicians specializing in microbiology and infectious diseases; microbiologists–diagnosticians), continuous education for physicians, and training for hospital quality control units.

Antimicrobial resistance in animals

Voivodship as well as county (*powiat*) veterinary inspectorates provide sanitary monitoring and control of veterinary clinics.

There is no formal obligation to implement international diagnostic standards for antimicrobial treatment in veterinary medicine in Poland. For example, there are no recommendations on the determination of drug resistance and the interpretation of the results (rules for antimicrobial disk and dilution susceptibility tests for bacteria isolated from animals), advocated by organizations such as the World Organization for Animal Health (OIE) (see Chapter 6.7 of the Terrestrial Animal Health Code available at https://www.oie.int/doc/ged/D10905.PDF).

Monitoring and evaluation

Antimicrobial resistance in humans

The surveillance of public health, including the problem of drug resistance in human medicine, rests within the competences of the Minister of Health. The execution of this task is delegated to the State Consultant for Microbiology and the *voivodship* consultants. However, there are no official mechanisms of controlling the implementation of the NPPA by the State Consultant.

Surveillance is also performed by the organizational units of the Chief Sanitary Inspectorate.

Microbiological diagnostic laboratories must report the isolation of certain microbial strains to the local units of the Chief Sanitary Inspectorate within 24 hours from their detection. The particular microorganisms are specified by the Minister of Health. At the *voivodship* level, these data are gathered by the regional Sanitary Inspection Units and at the state level by the Chief Sanitary Inspectorate. Reporting to the Chief Sanitary Inspectorate is mandatory on a yearly basis (except for certain strains where reporting is mandatory within 24 hours) and is performed by infections control teams in hospitals. Reporting by infection control teams in hospitals covers strains from a separate list developed by the Ministry of Health (2011) – this list is different from the list used by diagnosticians developed by the Minister of Health (2014a). However, there is no uniform mandatory methodology or format of reporting, nor a set of uniform definitions or indicators (e.g. prevalence/incidence, per number of beds/patient days/patients/infections) which should be applied unless activities are coordinated by the ECDC. Activities coordinated by the ECDC comprise active target surveillance of health care-associated infections (HAI), including HAI-associated AMR (called HAI-Net). The existing reporting system does not allow for information feedback to the hospitals. Overall, there is no countrywide and uniform reporting model in place that could be considered as both compliant with current international standards, as well as accepted by policy-makers and hospitals.

Hospitals must also evaluate the risk of infections. Unfortunately, neither the 2008 Act nor its executive regulations define the risk assessment methods that should be used and, as a result, hospitals usually do not undertake such assessments. The assessment performed by hospitals focuses on epidemiological factors, such as the incidence of surgical site infections after surgery for selected types of surgery. Infection control teams in hospitals independently decide on the scope of surveillance. This makes the data incomparable and makes benchmarking impossible. This applies to the surveillance of epidemiological factors and also to the surveillance of process measures, such as monitoring consumption of alcohol-based hand rubs or the number of blood cultures per 1 000 patient-days (Różańska et al., 2014).

Voluntarily, based on rules of mutual understanding and cooperation, laboratories report information on some drug resistant strains directly to the State Consultant in Microbiology. The NPPA, headed by the team under the State Consultant, is based on such reports. A reference laboratory operates as part of the NPPA. The laboratory gathers data within EARS-Net and implements ECDC's Point Prevalence Survey programme for hospitals (ECDC, 2012).

AMR monitoring in Poland is compliant with the EARS-Net methodology. The EARS-Net reporting is non-obligatory (voluntary); therefore only some laboratories participate in it. Overall, there is no countrywide uniform reporting model in place covering all patients in Poland, which could be considered as both compliant with current international standards, as well as accepted by policy-makers and hospitals.

Similarly, there is no uniform approach to the reporting of epidemics. For example, the Chief Sanitary Inspectorate does not use a uniform set of definitions and there is no uniform methodology. Usually, every hospital or county (powiat) sanitary inspector investigates outbreaks on an individual basis, as they deem appropriate. For example, it is commonly accepted that four cases of Clostridium difficile infections in a hospital are sufficient to report a "focal outbreak", irrespective of the size or type of the hospital.

Two Orders of the Minister of Health (Minister of Health, 2010a; 2011) and the 2008 Law on the Prevention and Control of Infections and Infectious Diseases in Humans impose a number of obligations on health care providers in the area of monitoring and prevention of drug resistance. These obligations include, for example:

- monitoring the risk of infections associated with provision of health care services;
- implementing measures for individual and collective protection to prevent the spread of biological pathogenic factors in humans;[4]
- performing laboratory analysis of local epidemiological situations, to optimize prevention and antibiotic therapy.

4 Individual means of protection include, for example, the use of medical gloves or aprons as described in the Polish Labour Code, while collective means include, for example, the use of maximal barrier precautions.

At the same time the current laws do not favour the close monitoring of the use of antibiotics. For example, there is no obligation on health care providers to undertake actions to improve surveillance of infections, especially infections in hospitals or LTC facilities, such as proving the effectiveness of antibiotic therapy or allocating part of the overall hospital budget to microbiological examinations of clinical materials or antibiotics. There is also no obligation to carry out antimicrobial stewardship activities; for example, targeted antibiotic treatment in hospitals, LTC or primary care facilities, even in areas such as neonatal, burn and geriatric care. In fact, there is no formally accepted definition of antimicrobial stewardship in Poland and such activities that are typically associated with rational antibiotic treatment depend on subjective opinions and decisions of health professionals and are generally not well established. For example, there are no formally accepted rules on antibiotic prescribing. In hospitals, adherence to the formulary depends on the organizational culture, while prescribing of antibiotics in ambulatory care depends on physicians' experience and drug prices. Simple tests, such as bedside tests for *Streptococcus pyogenes* that could be used for paediatricians for excluding angina, or urine dipstick tests that could be used by geriatricians to confirm the need of further microbiology diagnostics of urine tract infections, are not widely used. There are no reference centres; for example, for perinatal infections, including toxoplasmosis or syphilis.

Antimicrobial resistance in animals

Little AMR monitoring takes place within veterinary medicine. While the reference laboratory centre for assessing drug resistance in veterinary medicine (*Krajowe Laboratorium Referencyjne ds. Lekowrażliwości*) was established in 2012 by the Minister of Agriculture and Rural Development in the Department of Microbiology of the NVI–NRI Puławy (MARD, 2012), there are no harmonized rules for antimicrobial diagnostics including antimicrobial disks and dilution susceptibility tests for bacteria isolated from animals, as mentioned in the Policy implementation section. There are also no legal tools for control of drug resistance in veterinary medicine; for example, no formal frameworks or reporting pathways for drug resistance, including precise procedures for preparing antibiograms or helping to detect multiple drug resistance. Supervision in the area of veterinary medicine is limited to monitoring the sales of antibiotics for veterinary use from pharmaceutical wholesalers of veterinary products and some AMR screening in healthy animals (see The scale of the challenge section).

The scope and format of information that should be provided by wholesalers of antibiotics used in veterinary medicine is set out in article 78, paragraph 4 of the Order of the Minister of Agriculture and Rural Development of 30 December 2010 (MARD, 2010). The official collection of data on sales and distribution of veterinary medicinal products (a mandatory registry), including premixes for medicated feeding stuff, is performed by the veterinary inspection units (MARD, 2010).

The guidelines of the European Committee on Antimicrobial Susceptibility Testing (EUCAST) in veterinary medicine have not been made available in Polish which precludes their wide use among veterinary physicians (EUCAST, 2016).

Conclusion and outlook

The monitoring of AMR remains underdeveloped in Poland, both in human and in veterinary medicine. In the latter, it is limited to the monitoring of trade in antibiotics for veterinary use, and epidemiological surveillance is not performed due to the lack of harmonized rules (see the Monitoring and evaluation section). While indicators such as the prevalence of MRSA are within the average values observed in Europe, the high level of consumption of antibiotics in humans in Poland, measured in DDDs per 1 000 inhabitants is alarming (see The scale of the challenge section) and this, together with minimizing the related risk of AMR, should be the focus of policy actions. Also worrying is the fact that Poland ranked seventh highest out of 26 EU countries, after France, Germany, Italy, the Netherlands, Spain and the United Kingdom (listed in alphabetical order), in terms of total sales, in tonnes of active ingredient, of veterinary antimicrobial agents (see The scale of the challenge section).

In human medicine, efforts to contain AMR in Poland rely on tests conducted in microbiological laboratories. These microbiologic diagnostics units market their services either to hospitals and patients. However, the importance of microbiological diagnostics is underestimated by physicians and remains underused (Baraniak et al., 2016; Hansen et al., 2009; Lachowicz et al., 2015; Wójkowska-Mach et al., 2008a; 2008b, 2013a; 2013b; 2014; Różańska et al., 2014). Overall, there is too much focus is on the treatment of infections

rather than their prevention. This is in part due to the following factors:

- In Poland, unlike in some countries in western Europe, most microbiologists are not physicians and are not involved in any treatment decisions. The responsibility for the prevention and treatment of infections is usually bestowed upon the chairperson of the infection control team within the hospital. This results in a discontinuity between the diagnosis and treatment of infections and this is particularly problematic for nosocomial infections, which have the highest risk of drug resistance.
- The importance of active surveillance of microbial drug resistance and infections is not well recognized among physicians, which is associated

Table 4 *Key actors involved in the policy process*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
President of Poland	–	–	–	–	–
Parliament	–	–	–	–	–
Government	–	–	–	–	–
Minister of Health	+	+++	+++	+	–
National Consultant for Medical Microbiology	+++	+++	++	+++	+++
Minister of Agriculture and Rural Development (for AMR in veterinary medicine)	+	++	+	+	-
NIPH–NIH	–	–	–	+	+
KORLD	–	–	–	+	+
Chief Sanitary Inspectorate and voivodeship sanitary inspectorates	–	+	–	+	++
Chief Veterinary Inspectorate and voivodeship veterinary inspectorates (for AMR in veterinary medicine)	-	-	+	++	-
National Institute of Medicine	+	–	–	+	+
CMQHC	–	–	++	+	–
Central Unit for Quality Studies in Microbiological Diagnostics	–	–	+	+	–
Voivodeship self-governments	–	–	–	+	–
Voivodeship consultants	+	+	–	+	–
Local self-governments	–	–	–	+	–
Medical schools	+	–	+	+	+
Professional associations	+	–	+	+	+
Patient organizations: self-help groups	–	–	–	–	–
Industry	–	–	–	+	–
NGOs	+	–	+	+	+
Churches and church associations[a]	–	–	–	+	–
General public	–	–	–	–	–

Source: Authors' compilation

Notes: - = no role; += weak; ++= medium; +++=strong.

[a]Churches run some acute care and long-term care hospitals in Poland.

with deficiencies in graduate-level training in the area of surveillance of infections (see the Policy implementation section), and the absence of regulations that promote active surveillance in health care institutions.

- It is usually health care providers (hospitals, family physicians) that have to pay for microbiologic diagnostic tests from the curative budgets, or ambulatory care patients have to pay for them out of their pockets, which may result in underutilization of such tests. It is worth noting that microbiology/ treatment of infections/supervision of them – is usually not considered as a separate cost category. Therefore, improving the effectiveness of surveillance, understood as limiting the incidence of infections, never translates directly into any isolated savings. Moreover, improved surveillance does not translate into better access to NHF contracts for the provision of health care services.
- So far, the uniform surveillance systems for health care-associated infections (HAI) and associated multidrug-resistant (MDR) bacteria, as well as the widespread use of indicators in the area of HAI have not been translated into any policy proposals.

As for pharmaceutical marketing activities for antimicrobial products, it seems that the influence of the industry has been generally closely monitored (for example, by the National Health Fund) and is relatively limited in human medicine. The pharmaceutical industry has little possibility to exert influence on medical physicians who prescribe antibiotics to patients. However, the industry's influence on veterinary physicians seems to be much stronger, as these physicians usually stock and sell veterinary products within their premises.

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Legislation

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Republic of Moldova

Obesity

Galina Obreja

The scale of the challenge

Overweight and obesity are among the main risk factors for noncommunicable diseases in the Republic of Moldova. More than half (56%) of the adult population were overweight or obese in 2013 and 22.9% of them were obese. The rates of overweight and obesity among men and women are similar, but women had a higher prevalence of obesity (28.5%), and men had a higher prevalence of overweight (38.2%) (WHO Regional Office for Europe, 2014b). These figures are higher than they were in 2005, when 50% of the adult population were overweight or obese (National Bureau of Statistics of the Republic of Moldova, 2006). It is worrying that 4.9% of children under five were overweight in 2012 (Multiple Indicator Cluster Survey (MICS); UNICEF, 2012) compared to zero in 2005 (NSACPM and ORC Macro, 2006). Overweight and obesity lead to adverse metabolic effects on cholesterol, insulin resistance and blood pressure. In 2013, one in five (20.6%) people in the Republic of Moldova had impaired fasting or raised blood glucose, and three out of 10 (29.4%) had raised total cholesterol (WHO Regional Office for Europe, 2014b).

The increasing obesity rates can have serious implications for population health, posing a greater burden not only on the health system but also on the economic development of the country as a whole. In the Republic of Moldova the incidence of cardiovascular diseases has recently stabilized, but remains one of the highest in the World Health Organization (WHO) European Region. The incidence rates for type II diabetes and cancer are continuously increasing. In 2016 these diseases accounted for more than 74.3% of deaths and 45.2% of disability in the Republic of Moldova (Annual Statistical Book, 2016; National Centre for Health Management, 2016).

Based on estimates from analysis of food supply data, energy intake in the general population is higher than energy expenditure and this is due to increased consumption of carbohydrates and fats over the last decades, and decreasing levels of physical activity. The rate of exclusive breastfeeding is low (36% in 2012) (UNICEF, 2012) and is lower than it was in 2005 (46%) (DHS, 2005; NSACPM and ORC Macro, 2006).

Overweight is culturally accepted, especially in rural areas. In rural areas, 62.6% of women had BMIs equal or higher than 25 kg/m^2 in comparison with 48.6% in urban areas (WHO Regional Office for Europe, 2014b). Public perceptions on overweight are usually linked to the look of the individual (aesthetics) and overweight is less frequently perceived as a health-related issue.

Policies and programmes

The National Health Policy (2008–2021) addressed obesity as one of the main health determinants for the first time and called for intersectoral, whole of government, and whole of society actions to prevent it. The control of obesity was further addressed by the Law on Public Health (2009). This Law established the following directions to control obesity:

1. modification of the social, economic and environmental determinants of lifestyle, and raising physical activity;
2. reduction of the consumption of high energy density, but nutrient-poor food;
3. reduction of marketing pressure of high energy density food, especially the pressure on children;

4 reformulation of food to reduce the content of salt, sugar and saturated fat;

5 ensuring adequate nutrition and physical activity within preschool and school children;

6 ensuring access to healthy food, especial fruit and vegetables for the population;

7 providing accurate and adequate information to consumers regarding the nutritional value of food via their labelling, presentation and advertising.

In 2012, the Moldovan Parliament adopted legislation banning the preparation, selling and distribution of unhealthy foods in schools and within 100 metres of the perimeters of educational establishments in order to reduce marketing pressure on children (Food Law). The Ministry of Health approved the list of banned foods (Ministry of Health Order, 2012), concomitantly the Contravention Code (2008) has been amended and penalties for infringements/violations introduced.

In 2014 the Moldovan Government endorsed the first National Food and Nutrition Programme for 2014–2020 (NFNP) and the Action Plan for 2014–2016. One specific objective of this program is a zero increase in obesity prevalence among children and adults.

The NFNP and its Action Plan mandate for health promotion and obesity prevention via taxes (the introduction of taxes for foods high in saturated fat and for soft drinks), legislating mandatory nutritional labelling for sugar, salt, saturated fat and *trans*-fats; the restriction of advertising of unhealthy foods and banning the involvement of children in food advertisement; the elimination of *trans*-fats; food reformulation to reduce the content of sugar, fat and salt; health education (the development of food-based recommendations on nutrition, creating a healthy nutritional environment within schools, hospitals and working places, and introducing nutrition in school curricula); and establishing a national obesity surveillance system.

Generally, the implementation of these interventions to control and prevent obesity is minimal and has been delayed. The banning of unhealthy food was enforced within schools, but was unsuccessful in implementing the ban on sales in the 100 metre perimeters around schools, as no responsible authority has been established for its enforcement.

The advertising and promotion of unhealthy food is not properly regulated. In 2016, the Food Law and the Law on Advertising were amended with provisions prohibiting the attractive character of advertising and promoting unhealthy food to children, and involvement of children in promotions, but enforcement of these provisions is generally low. The national communication campaign on promotion healthy lifestyles was designed and implemented (during 2014–2015) by the National Health Insurance Company and one component referred to promoting physical activity and a healthy diet. At the same time no monitoring tool was put in place to assess the need for and evaluate the impact of the communication campaign.

Measurement of height and weight and calculation of BMI are part of the annual medical examination provided free of charge for the whole population in primary health care, but only half the adult population (54.3%) reported that they were advised by a family doctor or nurse to start, or to do more, physical activity and maintain a healthy body weight (WHO Regional Office for Europe, 2014b). Data from medical examinations done at primary health care level are not collected or analysed at local or national levels.

In 2013, the Republic of Moldova became part of the WHO Europe Childhood Obesity Surveillance Initiative (COSI). Two national surveys (COSI 2013; 2017) were held as part of this initiative and the baseline STEPS survey was conducted in 2013; both being part of the national surveillance system on noncommunicable diseases.

In order to facilitate the implementation of the National Food and Nutrition Program, the national-level intersectoral body under the presidency of the deputy Prime Minister responsible for social problems has been established. The draft Government decision on creation of the National Nutrition Consultative Council was developed by the Ministry of Health and was endorsed by the Moldovan Government on 21 May 2016.

Problem identification and issue recognition

The Ministry of Health of the Republic of Moldova identified obesity as one of the main public health problems in 2007 and addressed it in the National Health Policy calling for intersectoral actions. Subsequently, the problem of obesity was addressed by the Law on Public

Health adopted in 2009 and the Food Law amended in 2012 and 2016, when the preparation, sales and distribution of unhealthy food were banned within and around schools and, respectively, promotion and advertising of unhealthy food to children was restricted. Nevertheless, limited actions have been taken to address these issues.

Developments at the global and European levels have played an important role. The political Declaration of the United Nations High-level Meeting on the Prevention and Control of NCDs in 2011 (UN Declaration 2011), the WHO European Nutrition and Noncommunicable Policies (Vienna Declaration (WHO, 2013) and the European Food and Nutrition Action Plan 2015–2020 (WHO Regional Office for Europe, 2014a)), supported by commitments of the Ministry of Health of the Republic of Moldova to stop the rise in obesity, have had the greatest influence on setting the policy agenda at the national level. Furthermore, based on STEPS 2013 (WHO Regional Office for Europe, 2014b) and the MICS survey (UNICEF, 2012) on the prevalence of obesity, and based on statistical data on the incidence, mortality and disability of obesity-related NCD, such as diabetes, cardiovascular diseases and cancers, the Ministry of Health decided to put obesity higher up the health agenda. This decision was supported by the National Centre of Public Health (currently, the National Agency for Public Health) of the Ministry of Health[1] and other ministries such as the Ministry of Education, the Ministry of Agriculture and Food Industry, the Ministry of Youth and Sports, the Ministry of Economy, the Ministry of Finance, as well as academia and civil society. The WHO, as the main international partner, also played an important role in agenda-setting.

The National Agency for Public Health[2] is the main institution responsible for the development and implementation of the surveillance system for noncommunicable diseases (NCDs) and their risk factors. It has implemented surveys on NCD risk factors, such as STEPS in 2013, COSI in 2013 and 2017 and MICS in 2012; all of which include collection of data related to BMI and physical activity. Guidelines on health profile development were developed and approved by the Ministry of Health to guide regional Centres of Public Health in analysing population health and identifying of the main health problems, and putting them on the district political agenda.

These policy documents, together with the situation described above, led to the development and the approval by the Moldovan Government of the National Food and Nutrition Program for 2014–2020, where obesity was addressed as one of key public health problems.

Policy formulation

The Ministry of Health is the main authority responsible for policy development. In 2013, in order to tackle the rising burden of NCDs, and obesity as a key risk factor, the Ministry of Health called for the development of a policy document to address this issue. The Ministry of Health Department of Public Health, together with the National Centre of Public Health (NCPH), were nominated as the responsible units for the development the first draft of the National Food and Nutrition Action Plan. Later, an intersectoral working group was established at the level of the Ministry of Health to work out the details of the action plan. Representatives from the Ministry of Agriculture and Food Industry, the Ministry of Education, the Ministry of Finance, the Ministry of Economy, the Ministry of Youth and Sports and the Ministry of Social Protection, Family and Labour, as well as academia and civil society participated in the policy formulation. The National Food and Nutrition Program and Action Plan were largely discussed at different levels and consulted on by all relevant ministries. In 2014, after many debates, the policy documents were endorsed by the Government.

