

September 2019

Multisectoral action to tackle antimicrobial resistance

Synergy between sectors: controlling antimicrobial resistance through joint government actions

Antimicrobial agents are used to treat infectious diseases caused by microorganisms such as bacteria, viruses or fungi. Antibiotics are medicine used to treat people and animals for bacterial diseases. The development of antibiotics is among the most important achievements of medical science. This medicine can cure dangerous diseases such as pneumonia or septicaemia that often proved fatal in the past.

Antimicrobial resistance is the ability of microorganisms to resist antimicrobial agents. Especially concerning is the global rise in bacteria that can resist the effect of common antibiotics. Antibiotic resistance means bacteria becoming less sensitive and, in some cases, entirely insensitive to antibiotics, so that treating people for common and

serious infections becomes difficult or impossible.

The development of resistance is a natural adaptation mechanism in microorganisms such as bacteria. Resistant bacterial strains are present everywhere in the environment. However, the excessive and inappropriate use of antibiotics, such as using them to treat viral conditions or as growth promoters in animal husbandry, accelerates the development of resistance. Poor infection control practices and the spread of resistant organisms connected to global trade have transformed antibiotic resistance into a serious threat to public health worldwide.

The problem of increasing antimicrobial resistance affects human medicine,

veterinary medicine, agriculture, food safety and the environment. Only cross-cutting involvement of diverse stakeholders across sectors and levels of organization and governance in accordance with the One Health approach has a chance of succeeding, which is in line with the goal and approaches of Health 2020.

The main policies shaping efforts and priorities in the WHO European Region are the Global Action Plan on Antimicrobial Resistance, endorsed by WHO, the Food and Agriculture Organization of the United Nations and World Organisation for Animal Health in May 2015 and the European strategic action plan on antibiotic resistance adopted by European Member States in September 2011.

Key messages

The goal of Health 2020 is to significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality.



1

Health and well-being are public goods and assets for human development that contribute to strong, dynamic and creative societies.



2

Health and well-being are best achieved if the whole of government works together and Health 2020 promotes whole-of-government and whole-of-society approaches.



5

Social progress is best measured by objective indicators of health, health equity and well-being, and this includes the conditions in which people are born, live and work.

HEALTH 2020



4

Different countries, cities and communities have different starting-points: each is unique and can pursue common goals through different pathways.



3

Health and well-being can be improved and health inequalities reduced through appropriate policies and working with other sectors.



Setting the scene: antimicrobial resistance and health in the WHO European Region

In the European Union (EU) and the European Economic Area in 2015 alone, an estimated 33 000 people died as a result of infections that cannot be treated with antimicrobial agents. Infections caused by these selected multidrug-resistant bacteria in the EU result in extra health-care costs and productivity losses of at least €1.5 billion each year.

According to *Stemming the superbug tide: just a few dollars more*, southern Europe risks being especially severely affected. Italy, Greece and Portugal are forecast to top the list of Organisation for Economic Co-operation and Development (OECD) countries with the highest mortality rates from antimicrobial resistance.

The resistance proportions for eight high-priority combinations of antibiotics and bacteria increased from 14% in 2005 to 17% in 2015 across OECD countries, but countries differed greatly. The average resistance proportions in Greece, the Republic of Korea and

Turkey (about 35%) were seven times higher than in Iceland, Netherlands and Norway, the countries with the lowest proportions (about 5%).

The average resistance growth seems to be slowing down, but the report emphasizes serious causes for concern. Across the OECD, resistance to second- and third-line antibiotics – the most advanced and effective line of defence to prevent infections – is expected to be 70% higher in 2030 compared with 2005 for the same combinations of antibiotics and bacteria, and resistance to third-line treatments will double in EU countries.

Surveillance provides a basis for taking action to control AMR and to estimate the health and economic burden. WHO/Europe together with partners established the Central Asian and Eastern European Surveillance of Antimicrobial Resistance (CAESAR) network. It is one of many activities to support Member States in their efforts to tackle AMR.

17%

increase increase across the OECD in resistance proportions for eight high-priority combinations of antibiotics and bacteria

33K

people died across the EU and EEA as a result of infections that cannot be treated with antimicrobial agents (2017)

70%

higher line of defence to prevent infections in 2030 compared to 2005 across the OECD

1.5b

extra health-care costs and productivity losses of at least €1.5 billion each year in the EU and EEA

The Sustainable Development Goals

All 193 Member States of the United Nations adopted the United Nations 2030 Agenda for Sustainable Development at the United Nations Sustainable Development Summit in 2015. The 17 Sustainable Development Goals are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. They build on the successes of the Millennium Development Goals while including new areas such as

climate change, economic inequality, innovation, sustainable consumption and peace and justice. The Goals are interconnected and require multisectoral and intersectoral action – the key to success for any one Goal involves tackling issues more commonly associated with another. Although AMR is not specifically referred to in any of the SDGs, the achievement of many of these is conditional upon addressing AMR effectively (e.g. SDGs 2, 3, 6, and 17).



