

# Integrating diet, physical activity and weight management services into primary care



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# Abstract

Europe is severely affected by noncommunicable diseases (NCDs), which account for 77% of the burden of disease and nearly 86% of premature mortality. Global recommendations for halting the NCD epidemic include a comprehensive set of activities at both population and individual levels to reduce the risk factors. Primary care plays a critical role in the provision of services to promote healthy diets, engage individuals in physical activity and assist patients in weight management. This publication is based on three policy questions: What is the evidence for the effectiveness of diet, physical activity and weight management services in primary care? Which challenges in health services and systems impede the delivery of such services in primary care? What are the entry points to ensure better delivery of these services in primary care? Drawing on the conceptual guidance of the European Framework for Action on Integrated Services Delivery, this publication provides guidance on the transformations required in health services delivery to integrate diet, physical activity and weight management services into primary care.

## Keywords

DELIVERY OF HEALTH CARE  
PRIMARY CARE  
NUTRITION  
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## Abbreviations and acronyms

BMI	body mass index
DALY	disability-adjusted life-year
DAW	diet, physical activity and weight management
GP	general practitioner
ISH	International Society of Hypertension
NCD	noncommunicable disease
NICE	National Institute for Health and Care Excellence

# Executive summary

Europe is severely affected by noncommunicable diseases (NCDs), which account for 77% of the burden of disease and nearly 86% of premature mortality. Global recommendations for the prevention and control of the NCD epidemic suggest a comprehensive set of activities at both population and individual levels to reduce and manage the major risk factors. The activities range from health promotion and health protection at population level, such as regulation of the salt and sugar contents of processed foods, to delivery of disease prevention activities to high-risk individuals, including risk stratification and individual counselling in primary care. The combined aim is to decrease the natural progression of behavioural and metabolic risk factors into full-fledged NCDs or further to acute conditions.

The focus of this publication is an assessment of the challenges and opportunities for implementing one of the WHO recommendations for the prevention and control of NCDs, namely the delivery of individual services to high-risk patients in primary care. Primary care plays a critical role in the provision of services to promote healthy diets, engage individuals in physical activity and assist patients in weight management, in view of its wide population coverage and continuous patient–provider interactions.

Countries in the WHO European Region committed themselves to these recommendations by adopting the *European food and nutrition action plan 2015–2020* and the *Physical activity strategy 2016–2025*, both of which stress the importance of primary care. Nevertheless, country data show that counselling on diet, physical activity and weight management (DAW) is suboptimal in terms of both coverage and quality.

This publication summarizes the evidence on the effectiveness of services to promote DAW offered in primary care and provides a structured analysis of the reasons for suboptimal service delivery. It provides policy options for transforming countries' health services to improve the coverage and quality of DAW services in primary care, in line with the European framework for action on integrated health services delivery.

Evidence shows that DAW services offered in primary care are effective in reducing weight, increasing levels of physical activity and facilitating a shift to a healthier diet. It also indicates that the most effective combination of interventions is context-bound, although further systematic reviews and robust analysis are clearly needed. Despite the importance of contextual factors, the literature already indicates general principles for the design of DAW service delivery. In particular, it shows that comprehensive services that simultaneously address diet and physical activity are more effective than separate services; that enrolment by primary care physicians and routine follow-up by nurses and allied health professionals<sup>1</sup> yields better health outcomes than services relying on traditional physician appointments alone; and that self-management support, such as in peer groups and web-based interventions, is necessary to ensure patient adherence.

Challenges that impede the delivery of effective DAW services in primary care include the absence of clear clinical recommendations and of a defined scope of practice, outdated provider knowledge and competence in the provision of DAW services, the absence of incentives for wider implementation and inadequate capacity of primary care providers to address patient needs. These challenges give ground for the transformation of service delivery in primary care. In particular, DAW services for inclusion in primary care should be carefully selected, with opportunistic delivery, alignment of clinical guidelines and configuration of the roles of primary care providers. Furthermore, transformations should include support for use of technology and adoption of service delivery modalities that encourage patients to use peer-support and self-care. To ensure the sustainability and widespread uptake of such reforms, transformation of the health system should be aligned with planning of the health workforce, partnerships with other sectors and reconsideration of the reimbursement of primary care providers.

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<sup>1</sup>Allied health professionals involved in delivering DAW services are dietitians, physical therapists, sports counsellors and behavioural therapists.



# 1. Introduction

With the growing prevalence of noncommunicable diseases (NCDs) and the challenges they pose to health systems around the globe, Member States in the WHO European Region have recognized that policies for tackling risk factors such as unhealthy diets, low levels of physical activity, smoking and harmful use of alcohol are a priority (1).

In July 2013, ministers from throughout the Region adopted the *Vienna declaration on nutrition and noncommunicable diseases in the context of Health 2020* (2), which called for a new food and nutrition action plan and, for the first time, a stand-alone physical activity strategy for the European Region. The WHO Regional Committee for Europe subsequently adopted the *European food and nutrition action plan 2015–2020* (3) and the *Physical activity strategy for the WHO European Region 2016–2025* (4), which call for strengthening health systems to promote physical activity and healthy diets.

These regional policies were developed in the context of Health 2020 – the WHO European policy framework that calls for improvement in the health and well-being of populations while reducing health inequalities and improving governance for health (5). The policies are also aligned with other WHO policies: the *Global action plan for the prevention and control of noncommunicable diseases 2013–2020* (1), the *Action plan for implementation of the European strategy for the prevention and control of noncommunicable diseases 2012–2016* (6) and the *Global strategy on diet, physical activity and health* (7).

The policies recognize that tackling the burden of disease caused by unhealthy diets, insufficient physical activity and sedentary behaviour requires strategies and interventions at both population and individual levels. Population-based interventions consist largely of health promotion, health protection and physical, social, economic and regulatory actions that influence the environment (8, 9). With respect to NCDs, population-based interventions include reducing the availability, affordability and promotion of foods high in saturated fats, free sugars and/or salt, raising public awareness about healthy diets and physical activity and creating enabling environments for healthy choices and active lives (10). Individual services are addressed mainly to high-risk or affected individuals and consist of direct interventions to prevent and treat diseases (8, 9). In primary care, individual services include opportunistic risk stratification, provision of tailored advice, motivational support for behaviour change and individual and group counselling (10). The two approaches are complementary and function best when integrated.

Member States in the WHO European Region have committed themselves to promoting healthy diets and physical activity and providing effective, evidence-based interventions in primary care, recognizing its important role in the delivery of individual services. Use of the primary care approach in addressing the growing burden of obesity and NCDs is in line with the values and principles set out in the Alma-Ata Declaration (11), reinforced by messages in the *World health report 2008* (12). Delivery of health services in primary care promotes equitable access, protection from financial hardship and reduced premature mortality from NCDs, thus meeting the Sustainable Development Goal of a reduction by one third of premature mortality from these diseases by 2030 (13, 14). The crucial role of primary care in the provision of services for health and social needs is further supported by the newly adopted *European framework for action on integrated health services delivery* (15).

It has been shown that services that are delivered in primary care are more accessible and cost-effective and result in greater patient satisfaction and adherence to treatment (12). Additionally, health systems based on strong primary care ensure people-centred, integrated care (16, 17) by providing proactive, comprehensive services based on lasting patient-provider relationships (18). Especially in the case of NCDs, life-long exposure to risk factors and the chronic nature of these diseases highlight the importance of continuous patient-provider interactions. It is therefore of utmost importance that transformations of health service delivery capture the nature of the new health challenges, engage patients in their own care and empower communities, families and carers to preserve and maintain their own health proactively (19).

Promotion of healthy diets and of physical activity should be a core competence of primary care providers, who play an important role in providing individual services to tackle the burden of NCDs (20). In view of the currently high prevalence of modifiable risk factors (21), however, even opportunistic provision of individual services to high-risk populations attending



primary care can result in an overwhelming workload for primary care providers. The focus and emphasis of primary care should therefore be revisited to ensure the provision of such interventions (22, 23). This will generally be done in three steps: matching the services provided to needs, with clear indications of the DAW services to be provided in specific contexts; transformation of health service delivery to incorporate new DAW services at scale; and alignment with other health system functions to ensure long-term sustainability, with effective change management (12).

In line with current policies and strong evidence, this publication provides guidance on the transformations required in health service delivery to integrate DAW services into primary care.

## 2. Rationale and scope

WHO has proposed a set of global recommendations on diet and physical activity for reducing energy imbalance and maintaining a healthy body weight (7). The main recommendations for a healthy diet are sufficient daily consumption of fruits and vegetables ( $\geq 400$  g) and restricted consumption of free sugars ( $< 10\%$  or, ideally,  $< 5\%$  of total daily energy intake), fats ( $< 30\%$  of total daily energy intake from total fats,  $< 10\%$  total daily energy intake from saturated fats) and salt ( $< 5$  g daily) (Annex 1). Very few countries in the WHO European Region meet these recommended targets. For example, according to a survey conducted in 2013 (24), none of 33 countries<sup>2</sup> in the Region met the target of  $< 5$  g of salt per day.

