

UNICEF

PROGRAMMING

GUIDANCE

Prevention of Overweight and Obesity in Children and Adolescents



NUTRITION GUIDANCE SERIES

unicef 
for every child

Acknowledgements

This publication was prepared by the Nutrition Section at UNICEF Programme Division in New York.

Lead Authors: Maaïke Arts, France Bégin and Victor Aguayo.

Technical advisory group in UNICEF: Luisa Brumana, Kudawashe Chimanya, David Clark, Cristina de Carvalho Eriksson, Stefano Fedele, Alison Fleet, Bernadette Gutmann, David Hipgrave, Jo Jewell, Roland Kupka, Joan Matji, Zivai Murira, Christiane Rudert, Deepika Sharma, Harriet Torlesse, Amirhossein Yarpavar.

Design: Nona Reuter (UNICEF); editing: Cheryl Stonehouse for ProseWorks

Citation: UNICEF. *UNICEF programming guidance: Prevention of overweight and obesity in children and adolescents*. New York: UNICEF, 2019.

August 2019

Photo credits: Cover photo: Getty Images, page 10: Mahmud Hams/AFP/Getty Images; page 14: © UNICEF/UN0304111/Arcos; page 17: © UNICEF/UN040078/Pirozzi; page 20: © UNICEF/UN038720/Pirozzi; page 22: Getty Images; page 25: © UNICEF/UNI178926/Ramos; page 31: © UNICEF/UNI183010/Quintos; page 36: © UNICEF/UNI136079/Friedman-Rudovsky.

**UNICEF
PROGRAMMING
GUIDANCE**

Prevention of Overweight and Obesity in Children and Adolescents

unicef  | for every child, nutrition

Abbreviations

BMI	Body Mass Index
DRP	Division of Research, Policy and Practice
ECD	Early Childhood Development
FAO	Food and Agriculture Organization
IYCF	Infant and young child feeding
MICS	Multiple Indicator Cluster Surveys
NCD	Non-communicable diseases
PFP	Private Sector Fundraising and Partnerships
PPD	Public Partnership Division
SDG	Sustainable Development Goals
SMQ	Strategic Monitoring Questions
UNDAF	UN Development Assistance Frameworks
UNSCN	United Nations Standing Committee for Nutrition
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization

Contents

Definitions	6
Executive summary	7
About this programme guidance	8
Part I: Overweight in children and adolescents: Prevalence, causes, consequences, goals and guidance	9
1. Overweight in children and adolescents	10
1.1. Prevalence and burden of overweight in early childhood (0-5 years)	11
1.2 Prevalence and burden of overweight in middle childhood (5-9 years) and adolescence (10-19 years)	12
2. Causes and consequences of overweight in childhood and adolescence	13
2.1 Causes of overweight in childhood and adolescence	14
2.2 Immediate and longer-term consequences of overweight in childhood and adolescence	15
3. Global goals and guidance for the prevention of overweight in children and adolescents	16
3.1 Global goals on the prevention of overweight in children	17
3.2 Global policy and guidance for the prevention of overweight and obesity	
3.3 Implementation of global policy and guidance for the prevention of overweight and obesity	19
Part II: UNICEF programming for the prevention of overweight in children and adolescents	21
4. Prevention of overweight in children and adolescents: UNICEF Strategic Plan 2018-2021 and UNICEF Nutrition Strategy 2020-2030	22
5. Recommended actions for UNICEF prevention of overweight programmes	25
5.1 Conduct a situation analysis	26
5.2 Design and prioritize interventions	27
5.3 Promote multisectoral and multi-stakeholder coordination and collaboration	29
6. Priority interventions	31
6.1 Improve the enabling environment: policies, regulatory frameworks and strategies	32
6.2 Implement interventions across the life cycle	32
6.3 Lead knowledge generation and use	38
6.4 Monitoring and reporting	39
7. Conclusion	41
Resources for further reading	42
Endnotes	43

