REPORT OF THE COMMISSION ON

ENDING CHILDHOOD OBESITY

World Health Organization

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SCHOOL

GLOSSARY AND DEFINITIONS

BMI	Body mass index = weight (kg)/height (m^2).
BMI-FOR-AGE	BMI adjusted for age, standardized for children.
CHILDREN	Those less than 18 years of age.[1]
INFANTS	Those less than 12 months of age.
HEALTHY FOODS	Foods that contribute to healthy diets if consumed in appropriate amounts.[2]
OBESITY	From birth to less than 5 years of age: weight-for-height more than 3 Standard Deviation (SD) above the WHO Child Growth Standards median.[3] From age 5 to less than 19 years: BMI-for-age more than 2 SD above the WHO growth reference median.[4]
OBESOGENIC ENVIRONMENT	An environment that promotes high energy intake and sedentary behaviour. This includes the foods that are available, affordable, accessible and promoted; physical activity opportunities; and the social norms in relation to food and physical activity.
OVERWEIGHT	From birth to less than 5 years of age: weight-for-height more than 2 SD above WHO Child Growth Standards median.[3] From age 5 to less than 19 years: BMI-for-age more than 1 SD above WHO growth reference median.[4]
UNHEALTHY FOODS	Foods high in saturated fats, trans-fatty acids, free sugars or salt (i.e. energy-dense, nutrient-poor foods).
YOUNG CHILDREN	Those less than 5 years of age.

[1] Convention on the rights of the child, Treaty Series, 1577:3(1989): PART I, Article 1 defines a child as every human being below the age of eighteen years unless, under the law applicable to the child, majority is attained earlier. The World Health Organization (WHO) defines adolescents as those between 10 and 19 years of age. The majority of adolescents are, therefore, included in the age-based definition of "child", adopted by the Convention on the Rights of the Child, as a person under the age of 18 years.

[2] http://www.who.int/mediacentre/factsheets/fs394/en/.

[3] http://www.who.int/childgrowth/standards/technical_report/en/.

[4] http://www.who.int/nutrition/publications/growthref_who_bulletin/en/. The new curves are closely aligned with the WHO Child Growth Standards at 5 years, and the recommended adult cut-offs for overweight and obesity at 19 years. They fill the gap in growth curves and provide an appropriate reference for the 5–19-year age group.

EXECUTIVE SUMMARY

Childhood obesity is reaching alarming proportions in many countries and poses an urgent and serious challenge. The Sustainable Development Goals, set by the United Nations in 2015, identify prevention and control of noncommunicable diseases as core priorities. Among the noncommunicable disease risk factors, obesity is particularly concerning and has the potential to negate many of the health benefits that have contributed to increased life expectancy.

The prevalence of infant, childhood and adolescent obesity is rising around the world. Although rates may be plateauing in some settings, in absolute numbers there are more children who are overweight and obese in low- and middle-income countries than in high-income countries. Obesity can affect a child's immediate health, educational attainment and quality of life. Children with obesity are very likely to remain obese as adults and are at risk of chronic illness.

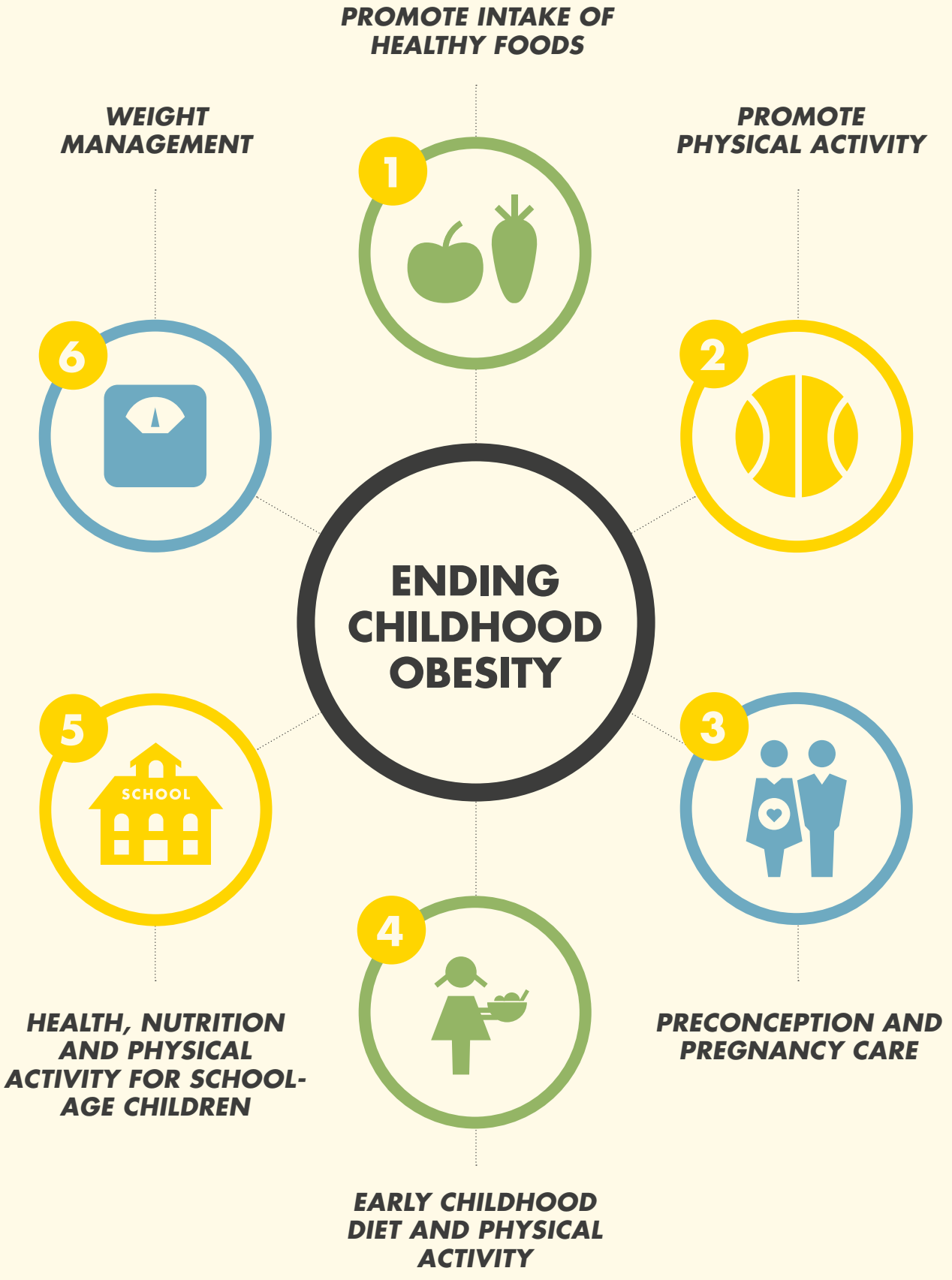
Progress in tackling childhood obesity has been slow and inconsistent. The Commission on Ending Childhood Obesity was established in 2014 to review, build upon and address gaps in existing mandates and strategies. Having consulted with over 100 WHO Member States and reviewed nearly 180 online comments (see Annex 1), the Commission has developed a set of recommendations to successfully tackle childhood and adolescent obesity in different contexts around the world.

Many children today are growing up in an obesogenic environment that encourages weight gain and obesity. Energy imbalance has resulted from the changes in food type, availability, affordability and marketing, as well as a decline in physical activity, with more time being spent on screen-based and sedentary leisure activities. The behavioural and biological responses of a child to the obesogenic environment can be shaped by processes even before birth, placing an even greater number of children on the pathway to becoming obese when faced with an unhealthy diet and low physical activity.

No single intervention can halt the rise of the growing obesity epidemic. Addressing childhood and adolescent obesity requires consideration of the environmental context and of three critical time periods in the life-course: preconception and pregnancy; infancy and early childhood; and older childhood and adolescence. In addition, it is important to treat children who are already obese, for their own well-being and that of their children.

Obesity prevention and treatment requires a whole-of-government approach in which policies across all sectors systematically take health into account, avoid harmful health impacts, and thus improve population health and health equity.

The Commission has developed a comprehensive, integrated package of recommendations to address childhood obesity. It calls for governments to take leadership and for all stakeholders to recognize their moral responsibility in acting on behalf of the child to reduce the risk of obesity. The recommendations are presented under the following areas.


PROMOTE INTAKE OF HEALTHY FOODS
1
PROMOTE PHYSICAL ACTIVITY
2
PRECONCEPTION AND PREGNANCY CARE
3
EARLY CHILDHOOD DIET AND PHYSICAL ACTIVITY
4
HEALTH, NUTRITION AND PHYSICAL ACTIVITY FOR SCHOOL-AGE CHILDREN
5
SCHOOL
WEIGHT MANAGEMENT
6
ENDING CHILDHOOD OBESITY

RECOMMENDATIONS

IMPLEMENT COMPREHENSIVE PROGRAMMES THAT PROMOTE THE INTAKE OF HEALTHY FOODS AND REDUCE THE INTAKE OF UNHEALTHY FOODS AND SUGAR-SWEETENED BEVERAGES BY CHILDREN AND ADOLESCENTS.

1.1 Ensure that appropriate and context-specific nutrition information and guidelines for both adults and children are developed and disseminated in a simple, understandable and accessible manner to all groups in society.

1.2 Implement an effective tax on sugar-sweetened beverages.

1.3 Implement the Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children to reduce the exposure of children and adolescents to, and the power of, the marketing of unhealthy foods.

1.4 Develop nutrient-profiles to identify unhealthy foods and beverages.

1.5 Establish cooperation between Member States to reduce the impact of cross-border marketing of unhealthy foods and beverages.

1.6 Implement a standardized global nutrient labelling system.

1.7 Implement interpretive front-of-pack labelling, supported by public education of both adults and children for nutrition literacy.

1.8 Require settings such as schools, child-care settings, children's sports facilities and events to create healthy food environments.

1.9 Increase access to healthy foods in disadvantaged communities.

IMPLEMENT COMPREHENSIVE PROGRAMMES THAT PROMOTE PHYSICAL ACTIVITY AND REDUCE SEDENTARY BEHAVIOURS IN CHILDREN AND ADOLESCENTS.

2.1 Provide guidance to children and adolescents, their parents, caregivers, teachers and health professionals on healthy body size, physical activity, sleep behaviours and appropriate use of screen-based entertainment.

2.2 Ensure that adequate facilities are available on school premises and in public spaces for physical activity during recreational time for all children (including those with disabilities), with the provision of gender-friendly spaces where appropriate.

INTEGRATE AND STRENGTHEN GUIDANCE FOR NONCOMMUNICABLE DISEASE PREVENTION WITH CURRENT GUIDANCE FOR PRECONCEPTION AND ANTENATAL CARE, TO REDUCE THE RISK OF CHILDHOOD OBESITY.

3.1 Diagnose and manage hyperglycaemia and gestational hypertension.

3.2 Monitor and manage appropriate gestational weight gain.

3.3 Include an additional focus on appropriate nutrition in guidance and advice for both prospective mothers and fathers before conception and during pregnancy.

3.4 Develop clear guidance and support for the promotion of good nutrition, healthy diets and physical activity, and for avoiding the use of and exposure to tobacco, alcohol, drugs and other toxins.

PROVIDE GUIDANCE ON, AND SUPPORT FOR, HEALTHY DIET, SLEEP AND PHYSICAL ACTIVITY IN EARLY CHILDHOOD TO ENSURE CHILDREN GROW APPROPRIATELY AND DEVELOP HEALTHY HABITS.

4.1 Enforce regulatory measures such as The International Code of Marketing of Breast-milk Substitutes and subsequent World Health Assembly resolutions.

4.2 Ensure all maternity facilities fully practice the Ten Steps to Successful Breastfeeding.

4.3 Promote the benefits of breastfeeding for both mother and child through broad-based education to parents and the community at large.

4.4 Support mothers to breastfeed, through regulatory measures such as maternity leave, facilities and time for breastfeeding in the work place.

4.5 Develop regulations on the marketing of complementary foods and beverages, in line with WHO recommendations, to limit the consumption of foods and beverages high in fat, sugar and salt by infants and young children.

4.6 Provide clear guidance and support to caregivers to avoid specific categories of foods (e.g. sugar-sweetened milks and fruit juices or energy-dense, nutrient-poor foods) for the prevention of excess weight gain.

4.7 Provide clear guidance and support to caregivers to encourage the consumption of a wide variety of healthy foods.

4.8 Provide guidance to caregivers on appropriate nutrition, diet and portion size for this age group.

4.9 Ensure only healthy foods, beverages and snacks are served in formal child care settings or institutions.

4.10 Ensure food education and understanding are incorporated into the curriculum in formal child-care settings or institutions.

4.11 Ensure physical activity is incorporated into the daily routine and curriculum in formal child care settings or institutions.

4.12 Provide guidance on appropriate sleep time, sedentary or screen-time, and physical activity or active play for the 2–5 years of age group.