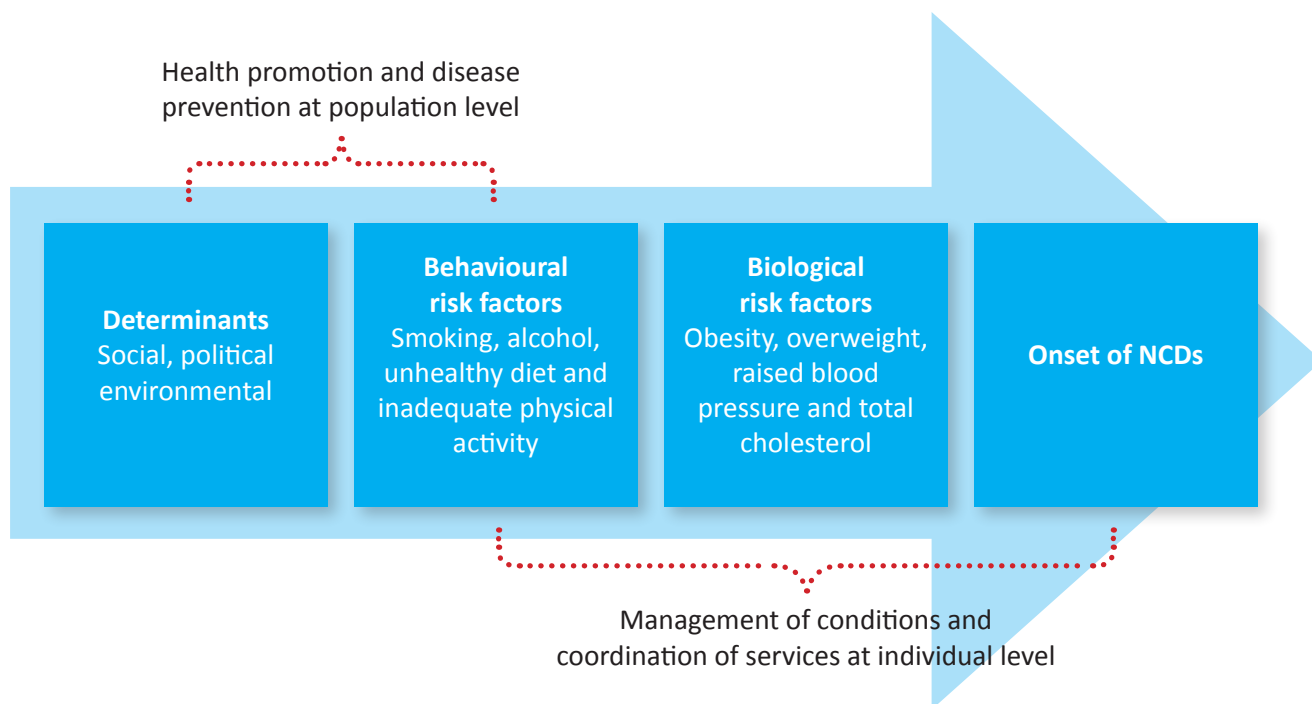
WHO also recommends that adults have a minimum of 150 min of moderate-intensity or 75 min of vigorous-intensity aerobic physical activity per week and muscle-strengthening activities on  $\geq 2$  days/week. For children and young people aged 5–17 years, WHO recommends at least 60 min of moderate- to vigorous-intensity physical activity daily. As for the dietary recommendations, however, few countries in the European Region meet these targets. In 2010, it was estimated that 35% of adults were insufficiently active (25). In 2013, it was reported that 59% of the population of the European Union never or seldom exercised or played a sport, and 30% never engaged in other kinds of physical activity (26).

Implementation of the recommendations requires policy action at both population and individual level (Fig. 1). Population-level interventions address the determinants of unhealthy behaviour by influencing risk factors such as an unhealthy diet and inadequate physical activity and promote healthy preferences and active lives. They include such measures as regulation of the composition of food products, restrictions on food marketing to children, limits on the sale of unhealthy foods in certain venues, encouraging physical activity by urban planning, ensuring adequate school and community infrastructure for sport and physical activity and general health promotion activities (1). At an individual level, every interaction a person has with the health system should be used as an opportunity to assess metabolic risk factors and the degree and stage of exposure to risk factors in order to identify people at high risk and to deliver tailored services to halt the progression of behavioural and biological risk factors to NCDs (Fig. 1).

Wide recognition of the importance of such interventions for halting the growing burden of NCDs, policy development and implementation has, however, been patchy. In a survey of country capacity for the prevention and control of NCDs in 2015 (28), 81% of countries that responded to the questionnaire reported that they had policies to limit unhealthy diets, 58% to address overweight and obesity and 79% to increase physical activity; however, only 45% of countries had fully operational multisectoral, integrated national NCD plans that covered all four major risk factors and four main conditions (Fig. 2). Further, when the indicators were broken down into their individual components (i.e. policies targeting food marketing to children, salt reduction or individual services), some countries were found to have no policies, and many implemented relevant measures only partially.

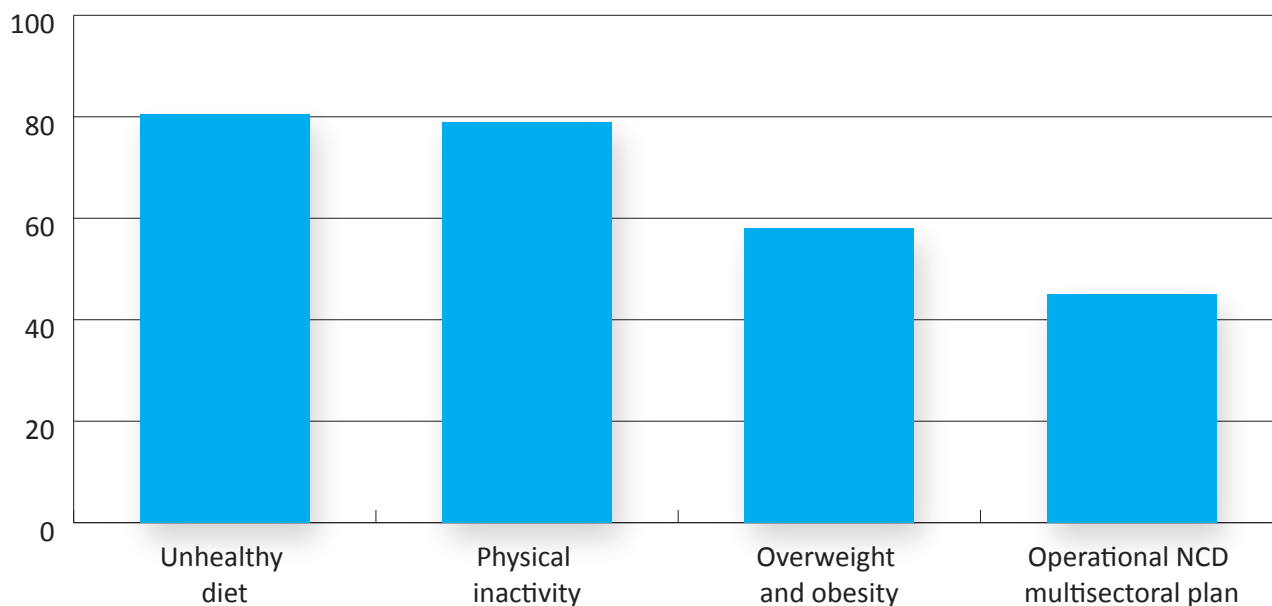
<sup>2</sup> Countries from which data on daily salt consumption were available

**Fig. 1. Chain of contributory factors in the development of NCDs**



Source: adapted by the authors from (27)

**Fig. 2. Selected policies in countries in the WHO European Region**



Source: adapted from (28)

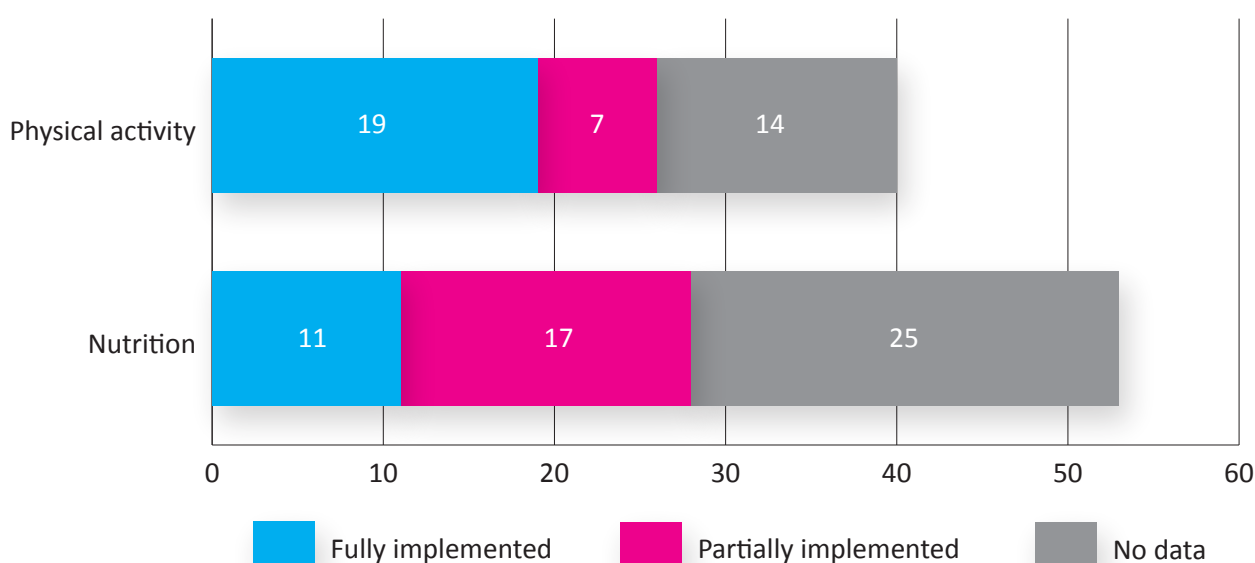
Individual interventions for the prevention of NCDs consist of opportunistic risk stratification<sup>3</sup> (including anthropometric and behavioural assessments) and counselling for individuals at high risk for NCDs. Evidence shows that targeted individual interventions in primary care are effective in promoting dietary change and increasing physical activity and may ultimately lead to reductions in overweight and obesity (29).