Definitions

Adolescents	Children and young people between 10 and 19 years of age. ¹
Children	Human beings under the age of 18 (Convention on the Rights of the Child).
Body Mass Index	Calculated as weight in kg/(height in metres) ² . In adults, a Body Mass Index (BMI) <18.5 kg/m ² is in the underweight range, >18.5 and <25 kg/m ² is in the normal range, >25 and <30 kg/m ² is in the obese range and >40 kg/m ² is in the severe obese range.
Food systems	A food system gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities including socioeconomic, and environmental outcomes.
Middle childhood	5 to 9 years of age ²
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 in children aged 0 to 59 months	Weight-for-height above +2 SD (standard deviation) of the WHO Child Growth Standards median for children of the same height and sex. Severe overweight (above +3 SD) is referred to as obesity. See reference for this and the following three definitions³ For this age group, a prevalence of overweight below 2.5 per cent is considered 'very low', between 2.5 and 5 per cent 'low', between 5 and 10 per cent 'medium', between 10 and 15 per cent 'high' and over 15 per cent 'very high'.⁴
Overweight in children and young people aged 5-19 years	BMI-for-age above 1 SD (standard deviation) of the WHO Growth Reference median for children of the same age and sex. Severe overweight (above +2 SD) is referred to as obesity, and a BMI-for-age above +3 SD is referred to as severe obesity.
School-age children	Children between 5 and 14 years of age. ⁵

Executive summary

The prevalence of overweight among all children and adolescents, from infancy to the age of 19, is on the increase almost everywhere. Around 40 million under-fives around the world have overweight, almost 6 per cent of this age group. Among children aged 5 to 19 years, it is estimated that more than 340 million have overweight, almost 18 per cent.

Overweight, including its severe form (obesity) in children and adolescents is the result of the interaction between: 1) individual factors that regulate physiological processes, food preferences, and physical activity patterns over the life course; and 2) an *obesogenic environment* that promotes high energy intake and sedentary behaviour. Overweight impacts children's immediate physical and emotional well-being. It also increases the risk of overweight later in life, a condition associated with non-communicable diseases and considerable health and economic disadvantage for individuals, families and society.

Overweight is a form of malnutrition. It does not happen in isolation and nor does it occur only in certain people or certain countries. Different forms of malnutrition (stunting, wasting, micronutrient deficiencies, overweight and diet-related non-communicable diseases) can coexist in the same country, the same community and even in the same family or individual. In 2017, to address this 'double burden' of malnutrition, the prevention of overweight in children and adolescents was integrated into the UNICEF Strategic Plan (2018-2021) as part of Goal Area 1: *Every child survives and thrives*. The aim is to reduce malnutrition in all its forms.

This document offers a step-by-step framework intended to guide country level interventions. The first step is to undertake a situation analysis of overweight in children of all age groups, after which UNICEF needs to select a relevant

set of interventions, in coordination with the government and other partners.

The recommended actions for implementation by UNICEF programmes are:

1. Improve the enabling environment, including policies, regulatory frameworks and strategies and accompanying monitoring and enforcement measures.
2. Implement interventions across the life cycle, specifically during pregnancy, the early childhood period (under age 5), school age (5-9 years of age), and adolescents (10-19 years of age). The prevention of overweight in children is a multisectoral undertaking and collaboration between the Nutrition sector and other UNICEF programme sectors and areas is crucial. It is also important to use a systems approach, engaging the food, health, wash, education, and social protection systems, as well as communities and having an appropriate involvement of the private sector.
3. Knowledge generation and use on the prevention of overweight in childhood by country offices as well as HQ and regional offices. In addition, data collection and surveillance systems need to be established for documenting overweight in children over 5 years of age, at the national and global level.
4. Monitoring and reporting of interventions and progress is crucial. For internal monitoring purposes, questions on interventions for the prevention of overweight in children are incorporated in the Strategic Monitoring Questions (SMQs) and in Nutridash.

About this programme guidance

This document is intended to serve as a guidance for UNICEF regional and country offices as they plan and implement interventions for the prevention of overweight in children and adolescents aged 0 to 19 years. It describes the current situation of overweight in childhood and adolescence, its causes and consequences and provides an overview of how UNICEF country programmes can support the policy and programme actions of host country governments and development partners.