4.13 Engage whole-of-community support for caregivers and child care settings to promote healthy lifestyles for young children.

IMPLEMENT COMPREHENSIVE PROGRAMMES THAT PROMOTE HEALTHY SCHOOL ENVIRONMENTS, HEALTH AND NUTRITION LITERACY AND PHYSICAL ACTIVITY AMONG SCHOOL-AGE CHILDREN AND ADOLESCENTS.

5.1 Establish standards for meals provided in schools, or foods and beverages sold in schools, that meet healthy nutrition guidelines.

5.2 Eliminate the provision or sale of unhealthy foods, such as sugar-sweetened beverages and energy-dense, nutrient-poor foods, in the school environment.

5.3 Ensure access to potable water in schools and sports facilities.

5.4 Require inclusion of nutrition and health education within the core curriculum of schools.

5.5 Improve the nutrition literacy and skills of parents and caregivers.

5.6 Make food preparation classes available to children, their parents and caregivers.

5.7 Include Quality Physical Education in the school curriculum and provide adequate and appropriate staffing and facilities to support this.

PROVIDE FAMILY-BASED, MULTICOMPONENT, LIFESTYLE WEIGHT MANAGEMENT SERVICES FOR CHILDREN AND YOUNG PEOPLE WHO ARE OBESE.

6.1 Develop and support appropriate weight management services for children and adolescents who are overweight or obese that are family-based, multicomponent (including nutrition, physical activity and psychosocial support) and delivered by multi-professional teams with appropriate training and resources, as part of Universal Health Coverage.

ACTIONS AND RESPONSIBILITIES FOR:

WHO

- **A** Institutionalize a cross-cutting and life-course approach to ending childhood obesity across all relevant technical areas in WHO headquarters, regional and country offices.
- **B** Develop, in consultation with Member States, a framework to implement the recommendations of the Commission.
- **C** Strengthen capacity to provide technical support for action to end childhood obesity at global, regional and national levels.
- **D** Support international agencies, national governments and relevant stakeholders in building upon existing commitments to ensure that relevant actions to end childhood obesity are implemented at global, regional and national levels.
- **E** Promote collaborative research on ending childhood obesity with a focus on the life-course approach.
- **F** Report on progress made on ending childhood obesity.

International organizations

- **A** Cooperate to build capacity and support Member States in addressing childhood obesity.

Members States

- **A** Take ownership, provide leadership and engage political commitment to tackle childhood obesity over the long term.
- **B** Coordinate contributions of all government sectors and institutions responsible for policies, including, but not limited to: education; food, agriculture; commerce and industry; development; finance and revenue; sport and recreation; communication; environmental and urban planning; transport and social affairs; and trade.
- **C** Ensure data collection on BMI-for-age of children – including for ages not currently monitored – and set national targets for childhood obesity.
- **D** Develop guidelines, recommendations or policy measures that appropriately engage relevant sectors – including the private sector, where applicable – to implement actions, aimed at reducing childhood obesity, as set out in this report.

Nongovernmental organizations

- A *Raise the profile of childhood obesity prevention through advocacy efforts and the dissemination of information.*
- B *Motivate consumers to demand that governments support healthy lifestyles and that the food and non-alcoholic beverage industry provide healthy products, and do not market unhealthy foods and sugar-sweetened beverages to children.*
- C *Contribute to the development and implementation of a monitoring and accountability mechanism.*

The private sector

- A *Support the production of, and facilitate access to, foods and non-alcoholic beverages that contribute to a healthy diet.*
- B *Facilitate access to, and participation in, physical activity.*

Philanthropic foundations

- A *Recognize childhood obesity as endangering child health and educational attainment and address this important issue.*
- B *Mobilize funds to support research, capacity-building and service delivery.*

Academic institutions

- A *Raise the profile of childhood obesity prevention through the dissemination of information and incorporation into appropriate curricula.*
- B *Address knowledge gaps with evidence to support policy implementation.*
- C *Support monitoring and accountability activities.*

The greatest obstacle to effective progress on reducing childhood obesity is a lack of political commitment and a failure of governments and other actors to take ownership, leadership and necessary actions.

Governments must invest in robust monitoring and accountability systems to track the prevalence of childhood obesity. These systems are vital in providing data for policy development and in offering evidence of the impact and effectiveness of interventions.

The Commission would like to stress the importance and necessity of tackling the complex issue of childhood obesity. WHO, international organizations and their Member States, as well as non-State actors, all have a critical role to play in harnessing momentum and ensuring that all sectors remain committed to working together to reach a positive conclusion.

GOALS OF THE COMMISSION

The overarching goals of the Commission on Ending Childhood Obesity are to provide policy recommendations to governments to prevent infants, children and adolescents from developing obesity, and to identify and treat pre existing obesity in children and adolescents.

The aims are to reduce the risk of morbidity and mortality due to noncommunicable diseases, lessen the negative psychosocial effects of obesity both in childhood and adulthood and reduce the risk of the next generation developing obesity.

INTRODUCTION

The obesity epidemic has the potential to negate many of the health benefits that have contributed to the increased longevity observed in the world. In 2014, an estimated 41 million children under 5 years of age were affected by overweight or obesity *(1)* (defined as the proportion of children with weight-for-height z-score values more than 2 SDs and more than 3 SDs, respectively, from the WHO growth standard median *(2)*). Figure 1 shows the prevalence of overweight children under 5 years of age worldwide. In Africa, the number of children who are overweight or obese has nearly doubled since 1990, increasing from 5.4 million to 10.3 million. In 2014, of children under 5 years of age who were overweight, 48% lived in Asia and 25% in Africa *(1)*. The prevalence of infant, childhood and adolescent obesity may be plateauing in some settings, but in absolute numbers more overweight and obese children live in low- and middle-income countries than in high-income countries *(3)*. Figure 2 shows the prevalence of overweight by WHO region and World Bank income group. Prevalence data available for older children and adolescents are currently being verified and are due to be released by WHO in 2016. To date, progress in tackling childhood obesity has been slow and inconsistent *(4)*.

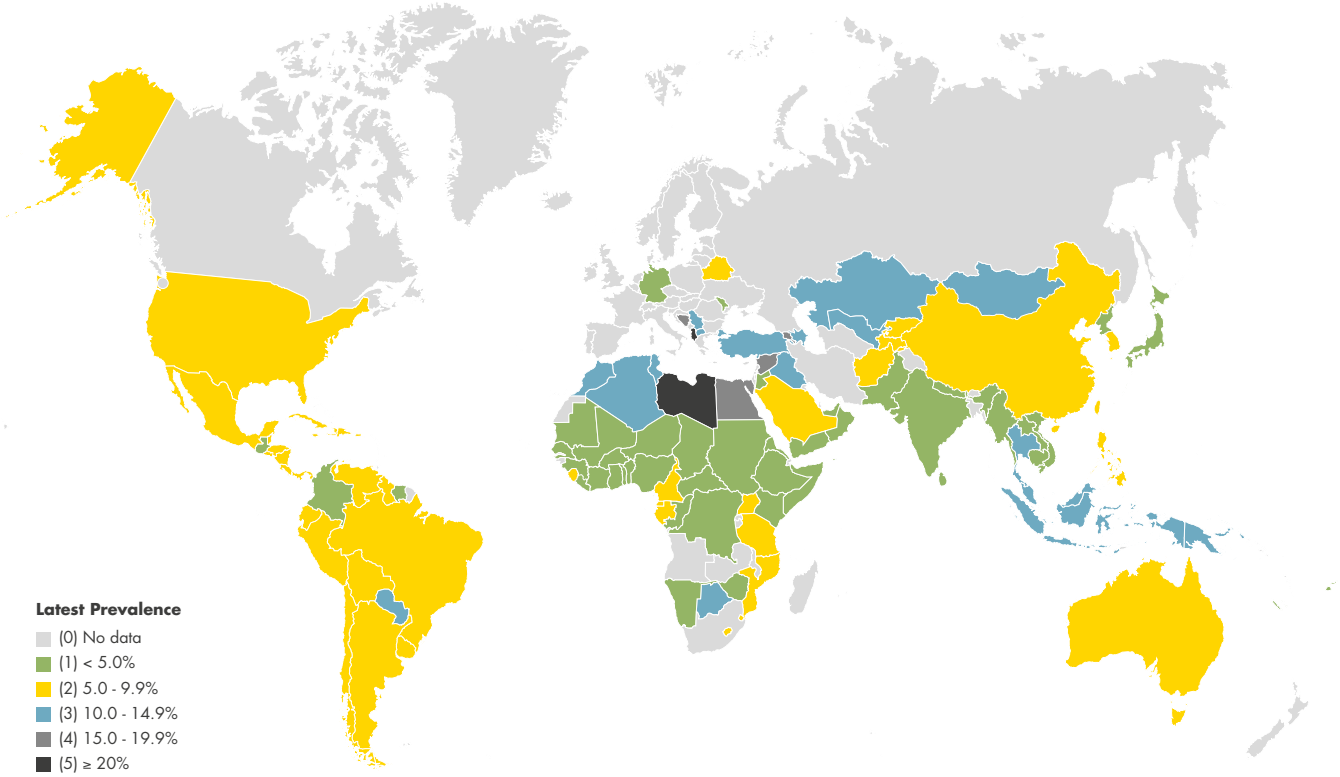
An even greater number of children are, even from before birth, on the pathway to developing obesity. Children who are not yet at the body-mass-index (BMI)-for-age threshold for the current definition of childhood obesity or overweight may be at an increased risk of developing obesity. The recommendations in this report also address the needs of these children. Undernutrition in early childhood places children at an especially high risk of developing obesity when food and physical activity patterns change.

Many countries now face the burden of malnutrition in all its forms, with rising rates of childhood obesity as well as high rates of child undernutrition and stunting. Childhood obesity is often under-recognized as a public health issue in these settings, where, culturally, an overweight child is often considered to be healthy.

In high-income countries, the risks of childhood obesity are greatest in lower socioeconomic groups. Although currently the converse is true in most low- and middle-income countries, a changing pattern is emerging. Within countries, certain population subgroups, such as migrant and indigenous children, are at a particularly high risk of becoming obese *(5)*, due to rapid acculturation and poor access to public health information. As countries undergo rapid socioeconomic and/or nutrition transitions, they face a double burden in which inadequate nutrition and excess weight gain co-exist *(6)*.

FIGURE1:

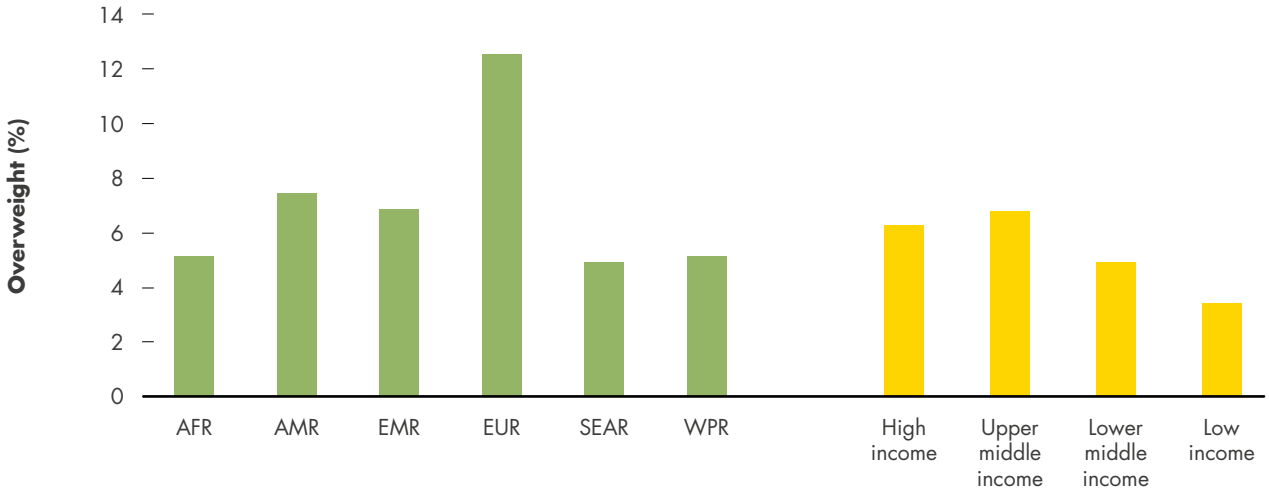
AGE-STANDARDIZED PREVALENCE OF OVERWEIGHT IN CHILDREN UNDER 5 YEARS OF AGE, COMPARABLE ESTIMATES, 2014



Source: Tracking tool (http://www.who.int/nutrition/trackingtool)

FIGURE2:

PREVALENCE OF OVERWEIGHT IN CHILDREN UNDER 5 YEARS OF AGE, BY WHO REGION AND WORLD BANK INCOME GROUP, COMPARABLE ESTIMATES, 2014



AFR=African Region, AMR=Region of Americas, SEAR=South-East Asia Region, EUR=European Region, EMR=Eastern Mediterranean Region, WPR=Western Pacific Region.