<sup>3</sup> Opportunistic risk stratification consists of an assessment of behavioural and metabolic risk factors in order to predict future risks for disease (NCDs). Patients are then classified as at low, medium or high risk for defining strategies for interventions.

Objective 4 of the *WHO global action plan for the prevention and control of NCDs 2013–2020* calls for inclusion of highly cost-effective interventions in the basic primary health care package to advance universal health coverage (1). WHO and the World Economic Forum identified two evidence-based “best buys”<sup>4</sup> for the prevention of acute cardio- and cerebrovascular events among high-risk patients: patient education and disease management that included motivational and behavioural change techniques (30).

Despite strong political endorsement, only a few countries in the WHO European Region deliver highly recommended individual services in primary care. For example, less than half of the countries reported that they had fully or partially implemented national guidelines for the management of NCDs in primary care (25 of 53) (31); 28 of 53 countries reported that they had explicit strategies for delivering low-cost or free nutrition counselling in primary care, while 26 of 40 reported delivery of low-cost or free counselling on physical activity in primary care (Fig. 3).

**Fig. 3. Availability of low-cost or free nutrition and physical activity counselling in primary care in countries in the WHO European Region**



Source: adapted from (24)

Primary care is largely underused for tackling risk factors and halting progress towards full-fledged NCDs. For example, in the United Kingdom, on average, two thirds of the population visit their primary care physician<sup>5</sup> once or more times each year and 90% at least once a year (32). Therefore, primary care providers are in an advantageous position to provide age- and gender-specific health promotion and advice on disease prevention and to assess the metabolic risks of patients, regardless of the reason for the consultation (33).

From the health service delivery perspective, the availability of these interventions in primary care is extended to the selection of cost-effective services in certain contexts, knowledge- and capacity-building for primary care providers and alignment with other health system functions to ensure sustainability.

With these objectives, this publication provides a critical appraisal of the evidence for individual DAW services in primary care and policy options for improving their delivery.

## 2.1 Methods

Effective DAW services in primary care were identified in a literature review (34, 35), which was not systematic but, rather, identified promising elements for DAW services and some of the opportunities and barriers to their provision. Drawing

<sup>4</sup> “Best buys” are interventions that are effective, affordable, feasible and cost-effective even in low-resource settings.

<sup>5</sup> Primary care physicians include general practitioners, internists and therapists; the term is used to refer to all these professions in the context of this publication.

on this evidence, the authors then analysed the challenges that prevent wider coverage and provision of DAW services in primary care by applying the *European framework for action on integrated health services delivery (15)*, in order to identify useful entry points for the provision of DAW services in primary care.

The following key policy questions guided the process:

1. What is the evidence for the effectiveness of DAW services in primary care?
2. Which health services and system challenges impede the delivery of DAW services in primary care?
3. What are the entry points for improving delivery of DAW services in primary care?

The study has several limitations. First, because of the method used, the review of evidence was not exhaustive. Secondly, the generalizability of the findings and the applicability of recommendations to the whole WHO European Region may be limited due to the fact that most of the studies reviewed were conducted in countries in the European Union. Lastly, review of DAW services that require use of pharmaceuticals was beyond the scope of this study.

## 2.2 Structure of this publication

The publication is structured according to the guiding policy questions. Section 3 presents the findings of the review on the effectiveness and cost-effectiveness of DAW services delivered in primary care; section 4 provides evidence for the most commonly reported challenges to the delivery of DAW services; and section 5 sets out policy recommendations for the uptake, implementation and extension of the provision of DAW services in primary care.

# 3. Effectiveness of DAW services provided in primary care: review of evidence

DAW services in primary health care have been proven to help patients in making useful changes in their diet and their physical activity and in managing their weight in the short term to prevent the onset of NCDs (36, 37); there is less evidence of a longer-term effect on weight and mortality (37, 38). In terms of cost-effectiveness, according to estimates of the Organisation for Economic Co-operation and Development, counselling individuals at risk in primary care can have a positive effect on obesity and related NCDs but is one of the most expensive strategies, estimated at US\$ 15 per capita, as compared with, for example, US\$ 0.10 for restrictions on the marketing of food to children (39). Despite its higher cost than population measures, counselling has a favourable cost-effectiveness ratio (< US\$ 50 000 per disability-adjusted life-year (DALY)) as compared with treatment of NCDs (such as cardiovascular diseases) only as they emerge. The service costs can be expected to be offset to a small extent by reduced health expenditure, and economic projections predict that intensive counselling in primary care can generate up to 490 000 DALYs of annual gains, which is a substantial number in an overall burden attributable to overweight and obesity of over 3.6 million DALYs (40).

Delivery of any service first requires stratification and identification of the populations to whom the services should be delivered (18). According to WHO recommendations, DAW services delivered to high-risk populations in primary care are the most effective and cost-effective. Existing risks can be identified either opportunistically (independently of the primary cause of a visit) or at a patient's request. Stratification and identification consist notably of anthropometrics (weight, height and waist circumference (31)), measurement of blood pressure, collecting information on behaviour, such as diet and amount of daily physical activity, calculation of values associated with risk such as body mass index (BMI), waist-hip ratio, prediction of 10-year cardiovascular risk (Annex 2) and assessing patients' individual risks by comprehensive interpretation of the collected data.

After identification of individuals at risk, discussions should be initiated about unhealthy diets, insufficient physical activity and excessive body weight and understanding of some of the causes (potentially in the socio-physical environment) unique to that individual, and counselling services offered. Interventions can address either diet or physical activity or both simultaneously. A number of randomized controlled trials have been conducted among high-risk or obese patients attending general practices to assess the effect of providing standard information on physical activity and nutrition, followed by individual or group education and counselling (22). These have shown positive effects on diet, physical activity, weight, blood pressure, cholesterol and quality of life. For example, participants in intervention trials have lost  $\geq 5\%$  of their initial body weight through both personal weight-loss coaching and remote support (41); and enhanced lifestyle counselling and support have been shown in some trials to have a greater effect than usual care or brief lifestyle counselling (36). A key concern is the potential of such interventions to be scaled up and the sustainability of behaviour change in the longer term. That said, if obesity is treated as a chronic condition, it is understood that the patient should be followed up. Regular, good-quality contact with primary care professionals, who provide motivation and encouragement, is a key factor in weight management.

In primary care, physical activity can be promoted in various ways, including giving advice, providing written materials, prescription and referral to an exercise programme. Evidence supports the effectiveness of brief advice and interventions in promoting physical activity in both the general population and particularly inactive adults (42, 43). It has been shown that brief counselling combined with exercise on prescription or advice delivered by primary care providers is more cost-effective than intensive interventions in a gym or with an instructor alone, without guidance from a health professional (42, 43). For people with unhealthy dietary patterns, information and counselling can be combined with strategies to increase cognitive function, such as motivation, health literacy, attitudes and self-efficacy as well as food preparation skills. There is wide use of techniques that incorporate elements of cognitive behavioural therapy, such as approaches to elicit self-motivation, goal-setting, self-monitoring (e.g. dietary or activity records), techniques to control the process of eating and stimulus control (e.g. portion size) and reinforcement and relaxation techniques (44). Evidence suggests that a combination of dietary and physical activity counselling is more effective than separate delivery (44, 45).

In the literature review, the authors also sought studies on the effectiveness of various weight management or reduction programmes for adults in primary care and identified 10 studies (Table 1). The studies involved primary care professionals and follow-up to at least 12 months. The length of follow-up was a major limiting factor in selecting studies, but the authors considered it important to investigate the sustainability of interventions over time. The initial search was limited to studies in Europe, but this limit was removed because of the small number of studies. The design of the studies ranged from experimental with no control group to clustered and normal trials with a control group and prospective studies with no control group. The studies were assessed for the strength of the evidence with the “weight of evidence” framework described by Gough (46). Six studies provided a high weight of evidence, while the remaining four had medium strength of evidence (see Annex 3).

Different interventions were used to reduce the weight of participants. Cognitive-behavioural approaches were used in several studies. One intervention included standard behaviour-change strategies, such as self-observation with food and activity diaries, problem-solving skills, stimulus control and relapse-prevention training, with the aim of modifying eating patterns and encouraging physical activity (55). A similar study involved a web-based weight reduction programme with patients recruited from general practitioners (GPs) (50). Information about daily living, co-morbid conditions, nutritional status and levels of physical activity were collected, with a record of previous advice received from GPs. Each participant received an individual coaching plan based on the recommendations of the physicians and the physical characteristics and everyday behaviour of the participant. The coaching plan was based on basic cognitive-behavioural therapy and was designed to reduce and maintain weight. The intervention group received extensive counselling, including individualized education, motivation, exercise guidance, daily SMS reminders, self-monitoring on the Internet and active monitoring, with approximately three telephone calls by GPs during the 12 weeks of treatment.