The programme guidance is intended for use by UNICEF Regional Directors and Deputy Regional Directors, Country Representatives and Deputy Country Representatives, and programme advisers, technical specialists and managers in programmes such as Nutrition; Health; HIV; Early Childhood Development (ECD); Education; Water, Sanitation and Hygiene (WASH) and Social Policy.

The actions recommended are based on existing global evidence and recommendations. Country offices will want to select the interventions most relevant to their country context and setting assisted by technical support from regional offices and headquarters where needed.

This document complements the *UNICEF programme guidance for early life prevention of non-communicable diseases*.⁶ At the time of writing, UNICEF is developing detailed programme guidance on the nutrition of school-age children and adolescents with reference to overweight prevention. In addition, UNICEF and partners are developing tools to support government institutions, officials, regulators, policymakers and civil society to understand, develop and implement regulatory and fiscal measures that address childhood overweight. These tools will be accompanied by detailed guidance on their use in UNICEF programmes.

The first part of this document provides an overview of key dimensions of overweight in childhood and adolescence broken down into three sections:

- **Section 1** summarizes the global situation of overweight in early childhood (0-5 years), middle childhood (6-10 years) and adolescence (11-19 years)
- **Section 2** offers an overview of the main causes and consequences of overweight in childhood and adolescence and outlines the specific role of the food system as a key determinant of increasing trends in childhood overweight
- **Section 3** outlines the most relevant global goals and guidance for the prevention of overweight in children and adolescents

The second part of the guidance outlines UNICEF's role in efforts to prevent overweight in children and adolescents:

- **Section 4** presents an overview of the prevention of overweight in children and adolescents as set out in the UNICEF Strategic Plan 2018-2021 and UNICEF's Nutrition Strategy 2020-2030
- **Section 5** describes the recommended actions for UNICEF programmes that seek to prevent overweight and obesity in children
- **Section 6** details the priority interventions for UNICEF programmes

A final section provides concluding remarks and offers a list of resources for reference and further reading.

PART I

Overweight in children and adolescents

*Prevalence, causes,
consequences, goals
and guidance*

1

Overweight in children and adolescents



1.1. Prevalence and burden of overweight in early childhood (0-5 years)

Data from household surveys show that an estimated 5.9 per cent of the world's children under the age of five – around 40 million – had overweight in 2018. This means a 33 per cent increase in the burden, from an estimated 30 million under-fives with overweight in 2000. There is significant regional variation in the prevalence, from 14.9 per cent in Eastern Europe and Central Asia to 2.8 per cent in West and Central Africa.⁷

The region with the highest absolute burden is East Asia and the Pacific, with overweight in 9.7 million children under age 5; next highest are the Middle East, North African and South Asia regions with over 5 million children with overweight each. The regions with both the largest increase since 2000 and the highest prevalence are Eastern Europe and Central Asia (up from 8.2 per cent in 2000 to 14.9 per cent in 2018), while the prevalence in West and Central Africa is lowest at 2.8 per cent in 2018. Figures 1.1 and 1.2 show the changes in prevalence and burden of overweight in children under five between 2000 and 2018 by UNICEF region.



Preschool children (<5 years)

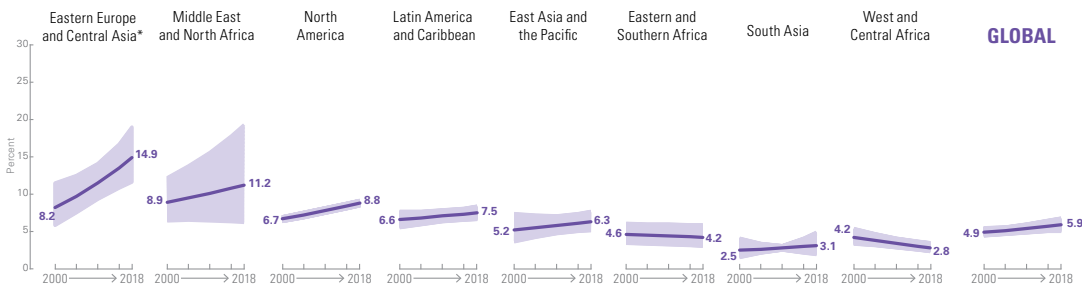


Figure 1.1: Percentage of overweight in children under five by UNICEF region (2000-2018)

Source: UNICEF/WHO/World Bank Group Joint Malnutrition Estimates, May 2019 edition.⁸

Note: The shaded areas represent the 95 per cent confidence intervals.