Source: UNICEF, WHO, The World Bank. Joint Child Malnutrition Estimates. (UNICEF, New York; WHO, Geneva; The World Bank, Washington, DC; 2015).

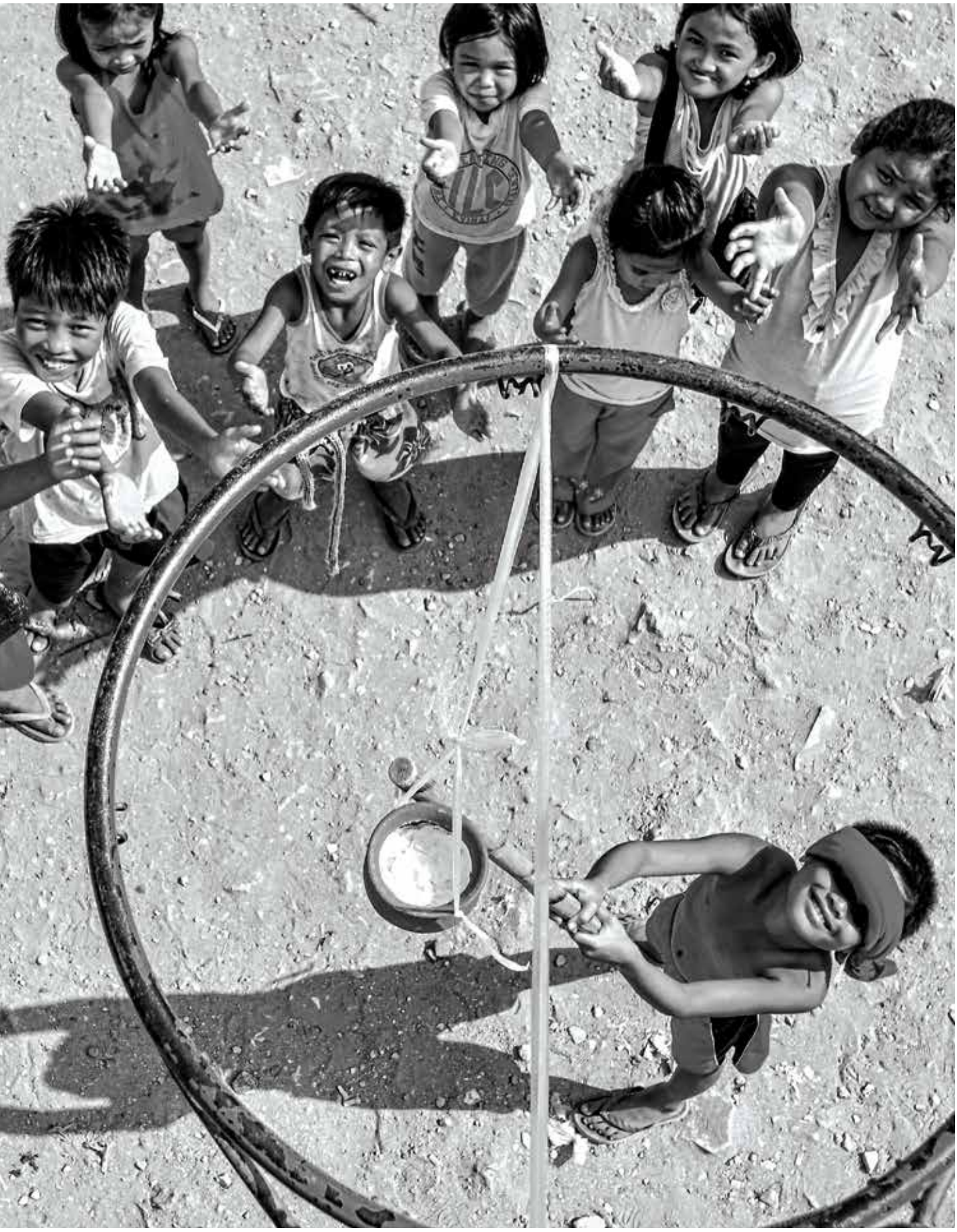
Obesity arises from a combination of exposure of the child to an unhealthy environment (often called the obesogenic environment *(7)*) and inadequate behavioural and biological responses to that environment. These responses vary among individuals and are strongly influenced by developmental or life-course factors.

Many children today are growing up in environments that encourage weight gain and obesity. With globalization and urbanization, exposure to the obesogenic environment is increasing in both high-income countries and low- and middle-income countries and across all socioeconomic groups. Changes in food availability and type, and a decline in physical activity for transport or play, have resulted in energy imbalance. Children are exposed to ultra-processed, energy-dense, nutrient-poor foods, which are cheap and readily available. Opportunities for physical activity, both in and out of school, have been reduced and more time is spent on screen-based and sedentary leisure activities.

Cultural values and norms influence the perception of healthy or desirable body weight, especially for infants, young children and women. In some settings, overweight and obesity are becoming social norms and thus contributing to the perpetuation of the obesogenic environment.

10.3 MILLION

In Africa, the number of children who are overweight or obese has nearly doubled since 1990, increasing from 5.4 million to 10.3 million.



The risk of obesity can be passed from one generation to the next, as a result of behavioural and/or biological factors. Behavioural influences continue through generations as children inherit socioeconomic status, cultural norms and behaviours, and family eating and physical activity behaviours.

Biological factors can lead to an increase in the risk of obesity in children through two general developmental pathways:

(i) The "mismatch" pathway. This results from malnutrition – sometimes subtle – during fetal and early childhood development, due, for example, to poor maternal nutrition or placental insufficiency. The underlying processes involve environmental effects on gene function (epigenetic effects) that do not necessarily have obvious effects on measures such as birth weight *(8)*. Children who have suffered from undernutrition and were born with low birth weight or are short-for-age (stunted), are at far greater risk of developing overweight and obesity when faced with energy-dense diets and a sedentary lifestyle later in life. Attempts to deal with undernutrition and stunting during childhood may have led to the unintended consequences of obesity risk for these children.

(ii) The developmental pathway. This is characterized by the mother entering pregnancy with obesity or pre-existing diabetes, or developing gestational diabetes. This predisposes the child to increased fat deposits associated with metabolic disease and obesity. This pathway may also involve epigenetic processes. Recent research indicates that paternal obesity can also contribute to a greater risk of obesity in the child *(9)*, probably through epigenetic mechanisms. Inappropriate early infant feeding also impacts on the child's developing biology. Appropriate interventions before conception, during pregnancy and in infancy may prevent some of these effects, but these may not easily be reversed once a critical period of development

In absolute numbers more overweight and obese children live in low- and middle-income countries than in high-income countries.

has passed. Since many women do not consult a healthcare professional until the end of the first trimester, it is essential to promote knowledge of the importance of healthy behaviours in adolescents, young women and men before conception and in early pregnancy.

Overweight and obesity are not absolute cut-offs and many children are on the pathway to obesity when they are within the normal range for BMI-for-age. The health consequences of overweight and obesity are also continuous and can affect a child's quality of life before BMI-for-age cut-offs are reached. Across the distribution of BMI there is a trend for individuals to have more body fat and less lean muscle mass than in previous generations *(10)*. The pattern of fat deposit in the body is also important in terms of health outcomes *(11)*. Some population groups have more fat deposits and less lean muscle mass than others at the same BMI. Although BMI is the simplest means to identify children who are overweight and obese, it does not necessarily identify children with abdominal fat deposits that put them at greater risk of health complications. While new methodologies are available, such as dual-energy X-ray absorptiometry, magnetic resonance imaging or body impedance to measure body fat and lean mass, these are currently beyond the scope of population-based surveys.

None of these upstream causal factors are in the control of the child. Therefore, childhood obesity should not be seen as a result of voluntary lifestyle choices, particularly by the younger child. Given that childhood obesity is influenced by biological and contextual factors, governments must address these issues by providing public health guidance, education and establishing regulatory frameworks to address developmental and environmental risks, in order to support families' efforts to change behaviours. Parents, families, caregivers and educators also play a critical role in encouraging healthy behaviours.

Obesity has physical and psychological health consequences during childhood, adolescence and into adulthood. Obesity itself is a direct cause of morbidities in childhood including gastrointestinal, musculoskeletal and orthopaedic complications, sleep apnoea, and the accelerated onset of cardiovascular disease and type-2 diabetes, as well as the comorbidities of the latter two noncommunicable diseases *(12)*. Obesity in childhood can contribute to behavioural and emotional difficulties, such as depression, and can also lead to stigmatization and poor socialization and reduce educational attainment *(13, 14)*.

Critically, childhood obesity is a strong predictor of adult obesity, which has well known health and economic consequences, both for the individual and society as a whole *(15, 16)*. Although longitudinal studies suggest that improving BMI in adulthood can reduce the risk of morbidity and mortality *(17)*, childhood obesity will leave a permanent imprint on adult health *(18)*.

Evidence on the lifetime cost of childhood obesity is developing, but is scarce compared with that on the economic burden of adult obesity. To date, studies have concentrated primarily on healthcare expenditure, ignoring other costs, including the cost of the accelerated onset of adult diseases and the tendency for childhood obesity to continue into adulthood with attendant economic costs *(19)*. Early onset of noncommunicable diseases impair the individual's lifetime educational attainment and labour market outcomes and place a significant burden on health-care systems, family, employers and society as a whole *(20)*.

Prevention of childhood obesity will result in significant economic and intergenerational benefits that currently cannot be accurately estimated or quantified. Spill-over benefits also include improved maternal and reproductive health and a reduction in obesogenic exposure for all members of the population, thus further strengthening the case for urgent action.

Childhood obesity is a strong predictor of adult obesity, which has well known health and economic consequences, both for the individual and society as a whole.

GUIDING PRINCIPLES

THE COMMISSION AFFIRMS THE FOLLOWING PRINCIPLES AND STRATEGIES:

The child's right to health: Government and society have a moral responsibility to act on behalf of the child to reduce the risk of obesity. Tackling childhood obesity resonates with the universal acceptance of the rights of the child to a healthy life as well as the obligations assumed by State Parties to the Convention of the Rights of the Child.[1]

Government commitment and leadership: Rates of childhood obesity are reaching alarming proportions in many countries, posing an urgent and serious challenge. These increasing rates cannot be ignored and governments need to accept primary responsibility in addressing this issue on behalf of the children they are ethically bound to protect. A failure to act will have major medical, social and economic consequences.

A whole-of-government approach: Obesity prevention and treatment requires a whole-of-government approach in which policies across all sectors systematically take health into account, avoid harmful health impacts and so improve population health and health equity. The education sector plays a critical role in providing nutrition and health education, increasing the opportunities for physical activity and promoting healthy school environments. Agriculture and trade policies and the globalization of the food system impact on food affordability, availability and quality at national and local levels. In 2013, WHO Member States adopted a resolution to consider the interplay between international trade and health through multistakeholder dialogue.[2] Urban planning

[1] Committee on the Rights of the Child: General comment No. 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health (art. 24), para 47; CRC/C/GC/15.

[2] Resolution WHA59.26 on international trade and health.

and design, and transport planning, all impact directly on opportunities for physical activity and access to healthy foods. Intersectoral government structures can facilitate coordination, identify mutual interest, collaboration and exchange of information through coordinating mechanisms.

A whole-of-society approach: The complexity of obesity calls for a comprehensive approach involving all actors, including governments, parents, caregivers, civil society, academic institutions and the private sector. Moving from policy to action to address childhood obesity demands a concerted effort and an engagement of all sectors of society at the national, regional and global levels. Without joint ownership and shared responsibility, well-meaning and cost-effective interventions have limited reach and impact.

Equity: Governments should ensure equitable coverage of interventions, particularly for excluded, marginalized or otherwise vulnerable population groups, who are at high risk both of malnutrition in all its forms and of developing obesity. These population groups often have poor access to healthy foods, safe places for physical activity and preventative health services and support. Obesity and its associated morbidities erode the potential improvements in social and health capital, and increase inequity.

Aligning with the global development agenda: The Sustainable Development Goals (SDG) call for an end to malnutrition in all its forms (SDG target 2.2) and a reduction in premature mortality from noncommunicable diseases (SDG target 3.4). Childhood obesity undermines the physical, social and psychological well-being of children and is a known risk factor for adult obesity and noncommunicable diseases. Progress will be made in achieving these goals by tackling this issue.

Accountability: Political and financial commitment is imperative

in combatting childhood obesity. A robust mechanism and framework is needed to monitor policy development and implementation, thus facilitating the accountability of governments, civil society and the private sector on commitments made.