**Table 1. Overview of reviewed studies on weight reduction, with selected findings**

Study	Research design, control	No. of participants	Intervention	Outcomes
Alexander et al. 2011 (USA) (47)	Experimental, not controlled	461	Audio-recorded 5As approach <sup>a</sup>	Weight loss and reduction of body circumferences, no change in rates of physical activity
Lowe et al. 2014 (USA) (48)	Randomized, controlled	238	Meal replacement and energy density	Weight loss and reduction of body circumferences in 12 months of follow-up, not sustained
Eichler et al. 2007 (Switzerland) (49)	Prospective, not controlled	191	Cognitive behavioural treatment	Median weight loss of 4 kg after 12 months of treatment
Mehring et al. 2013 (Germany) (50)	Cluster-randomized, controlled	186	Web-based coaching programme	Median weight loss, 4.2 kg in intervention group and 1.7 kg in control group
Jansson et al. 2013 (Sweden) (51)	Randomized, controlled	133	Plate model and physical activity diary	Higher weight loss and higher reported quality of life in intervention group
Schutte et al. 2015 (Netherlands) (52)	Randomized, controlled	517	Independent and tailored exercise programmes and dietary advice	Mean weight loss of 2.9 kg and 4.3 cm reduction in waist circumference
Nanchahal et al. 2009 (United Kingdom) (53)	Randomized, controlled	123	Structured lifestyle support and pedometer	Mean weight loss, 4 kg in intervention group and 1.2 in control group
Nanchahal et al. 2012 (United Kingdom) (54)	Randomized, controlled	381	Individual support and tailored goal setting, food and physical activity diaries	Mean weight loss in 12 months, 2.39 kg in intervention group and 1.3 kg in control group
Ross et al. 2008 (United Kingdom) (55)	Prospective evaluation, not controlled	1906	Behaviour change by goal-setting, label reading, meal planning and increasing levels of physical activity	Mean weight reduction in 12 months, 3 kg
Hardcastle et al. 2008 (United Kingdom) (56)	Randomized, controlled	334	Face-to-face counselling by physical activity specialist and registered dietician, some elements of behaviour change therapy	Weight, blood pressure and blood cholesterol reductions positively correlated with attendance at counselling sessions

<sup>a</sup>5As approach: ask, assess, advise, agree and assist

The 5As approach, a technique originally used in smoking cessation programmes, which represents a structured combination of motivational interviewing and behavioural counselling (Table 2 ), was used in another study. Motivational interviewing is a counselling technique for achieving a certain goal through a patient-centred approach and has been found in a number of studies of nutrition and physical activity interventions in primary care to be one of the most effective techniques in doctor–patient interactions (57).

**Table 2. Main elements of the 5As approach**

Ask	Initiate a discussion about the weight of the individual in a non-judgemental way, and explore readiness for change.
Assess	Assess the individual biometrically, and assess the pathogenesis of excess weight.
Advise	Describe the health benefits of weight reduction, the risks of overweight and obesity, treatment options and long-term strategies for weight reduction.
Agree	Establish a doctor–patient agreement on expectations and targets for weight loss, SMART <sup>a</sup> goals and specific, individualized treatment options.
Assist	Provide support for compliance with the agreed treatment plan and individual or group services, with regular follow-up.

Source: adapted from (47)

<sup>a</sup> SMART: specific, measurable, agreed, realistic, time-bound

The meal replacement approach was also applied in primary care (48). Initially, meals were replaced with controlled meals and planned snacks. In the second phase, patients were either assigned to continue with meal replacement or were introduced to a reduced energy-density eating programme in order to maintain a specific caloric intake.

A lifestyle intervention programme involved a skill-mix approach, with a nurse and a physiotherapist (51). Participants were contacted by telephone four times during the study to encourage them to comply with the advice given and to answer any questions they might have. They were asked to record their physical activity, and the records were handed to the physiotherapist for evaluation. The basis of the dietary advice was a “plate model”, in which the relative proportions of different food groups are illustrated. The model specifies that the two main daily meals should contain no more than 25% of animal or vegetarian protein. Patients were also advised to avoid second helpings and snacks between meals. The control group received information on the importance of a balanced diet and regular physical activity and written information about the plate model, but no further discussion.

A multidisciplinary team approach was used in one study (52), with physiotherapists, dieticians and “lifestyle advisors”. Participants were assigned to one of three programmes: independent exercise, a start-up programme or supervised exercise, with four types of session: counselling with the lifestyle advisor, a session with the physiotherapist, individual sessions with dieticians and group sessions with dieticians. The intensity of counselling depended on the intervention group to which the participants were assigned. The other studies (53–56) involved face-to-face counselling with nurses, dieticians and physical activity specialists, while the control groups typically received only standard information. Behaviour-change strategies included goal-setting, self-monitoring, guidance in reading food labels and advice on adequate meal planning and physical activity and coping with relapse.

All the studies showed reductions in weight and body circumference, and two studies (51, 53) reported improved quality of life. Some of the studies included two follow-ups, depending on the check-up intervals, at either 12 or 24 months after the start of the study. Generally, greater weight loss was observed at the first follow-up session. The quality of life of patients in the intervention groups was better at the end of the study than at the beginning.

Differences in the design of the studies limited conclusions about the most effective approaches to weight reduction, and no single approach to delivering DAW services in primary care was most effective; however, several general principles were identified. First, all DAW services delivered in primary care have resulted in reductions in weight and in body circumferences

and improved quality of life. Secondly, a number of similar elements were found. All the studies started by stratifying patient risks by measuring their weight, height, BMI and waist circumference; other studies included further measures, such as blood glucose and lipid levels. The interventions used included calorie restriction, increasing physical activity, keeping food diaries, monitoring behaviour change, coping with relapse and follow-up appointments; a few studies added interventions to increase patient motivation and self-confidence to address determinants of unhealthy behaviour, such as the home environment and changes in food preparation. For monitoring food intake, some studies reported 24-hour recall, others provided food intake diaries, and some focused on fat, fruit and vegetable intake. A range of communication and counselling techniques was described, including motivational interviewing, behavioural counselling, brief intervention methods, telephone and web-based counselling and support services.

While the approaches to delivery of DAW services differ by country, our analysis of the literature validates the findings of a review conducted by the National Obesity Observatory of England (29), which shows that DAW services in primary care can result in at least short-term changes in behaviour and reduced body weight if they address both diet and physical activity simultaneously; are delivered by practitioners trained in motivational interviewing; incorporate behavioural techniques, especially self-monitoring and goal setting; are tailored to individual circumstances and encourage individuals to seek support from peer groups.

The evidence shows that the effectiveness of DAW services in both the short and the long term (including maintenance of weight reduction and prevention of weight re-gain or relapse) depends not only on the availability of these services but also on the intensity and duration of the intervention. Their effectiveness is also strongly influenced by other service delivery elements. For example, identification of high-risk patients in primary care depends on the availability of the necessary equipment and tools. Those essential for delivering DAW in primary health care are: a stadiometer for measuring height, scales for measuring weight, a tape for measuring body circumference, a BMI “wheel” for calculating BMI and a chart for interpretation of results, and WHO/International Society for Hypertension risk prediction charts for calculating the 10-year risk for cardiovascular disease (58). Similarly, the skills and competences that primary care providers are equipped with should be sufficient to perform a risk assessment and/or deliver behavioural counselling.

Better delivery and wider coverage with DAW services in primary care will require transformation of service delivery, such as the design of care pathways, provider competence and the organization and financing of primary care. The next section addresses the challenges and opportunities in delivering DAW services as reported in the literature.

## 4. Challenges to the provision of DAW services in primary care

The integration of disease prevention and health promotion into primary care practice poses challenges, which are exacerbated by differences in the structure and organization of primary care in European countries (59, 60). This, in turn, results in large variations in the volume and quality of DAW services delivered (33). The challenges and constraints related to provision of DAW services in primary care have been studied, and this section provides a synopsis of the findings.

### 4.1 Poor patient health literacy, beliefs and attitudes

Most of the studies reported that certain patient beliefs and attitudes limit the delivery of DAW services in primary care. “EUROPREVIEW” was a cross-sectional survey of beliefs and attitudes to preventive services among patients in 224 primary care practices in 22 countries in the European Union (61). The findings show that 73% of patients who had unhealthy eating habits and insufficient physical activity believed that they should change their behaviour, and there was increasing demand from patients for lifestyle advice from their primary care physicians. Overall, patients throughout Europe trust primary care providers to give them sound advice about nutrition and physical activity rather than other sources, such as the media (62, 63). They perceived primary care teams as knowledgeable, credible and acceptable sources of information (64). People



would prefer their GPs and nurses to be more involved in supporting self-assessment and offering advice on lifestyle change than they are currently. Patients generally expect to receive information and assistance (22) and are often likely to follow health providers' advice (61, 65).

Nevertheless, several factors can influence effective delivery of DAW services, such as the patients' gender, socio-economic status and health literacy. Patients differ widely in their basic knowledge about food, nutrition and health, their capability and skill in preparing food and whether they can afford healthy foods such as fish, fruit and vegetables. People hold different views on excess weight and unhealthy diets and vary in their readiness for change, which is seen as essential to success. Even when patients are motivated to change their behaviour and have adequate support from primary care providers, they may still have considerable barriers to effective outcomes, such as individual skills, health literacy and ability to sustain behaviour change over time. The barriers may be social, cultural, educational or economic, including limited access to healthy food or appropriate, accessible facilities for physical activity, cultural differences in diets and confusion about how to respond to advice. Some patients report difficulty in understanding the content of messages from health providers and perceive that advice changes over time. This difficulty is often confounded by a general lack of knowledge about the nutritional value of food (66). For example, men tend to be less knowledgeable than women about the health benefits of particular foods and are less likely to read food labels. They are often resistant to healthy eating messages or to being told what to eat and are much less likely than women to consider dieting as a means of losing weight (67). Furthermore, groups may differ in the influence they have on their dietary choices and preferences. Shopping and preparing food are traditionally considered to be women's responsibility in many countries in the European Region, so that they exert considerable influence over the family's dietary preferences and dietary intake (68). If substantial changes are to be made to the diet and nutrition of a family, those responsible for shopping and food preparation should understand the principles of healthy eating.