Other authorities responsible for policy formulation related to obesity are: the Ministry of Agriculture, Regional Development and Environment, the Ministry of Finance, the Ministry of Education, Culture and Research, the Ministry of Economy and Infrastructure and local public authorities. All enumerated public authorities have specific roles. The Ministry of Agriculture, Regional Development and Environment should play a key role in increasing the availability of healthy food via agricultural policies and subsidies; the Ministry of Finance – in establishing excise taxes for unhealthy foods; the Ministry of Education, Culture and

1 In July 2017, the Parliament of the Republic of Moldova approved the new structure of the government. The number of ministries was reduced from 16 to 9. Ministries have been merged and changed their names, thus the Ministry of Health was merged with Ministry of Social Protection, Labour and Family and was renamed in Ministry of Health, Labour and Social Protection: http://www.gov.md/en/content/new-structure-government-was-voted-parliament.

2 In December 2017, the statute of the National Public Health Agency was endorsed by Government of the Republic of Moldova (Government Decision no 1090 from 18 December 2017). The new Agency was created through merging a number of institutions such as National Centre of Public Health, *rayon* and municipal Centers of Public Health (36 centres altogether), the National Council for Assessment and Accreditation in Health, and the Inspectorate of Pharmaceuticals.

Research – in development and integration of nutrition and health and physical activity in school curricula and making physical activities attractive for children and teenagers; the Ministry of Economy and Infrastructure – on food prices; local public authorities – on development and implementation of local policies directed at creating an environment that encourages physical activity and on a healthy food environment in the school and preschool institutions, etc. The Ministry of Health, Labour and Social Protection (along with its leading and coordination role of the above-mentioned activities) is responsible for development of legislation on mandatory nutritional labelling, on restriction of advertising of unhealthy food consumption, on *trans*-fats elimination, the development of recommendations and guides on healthy eating and physical activity, policy development on the healthy food environment in hospitals, and on the healthy food environment at workplaces and social institutions. The Ministry of Health, Labour and Social Protection has to play a coordination role in policy development and to build the capacities of other authorities in promoting and supporting obesity control measures, but its capacity is weak as there are no designated persons at the Ministry or National Agency for Public Health on this specific issue.

In its activity, the Ministry of Health, Labour and Social Protection has allies in promoting and supporting obesity control measures only in the Ministry of Education, Culture and Research.

National programmes approved by the central government are not binding for local authorities, although they are under the general obligation to protect population health and prevent diseases. Local authorities responsible for population health are invited by the central government to contribute to the implementation of national programmes by approving district or municipal programmes, providing additional resources and contributing to the implementation of actions. As per 1 January 2016, 11 out of 36 local authorities have transposed national obesity-related interventions into local ones as part of Local Food and Nutrition Programmes.

Decision-making

Decision-making in the area of obesity is divided between the Parliament, Government and the Ministry of Health, Labour and Social Protection at central level and municipal/*rayon* Council at local level. With regards to obesity, Parliament adopted the Law on Public Health which generally addresses obesity as one of the health determinants and endorsed amendments to the Food Law banning the sale, preparation and distribution of unhealthy food within the school and in the 100 metre perimeters around schools. The Government approved the National Health Policy, establishing obesity as one of the priority areas for interventions to prevent and control NCDs, as well as the NFNP and its Action Plan. The public health services, both at national and local levels, play an important advocacy role in promoting the NFNP and corresponding legislation through official and unofficial meetings with decision-makers.

The food industry is powerful in the Republic of Moldova and it intervenes directly, or through public authorities such as the Ministry of Economy and Infrastructure, and the Ministry of Agriculture, Regional Development and Environment, at different levels of policy-making. The food industry has been complaining about the legislation banning the sale of unhealthy foods within and around schools and intervenes every time new initiatives that may affect their commercial interests are developed and promoted. However, the Ministry of Health, Labour and Social Protection argued for the long-term benefits of limiting exposure of children to unhealthy foods and convinced parliamentarians to maintain the adopted decisions. Recently, the legislation was complemented by prohibiting the involvement of children in advertising unhealthy foods.

The municipal/*rayon* councils are the local authorities responsible for decision-making at the local level and have a responsibility to approve territorial programs. Local authorities can take on additional initiatives to prevent obesity as part of the nutrition programme. As an example, in 2012 local authorities from one district (Soroca) decided to provide all school children with an apple a day between September and December and this initiative has been successfully implemented.

Policy implementation

For every activity specified in the NFNP's Action Plan, including for those on obesity prevention, there is designated responsible authority (ministry or agency). The Ministry of Health, Labour and Social Protection is the leading institution designated by the Government responsible for intersectoral coordination and the organization of the whole process of the NFNP and implementation of its action plan.

In order to implement the NFNP every responsible authority develops its internal action plan and reports on an annual basis to the Ministry of Health, Labour and Social Protection the results achieved. To transpose the NFNP into actions, the Ministry has approved, through ministerial order, the Action Plan that details the tasks and procedures for the implementation of obesity-related interventions by public health centres and medical institutions subordinated to the Ministry of Health, Labour and Social Protection. Interventions for obesity prevention, as well as other public health interventions, are financed by the state budget that is allocated through the Ministry of Finance based on the midterm budgetary framework. But, even though obesity is recognized by the Ministry of Health, Labour and Social Protection as a priority issue and the Action Plan of the NFNP has been approved by Government, there are no specific activities reflected in the midterm budgetary framework. Therefore, financial resources have not been allocated by the Government to implement the NFNP Action Plan. Activities reflected in the NFNP Action Plan are implemented using the scarce internal resources, both human and financial, or using support provided by development partners. The first step in the implementation of the obesity-related interventions was the strengthening of the obesity surveillance system and this has been done with WHO technical support and financial support provided by development partners such as the EU Delegation and the Swiss Development Agency. Thus, in 2013, the Republic of Moldova become part of the COSI and STEPS surveys. The first COSI survey was implemented in 2013 and the collection of data in the second COSI survey was carried out in autumn 2017. The first STEPS survey of NCD risk factors in the Republic of Moldova among the adult population (18–69 years) was conducted in 2013 and the results were published in 2014.

The nutritional assessment of urban food environments in the Republic of Moldova was carried out in 2016, with WHO support and through a voluntary contribution from the Ministry of Health of the Russian Federation. The primary objective of the study was to describe the *trans*-fats and salt content of the ready-to-eat foods commonly sold by informal street vendors or in kiosks.

Data from these surveys are to be used as the baseline for policy development or for the monitoring of trends and of the efficacy of ongoing interventions.

The National Agency for Public Health is the main institution responsible for the implementation of the NFNP and its Action Plan, at national and local levels. This includes, for example, conducting the above-mentioned surveys. A number of other authorities are also responsible for implementation of the NFNP Action Plan. Thus, the Ministry of Finance is responsible for excise taxes for foods high in saturated fat and sugary soft drinks; the Ministry of Education, Culture and Research – for school curricula modifications and healthy nutrition education; the Ministry of Agriculture, Regional Development and Environment – for free school fruit and vegetable schemes; and local authorities – for ensuring a healthy nutritional environment in the schools. But only a few activities have been initiated and implemented by these authorities.

Monitoring and evaluation

According to the Government decision on approval of the NFNP, the Ministry of Health, Labour and Social Protection is responsible for monitoring and reporting annually on the progress of NFNP implementation to the Government. All central authorities responsible for specific actions have to report annually to the Ministry of Health, Labour and Social Protection on the progress of NFNP implementation, including on obesity-related issues. The Ministry has delegated responsibility for monitoring and evaluation of the NFNP at the national level to the National Agency for Public Health, including for obesity-related activities. Reporting procedures are to be done according to the template developed by the Ministry. A midterm evaluation of the NFNP was planned for 2017 but has been delayed.

The main institutions that collected data related to obesity at the national level were the National Centre for Public Health and National Centre of Health Management (they are now both part of the National Agency for Public Health). The data on food consumption in kindergartens and schools, and the data on morbidity are collected and analysed by the branches of the National Agency for Public Health and sent to central level for analysis. The collection of data is not standardized and not computerized and data collection techniques have mostly been inherited from the Soviet period.

The outcome and impact indicators are collected through the national surveillance system. As reference, data from the European Health for All database and the Institute for Health Metrics and Evaluation are used.

Conclusion and outlook

The main strength in obesity prevention and control is the recognition of obesity as a public health problem by the Moldovan Parliament and Government (represented by the Ministry of Health, Labour and Social Protection), as well as their commitment to preventing and controlling obesity, as demonstrated by the development and endorsement by the Government of the multisectoral NFNP and by Parliament of the Food Law. The advocacy role and efforts of public health institutions in promoting obesity prevention through public health legislation and intersectoral cooperation is a point of strength. Obesity as a public health problem has also started to be recognized at the local level, such as in the endorsement of local food and nutrition programs or interventions by some local authorities. The commitment of the Ministry of Education, Culture and Research to developing and integrating nutrition and health and physical activity in school curricula and to making physical activities attractive for children and teenagers is a good starting-point in the implementation of obesity control measures. The presence of development partners, lead by the WHO, who are providing technical and financial support in the implementation of NFNP and strengthening of the obesity surveillance system is also a strength.

Among the weak points, the low level of awareness of obesity issues and lack of willingness to act by some authorities (in terms of increasing taxes on junk foods and making healthy foods more available, affordable, and desirable for everyone), such as the Ministry of Agriculture, Regional Development and Environment and the Ministry of Finance, should be mentioned. At the same time the capacity of the Ministry of Health, Labour and Social Protection to coordinate activities, convince and to make allies in obesity control in other authorities is low, due the lack of designated human resources. The unclear delineation of responsibilities between central and local authorities and the imperfect enforcement mechanisms for adopted legislation are other weak points that impede successful implementation of obesity control measures.

The allocation of financial resources for obesity interventions is also a weak point. During the period of 2014–2017 there were no funds allocated for policy implementation.

Obesity is a public health problem and to stop the rising obesity epidemic, intersectoral cooperation and efforts must to be strengthened. As was learnt from the process

Table 1 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
The Government of the Republic of Moldova	0	0	++	0	0
Ministry of Health, Labour and Social Protection	++	+	++	+	+
National Agency for Public Health	++	++	+	++	++
Ministry of Finance	0	+	+	+	+
Ministry of Agriculture, Regional Development and Environment	0	+	+	+	0
Ministry of Economy and Infrastructure	0	0	+	+	0
Ministry of Education, Culture and Research	0	++	++	+	+
Academy of Science	0	0	+	+	0
National Health Insurance Company	0	0	0	+	0
Mass-media	0	0	0	+	0
Civil society organizations	0	+	0	+	0
Food Industry	0	0	+	0	0
Local Authorities	0	0	+	+	0

Note: 0 = no involvement, + = some involvement, ++ = strong involvement

of policy development, there is a need for an intersectoral technical working group, acting as advisory body. This working group should regularly meet to discuss, based on monitoring and evaluation results, the performance in implementing planned activities, and the barriers or challenges met during program implementation. Human resources within the public health sector, and monitoring and evaluation procedures should be strengthened; and there is a need for sustainable financing of the program.

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Alcohol

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The scale of the challenge

Harmful use of alcohol in the Republic of Moldova has a major negative impact on public health. Consequently, the reduction of alcohol use is a high public health priority that has been recognized by the national authorities. According to Institute for Health Metrics and Evaluation data, in 2016 in the Republic of Moldova, 10.95% of deaths were caused by alcohol consumption, which was double the global average (5.15%). Of a total number of 4727 alcohol-related deaths, 3397 deaths were men and 1329 deaths women (Institute for Health Metrics and Evaluation, 2018).

The latest available WHO data (WHO, 2014a) indicate that the Republic of Moldova is among the countries with the highest alcohol consumption in the world (being in second place). For the period 2008–2010, average alcohol consumption (in the population aged 15 years and over) was 16.8 litres of pure alcohol per capita; an increase of 3 litres compared to 2003–2005 when 13.8 litres of pure alcohol per capita were consumed.

In 2015, about 88% of the population aged 16–55 years had ever consumed an alcoholic beverage, which is 10% more than in 2012 (Magenta Consulting, 2015). There is a higher prevalence of alcohol consumption in rural areas, with 64.5% of the population consuming alcohol, compared to 59% in urban areas. About 6% of the population drink alcohol daily: 9% of men and 3% of women, and one in five people are episodically heavy drinkers. Almost half of current alcohol users have consumed unrecorded alcohol, i.e. alcohol that is not reflected in official statistics (WHO, 2014b). Wine is the most widely consumed alcohol beverage (68% in 2014; a 10% increase compared to 2012), followed by beer, consumed by 20% of current alcohol consumers (a fall of 6% in 2014 compared to 2012). Spirits are consumed by 7% of current alcohol consumers (WHO, 2014a).

Almost half of the current drinkers reported consuming unrecorded alcohol: 51.2% of men and 40.2% of women. Data shows that of the total alcohol consumed by current drinkers, 37% constituted unrecorded alcohol. Consumption of homemade wine accounted for 28.8% and homemade spirits 5.9%. A total of 6.1% of all unrecorded alcohol (2.3% of all alcohol consumed) was alcohol brought across the country's border, surrogate alcohol and other types of unrecorded alcohol.

Existing estimates suggest that productivity losses associated with harmful alcohol use are in the region of 1% of GDP in most countries (OECD, 2015). Thus, it can be assumed that in 2016 in the Republic of Moldova the total cost related to alcohol consumption was about 1 344.7 million Moldovan Leu (60 million euros); the equivalent of around one fifth of the total national public health budget.

The alcohol industry in the Republic of Moldova remains one of the main branches of the national economy, despite the decline in alcohol sales as a result of the embargo imposed by the Russian Federation since 2006. The alcohol industry currently represents about 7% of national industrial production, around three times less than in 2003–2006 when the share of alcohol industry in the national industry was about 20%. The Russian Federation embargo has stimulated the Moldovan alcohol industry to diversify its sales markets and to improve the quality of alcoholic beverage according to consumer preferences. Significant quantities of wine are now exported to Poland, the Czech Republic, Romania, Germany, China, Israel, Austria, the Baltic States, Belgium, Canada, Hungary, Ireland, the Netherlands, Slovakia and the United States. Alcohol remains one of the most important export products, accounting for 7.5% of total exports in 2015, but this share has been declining since 2005 when the proportion of alcohol in total export was about 30%. The internal consumption of alcohol in 2015 constituted 3.7% of total national consumption in monetary terms. Viticulture constitutes about 138 thousand hectares (4.1% of the available land for agriculture), which is mostly (95%) in private hands, including small farmers (National Bureau of Statistics, 2015).

Policies and programmes

In 2012, to reduce alcohol consumption, the Government of the Republic of Moldova approved the National Alcohol Control Programme for 2012–2020 and established at the Government level the National Coordinating Council, which is a consultative body to

ensure intersectoral communication and collaboration for Programme implementation. The policies established in the Programme include actions at both population and individual levels:

1. to restrict access to alcoholic beverages for young people and the hours of alcohol sales;
2. to increase the excise taxes for strong alcoholic beverages and wines, beer and alcopop-type beverages;
3. to improve record keeping of homemade alcoholic beverages and reduce illegal alcohol sales;
4. to enforce drink-driving penalties;
5. promote free-alcohol workplaces in enterprises and organizations;
6. to reduce the volume of alcohol marketing and advertising of alcoholic beverages;
7. to conduct information campaigns on the risks of alcohol consumption for health;
8. to deliver screening and brief intervention services to tackle harmful drinking.

Over the implementation period 2012–2015 each of these Programme policies achieved varying levels of success. For example, the restrictions on selling alcoholic beverages became tougher. In 2012, the minimum age for purchasing alcohol was increased from 16 to 18 years of age. Thus, retailers are obliged by law to request an identity card or other official photo identity document to prove the customer's age. However, this legal norm does not cover sales in bars, clubs and restaurants. Also, the sale of alcohol is not allowed in retail stores between 22.00 and 08.00. There are concerns related to both regulations in enforcement, particularly in rural areas, where the retailers are very often unaware of the regulatory changes. No government body was appointed responsible for enforcement of these legal provisions and to monitor the level of their implementations.

In 2012, the minimum price for strong alcoholic beverages (25% alcohol by volume and more) was increased: in wholesale trade from 36 lei per litre to 60 lei per litre, and in retail trade from 50 lei per litre to 80 lei per litre. The excise taxes on alcoholic beverages are index-linked and increased annually based on the Consumer Price Index, but prices remain accessible, especially for beer. This partially contributes to the higher popularity and consumption of beer among young people.

The penalties relating to drink-driving have been widely implemented and have already had a positive impact. In December 2013 the legal blood alcohol content limit for driving was reduced from 0.5 grams per litre to 0.3 grams per litre and penalties for exceeding the limit have been increased. According to National Bureau of Statistics data, deaths in road accidents related to drink-driving reduced from 441 deaths in 2012 to 311 deaths in 2016 and injuries have fallen from 3 510 cases in 2012 to 2 928 cases in 2016.

The policies for promoting alcohol-free workplaces are formally in place. Thus, more than 70% of enterprises have internal regulatory provisions prohibiting the consumption of alcohol at the workplace. Alcohol consumption is prohibited in medical, educational, cultural, and state administrative institutions. Potentially, in all public and state institutions these prohibitions are respected, but no data are collected to show whether these provisions are being complied with. According to data provided by the Labour Inspectorate of the Ministry of Health, Labour and Social Protection, in 2016, 36 fatal workplace accidents were occurred, and in five cases alcohol was detected in the blood of the deceased.

National legislation regarding the marketing and advertising of alcoholic beverages establishes specifics for the advertising of alcohol products and advertising restrictions on alcoholic beverages, but these are very permissive, and the advertising of alcoholic beverages, mainly beer, is present in multiple sources of communication. To overcome this situation, the Ministry of Health, Labour and Social Protection drafted and presented to Parliament amendments to the Law on advertisement to include a total ban on advertising alcoholic beverages.

The information campaign "With a sober mind!" on the risks of alcohol consumption has been launched with the support of the WHO, and other health information activities are provided in schools. As a result, awareness of the risk of alcohol consumption increased; the percentage of people who agreed with the statement that alcohol can cause serious health problems increased (from 80% in 2012 to 93% in 2015) and those who believed that their health would improve if they reduced the amount of alcohol they consumed increased from 29% in 2012 to 35% in 2015.

The screening and brief intervention services for harmful and hazardous drinkers delivered by primary health care facilities are recognized as one of the most effective interventions (Tirdea et al., 2011). Currently, these services are being piloted in 10 primary health care facilities and are going to be further developed and provided in all primary health care units in the coming years.

There are significant efforts by the Ministry of Agriculture, Regional Development and Environment and local public authorities for improving the record keeping in alcohol production, including homemade alcoholic beverages. With the support of United States Agency for International Development (USAID) and the Czech Agency for International Development (CZDA), the Wine Register and the Wine Register IT platform have been developed and are being implemented. The Wine Registry contains two sub-registers: the vineyard register and the register of wineries. The Implementation of the Wine Register will enable the traceability of wine throughout the production-retail process.

Problem identification and issue recognition

The Republic of Moldova started to address alcohol health-related issues in 2011 when it was ranked internationally as the country with the highest level of alcohol consumption per capita (WHO, 2011). The Ministry of Health and other stakeholders recognized harmful use of alcohol as a public health problem after the publication of the WHO's "Global status report on alcohol and health" report in 2011, and decided to put alcohol on the health agenda as a priority issue. This was "a window of opportunity" for addressing alcohol consumption by the health authorities and the Ministry of Health of the Republic of Moldova initiated the development of the National Alcohol Control Programme. The decision was supported by representatives of academia and civil society organizations, health care providers, and other ministries and agencies, such as the Ministry of Internal Affairs, the Ministry of Education, the Ministry of Agriculture and Food Industry and the National Health Insurance Company.

Policy formulation

As alcohol consumption is a cross-sectoral issue, a working group was established to develop the National Alcohol Control Programme in 2011[3] with participation from the Ministry of Finance; the Ministry of Agriculture and Food Industry; the Ministry of Economy; the Ministry of Internal Affairs; the Ministry of Education; the Ministry of Youth and Sport; the Ministry of Social Protection, Labour and Family; the Ministry of Culture; academia; mass-media and civil society organizations etc. The establishment of this working group, which includes representatives of so many authorities and organizations, happened because the Ministry of Health took a leading role in convening and involving the appropriate authorities in alcohol control policies.

National programmes are not binding on local public authorities and there is no mechanism for accountability. However, the Government decision that approved the National Programme on Alcohol Control recommended to local public authorities to develop *rayon* level programmes on alcohol control. Under leadership of *rayon* Centres of Public Health, most *rayons* transposed the national alcohol programme into local programmes, taking into account the specific context of the territory, local incidence and prevalence of alcohol-related diseases and injuries, and local infrastructure and resources.

There are many authorities responsible for formulating alcohol consumption reduction policies: pricing/excise taxes policy is the responsibility of the Ministry of Finance; drink-driving policy is the responsibility of the Ministry of Internal Affairs together with the Ministry of Health, Labour and Social Protection (indicated by the alcohol concentration in blood or concentration of alcohol in breath); an advertising ban is the responsibility of the Ministry of Health, Labour and Social Protection; alcohol-free workplaces is the responsibility of the Ministry of Health, Labour and Social Protection; record keeping of homemade alcohol and illegal alcohol sales, are the joint responsibility of the Ministry of Agriculture, Regional Development and Environment, local public authorities and the Ministry of Internal Affairs; and screening and brief intervention services are the responsibility of the Ministry of Health, Labour and Social Protection.