Integration into a life-course approach: Integrating interventions to address childhood obesity with existing WHO and other initiatives, using a life-course approach, will offer additional benefits for longer-term health. These initiatives include the United Nations Secretary General's Global Strategy for Women's, Children's and Adolescent's Health,[1] the Every Woman, Every Child initiative,[2] the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable diseases,[3] and the Rome Declaration of the Second International Conference on Nutrition.[4] There are a number of current WHO and other United Nations agencies strategies and implementation plans related to optimizing maternal, infant and child nutrition and adolescent health that are highly relevant to key elements of a comprehensive approach to obesity prevention. Relevant principles and recommendations can be found in documents providing guidance throughout the life-course.[5] Initiatives to address childhood obesity should build upon these to help children realize their fundamental right to health, while reducing the burden on the health system.

Universal Health Coverage[6] and treatment of obesity: Sustainable Development Goal target 3.8 calls for the achievement of Universal Health Coverage through integrated health services that enable people to receive a continuum of health promotion, disease prevention, diagnosis, treatment and management, over the course of a lifetime.[7] As such, prevention of overweight and obesity and the treatment of children already obese, and those with overweight who are on the pathway to obesity, should be considered an element of Universal Health Coverage.

Without joint ownership and shared responsibility, well-meaning and cost-effective interventions have limited reach and impact.

[1] http://www.who.int/life-course/partners/global-strategy/global-strategy-2016-2030/en/.

[2] http://www.everywomaneverychild.org.

[3] http://www.who.int/nmh/events/un_ncd_summit2011/political_declaration_en.pdf.

[4] http://www.fao.org/3/a-ml542e.pdf.

[5] WHA Resolutions: WHA53.17 on Prevention and Control of Noncommunicable Diseases; WHA57.17 on the Global Strategy on Diet, Physical Activity and Health; WHA61.14 on Prevention and Control of Noncommunicable Diseases: Implementation of the Global Strategy; WHA63.14 on Marketing of Food and Non-alcoholic Beverages to Children; WHA65.6 on the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition; and WHA66.10 on the follow-up to the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable diseases; WHA68.19 Outcome of the Second International Conference on Nutrition. Meeting to Develop a Global Consensus on Preconception Care to Reduce Maternal and Childhood Mortality and Morbidity, WHO, 2013; The optimal duration of exclusive breastfeeding. Report of an expert consultation, WHO, 2001; Complementary feeding. Report of global consultation: summary of guiding principles, WHO, 2002; Global recommendations on physical activity for health, WHO, 2012; Population-based approaches to childhood obesity prevention, WHO, 2010; PAHO/AMRO Plan of Action for the Prevention of Obesity in Children and Adolescents, 53rd Directing Council, 66th Session of the Regional Committee of WHO for the Americas, October 2014; Resolution EUR/RC63/R4 Vienna Declaration on Nutrition and Noncommunicable Diseases in the Context of Health 2020; WPR/RC63.R2 Scaling up Nutrition in the Western Pacific Region.

[6] http://www.who.int/universal_health_coverage/en/.

[7] United Nations General Assembly Resolution A/67/L36 Global Health and Foreign Policy.

STRATEGIC OBJECTIVES

No single intervention can halt the rise of the growing obesity epidemic. To successfully challenge childhood obesity requires addressing the obesogenic environment as well as critical elements in the life-course.

TACKLE THE OBESOGENIC ENVIRONMENT AND NORMS

The major goals of addressing the environmental components include improving healthy eating and physical activity behaviours of children. A number of factors influence the obesogenic environment, including political and commercial factors (trade agreements, fiscal and agricultural policies and food systems); the built environment (availability of healthy foods, infrastructure and opportunities for physical activity in the neighbourhood); social norms (body weight and image norms, cultural norms regarding the feeding of children and the status associated with higher body mass in some population groups, social restrictions on physical activity) and family environment (parental nutrition knowledge and behaviours, family economics, family eating behaviours).

REDUCE THE RISK OF OBESITY BY ADDRESSING CRITICAL ELEMENTS IN THE LIFE-COURSE

Developmental factors change both the biology and behaviour of individuals from before birth and through infancy, such that they develop with a greater or lesser risk of developing obesity. The Commission considers it essential to address both the environmental context and three critical time periods in the life-course: preconception and pregnancy, infancy and early childhood and older childhood and adolescence.

It is the primary responsibility of governments to ensure that policies and actions address the obesogenic environment and to provide guidance and support for optimal development at each stage of the life-course. By focusing attention on these sensitive periods of the life-course, interventions can address specific risk factors, both individually and in combination. Such an approach can be integrated into other components of the maternal-neonatal-child health agenda, and to the broader effort to tackle noncommunicable diseases across the whole population.

TREAT CHILDREN WHO ARE OBESE TO IMPROVE THEIR CURRENT AND FUTURE HEALTH

When children are already overweight or obese, additional goals include reduction in the level of overweight, improvement in obesity-related comorbidities and improvement in risk factors for excess weight gain. The health sector in each country varies considerably and will face different challenges in responding to the need for treatment services for those with obesity. However, the management of children with overweight and obesity should be included in effective services extended under Universal Health Coverage.

ROLES AND RESPONSIBILITIES

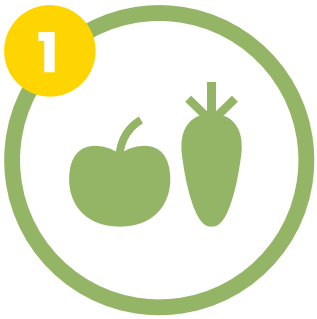
The Commission recognizes that the scope of potential policy recommendations to address childhood obesity is broad and contains a number of novel elements, including a focus on the life-course dimension and on the education sector. A multisectoral approach will be essential for sustained progress.

Countries should measure BMI-for-age to establish the prevalence and trends in childhood obesity at national, regional and local levels. They should also gather data on nutrition, eating behaviours and physical activity of children and adolescents across different socioeconomic groups and settings. Although some data are collected *(21)*, there remains a significant gap for children over 5 years of age that needs addressing. This data will guide the development of appropriate policy priorities and provide a baseline against which to measure the success of policies and programmes.


BEN10

RECOMMENDATIONS

The recommendations and accompanying rationales, presented below, were developed by the Commission following the review of the scientific evidence, the reports of the ad hoc working groups to the WHO Director-General, and feedback from the regional and online consultations. The effectiveness, cost-effectiveness, affordability and applicability of policies and interventions were also considered.



IMPLEMENT COMPREHENSIVE PROGRAMMES THAT PROMOTE THE INTAKE OF HEALTHY FOODS AND REDUCE THE INTAKE OF UNHEALTHY FOODS AND SUGAR-SWEETENED BEVERAGES BY CHILDREN AND ADOLESCENTS.

Nutrition information can be confusing and thus poorly understood by many people. Given that individuals and families choose their diets, the population needs to be empowered to make healthier choices about what to eat and provide their infants and children. This is not possible unless nutrition literacy is universal and provided in a manner that is useful, understandable and accessible to all members of society.

Recent trends in food production, processing, trade, marketing and retailing have contributed to the rise in diet-related noncommunicable diseases. The potential impact of trade reform can affect diet and nutrition transition. The health and equity impacts of national and international economic agreements and policies need to be considered *(22)*. Processed, energy-dense, nutrient-poor foods and sugar-sweetened beverages, in increasing portion size, at affordable prices have replaced minimally-processed fresh foods and water in many settings at school and family meals. The easy access to energy-dense foods and sugar-sweetened beverages and the tacit encouragement to "size-up" through commercial promotions have contributed to the rising caloric intake in many populations.

RECOMMENDATIONS	***RATIONALE***
1.1 **Ensure that appropriate and context specific nutrition information and guidelines for both adults and children are developed and disseminated in a simple, understandable and accessible manner to all groups in society.**	*It is not sufficient to rely on nutrient labelling or simple codes such as traffic light labels or health star ratings. All governments must lead in developing and disseminating appropriate and context-specific food-based dietary guidelines for both adults and children. The necessary information should be provided through media and educational outlets and public health messaging in ways that reach all segments of the population, such that all of society is empowered to make healthier choices.* *As children enter school, health and nutrition literacy should be included in the core curriculum and supported by a health-promoting school environment (see recommendations for early childhood, school-age children and adolescents).*

RECOMMENDATIONS	RATIONALE
1.2 **Implement an effective tax on sugar-sweetened beverages.**	*The adoption of fiscal measures for obesity prevention has received a great deal of attention (23) and is being implemented in a number of countries.[1] Overall, the rationale for taxation measures to influence purchasing behaviours is strong and supported by the available evidence (24, 25). Further evidence will become available as countries that implement taxes on unhealthy foods and/or sugar-sweetened beverages monitor their progress.[2] The Commission believes there is sufficient rationale to warrant the introduction of an effective tax on sugar-sweetened beverages.* *It is well established that the consumption of sugar-sweetened beverages is associated with an increased risk of obesity (26, 27). Consumption patterns may vary in different settings (28) and more detail is needed about the patterns of intake in children in different settings. Low-income consumers and their children have the greatest risk of obesity in many societies and are most influenced by price. Fiscal policies may encourage this group of consumers to make healthier choices (provided healthier alternatives are made available) as well as providing an indirect educational and public health signal to the whole population.* *Available evidence indicates that taxes on products such as sugar-sweetened beverages are the most feasible to implement with data indicating an impact on consumption.* *Some countries may consider taxes on other unhealthy foods, such as those high in fats and sugar. Taxing energy-dense, nutrient-poor foods would require the development of nutrient profiles (29) and modelling suggests this may reduce consumption.*
1.3 **Implement the Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children to reduce the exposure of children and adolescents to, and the power of, the marketing of unhealthy foods.**	*There is unequivocal evidence that the marketing of unhealthy foods and sugar-sweetened beverages is related to childhood obesity (30, 31). Despite the increasing number of voluntary efforts by industry, exposure to the marketing of unhealthy foods remains a major issue demanding change that will protect all children equally. Any attempt to tackle childhood obesity should, therefore, include a reduction in exposure of children to, and the power of, marketing.* *Settings where children and adolescents gather (such as schools and sports facilities or events) and the screen-based offerings they watch or participate in, should be free of marketing of unhealthy foods and sugar-sweetened beverages. The Commission notes with concern the failure of Member States to give significant attention to Resolution WHA 63.14 endorsed by the World Health Assembly in 2010[3] and requests that they address this issue. Parents and caregivers are increasingly the target of marketing for foods and beverages high in fats and sugar, aimed at their children (32).*

[1] http://www.wcrf.org/int/policy/nourishing-framework/use-economic-tools.

[2] See preliminary data on Mexico tax on sugar-sweetened beverages which has been submitted for publication (http://www.insp.mx/epppo/blog/3666-reduccion-consumo-bebidas.html).

[3] WHA63.14 on the Marketing of Food and Non-alcoholic Beverages to Children.

RECOMMENDATIONS	RATIONALE
1.4 **Develop nutrient-profiles to identify unhealthy foods and beverages.**	*There is wide variation in the types of business, attitudes and behaviour within the food and non-alcoholic beverage, retail and marketing industries. Even voluntary initiatives must conform to guidelines determined by government and must be subject to independent audit. Governments must define clear parameters, enforcement and monitoring mechanisms and, if necessary, consider regulatory and statutory approaches. Regulation would provide equal protection to all children regardless of socioeconomic group and ensure equal responsibility by large, regional, multinational and small local producers and retailers.*
1.5 **Establish cooperation between Member States to reduce the impact of cross-border marketing of unhealthy foods and beverages.**	*Clarity on the range of healthy products that can be marketed without restriction is needed, as is consideration of both direct and indirect marketing strategies, including pricing, promotion (including portion-size promotion) and placement. Such approaches require identifying healthy and unhealthy foods using independent nutrient profiling. These considerations must also take into account issues of food security, where this is relevant, either at a national, sub-national or sub-population level.* *The WHO Framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children (33) provides practical guidance to Member States on the development and implementation of policy and monitoring and evaluation frameworks.* *The Commission recognizes that in certain settings adolescents consume alcohol, and that alcohol is particularly obesogenic. Although this is beyond their scope of work, the Commission notes that it is very difficult to market alcoholic products targeted at young adult consumers, in particular, without exposing cohorts of adolescents under the legal age to the same marketing. The exposure of children and young people to appealing marketing is of particular concern. A precautionary approach to protecting young people against the marketing of such products is needed.*
1.6 **Implement a standardized global nutrient labelling system.**	*A standardized system of food labelling, as recommended by the Codex Alimentarius Commission[1] can support nutrition and health literacy education efforts, if mandatory for all packaged foods and beverages.*

[1] WHA56.23 Joint FAO/WHO evaluation of the work of the Codex Alimentarius Commission.