A patient's confidence in his or her ability to act on advice should be explored by the patient and health providers together. Patients who have previously "failed" to lose weight would benefit from a gradual approach in order to ensure early success in achieving their goals (69). Some patients might be unwilling or resistant to discussing their weight, diet or physical activity. For instance, it might be difficult for a provider to initiate a conversation on weight with a patient who has come for seasonal influenza vaccination or wound care, and patients might find it intrusive. It might be more appropriate to approach patients with other risk conditions or behaviour, such as tobacco smoking, first or one at a time (70).

#### **4.2 Lack of dedicated clinical guidelines and protocols for primary care**

Only a small proportion of primary care visits include risk assessment, provision of information or support for behavioural change (22). A significant reason was found to be unclear recommendations and guidelines: 27% of primary care providers reported that they found it difficult to understand existing recommendations and to identify concrete steps (33). DAW recommendations at population level appear to be clearer, such as the WHO recommendations on levels of physical activity and healthy diets (see previous section), although translation of the messages into clinical practice remains vague. Furthermore, effective obesity management should be tailored to each patient's complex drivers of weight gain and barriers to weight management. A cross-sectional Australian study indicated that the frequency of conducting anthropometrics and risk assessment was correlated with the explicitness of the protocols for delivering these services in primary care (71). Practical application of WHO recommendations in primary care is complicated by the wealth of approaches and conflicting advice, ranging from provision of leaflets to behavioural counselling, and the absence of a "gold standard" for DAW services (33). In countries that have clinical guidelines and protocols for these services, providers were concerned about the volume of work and the absence of clear algorithms and a realistic set of tasks for the available time and resources (72, 73). A further barrier is slow or infrequent updating of guidelines and protocols, resulting in outdated practices.

Lack of referral systems and appropriate patient pathways for coordinated care and access to specialized advice were identified as further challenges (74). The above-mentioned Australian study found that providers who perceived that there were few specialized services to which they could refer patients were less likely to screen them for lifestyle behaviour (71).

### 4.3 Lack of defined scope of practice

While commitments such as the *European food and nutrition action plan 2015–2020* (3) and the *Physical activity strategy for the WHO European Region 2016–2025* (4) call for delivery of DAW services in primary care, the scope of practice remains to be defined (33, 73, 75). Differences in the structure and organization of primary care in the European Region result in wide variation in the involvement of providers in delivering DAW services (58). Primary care providers often describe their tasks in delivering DAW services only vaguely, and the services are often delivered at the discretion of the provider (33, 73, 75). Many of the effective DAW services described in the literature require intensive follow-up over long periods, many times a month, which may be difficult in many primary care settings because of a heavy workload and insufficient resources.

A large proportion of patients in the WHO European Region would benefit from DAW services in primary care, as 50% of the adult population are overweight, and 20% are obese. Therefore, a range of health professionals could become involved in providing these services (45). GPs are reported to be better positioned to select and enrol patients for DAW services, while nurses and allied health professionals are better positioned to mentor patients and regularly check their motivation. A randomized controlled study in the Netherlands found no difference in preventing weight gain when counselling was provided by a physician or a nurse practitioner (76). Nurses can provide the same quality of care and achieve positive patient health outcomes if they are properly trained and assigned responsibility (22). Interventions by nurses and allied health professionals were, in many cases, of better quality and resulted in more sustained lifestyle changes over time (77), indicating the benefits of a multidisciplinary approach involving physicians, nurses and allied professionals such as dietitians. Nevertheless, the ideal mix of skills depends strongly on the context and the patient's circumstances (78), and some health care professionals may have little experience in working in interdisciplinary teams. Resources should therefore be dedicated to improving the capacity of health care professionals to work effectively in a team.

### 4.4 Outdated knowledge, skills and competence

Lack of competence often explains the reluctance of primary care providers to deliver DAW services (79–83). According to the results of a survey by the European Network for Prevention and Health Promotion in Family Medicine and General Practice (33), GPs had a positive attitude to delivering disease prevention and health promotion services, but 56% reported it to be a challenge, mainly because of lack of skills and perceived ambiguity about their effectiveness. Although most GPs acknowledged that patients attending primary care required DAW services, effective provision was consistently lower in practice. Thus, of 63.6% who considered that the BMI of patients should be estimated, 41.6% provided the service. Similarly, of 85.8% who agreed that they should advise overweight patients and 83.9% who agreed they should advise sedentary patients, 62.4% and 57.3% actually did so.

In a study of primary care physicians in Germany, 96% acknowledged the importance of their role in delivering preventive measures, but 79% declared that they had sufficient knowledge and 70% considered that such interventions were successful (75). A study from the patient's perspective indicated that some health providers are reluctant to deliver counselling or to advise on weight management, and patients often rate their guidance as poor (84). In the "EUROPREVIEW" survey (61), GPs initiated a discussion on a healthy diet with only 59% of patients and on physical activity with only 55%. In one study, only about one third of obese patients recalled physician counselling on weight loss (85). In a comparison of the approach of Dutch physicians to unhealthy behaviour in 1975 and in 2008, discussions on smoking and physical activity were more frequent but there was no change regarding nutrition and alcohol consumption. In 2008, 23% of GPs raised the subject of patients' physical activity mainly in response to their complaints (symptom-based approach), rather than proactively stratifying risk and providing counselling (83).

The self-reported competence and skill of physicians and nurses in counselling patients on a healthy lifestyle varies within and between countries (75, 82, 83, 86). For instance, Norwegian GPs reported lack of competence for providing individual, evidence-based counselling (82), and almost half of 1400 GPs and 38% of 613 nurses surveyed in Scotland gave incorrect answers to questions about the role of fat and sugar in obesity (86). Even primary care providers and patients who were able to describe a healthy diet and the importance of being physically active were unable to use this knowledge in practice, such as identifying the caloric density of foods or the added sugar, salt or saturated fat content of foods, nor did they suggest strategies for changing to healthier nutrition such as substitution of different foods (86, 87). Many primary care

providers were uncertain of the knowledge required to make long-lasting changes in patients' lifestyles (23, 84). They reported insufficient skill in translating theoretical recommendations into practical, tailored advice on the benefits of being active or eating a healthy diet (88–90). Physicians and practice nurses considered they should have more training in behavioural change counselling, including the best ways to communicate with patients (83), motivational interviewing, behavioural change techniques for nutrition and exercise counselling (79).

Many primary care providers were unwilling to discuss diet and physical activity with patients, as they perceived that they were not interested or would be unlikely to follow their advice (23, 91, 92). Significant numbers of GPs and nurses did not feel confident in their ability to change the behaviour of patients (79, 86, 88–90, 93). Engaging patients in acting on providers' advice is important for successful health outcomes (75); however, communication skills were considered to be covered inadequately in curricula for continuing medical education in Canada and Scotland (73, 94). A clear association was found between patients' weight, seeking care and a negative or distancing attitude of physicians (91, 95). GPs and nurses perceived obese patients as having low motivation, lacking willpower, unwilling to change their lifestyle and non-compliant with advice (79, 85, 91). A prospective study in Australia found that primary care nurses and allied health professionals were biased towards patients with higher socio-economic status, who were therefore more likely to receive counselling on diet, exercise and weight (71). Such attitudes are likely to lead obese patients to avoid interactions and providers to spend less time and effort on weight management services and patient education.

#### 4.5 Misalignment of payment mechanisms for DAW services

An increased role for primary care providers in delivering DAW services should be supported by increased payment and incentives. Providers often perceive the delivery of preventive services as consuming more resources; in the absence of incentives, they are therefore less likely to provide them (23, 33). In the survey of the European Network for Prevention and Health Promotion in Family Medicine and General Practice, an estimated 40% of the GPs perceived lack of reimbursement as a barrier to delivering preventive services (33). In Germany, the reimbursement for preventive services was €4.83 per person per year in 2009, whereas in Austria, the coverage of preventive services in primary care was extended by increasing the reimbursement fee up to €75 for each examination after the introduction of new guidelines for periodic health check-ups in 2005 (23).

#### 4.6 Insufficient information technology infrastructure and tools

Modern technology offers a wide range of options to assist delivery of DAW services. Patient databases allow population stratification and following up patients' weight over time and have built-in alert and reminder systems; they also simplify calculation of BMI and cardiovascular disease risk (96). These systems facilitate the provision of DAW services by primary care providers as they shorten the length of each visit and permit the delivery of services rather than the collection of data and calculation of risks (94, 97). Mobile and e-health applications and web-based interventions such as coaching are important options for self-management and can include information and tools for monitoring the progress of interventions (50).

## 5. Integrating DAW services into primary care

The evidence reviewed in the previous sections indicates that DAW services in primary care are cost-effective and can result in sustained behavioural change and weight reduction. The evidence also indicates that delivery of these services during routine visits in primary care has challenges at service and system levels. This section provides an overview of evidence-based solutions to overcome those challenges. Drawing on the conceptual guidance in the *European framework for action on integrated health services delivery* (15), actionable recommendations are made for advancing DAW service delivery in primary care.