3 In July 2017, the Parliament of the Republic of Moldova approved the new structure of the government. The number of ministries was reduced from 16 to 9. Ministries have been merged and changed their names, thus the Ministry of Health was merged with Ministry of Social Protection, Labour and Family and was renamed in Ministry of Health, Labour and Social Protection: http://www.gov.md/en/content/new-structure-government-was-voted-parliament.

Decision-making

The decisions related to alcohol policies are taken either by central Government (if they are government decisions) or Parliament (if they are laws), based on drafts prepared and presented by the Ministry of Health, Labour and Social Protection or other ministries. If decisions have a direct or indirect impact on producers and the business environment these have to pass the State Commission on Regulatory Impact Assessment created under the Ministry of Economy and Infrastructure. Even though its decisions have a consultative character; this commission can significantly influence and/or block legislative initiatives. Public health agencies provide information on the costs of alcohol harm and advocate for public health action, but decisions rest with the relevant ministries.

The National Alcohol Control Programme was approved by the Government of the Republic of Moldova in June 2012. In accordance with the Program, the territorial Alcohol Control Programmes have to be developed and approved by *Rayon* Councils at the local level. Thus, although the National Alcohol Control Programme is a recommendation, 31 Municipal/*Rayon* Councils have approved territorial alcohol control programmes (of a total of 36 administrative territories).

The Ministry of Health, Labour and Social Protection has a leading role in the development and advocacy for government and/or parliament to approve alcohol control policies, but these policies are usually influenced by other ministries. Thus, the Ministry of Agriculture, Regional Development and Environment has an active role and is very influential in developing and supporting alcohol industry development policies; the Ministry of Economy and Infrastructure is influential in supporting the business environment, including the alcohol industry. Decisions on increasing excise taxes, reducing access to alcohol, and banning advertising have positive health impacts through reducing alcohol consumption; but these decisions are influenced by the alcohol industry and business environment. As a result, some decisions on alcohol control policies are based on compromise. For example, with the business environment, the decision to ban the sale of alcohol between 22.00 and 08.00 was applied to retail stores but not to bars, clubs and restaurants.

However, the Ministry of Health, Labour and Social Protection has allies in promoting and supporting alcohol control policies in the Ministry of Internal Affairs and the Ministry of Education, Culture and Research.

Policy implementation

Alcohol control policies are the responsibility of a number of authorities. The public health services and agencies are involved mostly in developing communication campaigns, activities that are performed together with education services. Primary health care services are developing and providing brief interventions to address harmful alcohol consumption.

Thus, the Ministry of Finance is responsible for increasing excise taxes on alcoholic beverages. The implementation of restrictions on access to alcoholic beverages for young people and the hours of alcohol sales is the responsibility of every retailer, as the Law does not clearly regulate the authority for its enforcement. According to Law No 1100 on the manufacture and circulation of ethylic alcohol and alcoholic products, every seller must ask all customers to present an identity card or other official document with a photo and not to sell alcohol between 22.00–08.00.

Ensuring that homemade alcoholic beverages are recorded is a sensitive issue, because according to the Law No. 1100 on the manufacture and circulation of ethyl alcohol and alcoholic products, households are permitted to produce their own wine. As was mentioned in the Policies and programmes section, the Ministry of Agriculture, Regional Development and Environment has developed a Wine Register, to improve the traceability of wine throughout the overall chain of the production-marketing and retail process. Its implementation is the responsibility of each individual wine producer and there are no specific provisions for its enforcement. The Ministry of Internal Affairs is responsible for ensuring the enforcement of the provision regarding the production and sale of illegal alcohol.

The State Inspectorate for Road Transport, within the General Police Inspectorate (a subordinated institution to the Ministry of Internal Affairs) together with narcological services of the health sector (testing the alcohol concentration in blood) is responsible for the enforcement of actions on drink-driving; these provisions are well implemented as these clearly stipulate the responsibilities of authorities and the punishment for those who violate the Law.

The responsibility to respect the provisions on the ban on alcohol advertising is dispersed across every mass-media producer, and the enforcement of these provisions has to be made by the Audiovisual Coordinating Council. Nevertheless, as these do not constitute a total ban on advertisements and the punitive measures are weak, provisions of the Advertisement Law are frequently violated.

The screening and brief intervention services are the responsibility of the Ministry of Health, Labour and Social Protection. For the period of July 2017–July 2018 these services are being piloted in 10 primary health care facilities and are going to be further developed as well as being provided in all primary health care units in the coming years.

The role of the Ministry of Health, Labour and Social Protection in coordinating the implementation of alcohol control policies is key. During meetings of the National Coordinating Council on implementation of the National Alcohol Control Programme, of which the Deputy Minister of Health, Labour and Social Protection is one of the vice chairs (the other deputy chairman of the National Coordination Council is represented by the Ministry of Agriculture, Regional Development and Environment), the Ministry of Health, Labour and Social Protection plays an active role in establishing the meetings' agenda and discussing the policy implementation results, including those performed by other authorities.

The funding for implementation provisions of the Alcohol Control Programme is the responsibility of every authority responsible for a specific intervention, and must be funded from their own budgets. Despite the fact that a budget has been approved for Programme implementation, from 2012 to 2017 no additional financial resources have been allocated for this specific Programme.

Monitoring and evaluation

According to the National Alcohol Control Programme provisions, the Ministry of Health, Labour and Social Protection is responsible for monitoring and evaluation, in particular the National Agency for Public Health and the ministry division on policy analysis, monitoring and evaluation. Although the programme provisions state that the ministry has to collect information from authorities responsible for implementation and develop annual reports, there are only a limited number of authorities/ institutions which present such information. Additionally, monitoring and evaluation activities are poorly developed by the Ministry of Health, Labour and Social Protection and there is no clear procedure that regulates it.

The midterm evaluation was conducted in July 2015 by the Ministry of Health, Labour and Social Protection (the division of policy analysis, monitoring and evaluation) with the support of the WHO. The results of the evaluation were discussed in the framework of a national dialogue on the evidence on alcohol consumption and control in November 2015, conducted with the support of Evidence-informed Policy Network (EVIPNet) Europe, of which the Republic of Moldova is a member and a pilot country. The evaluation suggested putting in a place a technical coordination and communication mechanism to strengthen communication between agencies, improve access to up to date information, and to better monitor implementation. It also identified new indicators to be included in the programme, such as the number of fines issued by the State Inspectorate for Road Transport. The final evaluation is planned for 2019, at the end of Programme.

The role of the Ministry of Health, Labour and Social Protection in monitoring and evaluation of alcohol control is very important. Based on monitoring and evaluation activities the health authority informs other responsible agencies and stakeholders about the progress in alcohol control in the country, what has been done well and what has not worked; what we learnt and what should be changed. One of the monitoring and evaluation tools developed by the ministry in coordination with the WHO, is the Passport of the National Alcohol Control Programme for 2012–2020, available on the Ministry of Health's webpage: http://old2.ms.gov.md/?q=programe-si-strategii/pasapoartele-documentelor-politici. This will bring transparency in monitoring the implementation of programmes.

The indicators that support the monitoring and evaluation framework are provided by different sources. The impact indicators are taken from the National Bureau of Statistics, the National Agency for Public Health, as well from European Health for All database and the Institute for Health Metrics and Evaluation. There are several surveys conducted with support of international agencies that also serve as sources for outcome indicators, including: the Multiple Indicator Cluster (MIC) Study (UNICEF, 2012); Prevalence of noncommunicable disease risk factors in the Republic of Moldova, STEPS

2013 (WHO, 2014b); KAP study (Magenta Consulting, 2014). The output indicators are collected from administrative sources: the Ministry of Health, Labour and Social Protection (information activities), the Ministry of Finance (excise taxes), and National Bureau of Statistics (Consumer Price Index, including taxes on both alcohol and tobacco products: http://www.statistica.md/newsview.php?l=en&idc=168&id=4876).

Conclusion and outlook

As previously mentioned, one strength in addressing the alcohol control issue in the Republic of Moldova is the coordination role of the Ministry of Health, Labour and Social Protection. In 2011 the Ministry of Health, Labour and Social Protection was the authority that initiated discussions and put the harmful use of alcohol as one of the risk factors with a major impact on public health on public agenda. The authority used the WHO's "Global status report on alcohol and health" report (WHO, 2011) as "a window of opportunity" for addressing alcohol-related issues.

Applying an intersectoral approach, the participation and involvement of other authorities which are accountable and responsible for alcohol control policies in problem formulation and policy-making has guaranteed the development and approval of the National Alcohol Control Programme and establishment of the National Coordination Council.

Low enforcement of legislative provisions is the weakest point of the alcohol control policies and this can be explained by gaps in legislative acts as these do not clearly delineate the responsibilities of authorities and implementation mechanisms. As an example are the legal provisions regarding restriction on hours of alcohol sales that are not respected for beer and wine. In September 2017, Parliament introduced changes in alcohol control legislation: beer, which was previously categorized as food, is now legally recognized as an alcohol product. Nevertheless, beer, along with wine, is still sold without any limits.

Another weakness is the lack of clarity in distribution of responsibilities between central and local levels regarding alcohol control policies and the lack of synergy between central and local policies. For example, the National Alcohol Control Programme only recommends that local public authorities develop and approve territorial action plans on alcohol control. At the central level there is no vision (clarity) on how at the local level alcohol control policies will be developed and implemented. Also, at the local level there are not enough skills and initiatives to develop, approve and implement alcohol control policies, including monitoring and evaluation activities. As a result, even though almost all *Rayon* Councils approved territorial programmes on alcohol control policies, there is no continuity or consistency (involvement of all local stakeholders) in their implementation. The Health Profile recommended by the Ministry of Health to be developed by all administrative territories has been developed by only 11 territorial public health centres and only Orhei Council used Health Profile as a tool for development of the territorial Strategic Development Programme and Health Action Plan, which includes a chapter on alcohol control.

Allocation of financial resources for programme implementation is another weak point. Between 2012 and 2017 no resources for policy implementation were allocated. All activities have to be performed from the existing budgets of the responsible authorities. The state authorities have limited knowledge and capacity to argue for and request from Government sufficient financial resources for the implementation of alcohol control activities.

The use of evidence in the formulation of the alcohol control policies and strengthening drink-driving policies may be seen as a success.[4] As a result, the death and injury rates from road accidents related to drink-driving have decreased. This was achieved by reducing the legal blood alcohol content limit for driving from 0.5 grams per litre to 0.3 grams per litre and enforced sanctions for drink-drivers performed by the Ministry of Internal Affairs (State Inspectorate for Road Transport) and the Ministry of Health, Labour and Social Protection (providing testing for alcohol concentration in the blood by the hospitals and Republican Narcological Dispensary).

However, one of the obstacles to alcohol control has been the influence of the alcohol industry that continuously tries to influence policy debates regarding the ban on advertising and marketing regulations. As an example is the modification of the Law on Advertising that includes provisions on a total ban on alcohol advertising. It was presented in Parliament for discussions in 2009 and in 2017, and its revision is continuously postponed to a later stage. With the support of the wine industry and

4 One of the sources was Tirdea et al. (2011).

Tourism Agency, the annual National Festival of Wine is organized by the National Vine and Wine Office and the Ministry of Agriculture, Regional Development and Environment, within which alcohol consumption is promoted.

Of the specific contextual factors that influenced the implementation of alcohol control policies during the period 2012–2017, the key one was political instability.

As next steps, based on the results of piloting of alcohol brief interventions, the Ministry of Health, Labour and Social Protection will further develop these brief intervention programmes and will extend these services to the national level. Additionally, the Ministry of Agriculture, Regional Development and Environment have started to apply the Wine Register IT platform. Implementation of the Wine Registry will enable the traceability of wine throughout the overall chain of the production-retail process. Increasing the prices/exicse taxes on alcohol is another policy that the country plans to introduce.

There have been lessons learnt in the process of policy development and implementation: there is a need for a technical working group that includes representatives of responsible authorities that have to work as advisory bodies. This working group should meet regularly (at least twice per year) to discuss, based on monitoring and evaluation results, the performance of planned activities, and the barriers or challenges met during their implementation. Also, the monitoring and evaluation mechanisms should be strengthened; and there is a need for sustainable financing for the programmes. Finally, it will be important to build and strengthen the capacities of nongovernmental organizations (NGOs), and to involve them in alcohol control activities.

Table 2 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
The Government of the Republic of Moldova	0	0	++	0	0
Ministry of Health, Labour and Social Protection	++	++	++	+	+
National Agency for Public Health	++	++		+	0
Ministry of Finance	0	+	+	+	+
Ministry of Agriculture, Regional Development and Environment	0	++	++	+	+
Ministry of Economy and Infrastructure	0	0	+	+	+
Ministry of Internal Affairs	0	++	++	++	+
Ministry of Education, Culture and Research	0	++	++	++	+
Academy of Science	0	0	+	0	0
State Tax Service	0	0	0	+	0
National Health Insurance Company	0	+	0	0	0
Audiovisual Coordinating Council,	0	+	0	+	+
mass-media	0	0	0	--	0
civil society organizations	0	0	0	0	0
Alcohol Industry	0	0	0	0	+
Hospitality sector	0	0	0	0	0
Local Authorities	0	0	0	+	0

Note: involvement (e.g. +++; ++; +; 0; -; --; ---).

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Antimicrobial resistance

Stela Gheorghita

The scale of the challenge

In the Republic of Moldova the data on antimicrobial resistance (AMR) are insufficient to show the real scale of the problem. Data are derived from unstandardized surveillance systems, based on different surveys and research conducted in the last few years. Multidrug-resistant tuberculosis (MDR-TB) remains a growing public health problem in the country. The proportion of MDR-TB is 26% among newly diagnosed cases and 64.9% among previously treated TB patients, ranging across geographical areas on both sides of the Nistru River from 10% to 68%, with the highest levels in Soroca (62%) and Tiraspol (68%) (Transnistria Region) (de Colombani et al., 2013).

Since 2009, the Republic of Moldova has been working more on strengthening surveillance of nosocomial infections and less on monitoring antibiotic resistance in health care facilities. The intensive use of antibiotics without laboratory confirmation of antibiotic sensitivity often leads to the emergence of antibiotic-resistant bacteria. Poor infection control creates opportunities for infection transmission among patients and clinical staff.

In 2014, the WHO/Europe-ESAC project presented antibiotic use data for 13 non-EU countries, including the Republic of Moldova. Comparing the levels of human antibiotic consumption, the Republic of Moldova is on a par with Croatia and Georgia (above 20 defined daily doses (DDD) per 1 000 inhabitants per day) for average consumption. Penicillins and other beta-lactam antibacterials, cephalosporins (especially first- and third-generation cephalosporins) were the most commonly used antibiotics in all countries (Versporten et al., 2014).

There are no consistent data on antibiotic consumption in livestock and animal products due to the lack of a monitoring system. The unstandardized and undeveloped AMR surveillance system for human and animal health sectors, lack of awareness among the general population and medical personnel, and no restrictions in administering antibiotics are among the main challenges in the Republic of Moldova in controlling AMR.

A KAP study on antibiotic consumption conducted in 2013 (NCPH unpublished data) found that 72% of

respondents thought antibiotics could treat respiratory infections and influenza and 74.4% took antibiotics without prescription. These findings underline the low level of knowledge, and inappropriate behaviour related to the prudent use of antibiotic in outpatient settings.

In 2015, all European Union (EU) Member States undertook the surveillance of resistance in bacteria through the EARS-Net project, which is facilitated by the European Centre for Disease Control (ECDC). Other countries have received support from the WHO to become part of the Central Asian and Eastern European Surveillance of Antimicrobial Resistance (CAESAR) network (WHO, 2015). The Republic of Moldova has emphasized the necessity of improving surveillance of AMR through integration into the CAESAR network to provide data compatible with EARS-Net data. Practical steps such as the nomination of a national AMR focal point, the designation of reference and subset laboratories, and functional intersectoral coordinating mechanisms, that will enable Moldova to become part of the CAESAR network have been implemented. However, the country still has to work on the development of a national intersectoral AMR action plan, including strengthening surveillance and laboratory capacities (ECDC, 2013).

Policies and programmes

The Republic of Moldova is committed to undertaking measures to prevent and control AMR by developing the legal framework for surveillance, prevention and control of communicable diseases as reflected in the Law on state surveillance of public health (art. 5.2 and 5.18). The Law stipulates that, as part of measures on prevention and control of communicable diseases, the government must implement prophylactic measures in health care institutions to prevent the development of AMR.

In 2013, the Government approved the National Public Health Strategy for 2014–2020 and Action Plan, in which specific activities related to AMR prevention and containment are reflected. These comprise approving strategies on the prudent use of antibiotics to treat infectious diseases in humans and animals, developing regulations on the use of antimicrobials as preservatives in food and feed for animals, creating and maintaining a safe environment for patients by strengthening the surveillance and control of nosocomial infection, including reducing the antimicrobial resistance of microorganisms.

In the framework of the National Action Plan for implementation of the Republic of Moldova-European Union (RM-EU) Association Agreement, the Republic of Moldova started to adjust its legal framework on communicable diseases and public health surveillance and accelerated transposition of International Health Regulations. This included AMR which was defined as a biological threat with potential to spread across borders.

There is no specific policy document or committee to monitor and promote the rational use of medicines in the Republic of Moldova (Ministry of Health and WHO, 2011). The national surveillance system on communicable diseases, including electronic reporting for communicable diseases is comprehensive, well-defined and functional and comprises 72 diseases and six public health problems, including nosocomial infections. The surveillance system is based on standard case definitions for infectious diseases approved by the Ministry of Health (Order 385/2007), aligned to EU legal framework[5] but for AMR surveillance there are deficiencies regarding a standardized approach to data collection, and the accuracy and quality of data as part of an international network.

In 2013, to strengthen the capacity of the public health laboratory network and increase quality management with EU logistic support, the Ministry of Health Order (668/2013) revised the structure and number of laboratories, from 36 to 10 better-equipped regional public health laboratories which will need trained personnel, standard operational procedures, mechanisms for consumables and equipment maintenance, and service procurement. This is actually a big challenge for the state budget. Monitoring the antibiotic resistance of microorganisms isolated from patients is one of the main activities and as part of the regionalization process it requires gradually changing the operational financial planning which was started in 2017. Even if the public health laboratory network has been equipped with new technology it will take time for this technology to be used at full capacity and for the adjustment of new standard operational procedures. The other issue that remains unsolved is the fragmentation of the lab service

5 Commission Decision of 22 December 1999 on the communicable diseases to be progressively covered by the Community network under Decision No 2119/98/EC of the European Parliament and of the Council Directive 2119/98/EC; Commission Decision of 19 March 2002 laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council; Commission Decision of 17 July 2003 amending Decision 2000/96/EC as regards the operation of dedicated surveillance networks.

and duplication of clinical and public health laboratories; there is not currently an integrated lab system.

National guidelines on the surveillance and control of nosocomial infection (Ministry of Health Order 51/2009) establish requirements for the surveillance of AMR and list strategies and measures to reduce the development of antibiotic-resistant strains of microorganisms in health care facilities. These guidelines need to be updated with a stronger antimicrobial stewardship programme.

Developed by the Ministry of Health, Labour and Social Protection,[6] clinical protocols for selected communicable diseases include the prescribing of antibiotics as part of clinical case management. Clinical protocols also require antibiotic susceptibility laboratory testing of causative agents; these protocols are not usually followed due to the time it takes for susceptibility testing, the lack of laboratory capacity (which can partly be explained by the reorganization process), the low awareness of the importance of the prudent use of antibiotics, and the desire for immediate results by prescribing the newest antibiotics. AMR in veterinary medicine is regulated by a governmental decision which lists the antibiotics prohibited for use in animal health.

Problem identification and issue recognition

The problem of AMR is recognized as such only by the medical care sector. The impact of AMR as a medical problem is usually observed by doctors during the treatment of patients with communicable diseases or health care-associated infections; or by microbiologists during sensitivity testing of microorganisms; or by epidemiologists using evidence-based medicine and the public health approach. AMR is highlighted as a major public health problem due to an increasing number of cases and disease trends caused by resistant microorganisms (ex. multidrug-resistant (MDR) and Extremely drug resistant tuberculosis (XDR TB)). The latest (2017) number of nosocomial pneumonia cases associated with mechanical ventilation caused by resistant microorganisms, included in the surveillance of nosocomial infections, increased as a number of solitary cases but also as clusters of cases in health care facilities, especially in intensive care units (Busuioc, 2012, unpublished data). During specific scientific research on the mechanisms of resistance to antibiotics, Ruppé et al. (2013), established that urinary tract infections in women can be caused by *Escherichia coli* strains with genes responsible for resistance (extended-spectrum-beta-lactamase (ESBL)) that colonized the intestines.

As part of the surveillance of communicable diseases, the National Agency for Public Health (NAPH)[7] periodically organizes prioritization exercises, which means reaching intersectoral consensus on the list of priority communicable diseases and public health events to make the best use of limited human and financial resources for disease surveillance. In 2007 AMR was listed as a priority public health issue that required rational, explicit and transparent planning and resource allocation (Ministry of Health, 2012).