Health 2020: a framework for action

The goal of Health 2020 is to significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality.

All Member States of the WHO European Region have agreed to monitor progress against six common targets:

1. Reduce premature mortality in the European Region by 2020
2. Increase life expectancy in the European Region
3. Reduce health inequalities in the European Region
4. Enhance the well-being of the European Region population
5. Ensure universal health coverage and the right to the highest attainable level of health
6. Set national goals and targets related to health in Member States

What makes societies prosper and flourish can also make people healthy: policies that recognize this have more impact. Building awareness and capacity to make health objectives part of society's overall socioeconomic and human development is essential. All policy fields, including health, need to reform their ways of working and use new forms and approaches to policy at the global, national and local levels.

Multisectoral determinants of antimicrobial resistance

Antimicrobial resistance is a growing threat to global health. First, many of the same microbes (such as bacteria, viruses, fungi and parasites) affect both animals and humans through the environment they share, and 60% of all human diseases originate in animals. This means that, when microbes develop drug resistance in animals, they can easily go on to affect humans, creating difficulty in

treating the people who have these diseases and infections. Second, the same classes of antimicrobial agents are often used for both humans and food-producing animals. Third, the food chain is an important route for transmitting disease.

This indicates that no single sector has the capacity to solve the growing problem of antimicrobial resistance

alone and that collective action is needed to make progress. The One Health approach means coordinating action across sectors – such as public health, veterinary medicine and environment health – to achieve the best possible health outcomes for all.