RECOMMENDATIONS	RATIONALE
1.7 **Implement interpretive front-of-pack labelling supported by public education of both adults and children for nutrition literacy.**	*Healthy eating habits can be nurtured from infancy and have both biological and behavioural dimensions. This requires caregiver understanding of the relationship between diet and health, and behaviours to encourage and support the development of such healthy habits. Simple, easy to understand food labelling systems can support nutrition education and help caregivers and children to make healthier choices.*
1.8 **Require settings such as schools, child-care settings, children's sports facilities and events to create healthy food environments.**	*Nutrition and food literacy and knowledge will be undermined if there are conflicting messages in the settings where children gather. Schools, child-care and sports facilities should support efforts to improve children's nutrition by making the healthy choice the easy choice and not providing or selling unhealthy foods and beverages.*
1.9 **Increase access to healthy foods in disadvantaged communities.**	*Nutrition literacy and knowledge of healthy food choices also cannot be acted upon if such foods are not readily available or affordable. Influencing the food environment requires a collaborative approach to food production, processing, accessibility, availability and affordability. Where access to healthy foods is limited, ultra-processed foods are often the only available and affordable alternatives. A number of public and private sector initiatives to promote healthier food behaviours have been developed and the limited evidence available indicates the potential to promote healthier choices among consumers (34). Such initiatives, where they are supported by evidence, are to be encouraged.*

IMPLEMENT COMPREHENSIVE PROGRAMMES THAT PROMOTE PHYSICAL ACTIVITY AND REDUCE SEDENTARY BEHAVIOURS IN CHILDREN AND ADOLESCENTS.

Recent evidence shows that physical activity declines from the age of school entry *(35)*. Globally, in 2010, 81% of adolescents aged 11–17 years were insufficiently physically active. Adolescent girls were less active than adolescent boys, with 84% of girls and 78%[1] of boys not attaining the 60 minutes of moderate to vigorous physical activity daily as recommended by WHO *(36)*. Low physical activity is rapidly becoming the social norm in most countries, and is an important factor in the obesity epidemic. Physical activity can reduce the risk of diabetes, cardiovascular disease and cancers *(37)*, and improve children's ability to learn, their mental health and well-being. Recent evidence suggests that obesity, in turn, reduces physical activity, creating a vicious cycle of increasing body fat levels and declining physical activity.

Urban planning and design has the potential to both contribute to the problem and offer the opportunity to form part of the solution. Increased recreational space and safe walking- and cycling-paths for active transport, help make physical activity functions of daily life.

Physical activity behaviours across the life-course can be heavily influenced by childhood experience. Creating safe, physical activity-friendly communities, which enable, and encourage the use of active transport (walking, cycling etc.) and participation in an active lifestyle and physical activities, will benefit all communities. Particular attention needs to be given to improving access to, and participation in, physical activity for children already affected by overweight and obesity, disadvantaged children, girls and children with disabilities.

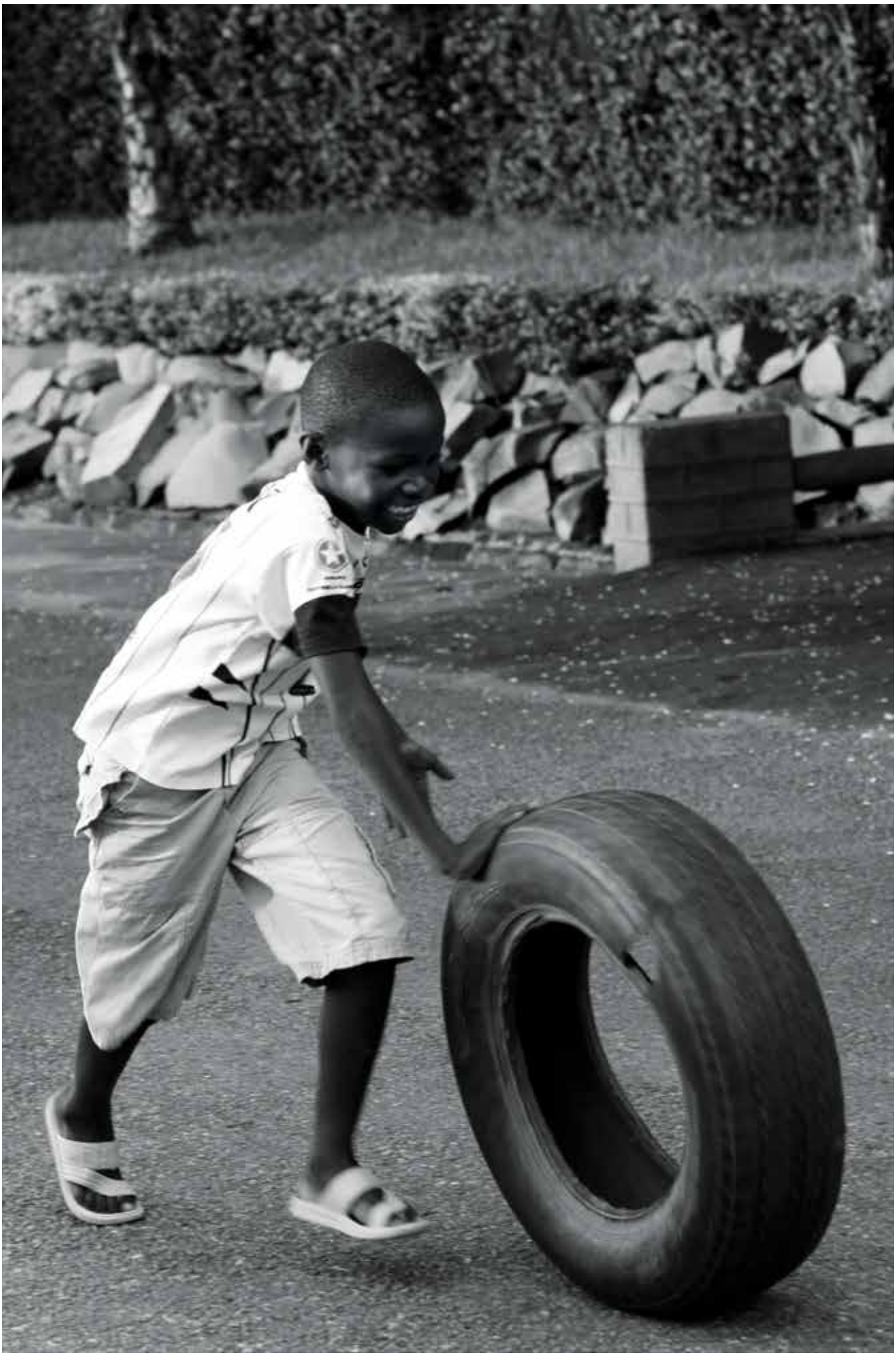
81%

of adolescents do not achieve the recommended 60 minutes of physical activity each day.

[1] http://apps.who.int/gho/data/view.main.2482ADO?lang=en.

RECOMMENDATIONS	RATIONALE
2.1 **Provide guidance to children and adolescents, their parents, caregivers, teachers and health professionals on healthy body size, physical activity, sleep behaviours and appropriate use of screen-based entertainment.**	*All members of society, including parents, need to appreciate the importance of both adequate growth and the consequences of excess body fat deposition to the short-term and long-term health and well-being of the child. The Commission recognizes that in some cultures this may be in conflict with traditional perceptions and practice.* *Physical activity provides fundamental health benefits for children and adolescents, including increased cardiorespiratory and muscular fitness, reduced body fatness and enhanced bone health.*
2.2 **Ensure that adequate facilities are available on school premises and in public spaces for physical activity during recreational time for all children (including those with disabilities), with the provision of gender-friendly spaces where appropriate.**	*Context-specific guidance on how to achieve physical activity recommendations and the appropriate number of hours that children should sleep or watch television (38–40), for example, should be a component of any healthy-living education provided to children or caregivers.* *Increasing the opportunities for safe, appropriate and gender-friendly structured and unstructured physical activity, both in and out of school, including active transport (walking and cycling), will have positive health, behavioural and educational spill-over effects for all children and adolescents.*

Physical activity can reduce the risk of diabetes, cardiovascular disease and cancers, and improve children's ability to learn, their mental health and well-being.



INTEGRATE AND STRENGTHEN GUIDANCE FOR NONCOMMUNICABLE DISEASE PREVENTION WITH CURRENT GUIDANCE FOR PRECONCEPTION AND ANTENATAL CARE, TO REDUCE THE RISK OF CHILDHOOD OBESITY.

The care that women receive before, during and after pregnancy has profound implications for the later health and development of their children. Timely and good-quality care throughout these periods provides important opportunities to prevent the intergenerational transmission of risk and has a high impact on the health of the child throughout the life-course.[1] Evidence shows that maternal undernutrition (whether global or nutrient-specific), maternal overweight or obesity, excess pregnancy weight gain, maternal hyperglycaemia (including gestational diabetes), smoking or exposure to toxins can increase the likelihood of obesity during infancy and childhood *(41–46)*. Evidence is emerging that the health of fathers at the time of conception can influence the risk of obesity in their children (9). Healthy lifestyle guidance thus needs to include advice to would-be fathers.

Current guidance for preconception and antenatal care focuses on the prevention of fetal undernutrition. Given changing obesogenic exposures, guidelines are needed that address malnutrition in all its forms (including caloric excess) and later obesity risk in the offspring. Interventions to address childhood obesity risk factors also prevent other adverse pregnancy outcomes *(47)* and so contribute to improving maternal and newborn health. Maternal overweight and obesity increase the risk of complications during pregnancy, labour and delivery (including stillbirth), and maternal undernutrition increases the risk of low birth weight. These factors can put the child at greater risk of infant mortality, childhood obesity and adult noncommunicable diseases.

The care that a woman receives before, during and after pregnancy has profound implications for the later health and development of her child.

[1] Committee on the Rights of the Child: General comment No. 15 (2013) on the right of the child to the enjoyment of the highest attainable standard of health (art. 24), para 53; CRC/C/GC/15.

RECOMMENDATIONS	RATIONALE
3.1 **Diagnose and manage hyperglycaemia and gestational hypertension.** **3.2** **Monitor and manage appropriate gestational weight gain.**	*There is a need for screening and appropriate management of pre-existing diabetes mellitus and hypertension in pregnant women; early diagnosis and effective management of gestational diabetes and pregnancy-induced hypertension, depression and mental health issues; gestational weight gain pattern (48); and ensuring dietary quality and appropriate physical activity.*
3.3 **Include an additional focus on appropriate nutrition in guidance and advice for both prospective mothers and fathers before conception and during pregnancy.** **3.4** **Develop clear guidance and support for the promotion of good nutrition, healthy diets and physical activity, and for avoiding the use of and exposure to tobacco, alcohol, drugs and other toxins.**	*Interventions that integrate guidance related to all forms of malnutrition should address undernutrition and unbalanced diets, including excess nutrition and specific nutrition deficiencies (49). Young people are often unaware of what constitutes a healthy diet. This highlights the need for governments to take leadership in ensuring nutrition and food literacy.* *There is evidence for the beneficial effects of appropriate exercise programmes in pregnancy on maternal BMI, gestational weight gain and birth outcomes, which are linked to a later risk of childhood obesity (50).* *There is limited, but growing, evidence that paternal health prior to conception has some impact on offspring health (9). There are, thus, direct reasons to also target paternal behaviour and health.*

PROVIDE GUIDANCE ON AND SUPPORT FOR HEALTHY DIET, SLEEP AND PHYSICAL ACTIVITY IN EARLY CHILDHOOD TO ENSURE CHILDREN GROW APPROPRIATELY AND DEVELOP HEALTHY HABITS.

The first years of life are critical in establishing good nutrition and physical activity behaviours that reduce the risk of developing obesity. Exclusive breastfeeding for the first six months of life, followed by the introduction of appropriate complementary foods, is a significant factor in reducing the risk of obesity *(51)*. Appropriate complementary feeding with continued breastfeeding can reduce the risk of undernutrition and excess body fat deposition in infants, both risk factors for childhood obesity. Encouraging the intake of a variety of healthy foods, rather than unhealthy, energy-dense, nutrient-poor foods and sugar-sweetened beverages, during this critical period supports optimal growth and development. Health-care providers can use routine growth monitoring opportunities to track children's BMI-for-age and give appropriate advice to caregivers to help prevent children developing overweight and obesity.

RECOMMENDATIONS

RATIONALE

4.1

Enforce regulatory measures such as The International Code of Marketing of Breast-milk Substitutes[1] and subsequent World Health Assembly resolutions.[2]

4.2

Ensure all maternity facilities fully practice the Ten Steps to Successful Breastfeeding.[3]

4.3

Promote the benefits of breastfeeding for mother and child through broad-based education to parents and the community at large.

4.4

Support mothers to breastfeed, through regulatory measures such as maternity leave, facilities and time for breastfeeding in the work place.[4]

Breastfeeding is core to optimizing infant development, growth and nutrition and may also be beneficial for postnatal weight management in women.

Given the changes in women's lifestyles and roles, the ability to breastfeed outside of the home, and to sustain breastfeeding when a mother returns to work, are critical to achieving the recommendations.

Policies that establish the rights of women and the responsibilities of employers are needed and some are in place. However, to protect all mothers and infants, regardless of social or economic status, these should be universal.

[1] WHA34.22 International Code of Marketing of Breast-milk Substitutes.