In 2008, the National Centre for Public Health (currently reorganized into the National Agency for Public Health) developed a draft national strategy on AMR, which was then abandoned due to the lack of political will and insufficient human resources capacity, including lack of lab specialists. In 2012, the NCPH was nominated by the Ministry of Health to develop and manage the surveillance system on AMR in order to monitoring the phenomenon and an effort was made to standardize the process of antimicrobial susceptibility testing, AMR data collection and analysis from hospitals and public health laboratory network in accordance with the Clinical and Laboratory Standards Institute (CLSI). Currently, the Republic of Moldova, supported by the ECDC and WHO, is strengthening the surveillance of AMR for a selection of pathogens by participating in CAESAR. However, the CLSI standard is not yet universally used in all laboratories across the country.

The problem also was raised as the result of an assessment for the transposition of the EU legal framework into national legislation in the field of public health of two recommendations on the prudent use of antimicrobial agents in human medicine (2002/77/EC) and on patient safety, including the prevention and control of health care-associated infections (2009/C 151/01). In 2011–2012 the Ministry of Health, with WHO support in the process of assessment, developed a set of recommendation

6 In July 2017, the Parliament of the Republic of Moldova approved the new structure of the government. The number of ministries was reduced from 16 to 9. Ministries have been merged and changed their names, thus the Ministry of Health was merged with Ministry of Social Protection, Labour and Family and was renamed in Ministry of Health, Labour and Social Protection: http://www.gov.md/en/content/new-structure-government-was-voted-parliament.

7 In December 2017, the statute of the National Agency for Public Health has been endorsed by Government of the Republic of Moldova (Government Decision no 1090 from 18.12.2017). The new Agency was created through merging a number of institutions such as National Centre of Public Health, rayon and municipal Centers of Public Health (altogether 36 centres), National Council for Assessment and Accreditation in Health, Inspectorate of Pharmaceuticals.

to emphasize the importance the problem and accelerate the implementation of activities. The AMR issue is also on the top of the agenda of policy-makers at the European and global level.

However, taking into consideration that both the health and veterinary sectors are the main antibiotic consumers, it is important to define specific actions, develop technical guidance, standards, regulations, training curricula and awareness campaigns. Other formal mechanisms that could be used for collaboration between public health and food safety services are the development of common documents on the topics of prudent use of antibiotics and other AMR preventive measures.

Policy formulation

The Ministry of Health, Labour and Social Protection is nominally responsible for setting priorities, as well as the development, coordination and implementation of all national public health policies, including AMR surveillance, and monitoring the consumption and prescribing of antibiotics. In 2013, the Ministry of Health was appointed by the government to lead on the development of a National Strategy and an Action Plan to combat AMR that should cover aspects such as:

- strengthening the surveillance system for antibiotic resistance;
- promoting strategies for the rational use of antibiotics;
- strengthening the surveillance of antibiotic consumption;
- strengthening infection control and surveillance of antibiotic resistance in health care facilities;
- preventing and controlling the development and spread of antibiotic resistance in the veterinary and agricultural sectors; and
- improving awareness, patient safety and intersectoral collaboration.

The draft National Strategy and Action Plan directed to combat AMR are at the final review stage at the National Agency for Public Health and will be submitted to the Ministry of Health for further revision, consultation with the relevant authorities and institutions, and presentation to the Government for endorsement. The activities of the NPHA related to health protection, prevention and the control of health care-associated infections include: the development of regulations (sublegal documents) for the inspection of health care facilities; hospitals and laboratories to ensure compliance with requirements related to AMR surveillance; and microbiological testing in particular and assuring patient safety in general. Data on the AMR profile of circulating pathogens in hospitalized patients collected by the NPHA is not consistent but integration into the CAESAR network for AMR surveillance, focused on selected pathogens, is critical for policy formulation in the decision-making process. Adoption of the CAESAR methodology as the basis of national AMR surveillance will contribute to increasing the quality of the laboratory service, especially in antibiotic susceptibility testing (AST), and species identification that is made according to the European Committee on Antimicrobial Susceptibility Testing (EUCAST); this will also require trained specialists and financial resources.

The Agency of Medicines and Medical Devices is in charge of formulating draft policies on drugs, pharmaceuticals and medical devices and ensuring their enforcement. The agency has to work to promote and protect public health by providing high-quality, safe and affordable medicines (including antibiotics), and medical devices.

Decision-making

The decision-making process in the field of AMR can be divided by level and includes national, sectoral and patient-related decisions. Because AMR is a multisectoral issue, decisions on the containment of antibiotic resistance must be approved by a multisectoral coordination body – the National Extraordinary Committee on Public Health, which is led by the Prime Minister. The Minister of Health is secretary and 17 other authorities are represented and a decision of the committee is mandatory for all state public authorities.

Because AMR issues spread beyond human medicine, the other authorities that contribute to surveillance systems and monitoring the occurrence of AMR and consumption of antimicrobials in the food chain (animals and animal feed) are also involved in the decision-making process. The Ministry of Health, Labour and Social Protection develops and approves regulatory documents (decisions and standard operational procedures) in the field of AMR and the Public Health Service within the NAPH is responsible for AMR surveillance, the

development of supportive and guiding documents to assure their appropriate implementation. Between other responsibilities, the NAPH is involved in evidence collection for approved informed decisions related to health promotion. In general, awareness of AMR is higher among stakeholders from the health sector and health facilities subordinated to the Ministry of Health, Labour and Social Protection while the level of awareness among clinicians and representatives from the food safety and the veterinary health sector is considerably lower. In spite of this, every year the ministry organizes different awareness campaigns for health care workers and the general population. The decision-making around the regulation of the human antibiotics market and consumption is done by the Ministry of Health, Labour and Social Protection based on expertise provided by the Agency of Medicines and Medical Devices.

In shifting from AMR strategic planning to operational planning, in 2016 the NAPH developed the EUCAST standard as part of the CEASAR network and is continuing integration into the international network.

Decision-making at the patient level is standardized and is done in accordance with clinical and operational protocols and is evidence based (e.g. antibiotic susceptibility testing) which can contribute to a change of antimicrobial treatment. Evidence-based medical practice is a cornerstone of good quality health care and depends on solid laboratory data. Microbiology services are, however, underutilized in the Republic of Moldova, and the quality of the clinical interpretation of results and the translation of these results into sound treatment decisions needs improvement.

Policy implementation

Policy documents should be implemented by the relevant ministries, such as the Ministry of Health, Labour and Social Protection and the Ministry of Agriculture, Regional Development and Environment, which coordinate development of the framework of regulations and decisions. All policy documents developed contain indicators for performance assessment and results monitoring.

The Ministry of Health, Labour and Social Protection is the designated public authority for AMR policy development and periodically revises and updates the procedures related to antibiotics procurement, prescribing and delivery (Ministry of Health, 2012). The approved legal framework for the health sector is based on regulations, guidelines, clinical protocols, algorithms, etc. These regulations should be implemented by subordinated health care and public health institutions, as well as by the Agency of Medicines and Medical Devices and the National Health Insurance Company.

The public health service is responsible for the implementation of activities related to the national surveillance system on communicable diseases and other public health issues, including AMR. However, there is currently no functional surveillance system for AMR in place. The NAPH, with their local representatives, should assure data collection, analysis and offer feedback and information for action to health care facilities and public authorities. Public health laboratories are part of the surveillance system and use different tools for the collection and analysis of resistance profiles of identified microorganisms. Currently, the main source of funding for public health laboratories is the state budget.

The Agency of Medicines and Medical Devices as the national regulatory agency (NRA) is responsible for monitoring the pharmaceutical market and for the organization and procurement of antibiotics for all health care institutions. Despite the fact that in the Republic of Moldova the regulation of the pharmaceutical market has been harmonized with international best practice in, for example, the prescription of medicines by active pharmaceutical ingredients (generic prescribing) and establishing a list of medicines which can be sold over-the-counter (OTC) without a prescription, the rules are not fully enforced, meaning there is de facto countrywide free access to antibiotics in retail pharmacies.

For the monitoring of the legal framework implementation for pharmaceutical activities conducted by pharmaceutical companies, regardless of the ownership and legal form of organization, the Inspectorate of Pharmaceuticals and medical devices of the NRA has mechanisms and procedures in place and annually applies around 300 administrative offences for noncompliance with legislation (Agency for Medicines and Medical Devices, 2014). Nevertheless, the legislation restricting antibiotics sales is not fully respected and drugs are sold directly to consumers without a prescription because of a lack of enforcement mechanisms, resource constraints, a lack of trained personnel in the inspectorate and the lack of strong political will to implement the legal framework. However, in 2017 periodical inspections of the pharmacies

on prescriptions drugs conducted by Inspectorate of Pharmaceuticals (currently is integrated into National Agency for Public Health) resulted in a reduction of selling antibiotics without prescription. The National Health Insurance Company (NHIC) has a role of monitoring compliance of prescribed treatment, including antibiotics, based on national clinical protocols in order to validate cases and cover treatment expenses for hospitals. In the structure of invalidated cases treated in the hospitals, the majority are: cases of unjustified hospitalization, and unresolved cases of unjustified discharge or transfer. Among the persistent deficiencies of invalidated cases unjustified drug prescription was identified. The NHIC is implementing a mechanism to enforce the application of fines that allowed to increase by 0.8% the number of treated cases in 2014 (NHIC, 2014).

Clinicians should follow clinical protocols and prescribe drugs from the essential medicines list. In practice, rational prescribing principles are often not taken into account, and a lack of supervision of prescribing practices has been noted and there is a threat of supplier-induced demand by doctors who own pharmacies. Physicians are also exposed to the poorly controlled promotion of medicines by pharmaceutical industry representatives on a daily basis, so that it is often routine practice.

Infection prevention and control measures in health care facilities are implemented by health care workers, and managers are responsible for compliance with regulations. The AMR issue is part of the basic medical general education programmes on microbiology and epidemiology. Specific dedicated training (1–2 weeks of training) conducted for hospital epidemiologists and relevant infectious diseases specialists and is delivered as part of the continuous education program. All hospitals, in accordance with Ministry of Health Order 51/2009, should have epidemiologists or infectious diseases specialists and must establish an infection control committee. Infection control committees exist only at the level of health care facilities, while no such committee has been established at the national level. Although a reporting system for health care-associated infections has been developed, most hospitals do not report these events, which suggests a low level of awareness.

In the case of a public health emergency there is another mechanism for problem identification and management. The Extraordinary Committee on Public Health, which is responsible for an integrated public health all-hazards approach, including AMR, plays a key role in the intersectoral monitoring of public health risks and the impact of antibiotic resistance in all sectors. Decisions approved by the Committee are mandatory for all other authorities at the national and *rayon* levels, including local Extraordinary Committees on Public Health.

Monitoring and evaluation

So far, there is no appropriate and comprehensive monitoring and evaluation system for AMR in place in the Republic of Moldova. No appropriate data are collected through the routine surveillance system which could be used for policy development and in the decision-making process. Nor is there currently any routine collection of antibiotic use data (Versporten et al., 2014).

NAPH annually collect and analyse data on the AMR of identified pathogens in samples obtained from patients and environment. Annual reports on AMR profiles are presented to health care providers, the Ministry of Health and other interested authorities.

The antimicrobial stewardship as part of the infection prevention and control programme in health care facilities is underdeveloped (only 46% of hospitals declare that AMR is monitored) and even if an infection control committee (multidisciplinary team) has been established in some hospitals there is no institutional support or any real monitoring systems of antibiotic use and bacterial resistance; and there are no restrictive measures for changing or prescribing antibiotics.

Policy documents that target AMR directly or indirectly include some aspects of surveillance and monitoring. In the National Public Health Strategy for 2014–2020 one of the activities is the development of the national strategy on AMR and another one is the development of AMR surveillance.

Conclusion and outlook

The main strength of AMR actions in the Republic of Moldova is the strong political will to develop a policy framework, as reflected in the National Public Health Strategy for the years 2014 – 2020. The Extraordinary Committee on Public Health assumes the role of an AMR intersectoral coordination mechanism in a public health emergency. Other strengths include the existing well-structured surveillance system for communicable diseases, on which the AMR surveillance system can

Table 3 *Involvement of main actors in different stages of the policy cycle*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
The Government of the Republic of Moldova	0	0	++	0	0
Ministry of Health, Labour and Social Protection	++	++	++	+	+
National Agency for Public Health	++	++	++	+	++
Agency of Medicines and Medical Devices	++	++	+	++	++
National Health Insurance Company	0	0	+	+	++
Ministry of Agriculture, Regional Development and Environment	+	++	++	+	+
National Agency for Food Safety	+	++	++	++	++
Academy of Science	0	0	+	0	0
Mass-media	0	0	0	+	0
Hospitality sector	+	0	0	++	+
Primary Health Care	+	0	0	++	+
Local Authorities	0	0	0	0	0

Note: involvement (e.g. +++; ++; +; 0; -; --; ---).

build, and a public health laboratory network which is being consolidated and re-equipped.

Among the weaknesses are:

- a lack of a national intersectoral regulatory framework on AMR;
- low awareness at the central government level of the importance of an integrated approach to addressing the threat of AMR;
- low awareness about the importance of prudent use of antibiotics among clinicians, veterinarians, farmers and the general population;
- lack of antimicrobial stewardship programmes and weak infection control committees in health care facilities;
- lack of standardized operational procedures and trained personnel in the public health laboratory network;
- a fragmented and unstandardized surveillance system for AMR;
- weak enforcement of the legal and sublegal framework for the use and prescription of antibiotics in human and animal health;
- lack of financial resources for the development and implementation of an AMR policy;
- lack of proper monitoring and evaluation of AMR programmes.

The unstable political environment and frequent changes of government delay the development of an intersectoral AMR policy and result in weak enforcement of existing initiatives. Pharmaceutical companies have considerable influence and constitute a strong lobby which can influence AMR policy approval and implementation. However, the country is being supported in its efforts to consolidate the AMR actions by the WHO and ECDC.

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Slovenia

Antimicrobial resistance

Kerstin Vesna Petrič

The scale of the challenge

In Slovenia antimicrobial resistance (AMR) is perceived as a major public health problem. As elsewhere, the resistance to antimicrobial medicines in human and veterinary medicine is growing with consequences such as higher mortality rates, increase in treatment complications, longer hospital stays and higher costs of treatment. In the past, professionals have pushed for a more strategic approach to AMR. However, it was only after accession to the European Union (EU) in 2004 that the Ministry of Health launched such an approach at the national level. This delay probably reflected the perception among policy-makers that Slovenia was doing comparatively well in controlling the problem.

Compared with other European countries, the use of antibiotics in Slovenia was moderate. Between 1999 and 2002 a decrease of 18.67% was noted in outpatient antibiotic consumption due to restrictions imposed by the National Health Insurance Institute (NHII)[1] in 2000 on prescribing certain antibiotics, namely co-amoxiclav and fluoroquinolones, accompanied by educational interventions. It had already been concluded then that the most effective approach for improving antimicrobial use in chemotherapy was to utilize a combination of restrictive and educational interventions, supported by government and regulatory institutions (Čižman et al., 2005).

In 2008, AMR was identified as a major issue during Slovenia's Presidency of the EU in order to address it at the highest EU political level. A joint meeting of chief medical officers and representatives of national focal points on AMR was organized at Brdo, Slovenia, where key areas of future actions were proposed, including developing national strategies and action plans, setting up intersectoral mechanisms, strengthening surveillance systems and data quality on AMR, promoting good hygiene practices and promoting prudent use of antibiotics. Later that year, Council conclusions on AMR were adopted, which have since been built upon (Council of the European Union, 2008; Council of the European Union, 2016), and a European Antibiotic Awareness Day was introduced. These and later international political processes, such as the adoption of the World Health Organization's (WHO's) Global Action Plan on Antimicrobial Resistance in 2015 (WHO, 2015) had an important impact on the perception of AMR as an urgent challenge in Slovenia.

Policies and programmes

At a general level, legislation relevant to AMR in Slovenia includes:

- the Infectious Diseases Act, 2006 (defining reporting on selected infectious diseases and demanding a programme of prevention and control of hospital infections from every health care provider);
- the sub-law on the prevention and control of hospital infections programme; and
- the sub-law on professional supervision relating to the prevention and control of hospital infections programme.

At the Ministry of Health, two committees are responsible for coordination of activities related to AMR and prevention of hospital infections: The Committee

1 The National Health Insurance Institute runs Slovenia's compulsory health insurance system, with a single social health insurance fund that pays for publicly delivered health services covered under the extensive benefits basket.

for the Prudent Use of Antimicrobial Medicines (ICM) and The Committee for the Prevention of Hospital Infections (CPHI).

The ICM was established in 2005 by the Ministry of Health, as a response to the EU Council Recommendation of 15 November 2001 (2002/77/EC) on the prudent use of antimicrobial agents in human medicine and based on WHO recommendations (WHO, 2001). The Committee was understood as being an intersectoral coordinating mechanism to monitor and control resistance of microorganisms, primarily to antibiotics; to assure appropriate guidance for hospital and outpatient care; and to improve the quality of prescribing antimicrobial medicines at the national level. One of its important tasks was to involve other sectors, particularly veterinary services. The Committee thus consisted of representatives from hospitals, health care centres, the National Institute of Public Health (NIPH), the Agency for Medicinal Products and Medical Devices, the Ministry of Health, medical and veterinary faculties and representatives from the Administration for Food Safety, Veterinary and Plant Protection. In 2006, ICM prepared the first strategy to respond to AMR. The strategy and its action plan were widely promoted in professional publications and during European Antibiotic Awareness Day in November 2008. The main elements of the strategy were: monitoring, prudent use of antimicrobial medicines, and an overview of infectious diseases and international cooperation. The action plan defined the ICM's tasks and definite measures at the national level.

The CPHI is responsible for patient information and guidelines, and for recommendations on health sector practices relevant to AMR, such as the guidelines on methicillin-resistant *Staphylococcus aureus* (MRSA) and extended spectrum beta-lactamase (ESBL) control. It includes representatives from both clinical centres: Ljubljana and Maribor, several hospitals, primary health care centres, the NIPH, the National Laboratory for Health, Environment and Food (NLHEF) and the Ministry of Health. The Food Safety, Veterinary and Plant Protection Administration is responsible for monitoring and controlling AMR in animals in accordance with the recommendations of the World Animal Health Organization (OIE, 2015).

Problem identification and issue recognition

As elsewhere in Europe, in Slovenia antimicrobial medicines are among the most frequently prescribed medicines in outpatient and hospital care (ECDC, 2015). The consumption of antibiotics in ambulatory care represents 88–89% of the total use of antibiotics in human medicine and declined by only 1.4% between 2010 and 2014, from 14.41 to 14.21 defined daily doses (DDD) per 1 000 inhabitants per day and from 552 to 516 prescriptions per 1 000 inhabitants per year. The consumption of antimycotics for systematic use also decreased in ambulatory care by 13.8%, while the consumption of antivirals for systematic use increased by 44% (from 0.43 to 0.55 DDD per 1 000 inhabitants per day). In comparison with other EU countries in 2014, Slovenia ranked 26 lowest antibiotic usage among 31 EU and EEA countries[2] (ECDC, 2015). However, when looking at the number of prescriptions per 1 000 inhabitants per year, Sweden, for example, has 36.5% fewer prescriptions than Slovenia (328 against 516 prescriptions per 1 000 inhabitants per year), which points to the potential for further decreases in antibiotic use. There are also substantial and persistent differences in prescription rates between Slovenia's nine health regions. Most antibiotics are prescribed to children aged between 1 and 4 years.

In hospital care, consumption of antibacterial agents decreased by 5.6% (from 52.3 to 49.4 DDD per 100 bed days) and of systematic antimycotics by 14.9% (from 2.7 to 2.3 DDD per 100 bed days); while systematic antivirals increased by 175% (from 0.4 to 1.1 DDD per 100 bed days). Substantial differences in antibiotic use have been observed among different hospitals (Čižman et al., 2015). In this sector, Slovenia ranked below the EU and EEA average in 2014 (out of the 23 countries included), with seven countries (Sweden, Portugal (public hospitals only), Bulgaria, Poland, Norway, Hungary and the Netherlands) ranking below Slovenia.

In terms of resistance trends, according to EARS-Net data (ECDC, 2015) the proportion of MRSA was 10.3% in 2012, increased to 13.1% in 2014 and decreased again to 9.2% in 2015. The increase was observed for the resistance of Gram-negative bacteria. The resistance of *E. coli*, for example, to third-generation cephalosporins was 9.5% in 2012 and increased to 13.7% in 2015 and to

2 Only five other countries had lower usage of antibiotics than Slovenia: Austria, Sweden, Latvia, Estonia and the Netherlands.

fluoroquinolones the increase was from 21.4% in 2012 to 24.6% in 2015. In addition, data for 17 types of bacteria by the Slovenian National Antimicrobial Susceptibility Testing Committee for the period 2011–2015 also shows that the burden of infections with multiply resistant bacteria *E. coli* with Extended Spectrum Beta-Lactamases (ESBL) increased substantially (103%), along with increases in resistance of *Haemophilus influenzae* to betalactam antibiotics and resistance of *P. aeruginosa* and *A. baumannii* to carbapenems (http://www.imi.si/strokovna-zdruzenja/skuopz/dokumenti).