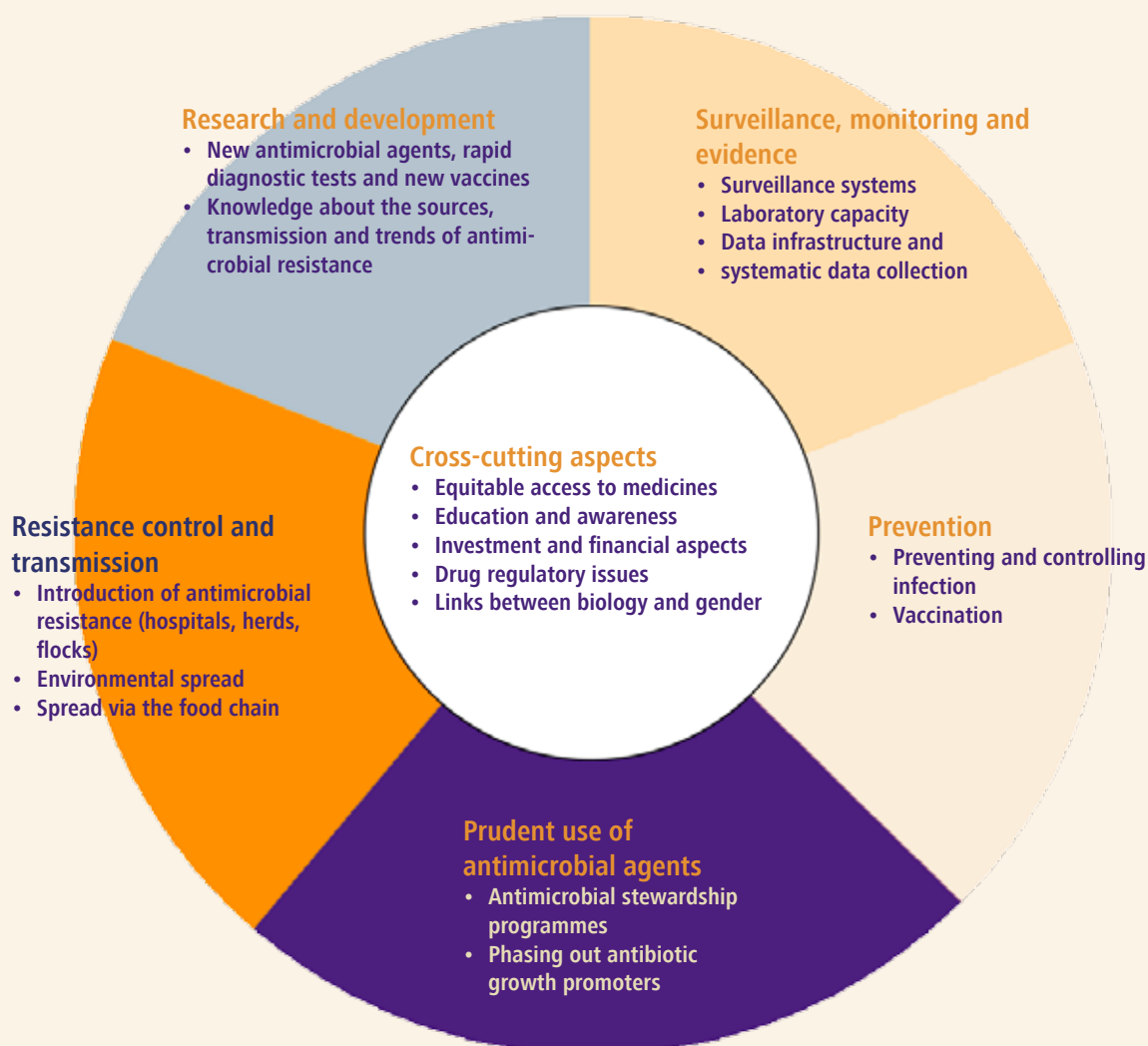


Fig. 1: Joint actions across sectors to address antimicrobial resistance

Intersectoral policies and interventions to address the determinants of antimicrobial resistance

As reflected in Fig. 1, given the diversity of government actors involved in combating antimicrobial resistance, interventions within and outside the health sector are needed to address the underlying determinants of health. The following charts include examples of adequate joint actions throughout the different phases to improve the situation regarding antimicrobial resistance.

Surveillance, monitoring and evidence

CHALLENGES IN RELATION TO:	MAIN SECTORS INVOLVED	JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE
Surveillance systems	Veterinary sector, food safety, agricultural sector, environmental sector, reference laboratories, health-care facilities, pharmacies, universities	Developing and implementing a comprehensive monitoring system for antimicrobial resistance and antibiotic consumption Publishing a joint report regularly
Laboratory capacity	Veterinary sector, laboratories, universities	Developing and expanding network of reference laboratories for investigating antimicrobial resistance and ensuring quality assurance in all laboratories Drawing up national guidelines for the attention of the laboratories, which should have the capacity to implement these guidelines
Data infrastructure and systematic data	Veterinary sector, food safety, agricultural sector, environmental sector, reference laboratories	Gathering and analysing data systematically and using this information for surveillance purposes Ensuring national and international comparability, as well as between sectors

Prevention

CHALLENGES	MAIN SECTORS INVOLVED	JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE
Preventing and controlling infection in human and veterinary medicine	Veterinary and agricultural sector, food safety, economic sector	Strengthening International Health Regulations capacity and implementing legislation to institutionalize and strengthen the role of International Health Regulations capacity and operations Implementing evidence-informed guidelines on core components of preventing and controlling infection in human and veterinary medicine Implementing good clinical practice and higher biosecurity and improving husbandry and animal health Advising livestock farmers in systematic and continual herd management, intensifying cooperation between farmers and veterinarians
Vaccination rates	Veterinary and agricultural sector, food processing sector	Supporting vaccination campaigns aimed at specific target groups and diseases



Prudent use of antimicrobial agents

CHALLENGES	MAIN SECTORS INVOLVED	JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE
Level of antimicrobial stewardship in human and veterinary medicine and in agriculture	Veterinary and agricultural sector, food safety, economic sector	<p>Following the WHO list of critically important antimicrobial agents; restricting the use of non-therapeutic antimicrobial agents and antimicrobial agents that are critically important for human use.</p> <p>Developing and reviewing guidelines on prescribing, dispensing and using antimicrobial agents and ensuring their implementation</p> <p>Adopting antimicrobial stewardship programmes Enhancing the basic and further training of doctors, veterinarians and animal owners</p> <p>Enhancing the basic and further training of doctors, veterinarians and animal owners</p>

Resistance control and transmission

CHALLENGES	MAIN SECTORS INVOLVED	JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE
Introduction of antimicrobial resistance into health-care facilities and animal herds, taking into account international trade and travel activities	Veterinary and agricultural sector	Preventing the entry of resistance into health-care facilities and animal herds and flocks and its subsequent spread through entry screening, hygiene and biosafety measures
Environmental spread	Agricultural sector, environmental sector, academic research	<p>Reducing the volume of antimicrobial agents, resistance genes and resistant bacteria entering the environment, such as from hospitals, animal husbandry, agriculture as well as research and production facilities</p> <p>Setting out basic principles for the entry of antimicrobial agents into farmyard manure, soil and water and their persistence and activity</p> <p>Monitoring and regulating the environment and environmentally related activities or products that influence the spread and development of antimicrobial resistant pathogens</p> <p>Increasing wastewater treatment and water, sanitation and health (WASH) activities</p>
Spread of antimicrobial resistance through the food chain	Veterinary and agricultural sector, food-processing sector, consumer associations	Developing hygiene and decontamination measures