## 5.1 Support patient self-management and peer support

The literature indicates that patients present numerous challenges to the delivery of DAW, ranging from low health literacy to gender- and culture-specific barriers to attending primary care. While much can be done at population level to address these challenges, primary care settings can tackle them at patient level, through tailored individual advice, support for behaviour change, use of motivational techniques and signposting to community and peer support opportunities.

### Recommendations

- 5.1.1 Prepare patient guides outlining the first steps in behaviour change and support self-management in primary care.  
Timeline: Short-term  
Relevant stakeholders: Ministries of health and the management of primary health care facilities
- 5.1.2 Ensure the availability of peer-support groups in primary care facilities.  
Timeline: Medium-term  
Relevant stakeholders: Management of primary health care facilities

## 5.2 Select and include evidence-based DAW services in primary care

DAW services are delivered at different volume and different intensity; some countries have no such services (27, 31). There is a wide range of DAW services of proven effectiveness when delivered in primary care, from raising awareness about diet, physical activity and weight to providing leaflets to patients and opportunistic risk stratification for excess body weight and counselling for high-risk patients. The selection of the services to be included should be guided by the understanding that DAW services are most effective when they focus simultaneously on diet and physical activity and are based on behavioural change techniques. The provision of DAW services that are culture- and gender-sensitive and respond to individual values and needs is as important as the initial selection of services (98).

### Recommendations

- 5.2.1 Introduce opportunistic stratification of risks for DAW for patients attending primary care.  
Timeline: Short-term  
Relevant stakeholders: Ministries of health and health insurance funds
- 5.2.2 Introduce DAW services of proven effectiveness, such as motivational interviewing and behavioural counselling, for high-risk patients in primary care.  
Timeline: Medium-term  
Relevant stakeholders: Ministries of health and the management of primary health care facilities

## 5.3 Develop, adapt and update DAW clinical guidelines and protocols

The introduction of DAW services into primary care requires that existing clinical guidelines and protocols be updated, as the absence of clear algorithms has been identified as one of the greatest obstacles to implementation of existing guidelines and protocols (33). Furthermore, updated, user-friendly clinical guidelines and protocols should be properly disseminated (annexes 4 and 5). Professional associations in the fields of nutrition, physical activity and obesity are potential collaborators in leveraging knowledge and work in this area and assisting in implementation and dissemination, so long as due attention is given to managing and avoiding conflict of interest (e.g. from industry funding).

### Recommendations

- 5.3.1 Update existing clinical guidelines and protocols on the provision of DAW services in primary care.  
Timeline: Short-term  
Relevant stakeholders: Ministries of health and associations of general medical practice
- 5.3.2 Prepare and disseminate clinical guidelines and protocols that are tailored to the roles of individual providers.  
Timeline: Short-term  
Relevant stakeholders: Associations of general medical practice and family medicine and the management of primary health care facilities

## 5.4 Revise the scope of practice of primary care providers

Effective provision of DAW services requires an explicit scope of practice for providers (33, 59, 73, 75), efficient distribution of tasks between physicians, nurses and allied health professionals and application of the principles of a multidisciplinary approach (76–78).

### Recommendations

- 5.4.1 Include the delivery of DAW services in the scope of practice of primary care providers.  
Timeline: Short-term  
Relevant stakeholders: Associations of general medical practice and family medicine, other primary care professionals and ministries of health
- 5.4.2 Define the roles and responsibilities of primary care providers in delivering DAW services.  
Timeline: Short-term  
Relevant stakeholders: Associations of general medical practice and family medicine, other primary care professionals and ministries of health

## 5.5 Update the knowledge and competence of primary care providers

Primary care providers often lack the competence to deliver adequate DAW services to high-risk patients, and they therefore lack the confidence to deliver certain services, provide recommendations that are not consistent with the evidence and are biased in targeting patients (23, 82, 83, 86, 87). The effectiveness of DAW services in primary care depends on care providers having the necessary knowledge and competence.

### Recommendations

- 5.5.1 Include training in DAW in curricula for continuous medical education and professional development to ensure competence in patient communication, behavioural counselling and provision of advice on diet and physical activity.  
Timeline: Medium-term  
Relevant stakeholders: Institutes for continuous medical education, associations of general medical practice and family medicine, national nutrition institutes, national institutes for physical activity and ministries of health

## 5.6 Ensure the availability of equipment and information technology

Information technology can facilitate the delivery of DAW services in primary care (94, 97). Such tools can be used to stratify risk and record patients' weight and other anthropometrics over time. As changing lifestyle depends strongly on patients' daily choices, tools are required for self-management. The general population has ready access to the Internet and "smart" technology and could use self-management tools such as keeping a food diary, tracking physical activity and having consultations by telephone and the web.

### Recommendations

- 5.6.1 Equip primary care providers with information technology to facilitate the delivery of DAW services.  
Timeline: Short-term  
Relevant stakeholders: National health information agencies and the management of primary health care facilities
- 5.6.2 Ensure that the necessary equipment for delivering DAW services is available in primary care (e.g. scales and stadiometers).  
Timeline: Short-term  
Relevant stakeholders: Ministries of health and the management of primary health care facilities
- 5.6.3 Regulate and enable telephone and web consultations in primary care.  
Timeline: Medium-term  
Relevant stakeholders: Ministries of health and national health information agencies
- 5.6.4 Make self-management tools available for patients receiving DAW services.  
Timeline: Medium-term

Relevant stakeholders: Associations of general medical practice and family medicine, national health information agencies and private developers of information technology

## 5.7 Align with other health system functions

Scaling-up and sustaining small-scale and pilot projects for delivering DAW service in primary care will require changes that involve alignment of the entire health system (18). For instance, the competence necessary for delivering DAW services should be developed at undergraduate level, therefore requiring alignment of medical curricula. Similarly, incentivizing the delivery of DAW services requires alignment of payment mechanisms for primary care providers.

The following recommendations are for the entry points deemed most relevant from the findings of the literature review.

### Recommendations

5.7.1 Make the inclusion of DAW services into primary care a high priority in the national health development agenda (1, 3, 4, 6).

Timeline: Medium- to long-term

Relevant stakeholders: Ministries of health

5.7.2 Revise and align undergraduate and postgraduate medical curricula for the primary care workforce to include the competence necessary for delivering DAW services.

Timeline: Medium- to long-term

Relevant stakeholders: Ministries of health and education, medical and nursing schools, institutes for continuous medical education

5.7.3 Review provider payment mechanisms, and align incentives to ensure the delivery of DAW services in primary care.

Timeline: Medium- to long-term

Relevant stakeholders: Ministries of health and health insurance funds

5.7.4 Introduce DAW-specific indicators as part of performance and quality assessment in primary care.

Timeline: Medium-term

Relevant stakeholders: Ministries of health and health insurance funds

## Final remarks

In this publication, the authors have collated evidence about which DAW services are effective, the key challenges to their delivery in primary care and the entry points for transformation of health service delivery.

### Evidence for the effectiveness of DAW services in primary care

DAW services are effective in reducing weight, increasing levels of physical activity and shifting to healthier diets. The most effective mix of interventions is strongly associated with context, so that interventions should be tailored to patients' needs and barriers. Services that simultaneously address diet and physical activity are the most effective; initial referral by a primary care physician and routine follow-up by nurses and allied health professionals result in better health outcomes; and support in self-management is crucial for patient adherence. Continued research and systematization are needed, including on scaled-up interventions, but action can already be taken on the basis of the evidence reviewed here.

### Challenges to the delivery of DAW services in primary care

Many studies reported lack of clear guidance in clinical recommendations; outdated knowledge and competence of primary care providers, including the skills to assess and address patient resistance; unclear scope of practice; and limited work in interdisciplinary teams, misalignment of incentives and insufficient information technology support.

### Entry points for integration of DAW services into primary care

The entry points for transformation of service delivery include engagement of patients by peer support and self-care,

selection and provision of opportunistic DAW services by primary care providers after updating of clinical guidelines and clear definition of the scope of practice of primary care providers. Prioritizing DAW services in the national health agenda, updating the curricula of health professionals and aligning payment mechanisms for primary care providers will require consideration in order to ensure sustainability and reforms at scale.