Data on the amount of antimicrobial medicines sold for the use in veterinary medicine have been systematically collected from wholesalers since 2010 (mandatory reporting). Both the estimated overall sales of antimicrobial medicines for use in veterinary medicine and the consumption of these medicines by animals used in food production decreased in Slovenia between 2010 and 2013 by approximately 30% (ESVAC, 2016). Nevertheless, according to the available data, Slovenia could strengthen its endeavours for more responsible and restrictive use of antibiotics (as appropriate for the health and well-being of animals), in particular for the list of critically important antibiotics for use in humans (WHO, 2012a).

Despite persistent advocacy by ICM and growing political recognition at the EU level, AMR was not politically perceived as one of the main priorities for further development and action until recently. Recognizing the need to generate more political awareness and assure stable financial and human resources and IT support at the national level, ICM advocated for the adoption of a new national strategy. The sense of urgency in developing a new strategic framework was underlined by the European Council's "One Health" policy recommendations (Council of the European Union, 2016). The WHO Global Action Plan on Antimicrobial Resistance adopted in 2015 and the commitment of WHO Member States to develop national action plans on AMR and report annually on implementation, represented an additional incentive (WHO, 2015). Consequently, Slovenia's new National Health Plan 2016–2025: "Together for healthy society", adopted by the parliament in 2016, recognized AMR as an important priority area, requiring better coordination between various ministries and stakeholders and a more strategic approach (Government of Slovenia, 2016). The document represents an important strategic basis for planning in this area, since it foresees the adoption of a national strategy on the rational use of antimicrobial medicines in human and veterinary medicine and on the prevention of hospital infections by 2017. In 2016, ICM took the lead and prepared a draft National Strategy on the Prudent Use of Antimicrobial Medicines and on Control of Antimicrobial Resistance in Human and Veterinary Medicine for the period 2016–2022 (the draft National AMR Strategy).

The draft National AMR Strategy takes into account the "Guidelines for prudent use of antimicrobial medicines in veterinary medicine", published by the European Commission in 2015 (European Commission, 2015), as well as other international guidance focusing on, for example, food safety. The main goals are to improve behaviour and understanding of AMR, and to manage the effectiveness of present ways of treatment with improved prevention and control of infections, along with developing ways that would accelerate optimal use of antimicrobial medicines in human and veterinary medicine.[3] The main action areas of the National AMR Strategy are:

- monitoring the use of antimicrobial medicines in human and veterinary medicine;
- optimization of prescribing (lowering ambulatory care prescriptions by approximately 25% by 2022 and use in hospitals by approximately 10% by 2020);
- raising awareness among prescribers, the general population and other key stakeholders;
- evaluating and improving present measures to ensure effective hygiene and prevent infections; and
- research and international cooperation in human and veterinary medicine – all of which are in line with EU recommendations (European Commission, 2011).

The strategy proposal also defines the roles of stakeholders and partnerships and focuses on strengthening capacities (for example, investing in human resources and IT support) that could contribute to optimal use of antimicrobial medicines in human and veterinary medicine. The intention is to introduce quality indicators in all hospitals and to build on existing good practices, for example, in agriculture and animal breeding. The use of antibiotics in farm animals has already been reduced by

3 The proposed measures mainly focus on antimicrobial medicines and less so on antivirals and antimycotics. However, the measures are also relevant to these medicines.

prohibiting their use to accelerate growth and through awareness rising.

The new AMR National Strategy is currently being discussed and the Government was expected to adopt it by June 2017.

Policy formulation

The ICM involved a broad range of stakeholders in formulating the draft National AMR Strategy, including: the National Institute of Public Health; the National Committee for control of hospital infections; the medical faculties of the universities of Ljubljana and Maribor; health professional organizations; the National Health Insurance Fund; representatives from hospital pharmacies; the Institute for Microbiology and Immunology at the Medical Faculty, University of Ljubljana; the National Laboratory for Health, Environment and Food; the Department of Microbiology at the General Hospital, Slovenj Gradec; the Laboratory for Respiratory Microbiology and Laboratory for Microbacteria at the University Clinic for Pulmonary Diseases and Allergology, Golnik; the Laboratory for Microbiology at the General Hospital Dr Franc Derganc, in Nova Gorica; the Ministry of Agriculture, Forestry and Food with its Administration for Food Safety, Veterinary and Plant Protection; the National Veterinary Institute; the Faculty of Veterinary Medicine, along with its Institute for Microbiology and Parasitology; the Veterinary Chamber; and other professional organizations and interest groups in animal breeding and treatment.

Policy formulation also has taken note of international sources of guidance and priorities, namely from the WHO (2012b) which suggested fields of action that include intersectoral cooperation; monitoring of AMR and the use of antimicrobial medicines; strengthening prevention of infectious diseases, in particular those in hospitals; preventing infections in animals; monitoring the use of medicines and AMR in veterinary medicine; promoting innovation and research; and increasing awareness. EU policy guidelines and conclusions have also influenced policy formulation.

Decision-making

The ministries responsible for AMR in Slovenia are the Ministry of Health and the Ministry of Agriculture, Forestry and Food with its Administration for Food Safety, Veterinary and Plant Protection. The Ministry of Health took the lead in coordinating activities when it established the ICM as a coordinating body. General and special measures are defined by the Law on Communicable Diseases. Entities that provide health services, and in the case of communicable diseases in animals, veterinary services, are obliged to implement special measures. By law, hospitals are required to establish a hospital committee and a programme to tackle hospital infections and to assure the monitoring of the use of antimicrobial medicines (in DDD per patient) per day. The hospital committee includes medical doctors, nurses, epidemiologists, clinical microbiologists, pharmacists and sanitary engineers. It is responsible for: reporting; setting guidelines for epidemiological monitoring, prevention and control of hospital infections; providing advice on equipment and supplies for diagnostic and therapeutic procedures; and training of professionals.

However, better coordinated action is needed at all levels to improve compliance with evidence-based measures and to raise awareness among the general population and professionals. Organizational adaptations, financial mechanisms, education and investment in IT are needed to support changes leading to a further reduction in the unnecessary use of antibiotics. Thus, Slovenia would need to systemize and strengthen its coordination mechanisms and assure stronger involvement of all relevant ministries, public health, research and academic institutions and the Health Insurance Institute (HIIS). To improve the decision-making process, the roles of different stakeholders and the coordinating mechanism should be better defined. Outcome and process indicators of planned activities should also be clearly established. In particular, the coordinating potential for monitoring, analysis and raising awareness of public health structures should be explored. The NIPH should strengthen its role in epidemiological monitoring and reporting at the national level, assuring feedback to professionals and various stakeholders and informing the general public. The new AMR National Strategy represents an opportunity in this regard.

One of the challenges for the future is to better include nursing homes and other long-term care facilities in the surveillance system for AMR and the prudent use of antibiotics (since outbreaks of communicable diseases are most prevalent in these institutions). Similar committees to those in hospitals should be established to tackle infections and to assure the monitoring of the use of antimicrobial medicines in long-term care facilities.

Lastly, a common reporting system with easy access to national annual reports providing information on AMR in human and veterinary medicine and on the implementation of measures within different sectors would contribute to more comprehensive insights into developments in this field and provide better information, which would aid the exchange of good practice and facilitate decision-making.

Policy implementation

To assure appropriate implementation of the new AMR National Strategy when it is adopted, the ICM's intersectoral coordinating role of will have to be strengthened. One of its main tasks will be to assure that all measures are implemented in close cooperation with human and veterinary medicine and thus in line with the "One Health" approach. The draft National AMR Strategy includes an action plan which sets out process indicators linked to its strategic goals and actions. In addition to this monitoring tool, the ICM will be required to provide annual national reports on AMR, including strategy implementation, and to define the roles and responsibilities of the different institutions contributing to the report.

A single, well-known webpage on AMR with easy access to information for different professionals and the general population could contribute to a better understanding of AMR and its impact. The reporting role of NIPH and its webpage could be explored in this regard, and appropriate financial resources assigned through the NIPH's contract with the Ministry and HIIS.

Monitoring and evaluation

Monitoring and reporting, providing international comparisons and trends, are assured through the EU monitoring and surveillance systems. At the NIPH, the Centre for Communicable Diseases is responsible for monitoring AMR in Slovenia and is a member of two ECDC networks: EARS-Net (European Antimicrobial Resistance Surveillance Network) and FWD-Net (European Food and Waterborne Diseases and Zoonoses Network) since 2009. Before that (since 2000), Slovenia contributed data to the European Anti-Resistance Surveillance System (EARSS), which allowed for international comparisons. In the European Surveillance of Antimicrobial Consumption Network (ESAC-Net) there are two partners from Slovenia: NIPH and the University Medical Centre, Ljubljana. NIPH is also a focal point for reporting health care-associated infections (HAI) to ECDC. Since 2009 the Administration for Food Safety, Veterinary and Plant Protection has been contributing data and information to the EU reporting system, to the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC), to EFSA and to ECDC on AMR in animals (ECDC and EFSA, 2016).

The NIPH is generally responsible for monitoring infectious diseases, outbreaks and AMR and issuing yearly reports on epidemiological monitoring on infectious diseases (NIPH, 2016). It is also responsible for monitoring the use of antimicrobial medicines in outpatient facilities (excluding nursing homes). Prescriptions are monitored for the age of patients, speciality of prescribers, and by region. One of the main aims of the proposal of the new National AMR Strategy is to strengthen this function. For hospitals the data source would be hospital pharmacies that collect data on the use of antimicrobial medicines in the hospital, with the data being reported to NIPH. In the future nursing homes for elderly will have to take part in monitoring of the use of antimicrobial medicines, particularly since the use in such residential facilities is estimated to be high. The use of antimicrobial medicines would be reported by medical staff working at nursing home to NIPH. The plan is to centralize data processing and use Anatomical Therapeutic Chemical (ATC) classifications. E-Prescriptions, which have recently been introduced for human medicine, will contribute to the availability of data on prescriptions per person.

Due to its roles in epidemiological monitoring of infectious diseases, in response to outbreaks/epidemics and in public health, the Ministry of Health believes that NIPH should take a stronger role in AMR monitoring, follow-up and prevention of multidrug-resistant bacteria.

To monitor AMR at the national level the Slovenian National Antimicrobial Susceptibility Testing Committee was established in 2010 at the Institute for Microbiology and Immunology (IMI) at the Medical Faculty of the University of Ljubljana. The Committee publishes annual reports[4] and also defines the methods used for determining sensitivity to antimicrobial medicines (antibiogram) and the basic set of antibiotics. The members of the committee are IMI, NIPH, NLHEF, and microbiology laboratories at hospitals. Slovenia uses European Committee

4 The data for 2011, 2012 2013 are published on the SKUOPZ website: http://www.imi.si/www.imi.si/portal/admin/strokovna-zdruzenja/skuopz/skuopz.

on Antimicrobial Susceptibility Testing (EUCAST) guidelines in its laboratories – including recommendations regarding MRSA, vancomycin-resistant enterococci (VRE), ESBL and carbapenemasis.

AMR detection is carried out within an extensive network of public medical microbiology labs that are authorized by the Ministry of Health to work in clinical microbiology. The tests are performed on clinical samples and control cultures, samples from hospitals and from other institutions (for example, nursing homes for older people), selected food samples from sanitary microbiological labs, and bacteria samples obtained from EU/Slovene epidemiological programmes (for example, the monitoring of Salmonellosis). The labs process local data and to monitor AMR at the national level they send the agreed set of data to the Slovenian EARS-Net coordinators (NIPH and the Institute for Microbiology and Immunology). Some aggregated data are then sent to international institutions such as ECDC through, for example, EARS-Net. Slovenia also took part in the first Global Monitoring of Country Progress on AMR that was launched by the WHO, the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization (FAO) in 2016.

Data on the amount of antimicrobial medicines sold for use in veterinary medicine have been systematically collected from wholesalers by the Administration for Food Safety, Veterinary and Plant Protection since 2010. The National Reference Laboratory (NRL) at the Faculty of Veterinary Medicine in Ljubljana, the National Veterinary Institute, is responsible for monitoring resistance in zoonosis and cooperates closely with the NIPH, the European Food Safety Authority and the EU Reference Laboratories. The NRL publishes a report every year on its webpage and coordinates the work of regional laboratories which perform a selected number of tests (for example, for mastitis in cattle). The NRL participates in the European Network of Veterinary Laboratories and follows the guidelines of the EU Reference Laboratory on AMR.[5] It has been subject to regular controls (External Quality Assurance System (EQAS)) since 2006. The monitoring of resistant bacteria in meat products has been undertaken regularly since 2011.

The lack of appropriate national IT support is one of the main barriers for further development of monitoring the use of antimicrobial medicines and AMR. Another is the absence of common reporting. The National AMR Strategy proposes that data on the use of antimicrobial medicines and AMR in human and veterinary medicine be published in one annual report (to be called Simap, similar to Danmap in Denmark, Nethmap in the Netherlands and Germap in Germany). To improve monitoring, cooperation between microbiological laboratories and between different health care stakeholders (eg. the committees on prudent use of antibiotics in hospitals, NIPH and the regional committees for tackling hospital infection) the Ministry of Health is planning to strengthen the role of NIPH.

Conclusion and outlook

Slovenia has developed a strong network of laboratories and other institutions to monitor the usage of antimicrobial medicines and to detect resistance trends. Moreover, it has developed a comprehensive AMR strategy (which is currently waiting for government endorsement), that follows international evidence-based guidelines. However, for the National AMR Strategy to work, raising awareness on AMR and promoting appropriate behaviour regarding the use of antimicrobial medicines and prevention of infections is crucial. Patients often request treatment with antibiotics when this is inappropriate and put enormous pressure on doctors to issue prescriptions for antibiotics. In response, Slovenia is planning to introduce information on protective behaviour and AMR in curricula at all educational levels and to pay special attention to this subject in the education of medical, veterinary and other relevant health professionals. Other information dissemination activities include participation in a consortium of 28 countries that oversees the webpage "E-bug" (administered by Public Health England). The educational materials on E-bug are intended to raise awareness on AMR among children and adolescents and to be used as educational tools by teachers.

One of the other possible barriers to successfully implementing the new AMR strategy would be lack of personnel and financial capacities. Due to the significance of this public health problem, it is discouraging that, for example, at the Ministry of Health there is not one person devoted solely to this subject, nor is there a separate budget line to finance the measures within the Strategy. Similarly, at the NIPH, professionals working in this area are scarce. A stable financial source is needed at national level to assure permanent monitoring of AMR and the use of antimicrobial medicines, appropriate training and awareness raising, and to invest in research in this area.

5 At the Technical University of Denmark, Copenhagen.

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Sweden

Obesity

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The scale of the challenge

Obesity is perceived as an important challenge to public health in Sweden. It has been recognized by the Public Health Agency of Sweden as one of the main risk factors for many chronic diseases, e.g. type 2 diabetes mellitus, cardiovascular disease, breast cancer after menopause, and cancer of the colon and rectum (Public Health Agency of Sweden, 2014). However, the lack of standardized measurement protocols in Sweden has been an obstacle to estimates of obesity prevalence (EASO, 2016). The prevalence of obesity, as reported by the Public Health Agency of Sweden, has more than doubled over the last three decades, from about 5% in 1980 to 12% for men and 11% for women in 2012 (Public Health Agency of Sweden, 2014). There is a socioeconomic gradient, with obesity being concentrated among the least educated. The gap is larger for women than for men: prevalence in women with lower secondary education is twice the prevalence among those with tertiary education (Public Health Agency of Sweden, 2014).

Obesity is still increasing among adults, but is less prevalent in Sweden than in many other OECD countries (Moraeus et al., 2014). In 2012, the rate of obesity among adults in Sweden (11.8%) was similar to that in the Netherlands (12%), but lower than in Denmark (13.4%), Germany (14.7%) and the United Kingdom (24.7%) (OECD, 2014).

Obesity is more common among older than among younger people, but the most rapid increase in prevalence has occurred among people aged 25–44 years, where the obesity rate has increased fivefold among women and threefold among men from 1980 to 2012 (Public Health Agency of Sweden, 2014). Among children, the prevalence of obesity among four-year-olds remained at approximately 2% in the period 2006–2012 (Public Health Agency of Sweden, 2014), although these data only refer to Stockholm county council and nationally representative data on childhood obesity are not available. At least in Stockholm county council and in western Sweden, the increase in obesity among children appears thus to have levelled off (Moraeus et al., 2014), but major differences exist according to parents' socioeconomic status, with higher obesity rates in lower socioeconomic groups and disadvantaged areas (Li et al., 2014; Magnusson et al., 2014; Moraeus et al., 2012).

Until a decade ago, in Sweden, obesity was considered a matter of personal responsibility, rather than a risk factor or even a disease. However, a shift in the media approach towards obesity contributed to a change in perception. Child obesity, in particular, is widely recognized as a health matter by both health professionals and the public sector (EASO, 2016). Obesity is also regarded as an equity issue in Sweden, with growing social inequalities increasingly perceived as the key contributor to the rising overweight and obesity rates, given that unhealthy food habits and low levels of physical activity are more prevalent among lower educated groups (Public Health Agency of Sweden, 2014; Li et al., 2014; Magnusson et al., 2014; Moraeus et al., 2012).

Policies and programmes

In contrast to other public health challenges and despite increasing calls for action, there are few policies and programmes dealing with the increasing prevalence of obesity in Sweden (Löndal, 2007). At present, no national guidelines for treatment and management of obesity have been issued by the central government. This is not the case, however, at local level: county councils

have implemented a range of pilot projects to prevent obesity and to promote healthy eating and physical activity (Nyberg et al., 2015; Doring et al., 2014).

The National Public Health Policy, adopted by the Swedish government in April 2003 (Government Bill 2002/03:35), and renewed in 2008, guides the work on public health issues in Sweden, including obesity prevention. It focuses on the socioeconomic determinants of health and health equity. Physical activity and healthy eating are among the 11 national objectives included in the policy (see Government Bill 2002/03:35 for the detailed list). The policy recognizes the role of physical inactivity and changes in eating habits in explaining the increasing trends of obesity. It aims to enhance opportunities for increased physical activity of the entire population, stimulating more physical activity in preschools, schools and at workplaces, during leisure time, and providing opportunities to older people, and those with chronic conditions and disabilities, to exercise on their own terms. The policy also highlights the preventive role of healthy eating to prevent illnesses.

In 2003, the Swedish government commissioned the former National Institute of Public Health (since 2014, the Public Health Agency of Sweden) and the National Food Agency to come up with a basis for an action plan (Schäfer Elinder et al., 2015). A draft plan was presented two years later, in 2005, which included 79 proposals to limit the supply of and demand for energy-dense and nutrient-poor food, while stimulating physical activity. The document was sent out for consultation, but no decision on it was taken. A new government was elected in 2006 and the new Minister in charge of public health stated in a newspaper interview in the same year that she intended to start a new round of consultations. However, this never happened (Schäfer Elinder et al., 2015), partly because the food industry positioned itself against those proposals that involved state regulation and taxes (Schäfer Elinder and von Haartman, 2007).

However, there are at present several related policies, programmes or recommendations relevant to the prevention of obesity. The National Food Agency of Sweden is in charge of the Nordic Nutrition Recommendations, which set the guidelines for dietary composition and recommended intakes of nutrients that form the basis of the national dietary recommendations in the Nordic countries (Norden, 2016). Nordic Nutrition Recommendations have been published every eight years since 1980. The latest edition (2012) also includes recommendations on adequate physical activity, which is recognized as contributing to the prevention of lifestyle-related diseases (Norden, 2014).

The Ministry of Education is responsible for implementing the Swedish Education Act, with physical education being mandatory in both primary and secondary schools. There is also an outdoor recreation policy (the Nature Conservation Bill; Swedish Government, 2002), overseen by the Swedish National Environmental Protection Agency, dealing with public access to natural spaces. The National Board of Housing, Building and Planning addresses physical activity and built environments in its "Vision for Sweden 2025" (Boverket, 2014) and tackles issues related to urban planning, car-free zones and walkability. Transport policies are governed by the Swedish Transport Administration, affecting opportunities for physical activity and active transport, including children's travel to school.

A nongovernmental organization (NGO), the Swedish Sports Confederation, has issued the strategy "Sports for Life" (*Idrotta hela livet*) and the policy programme "Sports wants" (*Idrotten vill*), as well as a strategic plan for collaboration between the Sports Confederation and schools in order to promote sports in schools.

In 2014, the government launched the 2014–2017 national strategy for the care of people with chronic diseases. Patient-centred care, evidence-based care, and prevention and early detection are the three main areas of improvement within the strategy, highlighting key interventions for patients with risk factors (Schäfer Elinder and von Haartman, 2007; The Commonwealth Fund, 2016). However, there is a lack of preventive and health promotion activities aimed at children and young people. Furthermore, no multisectoral cooperation is being promoted and structural measures are missing (Schäfer Elinder et al., 2015).