Research and development

CHALLENGES	MAIN SECTORS INVOLVED	JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE
Lack of new antimicrobial agents	Veterinary sector, pharmaceutical industry, economic and financial sector, academic research	<p>Discovering novel antimicrobial molecules to improve the treatment of humans and animals</p> <p>Coordinating research and development by using such institutions as the Joint Programming Initiative on Antimicrobial Resistance, Global Antibiotic Research and Development Partnership, CARB-X, Global Antimicrobial Resistance Research and Development Hub and International Centre for Antimicrobial Resistance Solutions.</p> <p>Following WHO's global priority list of antibiotic-resistant bacteria to guide research on, discovery of and development of new antibiotics</p> <p>Considering incentives for the pharmaceutical industry such as pull-and-push incentives and market entry rewards</p>
Lack of new rapid diagnostic tests to distinguish between bacterial and viral infections in human and veterinary medicine	Veterinary sector, economic and financial sector, pharmaceutical industry, academic research	<p>Developing rapid diagnostic techniques to improve the treatment of humans and animals</p> <p>Considering incentives to develop a simple rapid test</p>
Lack of new vaccines and availability of new vaccines	Veterinary sector, pharmaceutical industry, academic research	Stimulating research on and the use of vaccines
Knowledge about the dissemination and the sources of antimicrobial resistance	Academic research, veterinary and agricultural sector, environmental sector	Increasing knowledge about how resistance develops and is transmitted to interrupt these processes

Cross-cutting aspects

CHALLENGES	MAIN SECTORS INVOLVED	JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE
Equitable access to medicines	Economic sector, veterinary and agricultural sector, food processing sector	<p>Strengthening efforts towards universal health coverage</p> <p>Availability of first-choice antibiotics and vaccines</p>
Education and awareness	Educational sector, veterinary sector, mass media, NGOs, consumer associations	Informing human and veterinary health professionals and the general public about antibiotic resistance and how it can be prevented (such as improving kitchen hygiene)
Investment, financial aspects	Financial and economic sector, foundations	Budgeting and providing the necessary resources

Cross-cutting aspects

CHALLENGES

Drug regulatory issues

MAIN SECTORS INVOLVED

Medical associations, veterinary sector, economic sector, law enforcement authorities, drug regulatory agencies, pharmaceutical industry, pharmacist associations

JOINT ACTIONS TO IMPROVE ANTIMICROBIAL RESISTANCE

Regulating the availability of antibiotics without prescription and banning over-the-counter sale of antimicrobial agents, counterfeit drugs and informal markets

Prohibiting the use of antibiotics as growth promoters in livestock

Identifying and modifying market mechanisms and incentive systems such as the promotional activities of the pharmaceutical industry

Strengthening drug regulatory agencies to ensure the quality of antibiotics on the market



Intersectoral response to other key challenges beyond antimicrobial resistance

Antibiotics are used too often and incorrectly today. Nevertheless, the opposite also happens: there have been recent repeated shortages in the supply of antibiotics. A shortage of antibiotics occurs because the active ingredients for an antibiotic are usually produced in just a few factories. This means that a single manufacturing failure can have major effects. The fragile supply of antibiotics receives little attention on the global political stage. Further, many low- and middle-income countries face the challenge of antibiotics from unofficial routes, black markets and counterfeit drugs. In addition, the pharmaceutical

industry has little incentive to invest in research for developing new classes of antibiotics. Research and development are risky and expensive, antibiotics have low profit margins and demand growth comes mainly from lower-income countries. Between 2000 and 2015, global demand for antibiotics increased by 65%. Four of the six countries with the highest antibiotic consumption rates were low- and middle-income countries. This challenge requires public investment in developing medicine, but this is difficult to justify if the profits from resulting sales are purely private.

Cross-cutting aspects

To reduce health inequalities and achieve health for all, the joint policies and interventions mentioned above must be performed with full respect for the principle of non-discrimination and, overall, following a human rights approach.

All countries must combat antimicrobial resistance, even if all are not equally affected by the problem. Abuse or overuse of antibiotics in just a few regions of the world is enough to overturn the achievements in containing antimicrobial resistance everywhere.