[2] WHA35.26, WHA37.30, WHA39.28, WHA41.11, WHA43.3, WHA45.34, WHA47.5, WHA49.15, WHA54.2, WHA55.25, WHA58.32, WHA59.21, WHA61.20 and WHA63.23 on Infant and Young Child Nutrition; WHA65.6 Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition.

[3] WHO UNICEF Baby-Friendly Hospital Initiative, 1991, updated 2009 (http://www.who.int/nutrition/publications/infantfeeding/bfhi_trainingcourse/en/).

[4] International Labour Organization, Maternity Protection Convention 183, 2000.

RECOMMENDATIONS	RATIONALE
4.5 **Develop regulations on the marketing of complementary foods and beverages, in line with WHO recommendations, to limit the consumption of foods and beverages high in fat, sugar and salt by infants and young children.**	*Established global guidance for infant and young child feeding primarily targets undernutrition. It is also important to consider the risks created by unhealthy diets in infancy and childhood.* *Guidelines that address both undernutrition and obesity risk are clearly needed for countries where there is malnutrition in all its forms (32).* *Current complementary feeding guidelines (52) provide guidance on the timing of introduction, responsive feeding, quantity and types of foods needed.* *Family attitudes to eating and perceptions of ideal body weight are important determinants of complementary feeding behaviours and need to be considered.* *Recent evidence shows that sensory experiences related to food begin in utero and continue during breastfeeding, and that the flavours of foods mothers eat are transmitted to their infants. This and appropriate complementary feeding can play an important role in establishing food preferences and appetite control. Encouraging healthy food variety in children through repeated, positive exposure to new foods (53), seeing caregivers and family members enjoy healthy foods, and limiting their exposure to unhealthy foods (that may lead to preferences for very sweet foods and drinks), all help develop good food habits in children and their families (54).*
4.6 **Provide clear guidance and support to caregivers to avoid specific categories of foods (e.g. sugar-sweetened milks and fruit juices or energy-dense, nutrient-poor foods) for the prevention of excess weight gain.**	
4.7 **Provide clear guidance and support to caregivers to encourage the consumption of a wide variety of healthy foods.**	

Breastfeeding is core to optimizing infant development, growth and nutrition.

RECOMMENDATIONS	RATIONALE
4.8 **Provide guidance to caregivers on appropriate nutrition, diet and portion size for this age group.**	*There is evidence that poor sleeping patterns, low physical activity and an excess number of hours spent on screen-based entertainment are associated with increased risk of obesity in childhood (38–40). The evidence to support early interventions to prevent obesity in high-income countries is still emerging, but looks very promising. Evidence supports interventions in pre-school and child-care settings for children aged 2–5 years for early child feeding, activity patterns, media exposures and sleep that help to promote healthy behaviours and weight trajectories in this period of life (55).*
4.9 **Ensure only healthy foods, beverages and snacks are served in formal child-care settings or institutions.**	*Several strategies in this age group have also supported parents and caregivers to ensure appropriate television/screen viewing, encourage active play, establish healthy eating behaviours and diets, promote healthy sleep routines and role-model healthy caregiver and family lifestyle (55).*
4.10 **Ensure food education and understanding are incorporated into the curriculum in formal child-care settings or institutions.**	*The evidence shows that interventions to improve child nutrition, sleep and physical activity are most effective if these are comprehensive and involve caregivers and the community at large (55). Societal changes and transitions require a more deliberate and concerted interventions, including support for parents and other caregivers to enable them to contribute to the recommended behaviour changes.*
4.11 **Ensure physical activity is incorporated into the daily routine and curriculum in formal child-care settings or institutions.**	
4.12 **Provide guidance on appropriate sleep time, sedentary or screen-time and physical activity or active play for the 2–5 years of age group.**	
4.13 **Engage the whole-of-the-community to support caregivers and child-care settings to promote healthy lifestyles for young children.**	

IMPLEMENT COMPREHENSIVE PROGRAMMES THAT PROMOTE HEALTHY SCHOOL ENVIRONMENTS, HEALTH AND NUTRITION LITERACY AND PHYSICAL ACTIVITY AMONG SCHOOL-AGE CHILDREN AND ADOLESCENTS.

School-age children and adolescents, whether in formal education or out of school, face particular challenges. They are highly susceptible to the marketing of unhealthy foods and sugar-sweetened beverages, peer pressure and perceptions of ideal body image. Adolescents, in particular, may have more freedom in food and beverage choices made outside the home. Physical activity often also declines at this age.

Although a significant number of school-age children are unfortunately not in formal education, the compulsory school years provide an easy entry point to engage this age group and embed healthy eating and physical activity habits for lifetime obesity prevention. Given that governments in most countries control the education sector, effective collaboration between health and education can ensure that school environments are healthy environments, where both nutrition literacy and physical activity are promoted. To ensure equity, further attention is needed to develop programmes to reach children and adolescents outside formal education.

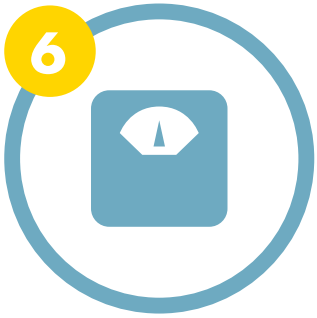
There is a growing evidence base to support interventions for children and adolescents in school settings and the wider community as an obesity prevention strategy *(23)*. Qualitative assessments suggest that their effectiveness on obesity prevention behaviours and outcomes is related to: a) quality of implementation; b) the educational rigour of the programme and its integration within mainstream curricula (e.g. reading, science); and c) positioning of school-based efforts within the context of broader educational and community efforts.

To be successful, programmes to improve the nutrition and physical activity of children and adolescents need to engage with a number of stakeholders. Obesity prevention and health promotion has traditionally been the remit of ministries of health. Key to success will be the integration of activities into a health-promoting school initiative, with active engagement of the education sector. Interventions that will be incorporated into the school day or curriculum will then be seen as part of their own remit. The most frequently mentioned challenge to implementation is competition with the schools' primary mission *(55)*. By appropriate engagement with teachers, such education can be integrated effectively into mainstream topics, rather than requiring separate time allocation. Collaboration and exchange of information, the use evidence-based approaches appropriately adapted to context, and resource-sharing between education and health ministries will help to move this agenda forward.

Older children and adolescents also need to be engaged in the development and implementation of interventions to reduce childhood obesity *(56)*. Only through their active contribution in the process will interventions be shaped to meet their specific needs, such that they, and their peers, can fully participate and benefit.

RECOMMENDATIONS	RATIONALE
5.1 **Establish standards for meals provided in schools, or foods and beverages sold in schools, that meet healthy nutrition guidelines.** **5.2** **Eliminate the provision or sale of unhealthy foods, such as sugar-sweetened beverages and energy-dense, nutrient-poor foods, in the school environment.** **5.3** **Ensure access to potable water in schools and sports facilities.**	*Energy-dense, nutrient-poor foods and sugar-sweetened beverages are important drivers of the obesity epidemic in school-age children and adolescents globally, acting both to induce and maintain overweight and obesity. It is a paradox to encourage and educate children on healthy behaviours, while allowing inappropriate foods and beverages to be sold or marketed within the school environment. To establish healthier behavioural norms and make the environment less obesogenic it is necessary to reduce access to, or provision of, unhealthy foods and sugar-sweetened beverages in places where children gather.* *This strategy must go hand-in-hand with increasing access to, and promotion of, lower energy density foods and to water as an alternative to sugar-sweetened beverages.* *It may be possible to establish zones around schools where the sale of unhealthy foods and beverages is restricted, but the Commission recognizes that this may not be feasible in a number of settings.*
5.4 **Require inclusion of nutrition and health education within the core curriculum in schools.** **5.5** **Improve the nutrition literacy and skills of parents and caregivers.** **5.6** **Make food preparation classes available to children, their parents and caregivers.**	*Understanding the role of nutrition in good health is central to the success of interventions to improve diet. As adolescents are the next generation of parents, the importance of health and nutrition literacy during adolescence cannot be overestimated – indeed the school years and the mainstream curricula offer important opportunities for progress. Life-course education in schools should be co-constructed with teachers, according to educational criteria and embedded in core curricula subjects.* *Effective nutrition literacy goes beyond knowledge to actual behaviour change. Although there is evidence of the effectiveness of interventions to improve nutrition knowledge and understanding, the impact of these interventions on dietary behaviour is less clear. Combining nutrition literacy interventions and clear context-specific nutrition advice to children and their caregivers and providing additional knowledge on food preparation in the context of an improved obesogenic environment, would enable children, adolescents and their parents/ caregivers to make healthier choices.*
5.7 **Include Quality Physical Education[1] in the school curriculum and provide adequate and appropriate staffing and facilities to support this.**	*Regular participation in quality physical education and other forms of physical activity can improve a child's attention span, enhance their cognitive control and processing (57). It can challenge stigma and stereotypes, reduce symptoms of depression and improve psychosocial outcomes. It is important that school-based physical education is inclusive of all children, of all abilities, rather than focused on the potential elite sportsperson.*

[1] UNESCO Quality physical education (QPE). Guidelines for policy-makers, Paris 2015.



PROVIDE FAMILY-BASED, MULTICOMPONENT LIFESTYLE WEIGHT MANAGEMENT SERVICES FOR CHILDREN AND YOUNG PEOPLE WHO ARE OBESE.

When children are already overweight or obese additional goals include reduction in the level of overweight, improvement in obesity-related comorbidities and improvement in risk factors for excess weight gain. The health sector in each country varies considerably and will face different challenges in responding to the need for treatment services for those with obesity. However, the management of children with overweight and obesity should be included in effective services extended under Universal Health Coverage.

Primary health-care services are important for the early detection and management of obesity and its associated complications, such as diabetes. Regular growth monitoring at the primary health-care facility or at school provides an opportunity to identify children at risk of developing obesity. Low-energy diets can be effective in the short term for the management of obesity, but reducing inactivity and increasing physical activity will increase the effectiveness of interventions. There is little written on models of health service delivery for the provision of obesity treatment in children and adolescents, but it is clear that these efforts can only be effective with the involvement of the whole family or care environment.

Health workers and others may discriminate against children who are overweight or obese. All such forms of discrimination are unacceptable and must be eliminated *(58)*. The mental health needs of children, including issues of stigmatization and bullying, need to be given special attention.

RECOMMENDATIONS	***RATIONALE***
6.1	
Develop and support appropriate weight management services for children and adolescents who are overweight or obese that are family-based, multicomponent (including nutrition, physical activity and psychosocial support) and delivered by multi-professional teams with appropriate training and resources, as part of Universal Health Coverage.	*Evidence reviews of childhood obesity show that family-focused behavioural lifestyle interventions can lead to positive outcomes in weight, BMI and other measures of body fatness. This is the case for both children and adolescents (59). Such an approach is the foundation for all treatment interventions. However, very few studies have been undertaken in low- and middle-income countries.* *For the morbidly obese child, in the face of failure of life-style modification, pharmacological and/or surgical options may be necessary (60).* *Health professionals and all those providing services to children and adolescents need appropriate training on nutrition and diet, physical activity and the risk factors for developing obesity.*

ACTIONS AND RESPONSIBILITIES FOR IMPLEMENTING THE RECOMMENDATIONS

The Commission recognizes that successful implementation of the recommendations requires the committed input, focus and support of a number of agencies. Necessary actions and responsibilities would involve the following:

WHO

ACTION	*RATIONALE*
A **Institutionalize a cross-cutting and life-course approach to ending childhood obesity across all relevant technical areas in headquarters, regional and country offices.**	*It is essential that momentum is maintained to address this complex and critical issue. WHO can lead and convene high-level dialogue within the United Nations system and with and between Member States, to build upon the commitments made in the Sustainable Development Goals, the Political Declaration of the High-level meeting of United Nations General Assembly on the Prevention and Control of Non-communicable diseases, the Rome Declaration of the Second International Conference on Nutrition and others, to address the actions detailed in this report to end childhood obesity.*
B **Develop, in consultation with Member States, a framework to implement the recommendations of the Commission.**	*Using its normative function, both globally and through its network of regional and country offices, WHO can provide technical assistance by developing or building on guidelines, tools and standards to support the recommendations of the Commission and other relevant WHO mandates at country level.*
C **Strengthen capacity to provide technical support for action to end childhood obesity at global, regional and national levels.**	*WHO can disseminate guidance for implementation, monitoring and accountability, and monitor and report on progress to end childhood obesity.*
D **Support international agencies, national governments and relevant stakeholders in building upon existing commitments to ensure that relevant actions to end childhood obesity are implemented at global, regional and national level.**	

ACTION	RATIONALE
E **Promote collaborative research on ending childhood obesity with a focus on the life-course approach.**	
F **Report on progress made on ending childhood obesity.**	

International organizations

ACTION	RATIONALE
A **Cooperate to build capacity and support Member States in addressing childhood obesity.**	*Cooperation between international organizations including other United Nations agencies can promote the establishment of global and regional partners and networks for advocacy, resource mobilization, capacity-building and collaborative research. The United Nations Inter-Agency Task Force on noncommunicable diseases can support Member States in addressing childhood obesity.*

Members States

ACTION	RATIONALE
A **Take ownership, provide leadership and make political commitment to tackle childhood obesity over the long term.**	*Governments hold the ultimate responsibility in ensuring their citizens have a healthy start in life. Thus, taking an active role to address childhood obesity should not be interpreted as interference with individual choice, rather as the state taking ownership of the development of their human capital. It is clear that to address childhood obesity effectively, the active engagement of multiple agencies of government is needed. There is an understandable tendency to see obesity as a problem for the health sector. However, preventing childhood obesity requires the coordinated contributions of all government sectors and institutions responsible for policies. Governments must establish appropriate whole-of-government approaches to address childhood obesity. Further, regional and local governments must understand their obligations and harness resources and efforts to ensure a coordinated and comprehensive response to the issue.*
B **Coordinate contributions of all government sectors and institutions responsible for policies, including, but not limited to: education; food; agriculture; commerce and industry; development; finance/revenue; sport and recreation; communication; environmental and urban planning; transport and social affairs; and trade.**	

ACTION	RATIONALE
C **Ensure data collection on BMI-for-age of children – including for ages not currently monitored – and set national targets for childhood obesity.**	
D **Develop guidelines, recommendations or policy measures that appropriately engage relevant sectors – including the private sector, where applicable – to implement actions, aimed at reducing childhood obesity, as set out in this report.**	

NON-STATE ACTORS

There are many ways in which non-State actors can play an important and supportive role in addressing the challenge of childhood obesity. As this report shows, the risk of childhood obesity is greatly influenced by food, physical activity and eating behaviours, by the school and social environment, by cultural attitudes to body image, by the behaviour of adults and by the conduct of the private sector.