Problem identification and issue recognition

The identification of public health problems in Sweden is accomplished at the national level by the Public Health Agency of Sweden, in networks and collaboration with other national actors and authorities (e.g. the National Food Agency of Sweden and the National Board of Housing, Building and Planning). The Public Health Agency (until 2014, the National Institute of Public

Health), is a government agency under the Ministry of Health. Its main objective is to promote health and prevent diseases by providing the government and its agencies, as well as municipalities and county councils with evidence-based knowledge (Anell et al., 2012). It works to identify and highlight public health issues where effective interventions can be made by monitoring the development of public health, analysing the effect of important determinants and evaluating the effect of public health interventions (https://www.folkhalsomyndigheten.se).

Other key actors with whom Swedish public health services interface in terms of problem identification and agenda-setting are the World Health Organization (WHO), e.g. through the WHO Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013–2020, which aims to stop the increase of obesity and diabetes through multisectoral collaboration, led by national governments. The Swedish government has a strategy on noncommunicable diseases based on the WHO Global Action Plan. However, it is limited to the government's above-mentioned 2014–2017 national strategy for the care of people with chronic diseases (Government Offices, 2014). As mentioned above, this strategy does not involve children and young people, multisectoral collaboration or structural measures (Schäfer Elinder et al., 2015).

The Public Health Agency of Sweden is also the focal point for work carried out within the WHO's European network for the Promotion of Health-Enhancing Physical Activity (HEPA). In September 2015, the countries of the WHO European Region, including Sweden, adopted the Physical Activity Strategy for the WHO European Region 2016–2025, with a specific focus on multisectoral collaboration (Public Health Agency of Sweden, 2015).

Policy formulation

In Sweden, the responsibility for health services (including public health) is divided between the state, county councils (regions) and municipalities. The central government sets the overall national health policy, while local governments organize the delivery of services according to the needs of their population (Anell et al., 2012).

Policy formulation takes place mainly at national level, with the Ministry of Health and Social Affairs being responsible for the formulation of overall national health policies, based on evidence provided by the Public Health Agency (see the Problem identification and issue recognition section). Some county councils (e.g. Stockholm and Västra Götalandsregionen) have been active in the area of prevention of obesity, elaborating action plans on obesity for health care services, but also in collaboration with other actors. During the latter part of the 1990s and throughout the 2000s there have also been efforts to strengthen national influence, by, for example, developing national action plans. However, those related to obesity did not materialize (see the Policies and programmes section).

The European Union (EU) contributes to national policy formulation to tackle obesity. For example, a plan of action against childhood obesity has been formulated at EU level, which Sweden has endorsed but not yet implemented.

Decision-making

All levels of government are involved in decision-making on obesity-related policies and programmes: the government at national level and county councils and municipalities at regional and local level.

The national level is responsible for developing national health policy, enacting legislation that affects public health, guiding and regulating the regional and local levels in their delivery of public health services, and monitoring population health. It also coordinates national programmes and supports and monitors implementation. However, this national role may be considered relatively minor compared to the responsibilities of the regions, as the county and municipal levels have considerable autonomy in public health, including with regard to funding, setting priorities and implementing activities (Allin et al., 2004).

Elected politicians make the key decisions at the respective administrative levels. However, there is a lack of coordination between actors at different levels. Local municipalities seek advice from county councils which in turn have no mechanism for coordinating the actions of the different municipalities.

Policy implementation

According to the National Public Health Policy (Government Bill 2002/03:35), implementation of public health policies rests with all stakeholders in society. Regarding obesity, the Ministry of Health and Social Affairs, county councils and municipalities are in charge of policy implementation, although there is a lack of national funds for the coordination of activities among the different levels.

The public health actors at national level who are responsible for and have a clear mandate for policy implementation with regard to obesity include the Public Health Agency of Sweden, the National Food Agency and the National Board of Health and Welfare. The Public Health Agency of Sweden works on instruction from the Ministry of Health and initiates public campaigns and coordinates government-initiated policies and programmes at the national level. Priority is given to increasing the level of physical activity in the population. The National Food Agency reports to the Ministry of Enterprise and Innovation and is in charge of issuing recommendations for healthy eating. The National Food Agency has started a national public health nutrition network with practitioners at the regional level, which was constituted in November 2015. The purpose is to identify actors who could participate in a strategy focusing on healthy eating and physical activity (rather than specifically on obesity). In 2011, the National Board of Health and Welfare issued evidence-based guidelines for how health care services should work to improve individual health-related behaviours; for example, through smoking cessation, increasing physical activity among people with sedentary lifestyles, reducing risky alcohol consumption and changing unhealthy eating habits (National Board of Health and Welfare, 2011). The guidelines provide recommendations for supporting patients in their efforts to change unhealthy lifestyles, using mainly information and motivational interviewing techniques (National Board of Health and Welfare, 2011). These guidelines are currently being implemented, but implementation still seems to be patchy.

The county and municipal levels have considerable autonomy in implementing activities for public health, including with regard to setting priorities, funding and implementing activities (Allin et al., 2004). Some county councils (e.g. Stockholm and Västra Götalandsregionen) have been very active in the area of obesity prevention and have elaborated action plans on obesity for health care services (see the Policy formulation section).

Some other structures are in place to address obesity and have been so for decades. Maternal and child health services, which reach virtually all pregnant women, partners and their children, are in charge of monitoring the development of weight and height among children and mothers, and provide some health information to families. Another important structural measure are Sweden's free and nutritious school meals for all pupils in primary and secondary schools, which date back to the 19th century, and more recently, EU-subsidized low-fat school milk (Patterson and Schäfer Elinder, 2014). Since 2012, a web-based tool has been developed to facilitate schools monitor and improve school meal quality, according to national guidelines and recommendations. Follow-up research found that this may have had a positive effect on the quality of school meals served, at least in terms of adherence to guidelines for fibre and iron content (Patterson and Schäfer Elinder, 2014). However, other factors may also have had an impact, and longer term monitoring is needed.

Professional associations are also engaged in policy implementation, as in the case of physical activity on prescription. This is an initiative which was started in 2003 by Professional Associations for Physical Activity (a sub-association of the Swedish Society of Sports Medicine), listing different types of physical activity that licensed medical personnel can prescribe to patients (Raustorp and Sundberg, 2014). A dedicated website (http://www.fhi.se/far) and a handbook on physical activity in the prevention and treatment of diseases have been produced as tools for licensed health professionals when prescribing physical activity. The handbook (which is about 600 pages long and is also available in English) has been authored by professionals in Sweden and Norway and covers recommendations for specific groups of patients, as well as for specific health conditions, based on the latest scientific evidence. It is currently recommended and used by all county councils across Sweden (Swedish National Institute of Public Health, 2010).

Monitoring and evaluation

The responsibility for performing cross-sectoral follow-up studies and evaluations of national public health policies lies with the Public Health Agency of Sweden. Trends in eating habits and levels of physical activity in the population have been followed up by the agency and reported in public health reports.

Other national-level institutions evaluate implementation of their own protocols. For example, in 2015 the National Board of Health and Welfare evaluated the implementation of the national guidelines on disease prevention it issued in 2011, concluding that implementation needs to be intensified. The Board previously published evaluations of adherence to national guidelines on cardiac care, psychiatric care, stroke care, diabetes, cancer, dental care (National Board of Health and Welfare, 2015).

Nationally representative data on obesity among children in Sweden are not available (Sundblom et al., 2008), but long-term trends have been documented in various regions of Sweden based on data from routine school health examinations (Marild et al., 2004; Petersen et al., 2003). Furthermore, small-scale projects aimed at reducing childhood obesity are evaluated through maternal and child health services, but no national database exists.

There are currently no national surveys measuring the height and weight of adults in Sweden. Both at national and regional level, surveys only cover self-reported height and weight, which are then used to calculate overweight and obesity rates. A number of smaller research projects also collect data on overweight and obesity (Doring et al., 2014; Nyberg et al., 2015), although they do not form part of the health system information system run by the Ministry of Health and Social Affairs.

Conclusion and outlook

Obesity among adults is increasing in Sweden, but it still remains below the levels observed in many other OECD countries. In contrast, the increase in obesity among children seems to have levelled off, at least in Stockholm county council and in western Sweden. In many ways, Sweden has been a forerunner in child health, having free and nutritious meals in schools and day care centres, universal coverage in maternal and child health care, and school health services. However, obesity is increasingly recognized as an equity issue: a socioeconomic gradient can be seen both for adults and children, with higher obesity rates in lower socioeconomic groups and disadvantaged areas.

Yet, so far there is no national strategy or action plan on obesity, nor are there guidelines for treatment and management of obesity. There are ongoing discussions between the Public Health Agency of Sweden, other relevant agencies and actors, and the government regarding obesity and necessary actions. A recent debate article in the journal of the Swedish Medical Association called for a national strategy on nutrition and physical activity (Schäfer Elinder et al., 2015). Although obesity is recognized as a major public health problem, current work mainly focuses on people with other risk factors for disease and efforts are poorly coordinated. While there are regional action plans on obesity, they lack the support from a national strategy needed in order to be fully effective. Furthermore, targeted measures are still needed for groups of the population with greater needs, in order to reduce health inequities. Some small-scale intervention projects are ongoing, with limited funding, but large-scale evidence-based interventions are needed, and a monitoring system to evaluate the effects of interventions has yet to be developed.

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Alcohol

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The scale of the challenge

Recorded consumption of litres of pure alcohol per year has been, for many decades, lower in Sweden (as in other Nordic countries) than the EU average (WHO Regional Office for Europe, 2016). Several trends in recorded alcohol consumption can be seen over the years: an increase from the early 1960s until a peak in the mid-1970s (coinciding with a more liberal alcohol policy; see the Policies and programmes section); a decrease until the late 1990s, with a slight increase during this period, which can be explained by the adoption of EU regulations following Sweden's EU accession in 1995 (Raninen et al., 2014); and an increase since the early 2000s.

However, unrecorded consumption (e.g. personal imports, smuggling, home production) is significant in Sweden, reaching a peak of 38% of the estimated total alcohol consumption in 2004 and declining since then to 20% in 2010 (AMPHORA, 2013). While recorded consumption has recently been increasing, the estimated total (recorded and unrecorded) consumption has been decreasing since 2004, mainly due to the decline in unrecorded consumption. In 2014 the average consumption of pure alcohol was 9.4 litres per year, per person aged 15 years and above (National Public Health Agency, 2016). A recent study confirmed the declining trend in total alcohol consumption in adults (Kraus et al., 2015). Cohorts born in the 1940s and 1950s were key to the rising consumption levels up to 2005, but the progression through the life-course of these cohorts and a decrease in the prevalence and drinking volume in successive cohorts seem to have contributed to the recent downward trend in alcohol use in Sweden.

The proportion of intensive consumers of alcohol, defined as consuming six or more drinks at one occasion, has also declined from 2010–2015, particularly among persons aged 16–29 years, but increased among persons aged 65–84 years (National Public Health Agency, 2016)). Overall, about 20% of men and 13% of women were classified as intensive consumers. There were no differences in consumption between different educational groups among women; however, among men, lower educated men had higher rates of risk use of alcohol (National Public Health Agency, 2016). Risk use of alcohol is most common (with a prevalence of about 30%) among young adults (16–29 years old, both sexes), but has decreased in recent years. The average consumption of alcohol in young people (aged 15–16 years) has also declined, from about 4 litres of pure alcohol in 2004 to less than 2.5 litres in 2012 in boys and from 3 litres to slightly over 1.5 litres in girls. Rates of intensive consumption (defined as consuming the equivalent of one bottle of wine on the same occasion) have also declined, from 25% in girls and 30% in boys in 2004 to about 15% for both sexes in 2012. The decline has continued until 2016, when the rate was about 9%, and the number of alcohol abstainers has increased (Englund, 2016).

Treatment for alcohol diagnoses increased by 20% from 2006–2013 in the whole population. The rate of inpatient treatment for alcohol-related diagnoses in 2014 was 596 per 100 000 population among persons aged 15 years and above. Alcohol-related mortality has declined, particularly in men, and was about 24 per 100 000 in 2014. The corresponding figure among women was about one third of that in the same year (National Public Health Agency, 2016).

In terms of consumption patterns, in the years after the end of the Second World War, Sweden was a country where predominantly spirits were consumed, but during the 1980s the consumption of beer became dominant and since the early years of the the 21st century wine has become the most popular alcoholic drink (AMPHORA, 2013; Karlsson and Österberg, 2002; WHO Regional Office for Europe, 2016). While in 1961 the contribution to the amount of total alcohol consumed was 51.9% for spirits, 38.9% for beer and 9% for wine, by 2008 this had changed to 17.9%, 38.5%, and 43.5% respectively (AMPHORA, 2013).

Policies and programmes

Swedish alcohol policy has a long history, reaching back to the mid-19th century, when the Swedish government banned the private distillation of spirits in response to what is regarded as the period of the highest alcohol consumption in the country's history. Apart from a more liberal period in the 1960s and early 1970s, Swedish alcohol policy has been very restrictive (see Table 1).

Table 1 *Key dates in Sweden's alcohol policy since the early 1900s*

Year	Policy change
1917	Introduction of the Bratt system based on a ration book (people who were deemed able to drink without social damage were allowed to purchase alcoholic beverages off licensed premises and those who misused alcohol were not permitted to do so)
1955	Discontinuation of the Bratt system, but many aspects of strict alcohol control remain (the sale of alcoholic beverages with an alcohol volume of more than 3.5% was restricted to the non-profit national monopoly Systembolaget, a national chain of government-owned retail stores still in existence)
1965	The sale of medium-strength beer (with a maximum of 4.5% alcohol by volume) is introduced in grocery stores
1977	The sale of medium-strength beer in grocery stores is again prohibited; responsibility for alcohol policy is transferred from the Ministry of Finance to the Ministry of Health and Social Affairs
1978	Ban on almost all alcohol advertising
1982	The state-owned retail monopoly stores (Systembolaget) are closed on Saturdays (they have always been closed on Sundays)
1985	The Swedish government approves the WHO Regional Office for Europe's target of cutting overall alcohol consumption by 25% by 2000
1990	The maximum blood alcohol content for driving is lowered from 0.05% to 0.02%
1991	New legislation is enacted that makes it the main goal of Swedish alcohol control policy to redue alcohol consumption and alcohol abuse
1995	Sweden joins the EU. A new alcohol law is introduced, abolishing the monopolies on alcohol export, import, manufacturing and distribution. A National Plan of Action (on alcohol and drugs) is presented to the government (prepared under the leadership of the National Institute of Public Health, now the Public Health Agency of Sweden)
1997	Tax is on strong beer is reduced by 39% to reduce cross-border trade with Denmark
1999	All European countries approve the Second European Alcohol Action Plan for 2000–2005, drawn up by the WHO Regional Office for Europe (obliging them to introduce a tax policy which contributes to reducing alcohol-related harm)
2001	The state-owned retail monopoly stores are opened again on Saturdays (but still closed on Sundays); excise duty rates for wines is lowered by 18.8%; parliament adopts the Alcohol Action Plan for 2001–2005 to coordinate state-level actions for the prevention of alcohol harm and the dissemination of information
2004	The travel allowances from other EU countries are in principle abolished
2005	The 2003 legislation on alcohol advertising is complemented with tougher rules, introducing health warnings on alcohol advertising; the Action plan on alcohol and narcotics is adopted
2006	Government Bill 2005/06:30 on alcohol and illegal drugs passed in Parliament; the bill reduced availability, aimed to prevent consumption in childhood, and improve prevention among groups at high risk
2010	New alcohol law (2010:1622) is passed to ensure that age limits for the purchase of alcohol are respected
2011	Launch of the alcohol, narcotic drugs, doping and tobacco (ANDT) strategy for 2011–2015 – a cohesive strategy for alcohol, narcotic drugs, doping and tobacco policy
2015	ANDT strategy renewed for the 2016–2020 period

Sources: Based on AMPHORA (2013) and Karlsson and Österberg (2002)

In contrast to some other European countries, in Sweden alcohol is seen as a public health issue rather than as a commodity (Cisneros Örnberg, 2008). Alcohol policy in Sweden and other Nordic countries is based on the "total consumption model" and the theory of the "collectivity of drinking cultures" (Raninen et al., 2014), which assume that lowering the average consumption per capita will result in fewer people consuming harmful levels and thereby lower rates of alcohol-related harm.

On the national level, Swedish alcohol policy rests on the government retail monopoly (*Systembolaget*; see Table 1), high taxes (increasing with alcohol content), restrictions, licensing, preventive work at the local level, and work around alcohol-free zones (Cisneros Örnberg, 2008). In the 2000s the policy focus seems to have shifted from restrictive price (tax) policies to intensified efforts to disseminate information and influence public opinion and drinking habits, as the tax policy has lost some of its importance in the face of generous travellers' allowances for imports from lower-tax EU countries (Karlsson and Österberg, 2002).

In recent health policy documents, alcohol has been included, together with tobacco, illicit drugs and gambling, in the 11 priority areas of the National Public Health Policy (Government Bill 2002/03:35) and in the alcohol, narcotic drugs, doping and tobacco (ANDT) strategy launched in 2011 (Ministry of Health and Social Affairs, 2011) and renewed in 2015. There are also national evidence-based guidelines (issued in 2011 by the National Board on Health and Welfare) on how health care services should help patients to change unhealthy lifestyles; for example, through reducing risky alcohol consumption. There are also national guidelines, issued in 2007 and revised in 2014, for the treatment of substance abuse and dependence (National Board of Health and Welfare, 2015).

Sweden also plays an important role in international initiatives to address harmful alcohol consumption (Swedish Government, 2008). This includes working with other countries in the development and implementation of EU and WHO strategies to reduce the harmful effects of alcohol. Sweden had a leading role in developing the WHO's 2010 Global Strategy to Reduce the Harmful Use of Alcohol. Sweden also contributed to the EU's 2006 alcohol strategy and participates in the European Commission's Committee on Alcohol Policy and Action (CNAPA).

ANDT strategy

A cohesive strategy for alcohol, narcotic drugs, doping and tobacco (ANDT) policy was launched in 2011 and covered the 2011–2015 period. It combined the formerly separate policy goals for alcohol and narcotic drugs with those for tobacco and doping. It aimed to facilitate public support, create better conditions for coordination and collaboration between various actors, and obtain a common view on problems and solutions in the areas covered by the strategy (Ministry of Health and Social Affairs, 2011).

The overall policy objective of the strategy was to achieve a society free from illegal drugs and doping, with reduced alcohol-related medical and social harm, and reduced tobacco use. It envisaged zero tolerance towards illegal drugs and doping; measures aimed at reducing all tobacco use and deterring minors from starting to use tobacco; and prevention of all harmful consumption of alcohol; for example, by reducing consumption and harmful drinking habits (Ministry of Health and Social Affairs, 2011). The strategy established goals, priorities and an overall direction of public measures for the period 2011–2015. It covered a range of activities, such as prevention, care and treatment (the strategy took a life-course perspective, comprising activities ranging from early preventive interventions among children to treatment of people dependent on drugs and alcohol), limiting supply, strengthening supervision, and stepping up activities at EU and international level. It foresaw the involvement of many different sectors of society in its implementation. Besides the overall objective, the strategy contained seven long-term objectives and (linked to these) priority goals to be achieved in 2011–2015 (Swedish Government, 2015). The long-term objectives were:

- to reduce access to alcohol, narcotic drugs, doping and tobacco.
- to protect children against the harmful effects of alcohol, narcotic drugs, doping and tobacco.
- to reduce the number of children and young people who start using narcotic drugs or doping, or who initiate alcohol or tobacco use early.
- to reduce the number of people who develop a harmful use, addiction of or dependence on alcohol, narcotic drugs, doping and tobacco.
- to increase access to care and support of good quality for people with addiction or dependence.
- to reduce the number of people dying or being harmed because of their own or others' use of alcohol, narcotic drugs, doping and tobacco.
- to promote a public health-based and restrictive view on alcohol, narcotic drugs, doping and tobacco within the EU and internationally.

The implementation period for the ANDT strategy ended in 2015 and a renewed strategy was adopted for the 2016–2020 period (Government Office, 2015). The overall policy objective of the strategy remains unchanged, but more emphasis was put on gender equality. The long-term objectives of the strategy are:

- to reduce access to alcohol, narcotic drugs, doping and tobacco.
- The number of children and young people who start using narcotic drugs, doping and tobacco or who start using alcohol at an early age, should gradually decrease.

- The number of women and men and girls and boys developing harmful use, abuse or dependence on alcohol, narcotic drugs, doping and tobacco should gradually decrease.
- to ensure that women and men, girls and boys with substance abuse or dependence should have increased access to care and support of good quality that is based on their circumstances and needs.
- to reduce the number of women and men and girls and boys who die and are injured because of their own or others' use of alcohol, narcotic drugs, doping and tobacco.
- a public health-based approach in the ANDT strategy within the EU and internationally.

The Public Health Agency of Sweden is the main actor with responsibility for the overall monitoring of development in the ANDT sphere. The collection of data is organized on the basis of collaboration between the Public Health Agency of Sweden and several agencies and organizations. The intention of the monitoring system is to create a long-term infrastructure for follow-up and analysis of the strategy and is to be used for strategic public health work at the national, regional and local level.