Antimicrobial resistance strikes poor people the hardest. Lack of access to water and sanitation and to affordable and effective antibiotics significantly affects women and children in low-income countries and poorer people in middle- and high-income countries. Gender is also a determining factor in exposure to infection and disease, making the treatment of men and women, and links between biological

differences and gender, norms, roles, and inequalities, important considerations in combating antimicrobial resistance. Childbirth, abortion and health care all expose women to a greater range of infection, making antimicrobial resistance an especially important consideration in the health care of mothers. In addition, female dominated professions are also associated with more frequent exposure to infection and disease such as teaching, and in particular health-care where women comprise 67% of frontline workers, giving them greater risk of infection, some of which may be with resistant pathogens.

Most current health-care systems in many countries were developed assuming the unlimited availability of effective and affordable antimicrobial agents. Existing health-care systems should therefore be updated to mitigate antimicrobial resistance. In this sense, the efforts towards universal health coverage are very effective.

HEALTH 2020

Reducing health inequalities: to reduce health inequalities, the following should be addressed.

LIFE-COURSE STAGE

- Social protection for women, mothers-to-be and young families
- Universal, high-quality and affordable early-years education and care system
- Eradication of unsafe work and access to employment and high-quality work
- Coherent and effective intersectoral action to tackle inequalities at older ages

WIDER SOCIETY

- Improved social protection, according to need
- Co-creation and partnership with those targeted, civil society and civic partners
- Action to reduce social exclusion
- Gender equity approach

BROADER CONTEXT

- Promoting equity through tax and transfer payments
- Long-term planning through links with other policies

SYSTEMS

- Greater coherence across sectors
- Comprehensive responses
- Regular reporting and public scrutiny

2030 Agenda for Sustainable Development: a political mandate and transformative call for action

Achieving the Sustainable Development Goals (SDGs) requires working in a transformative way in order to implement a set of coherent, evidence-informed policies that address health, well-being and all their determinants throughout the

life course and across all sectors of government and society. Revitalized global and regional partnerships are essential, and will provide the support and momentum to this societal and global effort.

Transformative governance for action on antimicrobial resistance

The adoption of the Health 2020 health policy framework for the WHO European Region in 2012 by all European Member States, with governance for health as a twin strategic objective alongside improved health equity, marked an invigorated strategic approach in the Region to strengthen governance for health and intersectoral action. This provides an excellent foundation for operationalizing and implementing the 2030 Agenda and the Sustainable Development Goals, which requires good governance, new models of partnership and scaling up

intersectoral work as the means to achieve global, regional and national goals and targets and to meet today's complex global challenges, including antimicrobial resistance. Moving towards models of governance that deliver through their design health, equity and well-being is an example of the transformative response called for by the 2030 Agenda. Involving, managing, coordinating, developing accountability and coherence and supporting the implementation of action between diverse actors across all levels of government and beyond is necessary to achieve global, regional

and national goals and targets and to effectively address today's complex global challenges. The transformative approach to improved governance is facilitated through whole-systems approaches at each individual level and node within a system (whole of government, whole of society, whole of city and whole of school) that engage all levels of governance within a system, from the international through the national and the regional to the local, of which the One Health approach to address antimicrobial resistance is a clear example.

SDGs for tackling AMR



Capacity for intersectoral governance for health and well-being depends on three key factors:

1. The right to health and sector mandates for multisectoral and intersectoral action for health and well-being
2. Resourcing organization for multisectoral and intersectoral action for health and well-being
3. The capacity of institutions and individuals for designing, implementing and delivering multisectoral and intersectoral action for health and well-being

For further information, see [the Concept note: assessment tool for governance for health and well-being](#).



Sustainable Development Goal targets for tackling antimicrobial resistance

GOAL

SUSTAINABLE DEVELOPMENT GOAL TARGET



Sustainable Development Goal 2:

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Combined with Sustainable Development Goal 13 to “Take urgent action to combat climate change and its impacts”, food security and climate change are greatly affected by antibiotic use in the human food system, agriculture, and aquaculture.



Sustainable Development Goal 3:

Ensure healthy lives and promote well-being for all at all ages

3.D Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.

3.3 End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases

3.2 By 2030, end preventable deaths of newborns and children under 5 years of age

3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

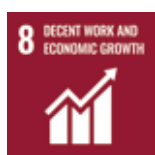


Sustainable Development Goal 6:

Clean water and sanitation

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally



Sustainable Development Goal 8:

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries



Sustainable Development Goal 17:

Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North–South, South–South and triangular cooperation

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Armenia
Austria
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Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
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Iceland
Ireland
Israel
Italy
Kazakhstan
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Latvia
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