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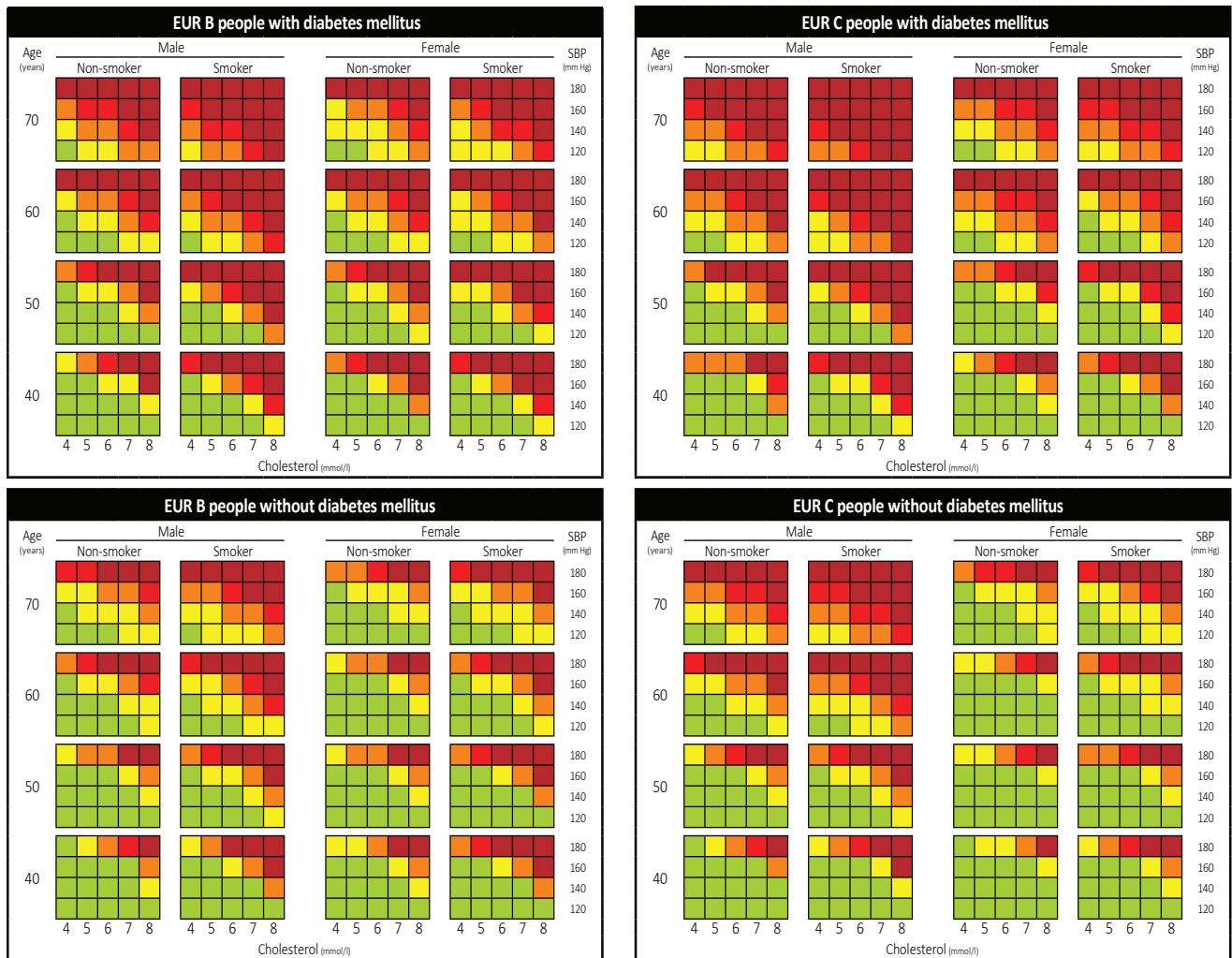
# Annex 1. WHO recommendations on diet and physical activity

Category	Recommendation	
Diet	Fruits and vegetables	At least 400 g (five portions) of fruits and vegetables a day. Potatoes, sweet potatoes, cassava and other starchy roots are not classified as fruits or vegetables.
	Sugars	Less than 10% of total energy intake from free sugars, equivalent to 50 g (or about 12 level teaspoons) for a person of healthy body weight who consumes approximately 2000 calories per day, but ideally less than 5% of total energy intake for additional health benefits
	Fats	Less than 30% of total energy intake from fats. Unsaturated fats (found e.g. in fish, avocado, nuts and sunflower, canola and olive oils) are preferable to saturated fats (found e.g. in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard). Industrial trans fats (found in processed food, fast food, snack food, fried food, frozen pizza, pies, biscuits, margarines and spreads) are not part of a healthy diet.
	Salt	Less than 5 g of iodized salt (equivalent to approximately 1 teaspoon) per day
Physical activity	Aerobic physical activity	At least 150 min of moderate-intensity aerobic physical activity or 75 min of vigorous-intensity aerobic physical activity per week. For additional health benefits, should be increased to 300 or 150 min per week, respectively. Aerobic physical activity should be performed in bouts of at least 10 min' duration.
	Muscle-strengthening activities	On $\geq 2$ days/week of training of major muscle groups

Source: WHO Fact sheets on healthy diet and physical activity. Geneva: WHO; 2016 (<http://www.who.int/mediacentre/factsheets/fs394/en/>, accessed 13 June 2016).

# Annex 2. WHO and International Society of Hypertension (ISH) cardiovascular risk prediction charts

WHO/ISH risk prediction charts for European populations (sub-region B and sub-region C; see explanatory note below for definition) show the 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, total blood cholesterol, smoking status and presence or absence of diabetes mellitus.



Risk Level    ■ <10%    ■ 10% to <20%    ■ 20% to <30%    ■ 30% to <40%    ■ ≥40%

*Explanatory note:* These charts can only be used for countries in WHO European Region sub-regions B and C, and in settings where blood cholesterol can be measured. Countries in sub-region B are: Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Georgia, Kyrgyzstan, Montenegro, Poland, Romania, Serbia, Slovakia, Tajikistan, the former Yugoslav Republic of Macedonia, Turkey, Turkmenistan and Uzbekistan. Countries in sub-region C are: Belarus, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Republic of Moldova, Russian Federation and Ukraine.

*Source:* WHO/ISH cardiovascular risk prediction charts. Geneva: WHO; 2016 ([http://www.who.int/cardiovascular\\_diseases/guidelines/Chart\\_predictions/en/](http://www.who.int/cardiovascular_diseases/guidelines/Chart_predictions/en/), accessed 13 June 2016).

## Annex 3. Grading of the studies included by “weight of evidence” framework

Study	Measure	Comparison group	Analysis	Average	Relevance of method	Relevance of evidence	Overall quality
1. Alexander et al. 2011 (USA)	High 3	Low 1	Medium 2	2	Low 1	Medium 2	Medium 1.67
2. Lowe et al. 2014 (USA)	High 3	High 3	High 3	3	High 3	High 3	High 3
3. Eichler et al. 2007 (Switzerland)	Medium 2	Low 1	Medium 2	1.67	Low 1	Medium 2	Medium 1.56
4. Mehring et al. 2013 (Germany)	High 3	Medium 2	High 3	2.67	High 3	Medium 2	High 2.56
5. Jansson et al. 2013 (Sweden)	Medium 2	High 3	Medium 2	2.33	High 3	Medium 2	Medium 2.4
6. Schutte et al. 2015 (Netherlands)	High 3	High 3	High 3	3	High 3	Medium 2	High 2.67
7. Nanchahal et al. 2009 (United Kingdom)	Medium 2	High 3	High 3	2.67	High 3	Medium 2	High 2.56
8. Nanchahal et al. 2012 (United Kingdom)	Medium 2	High 3	High 3	2.67	High 3	Medium 2	High 2.56
9. Ross et al. 2008 (UK)	Medium 2	Low 1	High 3	2	Medium 2	Medium 2	Medium 2
10. Hardcastle et al. 2008 (United Kingdom)	Medium 2	High 3	High 3	2.67	High 3	Medium 2	High 2.56



# Annex 4. Example of application of the 5As framework to nutrition and physical activity

## Step 1: Ask

Initiation of a discussion on a person's weight and dietary patterns is important but very sensitive. The physician or GP initiating the conversation should have the appropriate skills and communication techniques for discussing excess weight, physical inactivity and an unhealthy diet. Judgemental remarks and a patronizing tone often result in denial and rejection by the patient. Later stages of counselling are more likely to be successful if the patient shows readiness to change his or her dietary and physical activity patterns. A review of the literature suggests that the "ask" stage is most effective if it is endorsed and initiated by a physician, as patients trust their competence and knowledge.

### *Motivational interviewing*

The discussion should include elements of motivational interviewing. Physicians and allied health professionals delivering nutrition and physical activity counselling should be able to use motivational interviewing, which should be taken into account in workforce development.

## Step 2: Assess

Once the patient has acknowledged the problem of excess or underweight or the necessity to exercise more and is motivated to change, the health professional should be able to assess the patient's status. Several tools and instruments available in primary care should allow easy, fast assessment. No one measure alone (such as BMI or waist-hip ratio) should be used as basis for a diagnosis: only a set of biometrics and indicators, a clear, carefully collected patient history and a self-acknowledged necessity for change can take patients further. Diagnosing obesity and doing nothing about it is of no value. The tools that can be used in primary health care are discussed below.

### *BMI*

BMI is useful for assessing a patient for obesity or overweight. As BMI is based on height and weight, digital scales for measuring weight and stadiometers for measuring height should be easily accessible and calibrated. BMI can be calculated by appropriately trained nurses and allows accurate follow-up of weight and fluctuations over time. The tables for interpreting BMI should be widely available to all health professionals. Measurements should be made within a facility, because patients may mis-state their weight and height. The data should be included in the patient record, which also allows follow-up of patients. Weight categories according to BMI are shown below (see Table A4.1).

**Table A4.1. Weight categories according to BMI**

Category	Level	BMI (kg/m <sup>2</sup> )
Low		≤ 18.5
Normal		18.5–25.0 (standard weight, 22)
Obese	1	25.0–30.0
Obese	2	30.0–35.0
Obese	3	35.0–40.0
Obese	4	≥ 40.0

### *Waist-hip ratio*

Central distribution of fat is associated with risks for coronary heart disease and stroke. The ratio is calculated from two simple measurements: waist circumference (just above the upper hip bone) and the upper hip circumference at its widest part. A waist-hip ratio of 0.7 for women and 0.9 for men indicates normal distribution of body fat, whereas a ratio > 1.0 for men and > 0.8 for women indicates central obesity and high risks for diabetes, hypertension and heart attack.