Nongovernmental organizations

ACTION	RATIONALE
A **Raise the profile of childhood obesity prevention through advocacy efforts and the dissemination of information.**	*Although building the policy framework is undertaken by government, in some countries developing nutrition information and education campaigns, implementing programmes, and monitoring and holding actors to account for commitments made, may be tasks shared between government and civil society.* *Social movements can engage members of the community and provide a platform for advocacy and action.*
B **Motivate consumers to demand that governments support healthy lifestyles and that the food and non-alcoholic beverage industry provide healthy products, and do not market unhealthy foods and sugar-sweetened beverages to children.**	

ACTION	RATIONALE
C **Contribute to the development and implementation of a monitoring and accountability mechanism.**	

The private sector

ACTION	RATIONALE
A **Support the production of, and facilitate access to, foods and non-alcoholic beverages that contribute to a healthy diet.**	*The private sector is not a homogeneous entity and includes the agricultural food production sector, the food and non-alcoholic beverage industry, retailers, catering companies, sporting-goods manufacturers, advertising and recreation businesses, and the media. It is, therefore, important to consider those entities whose activities are directly or indirectly related to childhood obesity either positively or negatively. Countries need to engage constructively with the private sector to encourage implementation of policies and interventions.*
B **Facilitate access to, and participation in, physical activity.**	*The Commission is aware of a number of private sector initiatives that have the potential to impact positively on childhood obesity. These need to be encouraged where they are supported by an evidence base. As many companies operate globally, international collaboration is vital. However, attention must also be given to local and regional entities and artisans. Cooperative relationships with industry have already led to some encouraging outcomes related to diet and physical activity. Initiatives by the food manufacturing industry to reduce fat, sugar and salt content, and portion sizes of processed foods, and to increase the production of innovative, healthy and nutritious choices, could accelerate health gains worldwide.* *The Commission believes that real progress can be made by constructive, transparent and accountable engagement with the private sector.*

Philanthropic foundations

ACTION	RATIONALE
A **Recognize childhood obesity as endangering child health and educational attainment and thus address this important issue.**	*Philanthropic foundations are uniquely placed to make significant contributions to global public health and can also engage in monitoring and accountability activities.*
B **Mobilize funds to support research, capacity-building and service delivery.**	

Academic institutions

ACTION	RATIONALE
A **Raise the profile of childhood obesity prevention through the dissemination of information and incorporation into appropriate curricula.**	*Academic institutions can contribute to addressing childhood obesity through studies on biological, behavioural and environmental risk factors and determinants, and the effectiveness of interventions in each of these.*
B **Address knowledge gaps with evidence to support policy implementation.**	
C **Support monitoring and accountability activities.**	

MONITORING AND ACCOUNTABILITY

The greatest risk to effective progress on childhood obesity is a lack of political commitment and that governments and other actors will fail to take ownership, leadership and the necessary actions. A whole of society approach offers the best opportunity for addressing childhood obesity. Both governments and other actors, notably, civil society can hold each other and private sector entities to account, to ensure they adopt policies and comply with standards. Strong commitments must be accompanied by strong implementation systems and well-defined accountability mechanisms.

Governments bear primary responsibility for setting the policy and regulatory framework for the prevention and management of childhood obesity at the country level. Accountability must therefore begin with the adoption of meaningful policies that give clear guidance on the actions required and the timeframe for doing so.

Governments should prioritize investment in building robust systems with specific indicators that measure childhood obesity and related determinants (such as fitness and nutrition) in a standardized manner. This is critical to demonstrating the scale of the problem, providing data for setting national targets and guiding policy development. Well established monitoring systems can provide evidence of the impact and effectiveness of interventions in reducing the prevalence of childhood obesity.

The Commission is aware that governments do not want to increase the reporting burden. A number of monitoring mechanisms currently exist which countries could draw upon and integrate into a comprehensive national monitoring framework for childhood obesity. These include the Global Monitoring Framework for Noncommunicable Diseases[1] and the Global Monitoring Framework for Maternal, Infant and Young Child Nutrition.[2]

National strategic leadership includes establishing the governance structures across a variety of sectors that are necessary to manage the development and implementation of laws, policies and programmes. National leadership is also necessary to manage engagement with non-State actors, such as nongovernmental organizations, the private sector and academic institutions to successfully implement programmes, activities and investments.

[1] WHA66.8 Global Monitoring Framework for Noncommunicable Diseases.

[2] WHA68.9 Indicators for the Global Monitoring Framework for Maternal, Infant and Young Child Nutrition.

A whole-of-government approach requires that a clear chain of responsibility and accountability is established and that relevant institutions, tasked with developing or implementing interventions, are held accountable for the performance of those tasks.

Civil society can play a critical role in bringing social, moral and political pressure on governments to fulfil their commitments *(61)*. Ending childhood obesity should now form part of civil society's agenda for advocacy and accountability.

The Commission recognizes the important role the private sector can play in addressing childhood obesity but that additional accountability strategies, including legal, market-based and media-based mechanisms *(62)* are often necessary. Initiatives of the private sector (including retailers, food manufacturers, food services, insurers) to address obesity that are supported by an independent evidence base, should be considered. Conflict of interest risks need to be identified, assessed and managed in a transparent and appropriate manner. Codes of conduct and independently audited assessments of compliance with government oversight are therefore important.

Governments can use their regulatory power to improve the food environment, to enforce regulatory standards, to implement internationally-recognized standards such as the WHO International Code of Marketing of Breast-milk Substitutes,[1] and the WHO Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children.[2] Scorecards can be useful tools in ensuring accountability. While these examples do not cover all potential accountability mechanisms, optimal results will be achieved by using a mix of accountability tools and strategies.

The Commission has noted the important influence that trade policies can have on the obesogenic environment. This is particularly the case for small island states that are highly dependent on imported foods and where the nature of the food supply and pricing are largely determined by the trade dynamics. The Commission acknowledges the complexity of international trade, particularly in food and agricultural products, but urges Member States and those involved in international trade arrangements to seek ways to address the trade issues that impact on child obesity.

The greatest risk to effective progress on childhood obesity is a lack of political commitment and that governments and other actors will fail to take ownership, leadership and the necessary actions.

[1] WHA34.22 International Code of Marketing of Breast-milk Substitutes.

[2] WHA63.14 Marketing of Food and Non-alcoholic Beverages to Children.

CONCLUSIONS

Childhood obesity undermines the physical, social and psychological well-being of children and is a known risk factor for adult obesity and noncommunicable diseases. There is an urgent need to act now to improve the health of this generation and the next.

The Commission recognizes that the scope of potential policy recommendations to address childhood obesity is broad and contains a number of novel elements. However, it is only by taking a multisectoral approach through a comprehensive, integrated package of interventions that address the obesogenic environment, the life-course dimension and the education sector, that sustained progress can be made. This requires government commitment and leadership, long-term investment and engagement of the whole of society to protect the rights of children to good health and well-being. The Commission believes that progress can be made if all actors remain committed to working together towards a collective goal of ending childhood obesity.

REFERENCES

1. UNICEF, WHO, World Bank. Levels and trends in child malnutrition: UNICEF-WHO-World Bank joint child malnutrition estimates. UNICEF, New York; WHO, Geneva; World Bank, Washington DC: 2015.

2. WHO Multicentre Growth Reference Study Group. WHO child growth standards based on length/height, weight and age. Acta Paediatr. 2006;Suppl 450:76–85.

3. Ng M, Fleming T, Robinson M, Thomson B, Graetz N, Margono C, et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2014;384:766–81.

4. Roberto CA, Swinburn B, Hawkes C, Huang TTK, Costa SA, Ashe M, et al. Patchy progress on obesity prevention: emerging examples, entrenched barriers, and new thinking. Lancet. 2015;385:2400–9.

5. Taveras EM, Gillman MW, Kleinman K, Rich-Edwards JW, Rifas-Shiman SL. Racial/ethnic differences in early-life risk factors for childhood obesity. Pediatrics. 2010;125:686–95.

6. Food and Agriculture Organization. The double burden of malnutrition. Case studies from six developing countries. Food and Nutrition Paper. 2006;84:1–334.

7. Lake A, Townshend T. Obesogenic environments: exploring the built and food environments. J R Soc Promot Health. 2006;126:262–7.

8. Hanson MA, Gluckman PD. Early developmental conditioning of later health and disease: physiology or pathophysiology? Physiological reviews. 2014;94:1027–76.

9. McPherson NO, Fullston T, Aitken RJ, Lane M. Paternal obesity, interventions, and mechanistic pathways to impaired health in offspring. Ann Nutr Metab. 2014;64:231–8.

10. Tanamas SK, Lean ME, Combet E, Vlassopoulos A, Zimmet PZ, Peeters A. Changing guards: time to move beyond body mass index for population monitoring of excess adiposity. QJM. 2015;Nov 1.

11. Eastwood SV, Tillin T, Dehbi HM, Wright A, Forouhi NG, Godsland I, et al. Ethnic differences in associations between fat deposition and incident diabetes and underlying mechanisms: the SABRE study. Obesity. 2015;23:699–706.

12. Lobstein T, Jackson-Leach R. Estimated burden of paediatric obesity and co-morbidities in Europe. Part 2. Numbers of children with indicators of obesity-related disease. International Journal of Pediatric Obesity. 2006;1:33–41.

13. Pizzi MA, Vroman K. Childhood obesity: effects on children's participation, mental health, and psychosocial development. Occup Ther Health Care. 2013;27:99–112.

14. Pediatr ResMiller AL, Lee HJ, Lumeng JC. Obesity-associated biomarkers and executive function in children. Pediatr Res. 2015;77:143–7.

15. Litwin SE. Childhood Obesity and Adulthood Cardiovascular Disease: Quantifying the Lifetime Cumulative Burden of Cardiovascular Risk Factors. J Am Coll Cardiol. 2014;64:1588-90.

16. Nader PR, O'Brien M, Houts R, Bradley R, Belsky J, Crosnoe R, et al. Identifying risk for obesity in early childhood. Pediatrics. 2006;118:e594–e601.

17. Juonala M, Magnussen CG, Berenson GS, Venn A, Burns TL, Sabin MA, et al. Childhood adiposity, adult adiposity, and cardiovascular risk factors. N Engl J Med. 2011;365:1876–85.

18. Kelsey MM, Zaepfel A, Bjornstad P, Nadeau KJ. Age-related consequences of childhood obesity. Gerontology. 2014;60:222–8.

19. Finkelstein EA, Graham WC, Malhotra R. Lifetime direct medical costs of childhood obesity. Pediatrics. 2014;133:854–62.

20. Muller-Riemenschneider F, Reinhold T, Berghofer A, Willich SN. Health-economic burden of obesity in Europe. Eur J Epidemiol. 2008;23:499–509.

21. Global reference list of 100 core health indicators. Geneva: World Health Organization, 2015.

22. Commission on Social Determinants of Health. Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health. Geneva: World Health Organization, 2008.

23. Hawkes C, Smith TG, Jewell J, Wardle J, Hammond RA, Friel S, et al. Smart food policies for obesity prevention. Lancet. 2015;385:2410–21.