Problem identification and issue recognition

The national government sets the agenda with regard to alcohol policy. Within the government, the Ministry of Health and Social Affairs is responsible for the ANDT strategy. National policies and laws are adopted by the parliament (*Riksdag*). The ANDT committee within the Ministry of Health and Social Affairs is the government's advisory body on alcohol, narcotic drugs, doping and tobacco issues. It advises the government and keeps it informed on matters such as research findings of relevance to shaping the ANDT strategy.

Technical support is provided by national-level agencies, mainly by the Public Health Agency of Sweden and the National Board of Health and Welfare. The Public Health Agency of Sweden is responsible for cross-sectoral follow-up of developments related to public health determinants, and for evaluating measures undertaken in the public health sphere. This includes the 11th target area (on tobacco, alcohol, narcotic drugs, doping and gaming) of the National Public Health Policy (Government Bill 2002/03:35). The National Board of Health and Welfare is responsible for supervising issues related to alcohol and substance abuse in health and social care services and institutions.

Policy formulation

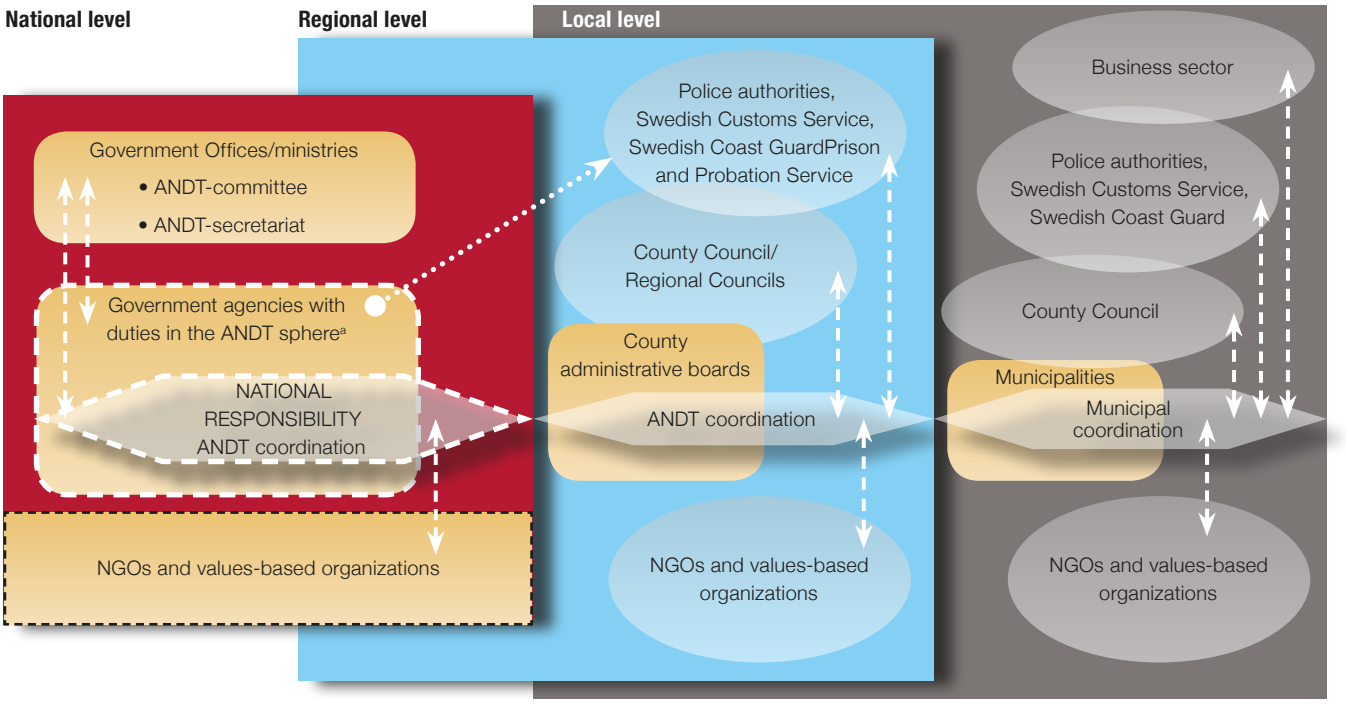
The National Public Health Policy (Government Bill 2002/03:35) provides the overall framework for formulating specific policies in the area of public health (Kraus et al., 2015). Policy formulation is done at the level of national authorities, in dialogue with other actors, but politicians make the ultimate decisions.

The government initiates most legislative proposals presented to parliament, although Members of Parliament and the various parliamentary committees, such as the ANDT committee, also have a right to submit new legislative proposals to parliament (Ministry of Justice, 2007). Before the government can draw up a legislative proposal, the matter in question must be analysed and evaluated (usually in an enquiry by an expert or a committee appointed by the government but operating independently of it). In this context, the parliamentary opposition and different interest groups are given an opportunity to follow intended reforms from an early stage. Enquiry reports are made available to the public. Before the government deals with the recommendations of an enquiry, its report is circulated for comments to relevant consultation bodies. These bodies may be central government agencies, local government authorities or other bodies, including NGOs, whose activities may be affected by the proposals.

Decision-making

When the consultation bodies have submitted their comments, the respective ministry (for alcohol policies, this would normally be the Ministry of Health and Social Affairs) drafts the bill that will be submitted to parliament. The report of the enquiry and the comments from the consultation bodies provide the basis for this process. The government works collectively, and thus the members of the government must have reached consensus before a bill is submitted to parliament (Ministry of Justice, 2007). The government is also obliged to refer major items of draft legislation to the Council on Legislation, mainly to ensure conformity with the legal system and compatibility with constitutional law. The council is, however, a consultative and not a decision-making body (Ministry of Justice, 2007).

Fig. 1 *Coordination of the ANDT strategy at different administrative levels*



Regional level

County administrative board: Responsible for the ANDT coordinating function and for project management and supervision

Local level

The municipality: Responsible under the Social Services Act, the Alcohol Act and the Tobacco Act. Alcohol/tobacco supervision (where municialities are responsible). Local anti-drug programme coordination.School education and after-school services.

Source: Ministry of Health and Social Affairs (2011)

Notes: [a]Public Health Agency of Sweden, National Board of Health and Welfare, Municipalities and county councils, National Board of Institutional Care, National Agency for Education, National Board for Youth Affairs, Crime prevention and crimefighting agencies, Swedish Transport Administration and the Swedish Transport Agency, Medical Products Agency, Swedish Consumer Agency.

When the government has submitted a bill to parliament, it is dealt with by one of the standing committees. Any member of parliament can table a counter-proposal (or amendment) to a bill introduced by the government. If a counter-proposal is formally adopted by parliament, the government is bound to implement its provisions. When the committee has completed its deliberations, it submits a report which is put to the parliament for debate and approval. If adopted, the bill becomes law (Ministry of Justice, 2007).

Policy implementation

Implementation of public health policies rests with all actors in society, in line with the determinants of health approach in the National Public Health Policy (see Fig. 1). The additional annual budget for the ANDT strategy was about 250 million Swedish Krona (approximately 27 million euros), over and above the regular work being done on alcohol prevention. The implementation of the ANDT policy is illustrated in Figs. 1 and 2.

The ANDT strategy was led and coordinated by a national-level ANDT committee and ANDT secretariat (both within the Ministry of Health and Social Affairs). The ANDT secretariat issued annual plans of action, including priorities, specific actions, follow-up and evaluations. The committee had a key role in spreading awareness of the goals and direction of government policy in the ANDT sphere. National authorities in other sectors and external actors were responsible for implementing the work prioritized for their specific sector. They were also responsible for follow-up and evaluation of their work with regard to goal attainment and quality. Responsible authorities issued annual reports on their work and submitted them to the ANDT secretariat and the ANDT committee.

The Public Health Agency of Sweden played a central role in the implementation of the ANDT strategy as its supervisory body and through funding local and development projects. It also supported ANDT coordinators at the county administrative boards and supervised and coordinated the work of NGOs. NGOs

usually conduct their work independently of government actors but during the implementation of the ANDT strategy 2011–2015 there were ambitions to unite with NGOs, giving consideration to their importance in the society. The Public Health Agency of Sweden has offered calls for funding of projects during the strategy period.

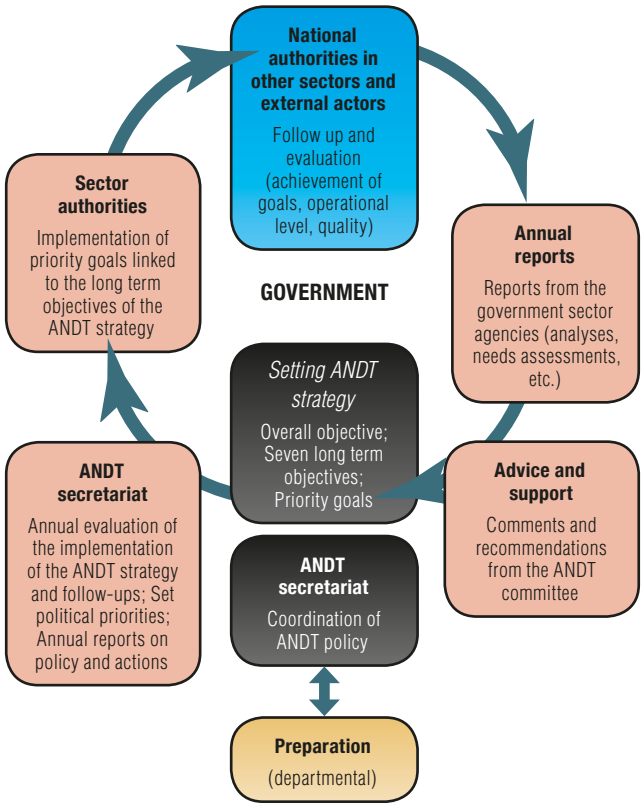
The county administrative boards, which had been tasked with disseminating the aims and objectives of the national ANDT policy throughout their counties (in collaboration with the Public Health Agency of Sweden) and with coordinating preventive work at the regional level (in cooperation with municipal ANDT coordinators), played a key role in the implementation of relevant parts of the ANDT strategy by linking efforts at local, regional and national level, including project management and supervision (Ministry of Health and Social Affairs, 2011).

The municipalities and county councils, which are in charge of delivering social services (municipalities) and health services (county councils/regions), are together responsible for the provision of substance abuse and addiction services and for the organization of local school education and after-school activities. According to the 1982 Health and Medical Services Act, health promotion and disease prevention on the population level is the responsibility of county councils.

The municipalities are also responsible for social care provision to children and young people. The municipal responsibilities stem from the Social Services Act, the Alcohol Act and the Tobacco Act. Decisions are taken by local politicians. In addition, since 2007, the Centre for Epidemiology and Community Medicine in the Stockholm County Council has operated the national alcohol helpline. The helpline is funded by both the Stockholm County Council and the Public Health Agency of Sweden (Heinemans et al., 2014).

A number of NGOs are also engaged and integrated in alcohol prevention work, supposedly following national policy guidelines.

Fig. 2 *Processes at the national level in the implementation of the ANDT strategy*



Source: Swedish Government (2008)

Monitoring and evaluation

Monitoring and evaluation is done at different levels. The ANDT strategy specified how follow-up and evaluation should be done. The aim was to follow consumption patterns in different population groups, as well as harm, abuse, health care consumption and effects of different types of public activities on the individuals concerned and their families. Another aim was to do economic evaluations from a comprehensive, integrated perspective. The Public Health Agency of Sweden is responsible for the overall monitoring of the ANDT strategy for which it runs a dedicated website (https://www.folkhalsomyndigheten.se/andtuppfoljning).

The government decided in 2013 to create a uniform system of indicators for follow-up of the strategy, including baseline studies on the extent of the problem. A system for reporting in accordance with EU requirements and international agreements was also planned to be put in place (Government Bill 2010/11:47: A cohesive strategy for alcohol, narcotics, doping and tobacco policies). Since 2014 the Public Health Agency of Sweden has the responsibility to provide and further develop the

monitoring system (https://www.folkhalsomyndigheten.se/andtuppfoljning/).

The Swedish Agency for Public Management (Statskontoret) was commissioned by the Swedish government to evaluate the Government's overall ANDT strategy 2011–2015. The results indicate that the monitoring systems' indicators contribute to follow up the development of the ANDT strategy, but the available data do not provide a fully comprehensive picture of developments in each of the long-term goals. Furthermore, the evaluations pointed out that gender aspects should permeate the implementation of measures, including policies and regulations, as well as monitoring the development (this was reflected in the goals for the 2016–2020 strategy; see the Policies and programmes section). The evaluation showed that indicators need to be broken down at the regional and local levels in order to provide knowledge for municipalities who are an important target group for the implementation of the ANDT strategy (Swedish Agency for Public Management, 2015).

Conclusion and outlook

The Swedish ANDT strategy is comprehensive, encompassing many relevant actors at different levels, with a leading role for public health services at the national level, but also designated coordination mechanisms at county council and municipal level. The strategy

Table 2 *Key actors involved in the policy process*

Key actors	Problem identification and issue recognition	Policy formulation	Decision-making	Policy implementation	Monitoring and evaluation
Parliament		+	+	+	
Government	+	+	+++	+	+
Ministry of Health and Social Affairs (incl. ANDT committee and ANDT secretariat)	+++	+++	+++	+++	+++
Public Health Agency of Sweden	++				++
National Board of Health and Welfare	++				++
Municipalities (incl. ANDT coordinators)				+++	
County councils / regions				++	
County administrative boards (incl. ANDT coordinators)				+++	
National Board of Institutional Care		(+)		(++)	
National Agency for Education		(+)		(++)	
National Board for Youth Affairs		(+)		(++)	
Crime prevention and crimefighting agencies[a]		(+)		(++)	
Swedish Transport Administration and the Swedish Transport Agency		(+)		(++)	
Swedish Consumer Agency		(+)		(++)	
Alcohol industry		(+)			
NGOs	+	(+)		(++)	
Professional associations	+	(+)			
Patient organizations		(+)			
General public					

Source: Authors' compilation

Notes: - = no role; () = possible involvement; += weak; ++= medium; +++=strong.

[a]The National Police Board, the Swedish Prosecution Authority, the National Economic Crimes Bureau, the National Tax Board, the Prison and Probation Service, the Swedish Enforcement Authority, the Swedish Customs Service and the Swedish Coast Guard.

is accompanied by a plan for coordination of activities, as well as for monitoring and evaluation, including international comparison and evaluation. There are also funds for research to support implementation of the strategy. The strategy is multisectoral, has a life-course perspective, and includes primary prevention as well as rehabilitation. It deals with limiting the physical availability of alcohol (with the support of the police, customs, and inspection of responsible sale of alcohol at restaurants and bars); preventing children and young people from damage and delaying their initiation of alcohol use; and improving health services for people in need of medical treatment and social care. The strategy has a public health perspective and relates to international policies in the field. It appears almost as a textbook example of a public health strategy.

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Antimicrobial resistance

Bo Burström, Cristina Hernández-Quevedo

The scale of the challenge

Antimicrobial resistance (AMR) is considered an important public health challenge in Sweden; it is mentioned in the National Public Health Policy as one of the 11 priority areas, as "resistance to antibiotics and other drugs" (Government Bill 2002/03:35). Sweden has put in place a range of measures aimed to address AMR and use of antibiotics per capita, as well as levels of resistance, are lower than in most other European countries. This is due to many factors, including early recognition of the threat posed by AMR in the mid-1990s, long-term measures initiated by the profession and national authorities (Public Health Agency of Sweden, 2014), strong local commitment, and strategic work and collaboration at regional and national level. There is also a long tradition of work on the rational use of antibiotics and on reducing the spread of infections within veterinary medicine, animal husbandry and agriculture (Public Health Agency of Sweden, 2014).

Every year, a joint report is produced by the Public Health Agency of Sweden and the National Veterinary Institute on consumption of antibiotics and antibiotic resistance among humans and animals. Total consumption of antibiotics among humans (including outpatient and hospital care) stood at 12.8 defined daily doses (DDD) per 1 000 inhabitants in 2014 (Swedres-Svarm, 2014). In outpatient care (including all sales on prescriptions), antibiotic sales stood at 328 prescriptions per 1 000 inhabitants and year in 2014. However, there are significant regional differences across Sweden's 21 counties, with the number of prescriptions per 1 000 inhabitants ranging from 359 (Stockholm County) to 260 (Västerbotten County) (Swedres-Svarm, 2014). From an international perspective, the level of antibiotic use and the prevalence of resistant bacteria in animals in Sweden is low (Public Health Agency of Sweden, 2014).

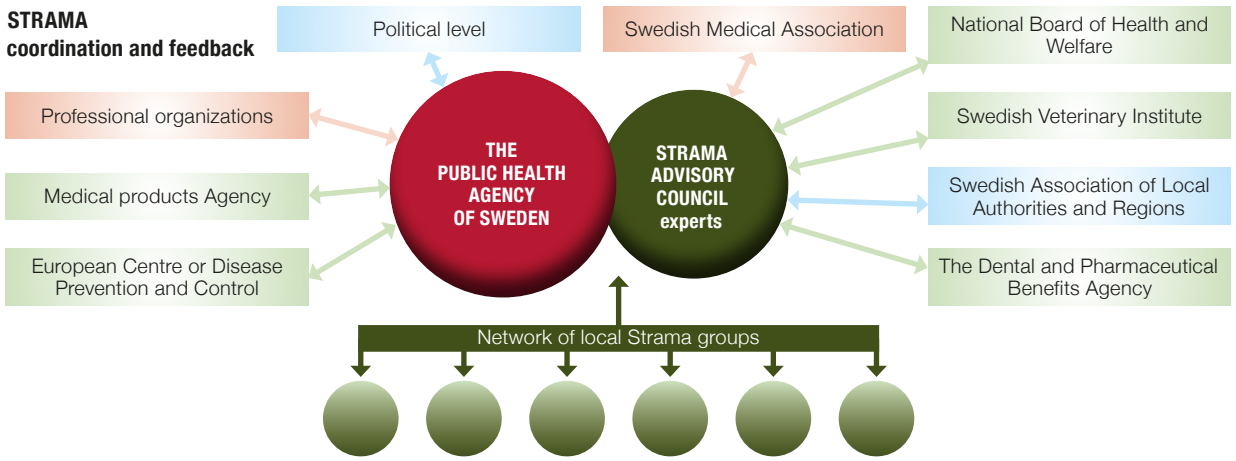
There is a general view that Swedish strategies to promote the rational use of antibiotics and to contain AMR have been effective (Swedres-Svarm, 2014). Yet, several unknown sources of infection are still reported (for example, in 2014 a large hospital in Sweden was confronted with vancomycin-resistant *enterococci*). Policy-makers are aware that efforts should be ongoing and that improved activities to optimize antibiotic use, prevent infections and minimize the spread of AMR are still required (Swedres-Svarm, 2014).

Policies and programmes

There is strong political support and commitment for the work to contain AMR and many stakeholders work at local and national level, with platforms or forums that facilitate information exchange across the two levels (Public Health Agency of Sweden, 2014). For example, in 2011, Sweden was one of the few EU Member States (together with France and the Netherlands) that had fully implemented European Commission Recommendation 2002/77/EC on the prudent use of antimicrobial agents in human medicine (Gerards, 2011).

The work against AMR in Sweden is characterized by extensive collaboration across different sectors of society, involving a range of actors, including many relevant government agencies, such as the Swedish Board of Agriculture, the Work Environment Agency, the National Food Agency, the Swedish Chemicals Agency, the Medical Products Agency, the Swedish Civil Contingencies Agency, the Swedish Environment Protection Agency, the National Board of Health and Welfare, the National Veterinary Institute, the Dental and Pharmaceutical Benefits Agency, the Health and

Fig. 3 *Strama's relationships with other professional organizations*



Source: Public Health Agency of Sweden (2014)

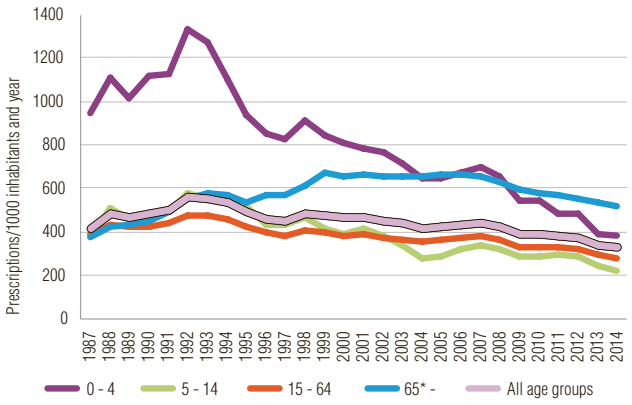
Social Care Inspectorate, the Public Health Agency of Sweden, the Swedish Research Council *Formas*, the Swedish Research Council for Health, Working Life and Social Welfare (*Forte*), the Swedish Research Council (VR) and Sweden's innovation agency VINNOVA (National Board of Health and Welfare and Swedish Board of Agriculture, 2015). At national level, researchers at different universities are part of a national collaboration network (One Health Sweden) for those interested in zoonotic infections and antibiotic resistance, with support from the Swedish research councils (One Health Sweden, 2016).