### *Information systems: screening, monitoring and evaluation*

Use of information systems such as electronic health records and e-health cards ensures easy access to and the transferability of patient records and measurements such as weight, BMI, waist–hip ratio, blood pressure and blood glucose. For DAW services, they allow follow-up of trends in weight and other indicators over time. A good information system with interoperability features has benefits for both patients and doctors and also contains costs, as it obviates duplication of expensive diagnostic tests.

Some countries have very good linkage systems for routine data, although data on lifestyle are rarely included; however, many countries have no system or no information on what and how data are collected or stored. Most primary care providers who collect information about lifestyle support do not follow an agreed protocol or record the information systematically in patient records. Anthropometrics and other nutrition-related data (such as haemoglobin and serum lipid levels) tend not to be collected systematically or used to monitor progress over time.

Computer-based testing of lifestyle by patients, when used in a sensitive, appropriate manner, is feasible and could be helpful in face-to-face interventions. The lifestyle test included questions on age, blood pressure, alcohol consumption, physical activity, motivation for change and attitudes to performing the test. The levels of consumption of alcohol and physical activity were comparable or higher than in studies with face-to-face interviews, suggesting that with this approach patients may feel less threatened and “judged” and more inclined to be honest.

### **Step 3: Advise**

Once the patient has been assessed, the treatment opportunities must be presented and an individualized plan with short- and long-term goals set up. The dietary recommendations and advice on physical activity should be realistic and match the patient’s characteristics. Several tools can facilitate giving advice and designing a treatment plan.

#### *Food models*

Most of the wide variety of food models are in pyramid or plate form, with different sections representing food groups (e.g. fruits, fats, proteins). The size of each section indicates the frequency or amount of healthy consumption of each food group. The most widely used models are the “food guide pyramid”, the “good health plate”, the “Mediterranean diet pyramid” and the “soul food pyramid”. Simply handling a leaflet with a depiction of a food model is not, however, sufficient: depending on the health literacy of the individual, food groups and portion sizes should be explained.

#### *Prescribed physical activity*

Models for prescribing physical activity, whether exercise or training, are as individualized as any other type of intervention. The approach is based on the notion that a “dose” of physical activity, like pharmaceutical treatment, can be prescribed to a particular patient. The prescription approach also draws the patient’s attention to the importance of the treatment, beyond simple recommendations for lifestyle modification.

### **Step 4: Agree**

This stage of nutrition and physical activity counselling should include preparation of a long-term treatment plan specifying all the treatment approaches for the specific patient, with specific, measurable, agreed, realistic, time-bound (SMART) goals. Use of the framework should be clear to patients and should be agreed by them. At this stage, it is important to create a doctor–patient “contract”, in which the terms of treatment, weight reduction and dietary change are agreed. Any ambiguity in treatment plans and targets usually reduces patient compliance. Nutrition and physical activity counselling should include all the medical, social and other determinants of the patient’s condition.

### **Step 5: Assist**

The long-term nature of lifestyle modification programmes requires continuous support, follow-up of difficulties encountered and celebration of achievements. Day-to-day follow-up and assistance are probably best done by allied health professionals who may have fewer time constraints. It is important, however, that the physician recognize achievements and address the difficulties of a patient, with some intermediate follow-up. Assistance in lifestyle modification should ideally extend beyond primary health care and be actively supported by the community.

# Annex 5. Summary of the National Institute for Health and Care Excellence (NICE) guidance on identifying, assessing and managing overweight and obesity in children, young people and adults

## Training for health professionals

The guidance of this institute in the United Kingdom states that professional bodies and others responsible for deciding on competence and for continuing professional development should ensure that health professionals have the appropriate knowledge and skills to give advice. For example, professional bodies should ensure that health professionals, health care assistants and support workers are able to advise patients on the health benefits of weight management and the risks of being overweight or obese. They should also have the necessary knowledge, skills and competence for changing behaviour, including helping people to identify how their behaviour is affecting their health, drawing up an action plan, making the changes and maintaining them. The skills include communication techniques for broaching the subject of weight management in a sensitive manner.

The guidance for health professionals in primary care settings is that they:

- have the skills and knowledge to advise patients about the health benefits of weight management and the risks of being overweight or obese;
- have the necessary knowledge, skills and competence to bring about behaviour change, including helping people to recognize how their behaviour is affecting their health, drawing up an action plan, making the changes and maintaining them; and
- can use the necessary communication techniques to broach the subject of weight management in a sensitive manner.

## Approaches to changing behaviour in primary health care

The guidance encourages health professionals to recognize that surprise, anger, denial or disbelief about their health may diminish people's ability or willingness to change their behaviour. It is suggested that overweight and obesity be described in clinical terms, outlining the specific health implications, rather than implying how people look, in order to reduce negative reactions.

During a consultation, health professionals are advised to:

- assess the person's view of their weight, the diagnosis and possible reasons for weight gain;
- explore their eating patterns and physical activity levels;
- explore their beliefs about eating, physical activity and weight gain, which might be preventing the person from losing weight;
- be aware that people of certain ethnic and socioeconomic backgrounds may be at greater risk for obesity and may have unexpected beliefs about what is a healthy weight and attitudes towards weight management;
- determine what the person has already tried, how successful it was and what they learnt from the experience;
- assess the person's readiness to adopt changes; and
- assess the person's confidence in making changes.

The guidance recommends delivery (with the support of an appropriately trained professional) of behavioural interventions that incorporate the following strategies:

- self-monitoring of behaviour and progress,
- stimulus control,
- goal-setting,
- slowing the rate of eating,
- ensuring social support,
- problem-solving,
- being assertive,
- cognitive restructuring (modifying thoughts),
- reinforcement of changes,
- relapse prevention and
- strategies for dealing with re-gaining weight.

### **Specific recommendations for improving diets and increasing levels of physical activity**

For the maintenance of a healthy weight, with a balanced diet and sufficient physical activity, in the general population, the guidance recalls dietary guidance and recommendations on active lifestyles, including building activity into daily life. For example, health professionals are advised to recommend meals based on starchy foods, such as potatoes, bread, rice and pasta, choosing whole-grain products when possible. A diet high in fibre-rich food is encouraged, with at least five portions of a variety of fruit and vegetables each day. “Eat-less” foods are identified as fried foods and drinks and confectionery with high levels of free sugars. Regular meals, including breakfast, are recommended, with attention to portion sizes and “snacking”. Walking, cycling, swimming, aerobics and gardening are recommended as part of everyday life, with an effort to limit sedentary activities, such as sitting for long periods watching television, at a computer or playing video games. Health professionals should recommend that people build activity into their working day, such as climbing stairs instead of taking a lift and taking a walk at lunchtime. The guidance encourages health professionals to recommend and support adults in periodically checking their weight and waist measurement or finding a simple alternative, such as the fit of their clothes.

Health professionals should recommend weight loss programmes (including commercial and self-help groups, slimming books and websites) to adults who want to lose weight only if the programmes:

- are based on a balanced healthy diet,
- encourage regular physical activity, and
- expect people to lose no more than 0.5–1 kg a week.

The guidance states that programmes that do not meet these criteria are unlikely to help people to maintain a healthy weight in the long term.

Advice from health professionals should be tailored to the individual’s food preferences and allow a flexible, individual approach to reducing caloric intake. Health professionals are advised to avoid unduly restrictive, nutritionally unbalanced diets, which are ineffective in the long term and can be harmful. Furthermore, health professionals should encourage people to improve their diet even if they do not lose weight, because they may receive other health benefits.

Diets that contain 600 kcal less than the person requires to remain at the same weight or that result in a reduction in calories by lowering the fat content (low-fat diets), in combination with expert support and intensive follow-up, are recommended for sustainable weight loss.

The guidance advises against routine consumption of very-low-calorie diets ( $\leq 800$  kcal/day) for managing obesity (BMI  $> 30$  kg/m<sup>2</sup>). Health professionals are advised to consider prescribing very-low-calorie diets as part of a multicomponent weight management strategy only for people who are obese and who are clinically assessed as having to lose weight rapidly, such as people who are to undergo joint replacement surgery or are seeking fertility services. In such cases, the health professional is advised to ensure that the diet is nutritionally complete and is followed for a maximum of 12 weeks (continuously or intermittently) and that the person on the diet is given continuous clinical support. Before starting someone on a very-low-calorie diet as part of a multi-component weight management strategy, professionals should discuss the risks and benefits with them and ensure that they are aware that it is not a long-term weight management strategy and they may re-gain weight, not because of failure on their part or that of their clinician.

For children and young people, NICE recommends that health professionals:

- encourage and support parents and carers to prepare foods at home for infants and young children, without adding salt, sugar or honey;
- encourage families to eat together, and encourage parents and carers to set a good example in the food choices they make for themselves;
- recommend that sugary foods be limited to mealtimes, and avoid giving biscuits or sweets as treats;
- encourage snacks free of salt and added sugar (such as vegetables and fruit) between meals; and
- recommend providing milk and water between meals.

### **Referral to specialist services**

Health professionals are advised to consider referral to specialist services if:

- the underlying causes of overweight or obesity should be assessed;
- the person has complex disease states and/or needs that cannot be managed adequately in primary health care;
- conventional treatment has been unsuccessful;
- drug treatment is being considered, for a person with a BMI  $> 50$  kg/m<sup>2</sup>;
- a specialist intervention (such as a very-low-calorie diet) might be needed; or
- surgery is being considered.

*Source:* NICE guidance on obesity: identification, assessment and management. London: National Institute for Health and Care Excellence (<https://www.nice.org.uk/guidance/CG189>, accessed 13 June 2016).

## 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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