24. Using price policies to promote healthier diets. Copenhagen, Denmark: World Health Organization Regional Office for Europe, 2014.

25. Arantxa Colchero M, Popkin BM, Rivera JA, Nh SW. Beverage purchases from stores since the start of the Mexican sugar-sweetened beverage excise tax: a year out. BMJ. 2016;352:h6704.

26. Ebbeling CB, Feldman HA, Chomitz VR, Antonelli TA, Gortmaker SL, Osganian SK, et al. A randomized trial of sugar-sweetened beverages and adolescent body weight. N Engl J Med. 2012;367:1407–16.

27. de Ruyter JC, Olthof MR, Seidell JC, Katan MB. A trial of sugar-free or sugar-sweetened beverages and body weight in children. N Engl J Med. 2012;367:1397–406.

28. Popkin BM, Hawkes C. Sweetening of the global diet, particularly beverages: patterns, trends, and policy responses. Lancet Diabetes Endocrinol. 2015.

29. Powell LM, Chriqui JF, Khan T, Wada R, Chaloupka FJ. Assessing the potential effectiveness of food and beverage taxes and subsidies for improving public health: a systematic review of prices, demand and body weight outcomes. Obesity Reviews. 2013;14:110–28.

30. Hastings G, Stead M, McDermott L, Forsyth A, MacKintosh AM, Rayner M, et al. Review of research on the effects of food promotion to children – final report. Report to the Food Standards Agency. Glasgow: University of Strathclyde, Centre for Social Marketing, 2003.

31. McGinnis JM, Gootman JA, Kraak VI. Food marketing to children and youth. Threat or opportunity? Washington, DC: Institute of Medicine, National Academies Press; 2006.

32. Lobstein T, Jackson-Leach R, Moodie ML, Hall KD, Gortmaker SL, Swinburn BA, et al. Child and adolescent obesity: part of a bigger picture. Lancet. 2015;385:2510–20.

33. A framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: World Health Organization, 2012.

34. An R, Patel D, Segal D, Sturm R. Eating better for less: a national discount program for healthy food purchases in South Africa. American journal of health behavior. 2013;37:56–61.

35. Tremblay MS, Gray CE, Akinroye K, Harrington DM, Katzmarzyk PT, Lambert EV, et al. Physical activity of children: a global matrix of grades comparing 15 countries. Journal of physical activity & health. 2014;11:S113–25.

36. Global recommendations on physical activity for health. Geneva: World Health Organization, 2010.

37. Food, nutrition, physical activity, and the prevention of cancer: a global perspective. Washington, DC: World Cancer Research Fund, America Institute of Cancer Research, 2007.

38. LeBlanc AG, Spence JC, Carson V, Connor Gorber S, Dillman C, Janssen I, et al. Systematic review of sedentary behaviour and health indicators in the early years (aged 0–4 years). Appl Physiol Nutr Metab. 2012;37:753–72.

39. Miller AL, Lumeng JC, LeBourgeois MK. Sleep patterns and obesity in childhood. Curr Opin Endocrinol Diabetes Obes. 2015;22:41–7.

40. Taveras EM, Gillman MW, Pena MM, Redline S, Rifas-Shiman SL. Chronic sleep curtailment and adiposity. Pediatrics. 2014;133:1013–22.

41. Yu Z, Han S, Zhu J, Sun X, Ji C, Guo X. Pre-pregnancy body mass index in relation to infant birth weight and offspring overweight/obesity: a systematic review and meta-analysis. PLoS One. 2013;8:e61627.

42. Eriksson JG, Sandboge S, Salonen MK, Kajantie E, Osmond C. Long-term consequences of maternal overweight in pregnancy on offspring later health: findings from the Helsinki Birth Cohort Study. Ann Med. 2014;46:434–8.

43. Okubo H, Crozier SR, Harvey NC, Godfrey KM, Inskip HM, Cooper C, et al. Maternal dietary glycemic index and glycemic load in early pregnancy are associated with offspring adiposity in childhood: the Southampton Women's Survey. Am J Clin Nutr. 2014;100:676–83.

44. Poston L. Maternal obesity, gestational weight gain and diet as determinants of offspring long term health. Best practice & Research Clinical Endocrinology & Metabolism. 2012;26:627–39.

45. Oken E, Levitan EB, Gillman MW. Maternal smoking during pregnancy and child overweight: systematic review and meta-analysis. Int J Obes (Lond). 2008;32:201–10.

46. Janesick A, Blumberg B. Endocrine disrupting chemicals and the developmental programming of adipogenesis and obesity. Birth defects research Part C, Embryo today: reviews. 2011;93:34–50.

47. Temel S, van Voorst SF, Jack BW, Denktas S, Steegers EA. Evidence-based preconceptional lifestyle interventions. Epidemiologic Reviews. 2014;36:19–30.

48. Institute of Medicine and National Research Council. Weight gain during pregnancy: Reexamining the guidelines. Washington DC: National Academies Press; 2009.

49. Hanson MA, Bardsley A, De-Regil LM, Moore SE, Oken E, Poston L, et al. The International Federation of Gynecology and Obstetrics (FIGO) recommendations on adolescent,

preconception, and maternal nutrition: "Think Nutrition First". Int J Gynecol Obstet. 2015;131:S213–S53.

50. Choi J, Fukuoka Y, Lee JH. The effects of physical activity and physical activity plus diet interventions on body weight in overweight or obese women who are pregnant or in postpartum: a systematic review and meta-analysis of randomized controlled trials. Prev Med. 2013;56:351–64.

51. Horta BL, Loret de Mola C, Victora CG. Long-term consequences of breastfeeding on cholesterol, obesity, systolic blood pressure and type 2 diabetes: a systematic review and meta-analysis. Acta Paediatr Suppl. 2015;104:30–7.

52. Guiding principles for complementary feeding of the breastfed child. Washington, DC: Pan American Health Organization and World Health Organization, 2002.

53. Mennella JA, Nicklaus S, Jagolino AL, Yourshaw LM. Variety is the spice of life: strategies for promoting fruit and vegetable acceptance during infancy. Physiol Behav. 2008;94:29–38.

54. Liem DG, Mennella JA. Sweet and sour preferences during childhood: role of early experiences. Developmental psychobiology. 2002;41:388–95.

55. Waters E, de Silva-Sanigorski A, Hall BJ, Brown T, Campbell KJ, Gao Y, et al. Interventions for preventing obesity in children. The Cochrane database of systematic reviews. 2011:CD001871.

56. School policy framework. Implementation of the WHO global strategy on diet, physcial activity and health. Geneva: World Health Organization, 2008.

57. Rasberry CN, Lee SM, Robin L, Laris BA, Russell LA, Coyle KK, et al. The association between school-based physical activity, including physical education, and academic performance: a systematic review of the literature. Prev Med. 2011;52 Suppl 1:S10–20.

58. Dietz WH, Baur LA, Hall K, Puhl RM, Taveras EM, Uauy R, et al. Management of obesity: improvement of health-care training and systems for prevention and care. Lancet. 2015;385:2521–33.

59. Oude Luttikhuis H, Baur L, Jansen H, Shrewsbury VA, O'Malley C, Stolk RP, et al. Interventions for treating obesity in children. The Cochrane database of systematic reviews. 2009:CD001872.

60. Spear BA, Barlow SE, Ervin C, Ludwig DS, Saelens BE, Schetzina KE, et al. Recommendations for treatment of child and adolescent overweight and obesity. Pediatrics. 2007;120:S254–S88.

61. Huang TTK, Cawley JH, Ashe M, Costa SA, Frerichs LM, Zwicker L, et al. Mobilisation of public support for policy actions to prevent obesity. Lancet. 2015;385:2422–31.

62. Swinburn B, Kraak V, Rutter H, Vandevijvere S, Lobstein T, Sacks G, et al. Strengthening of accountability systems to create healthy food environments and reduce global obesity. Lancet. 2015;385:2534–45.

CHILDHOOD OBESITY UNDERMINES THE PHYSICAL, SOCIAL AND PSYCHOLOGICAL WELL-BEING OF CHILDREN AND IS A KNOWN RISK FACTOR FOR ADULT OBESITY AND NONCOMMUNICABLE DISEASES. THERE IS AN URGENT NEED TO ACT NOW TO IMPROVE THE HEALTH OF THIS GENERATION AND THE NEXT.

ANNEX 1:

THE COMMISSION ON ENDING CHILDHOOD OBESITY

The prevalence of infant, childhood and adolescent obesity is increasing in many countries, with the most rapid rises occurring in low- and middle-income countries. Without intervention, obese infants and young children are likely to continue to be obese during childhood, adolescence and adulthood.

Childhood obesity is associated with a wide range of health complications and an increased risk of premature onset of illnesses, including diabetes and heart disease. Many causes and potential solutions to this problem exist. However, as is the case with all public health strategies, there are many challenges to implementation. Only through a combination of community partnerships, government support and scientific research will the best recommendations be developed and implemented worldwide.

In order to better inform and fashion a comprehensive response to childhood obesity, the WHO Director-General established a high-level Commission on Ending Childhood Obesity, comprising fifteen accomplished and eminent individuals from a variety of relevant backgrounds. The Commission was tasked with preparing a consensus report specifying the approaches and combinations of interventions that are likely to be most effective in tackling childhood and adolescent obesity in different contexts around the world. The Commission reviewed, built upon and addressed gaps in existing mandates and strategies on the prevention of childhood obesity. The work of the Commission was supported by two ad hoc working groups for ending childhood obesity – one on the science and evidence, and the other on implementation, monitoring and accountability.

The Commission held four meetings and, as part of its working methods, undertook regional consultations with Member States as well as hearings with non-State actors. The first meeting took place in Geneva on 17 and 18 July 2014, during which the Commission reviewed the report of the first meeting of the Ad hoc Working Group on Science and Evidence and developed its method of work.

During the second meeting, held in Geneva on 13 and 14 January 2015, the Commission reviewed the second report of the Ad hoc Working Group on Science and Evidence and the first report of the Ad hoc Working Group on Implementation, Monitoring and Accountability, and developed the Interim Report of the Commission on Ending Childhood Obesity. This provided the rationale for tackling childhood obesity and the imperative for governments to take the lead in addressing the issue. The Interim Report highlighted potential policy options for tackling the obesogenic environment, reducing the risk of obesity by addressing critical elements in the life-course approach and the management of children with obesity to improve their current and future health.

The Interim Report also served as the basis for an online consultation from 16 March to 5 June 2015. Eighty-one entities, including Member States, nongovernmental organizations, philanthropic foundations, academia, researchers, the private sector and individuals submitted comments on the Interim Report.

THE COMMISSION ALSO HELD SEVEN REGIONAL CONSULTATIONS WITH MEMBER STATES:

MANILA
The Philippines

24/25 March
for the Western Pacific Region mainland countries

CAIRO
Egypt

2/3 July
for the Eastern Mediterranean Region countries

AUCKLAND
New Zealand

27/28 July
for the Western Pacific Region Island Countries and Territories

MEXICO CITY
Mexico

26/28 August
for countries of the Region of the Americas

NEW DELHI
India

28/29 September
for the South-East Asia Region countries

ACCRA
Ghana

22/23 October
for the African Region countries

VALLETTA
Malta

28/29 October
for the European Region countries

The Commission convened its third meeting on 22 and 23 June 2015 in Hong Kong Special Administrative Region, Republic of China. During this meeting the Commission reviewed the comments received from Member States on agenda item 13.3 at the 68th World Health Assembly, the feedback received from the online consultations as well as the regional consultation and hearings with the Western Pacific mainland countries. The Commission also received from the WHO Director-General a report of the second meeting of the Ad hoc Working Group on Implementation, Monitoring and Accountability and an evidence update from the Ad hoc Working Group on Science and Evidence.

At the third meeting, the Commission developed its final draft report detailing potential policy directions for the consideration of Member States. The draft final report served as the basis for regional consultations for the Region of the Americas, South-East Asia Region, African Region and European region. The report was also placed online from September to November 2015 for comments by relevant stakeholders; 98 submissions were received and reviewed.

Following the period of consultations, the Commission held its fourth meeting in Geneva on 30 November and 1 December 2015, to review the feedback received, consider the reports of the two ad hoc working groups and develop their final report. This final report of the Commission on Ending Childhood Obesity will be submitted to the WHO Director-General in January 2016.

ANNEX 2:

COMMISSIONERS

Sir George Alleyne
Director Emeritus
Pan American Health Organization (PAHO)

Dr Constance Chan Hon Yee
Director of Health Department of Health Hong Kong Special Administrative Region
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Ms Helen Clark
Administrator
United Nations Development Programme
(UNDP)

Sir Peter Gluckman (co-chair)
Chief Science Advisor to the Prime Minister of New Zealand & Liggins Institute University of Auckland
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Mr Adrian Gore
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Coordinator, Scaling up Nutrition (SUN) Movement
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Coordinator for the High Level Task Force

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Ms Paula Radcliffe
Athlete and parent
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Professor Hoda Rashad
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