The threat of AMR was recognized early, in the early 1990s. In 1995, the Swedish strategic programme against antibiotic resistance (*Strama*) was established by professionals, based on multisectoral collaboration at local and national level. Initially, it consisted of a voluntary network of agencies and organizations at national level, connected with a network of local *Strama* groups. These local groups are now present in each country council (see Fig. 3). They are multiprofessional teams which play a central role, for example, through their in-depth knowledge of local conditions with regard to the use of antibiotics and the prevention of resistance (Public Health Agency of Sweden, 2014).

The members constituting the informal *Strama* network in the mid-1990s were the Swedish Society of Medicine's expert group on antibiotics, the Swedish Institute for Communicable Disease Control (now the Public Health Agency of Sweden), the Swedish Society for Communicable Disease Prevention and Control, the Medical Products Agency, the National Board of Health and Welfare, the state-owned pharmaceutical company Apoteksbolaget AB, the Network for Pharmaceutical Epidemiology, the National Veterinary Institute and representatives of local pharmaceutical committees in county councils (Public Health Agency of Sweden, 2014).

Part of the initial strategy was to implement treatment recommendations for common infections in outpatient care. Infectious disease specialists and general practitioners cooperated with several authorities in the early initiative at national level to reduce antibiotic prescription. At the local level, similar bodies were formed in county councils. These efforts resulted in a sustained decrease in antibiotic consumption (Ekdahl et al., 1998; Molstad and Cars, 1999; Molstad et al., 2008), particularly among young children (see Fig. 4). Subsequent evaluations have confirmed a sustained reduction in antibiotic consumption (National Board of Health and Welfare and Swedish Board of Agriculture, 2015).

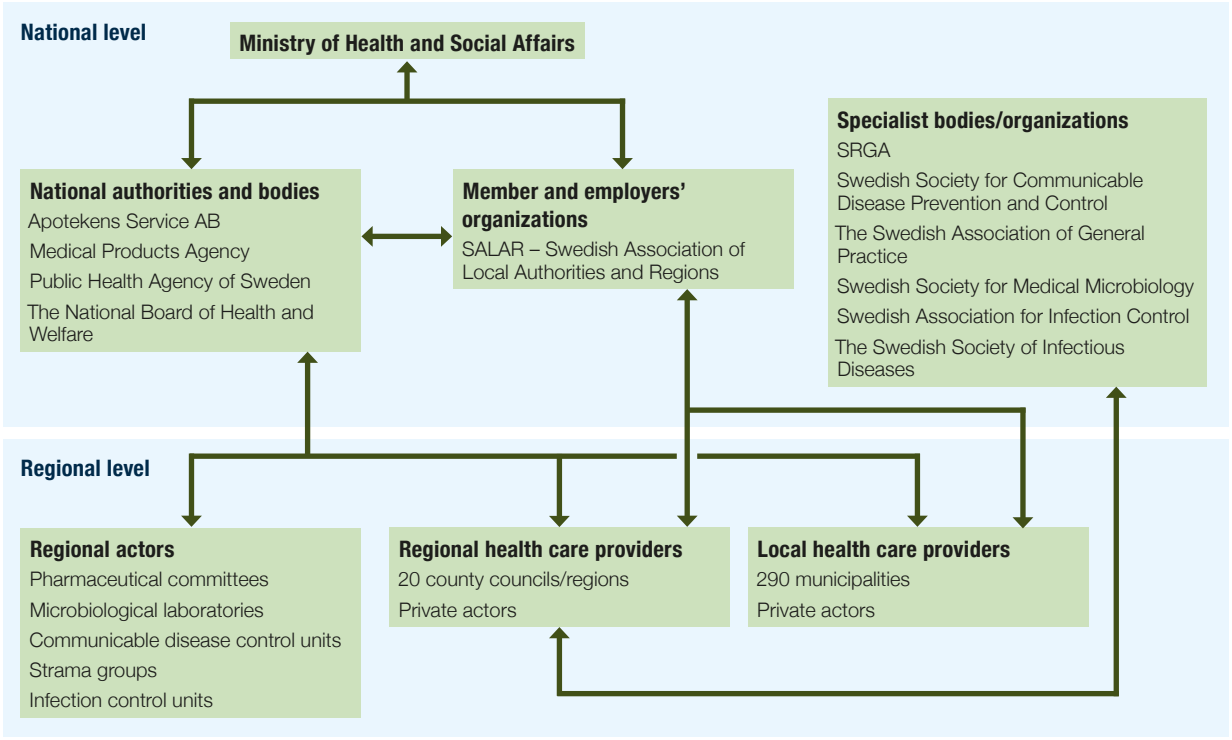
Fig. 4 *The sales of antibiotics for systemic use in outpatient care (sales on prescriptions) 1987- 2014, prescriptions/1 000 inhabitants and year, both sexes, different age groups. The sales in 2014 decreased in all age groups.*



Source: Swedres-Svarm (2014)

*1987-2000 includes antibiotic sale to people aged 65-99 years. From 1999. The statistic includes antibiotic sale on Apo-Dose.

Fig. 5 *Actors involved at national and regional level in the work on AMR*



Source: Public Health Agency of Sweden (2014)

Initially an NGO, *Strama* later received a remit from the government. A national action plan on AMR was developed in 2000 and included a range of measures on human and veterinary medicines and food products to protect the efficiency of antibiotics for treating both humans and animals. The need for intersectoral collaboration was also highlighted in the proposal, as well as the importance of appropriate monitoring (National Board of Health and Welfare, 2000).

Based on this plan, the government developed a strategy for coordinated work towards the containment of AMR and health care-related diseases, adopted by parliament in 2006. The strategy prescribed a cross-sectoral approach and included a range of measures both for the medical (i.e. human and veterinary medicine) and non-medical (i.e. agriculture and food sectors) use of antibiotics (Ministry of Health and Social Affairs, 2005).

In 2012, the 2006 strategy was extended by the creation of a national coordinating mechanism for the containment of AMR and health care-associated infections, jointly run by the National Board of Health and Welfare (since mid-2015 this task has been taken over by the Public Health Agency of Sweden) and the Swedish Board of Agriculture. It facilitates cooperation between 21 government agencies dealing with public health, animal health, food, the environment, and research and innovation. Its objectives included to facilitate information exchange across all actors involved in AMR work, including public authorities, professional and interest-based public health organizations, and the animal health, food and environmental sectors (Public Health Agency of Sweden, 2014). A new National AMR Strategy was adopted in 2016, covering the period 2016–2020.

Since 2010, the Public Health Agency of Sweden works for an interdisciplinary, locally approved model to reduce AMR. Cross-sectoral collaboration is characterized by the involvement of all relevant stakeholders (national and local authorities, professional and non-profit organizations), as illustrated in Fig. 5.

Key activities include the monitoring and analysis of the use of antibiotics and levels of resistance, the issuance of treatment recommendations and knowledge-based documents, the training of physicians, the provision of information, the conduct of studies, and the engagement in international monitoring and advocacy.

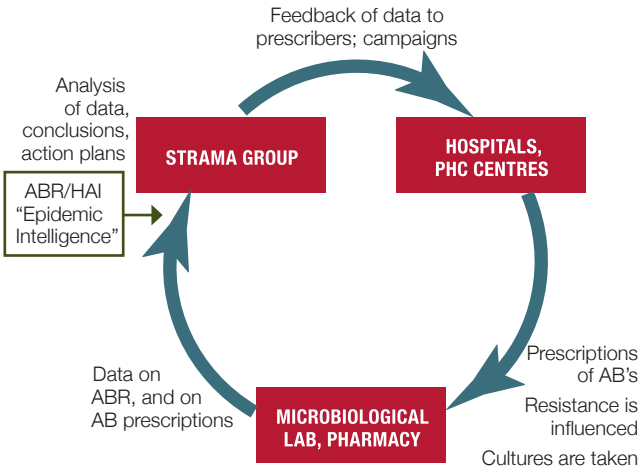
Regular meetings with prescribers, informing them of the latest data on resistance and prescription patterns in relation to treatment recommendations, is a key component of the strategy. National and local monitoring of resistance development is an important basis for developing treatment recommendations, and measuring

the impact of interventions. Resistance monitoring is done on a voluntary basis, in addition to the mandatory reporting of a number of resistant pathogens according to the Swedish Communicable Disease Act (2004: 168). Resistance monitoring has good geographical coverage, thanks to the collaboration between the Public Health Agency of Sweden and local laboratories. A majority of hospital patients have cultures taken before having antibiotic treatment; data from these cultures, screening and transmission-tracing of antibiotic-resistant bacteria are the basis of resistance surveillance. Epidemiological typing is carried out on notifiable forms of resistance. The Public Health Agency of Sweden is responsible for national monitoring and analysis of antibiotic resistance (Public Health Agency of Sweden, 2014).

Another important component of the AMR strategy is the monitoring of antibiotic sales, with data delivered by all registered pharmacies. The Public Health Agency is responsible at the national level for surveillance, analysis and feedback on consumption of antibiotics in human medicine. Although not possible at present, work is under way to generate diagnosis-linked data for surveillance of antibiotic prescriptions and health care-associated infections (Public Health Agency of Sweden, 2014).

The AMR strategy also includes evidence-based national treatment recommendations (developed by the Swedish Society for Infectious Diseases) to prescribers and providers for infections in inpatient care. In addition, the strategy involves the provision of information to health workers, patients, the public and the media. The Public Health Agency of Sweden and local *Strama* groups cooperate on communication efforts and strategies (Public Health Agency of Sweden, 2014) (see Fig. 6).

Fig. 6 *The cyclical process of the* Strama *work*



Source: Public Health Agency of Sweden (2014)

Notes: AB: antibiotic; ABR: antibiotic resistance;HAI: hospital-associated infections; PHC: primary health care.

In 2015, a national action plan (covering the period 2015–2017) for the coordination of national authorities in AMR work was presented by the National Board of Health and Social Welfare and the Swedish Board of Agriculture (National Board of Health and Welfare and Swedish Board of Agriculture, 2015). The coordination responsibility was transferred to the Public Health Agency of Sweden on 1 July 2015. The plan emphasizes the role of intersectoral collaboration. Furthermore, it considers international action as one of the most important factors affecting trends in Sweden (National Board of Health and Welfare and Swedish Board of Agriculture, 2015). The plan describes six target areas:

- international work;
- knowledge and competence;
- prevent, detect and act;
- wise and rational use of antibiotics;
- data collection and analysis;
- diagnostics and effective treatment.

Activities in the six areas are specified for humans, animals and the environment.

Sweden also has a strong international commitment to address the threat of AMR. In 2004, the ReACT initiative, an international nongovernmental organization (NGO) to reduce AMR, was conceived in a meeting of concerned health professionals, scientists and health activists that took place in Uppsala, with the Swedish professor Otto Cars being the founder of the network (ReACT, 2016). In 2011, on initiative of Sweden and Italy, the EU's European Research Area (ERA) launched a Joint Programming Initiative on Antimicrobial Resistance (JPIAMR), which coordinates national funding and supports collaborative action to fill knowledge gaps in 22 countries, mainly from Europe (JPIAMR, 2016). At the time of writing (March 2016), the Swedish Research Council hosted the secretariat's initiative. The *Formas*, *Forte* and VR research councils also cooperated with China and India in bilateral research on AMR (National Board of Health and Welfare and Swedish Board of Agriculture, 2015; Public Health Agency of Sweden, 2014). Furthermore, the Swedish national surveillance networks contribute and feed into the EU networks European Antimicrobial Resistance Surveillance Net (EARS-Net), the Antimicrobial Consumption Interactive

database (ESAC-net), the Healthcare-Associated Infections database (HAI-net) and the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC). The Public Health Agency has also taken on a leadership role in the development of the Global AMR Surveillance System (GLASS) led by the WHO.

A number of specific activities are listed in the 2015–2017 action plan under international work, including information sharing; acknowledging AMR as a threat to health and society; sharing information and experiences on AMR internationally; spreading information about the Swedish experience in AMR work internationally; actively striving to include AMR in development assistance and among the sustainable development goals; working within the EU to reduce the use of antimicrobials in commodities, develop and implement the strategic research agenda within the Joint Programming Initiative for Antimicrobial Research, and include environmental concerns in EU legislation on pharmaceutical drugs (National Board of Health and Welfare and Swedish Board of Agriculture, 2015).

Problem identification and issue recognition

The identification of public health problems at the national level is the responsibility of the Public Health Agency of Sweden, in networks and collaborations with other national actors and authorities (see The scale of the problem section). The Public Health Agency of Sweden (until 2014 the National Institute of Public Health and the Swedish Institute for Communicable Disease Control) is a government agency under the Ministry of Health. Its main objective is to promote health and prevent diseases by providing the government, government agencies, municipalities and county councils with evidence-based knowledge (Anell et al., 2012). It works to identify and highlight public health issues where effective interventions can be made by monitoring the development of public health, analysing the effect of important determinants of health and evaluating the effect of public health interventions (Public Health Agency of Sweden, 2016). The Public Health Agency of Sweden closely collaborates with other institutions (e.g. the National Veterinary Institute) to provide annual reports on the trends of AMR, which allow the identification of problems that require government attention. For example, the 2014 report highlighted the existence of some unknown sources of infection which required government attention (see The scale of the problem section) (Swedres-Svarm, 2014).

Another key actor in problem identification and agenda-setting is the medical profession, which established *Strama*, triggered by a rapid increase in resistance to penicillin among *pneumococci* in southern Sweden in the early 1990s (Public Health Agency of Sweden, 2014). Only after the *Strama* network had been formed did the government commission a proposal for a national action plan (see the Policies and programmes section and the Policy formation section).

Other key actors with which Swedish public health services interface in terms of problem identification and agenda-setting for AMR are the EU and WHO. The Swedish government strategies to tackle AMR follow the European Commission Recommendation 2002/77/EC on the prudent use of antimicrobial agents in human medicine (Gerards, 2011), As Well As the 2001 WHO Global Strategy for Containment of AMR (WHO, 2001) and the WHO Global Action Plan (WHO, 2015). Sweden has also joined specific WHO campaigns aimed at reducing AMR, such as "Clean Care Is Safer Care" (Public Health Agency of Sweden, 2014). Furthermore, international networks supported by Sweden, such as ReAct (see the Policies and programmes section), work for increased awareness of the problem posed by AMR and aim to facilitate cooperation and joint action on this issue (ReAct, 2016).

Policy formulation

In Sweden, the responsibility for health service planning and provision (including of public health services) is divided between the state, county councils (regions) and municipalities. The central government sets overall national health policies, while local governments organize the delivery of services according to the needs of their populations (Anell et al., 2012).

Policy formulation regarding AMR takes place mainly at the national level, in dialogue with the medical profession and a multitude of actors. The government is in charge of submitting proposed strategies for coordinated work towards the containment of antibiotic resistance and health care-associated diseases (e.g. the 2005 action strategy; Government Offices (2005)) or it commissions other national actors to draw up proposals (e.g. in 2000, the National Board of Health and Welfare was

commissioned by the government to provide a proposal for a national action plan to tackle antibiotic resistance (National Board, 2000)). Local actors are involved in drawing up local guidelines and procedures (Public Health Agency, 2014).

At international level, the EU and WHO contribute to setting objectives and identifying policy instruments for national implementation. For example, as mentioned in the previous sections, Sweden has endorsed the European Commission Recommendation 2002/77/EC on the prudent use of antimicrobial agents in human medicine (see the Problem identification and issue recognition section) and considers the WHO 2001 Global Strategy for Containment of Antimicrobial Resistance as its starting-point, as recognized by the 2005 National Strategy on the Prevention of Antimicrobial Resistance and Healthcare-Associated Infections (Government Offices, 2005).

Decision-making

All levels of government are involved in decision-making on AMR: the national government at the national level and county councils (in relation to health care services) and municipalities at the regional and local level. At each level, politicians make the decisions. The Public Health Agency of Sweden serves as a national level knowledge centre for public health, with responsibility for technical support and developing methods and strategies (Government Bill 2002/03:35).

While the national level is responsible for enacting legislation to tackle AMR, guiding and regulating the regional and local levels in their delivery of public health services, and monitoring population health, the county and municipal levels have considerable autonomy to undertake AMR work in terms of funding, setting priorities and implementing activities (Allin et al., 2004).

Policy implementation

According to the National Public Health Policy (Government Bill 2002/03:35), implementation of public health policies rest with all stakeholders in society.

On the national level, the Ministry of Health and Social Affairs is working to realize the objectives of the national health policies approved by parliament. A number of different actors support the ministry's activities related to AMR and health care-associated infections in human medicine, including the National Board of Health and Welfare, the Public Health Agency of Sweden and the Medical Products Agency. There are also a number of specialist associations at the national level that are involved in policy implementation, such as the Swedish Association of Local Authorities and Regions (SALAR), which is an employer and interest organization for the municipalities and county councils.

At the regional and local level, microbiological laboratories, communicable disease units, local *Strama* groups, pharmaceutical committees and infection control units are involved in policy implementation. Every county council has a County Medical Officer for communicable disease control who is responsible for planning and leading the local work for communicable disease prevention and control within the county council or region (Public Health Agency, 2014).

Monitoring and evaluation

The Public Health Agency of Sweden is responsible for national-level surveillance, analysis and feedback on consumption of antibiotics in human medicine, and for national monitoring and analysis of antibiotic resistance. Resistance monitoring is done according to the Communicable Disease Act and on a voluntary basis and has good geographical coverage.

All pharmacies in Sweden are required to provide statistics on the sales of all products on a daily basis to the Swedish eHealth Agency, which maintains a national database with sales statistics for all drugs and provides statistics to national and regional authorities and to others on a commercial basis (Swedres-Svarm, 2014). When products are dispensed for animals, the animal species (as given on the prescription) is recorded and reported to the Swedish eHealth Agency jointly with the sales data (Swedres-Svarm, 2014).

Antibiotic consumption in hospital care is measured as DDDs per 1 000 inhabitants and day and as DDDs per 100 patient-days or admissions, following WHO (2001) recommendations. Information on the number of DDDs is collected by the Swedish eHealth Agency, based on local medicines statistics systems in the counties (Swedres-Svarm, 2014).

There are also the following systems of national resistance surveillance:

- ResNet, where participating laboratories submit susceptibility testing data to a web-based programme to observe resistance conditions locally and nationally in Sweden.
- The European Antimicrobial Resistance Surveillance Network (EARS-Net) of the European Centre for Disease Prevention and Control (ECDC), which monitors invasive infections in Europe and has an important role in informing about the occurrence of antibiotic resistance in Europe. Sweden contributes data to EARS-Net.
- SmiNet, which manages notifications from treating physicians and laboratories nationally in Sweden.
- SveBar, which is an automated IT system for early alerts and resistance monitoring, based on results from cultures being transferred to a national database on a daily basis for early warnings and feedback in Sweden.

Several initiatives have been taken to set up registers and systems that generate diagnosis-linked information from inpatient and outpatient care, for instance with regard to infections in primary care or the Anti-Infection Tool, a national IT system for registration of health care-associated infections and antibiotic prescription. Since July 2005, the Swedish National Board of Health and Welfare runs an individually based register on all drugs prescribed and dispensed in outpatient care. With other data sources, these data give information on the number of individuals treated with at least one course of antibiotics during a specific period of time, i.e. the number of users per 1 000 inhabitants and year. It is also possible to identify the number of purchases per person (Swedres-Svarm, 2014).

Conclusion and outlook

The work against AMR is well developed in Sweden, with strong political support and commitment that have resulted in overall favourable conditions to contain the spread of AMR. Much of this was achieved through early recognition and action, first informally and subsequently taken over by national authorities. The *Strama* work has also been extended to the global level, through the international network Action on Antibiotic Resistance (ReAct). Sweden is currently putting a lot of emphasis on international work to curb AMR, within both the EU and WHO, but also in bilateral development assistance projects and other international arenas.

In an evaluation carried out by ECDC in 2010 (Report from the ECDC Visit in Sweden to Discuss Antimicrobial Resistance, 25–29 January 2010, quoted in National Board of Health and Welfare, 2011), Sweden was considered to have made remarkable achievements which could be highlighted to other countries as examples of best practice (National Board of Health and Welfare, 2011):

- long-term commitment of the country to AMR prevention and control;
- organization of AMR prevention and control by the national group *Strama*, with interaction between national, local and other stakeholders and bridging primary and hospital care;
- a work culture of professional accountability and of reaching consensus among professionals about best practice, also applicable to the control of AMR;
- high-level commitment to patient safety and transparency of patient care practices;
- high-level awareness, involvement and commitment of all stakeholders, including management, about AMR and infection control;
- seamless collaboration between different levels of health care and coordination between authorities;
- and a high level of resources devoted to the fight against AMR, including number of staff, qualification of staff, facilities and equipment.

Sweden's public health services had an important role in this successful response, in cooperation with a range of other actors.

However, it has been argued that much remains to be done to achieve the fully rational use of antibiotics in Sweden, including the need to reinforce the role of the *Strama* network. For example, reliable methods to compare prescription data at regional, hospital and community level still need to be developed. Investing in new laboratory technology, as well as better cooperation between clinics and laboratories to accelerate diagnostic procedures, have also been highlighted as necessary measures that would need to be taken to improve the response to AMR in Sweden (Public Health Agency, 2014).

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