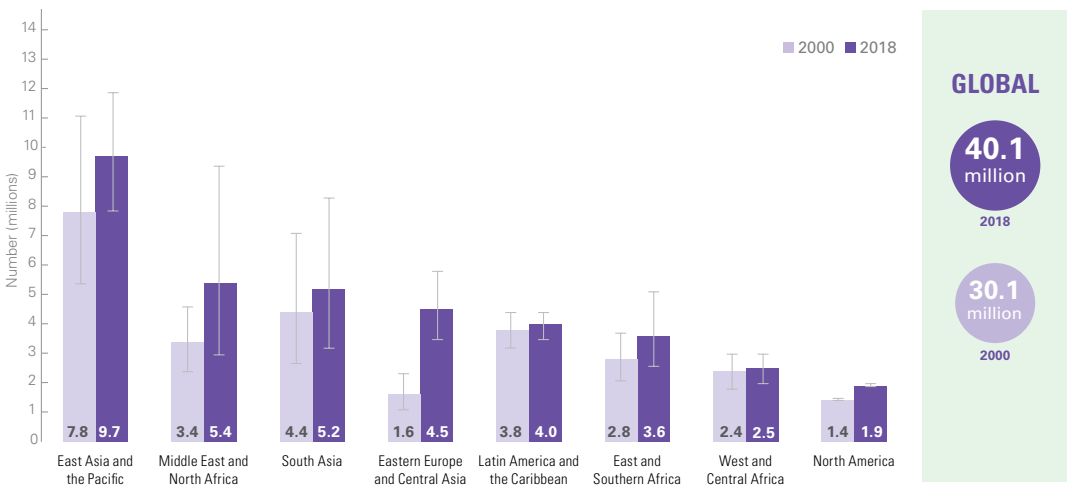


Figure 1.2: Number (millions) of children under five with overweight; 2000 and 2018

Source: UNICEF/WHO/World Bank Group Joint Malnutrition Estimates, May 2018 edition

Note: The bars represent the 95 per cent confidence interval

School-age children (5–9 years)

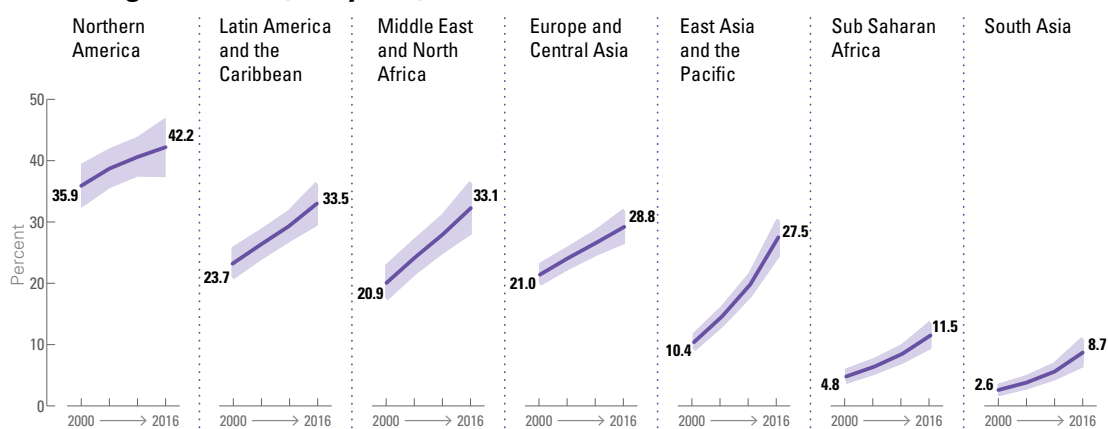


Figure 1.3: Percentage of school age children (5–9 years) who are overweight, by UNICEF regions, 2000–2016

Adolescents (10–19 years)

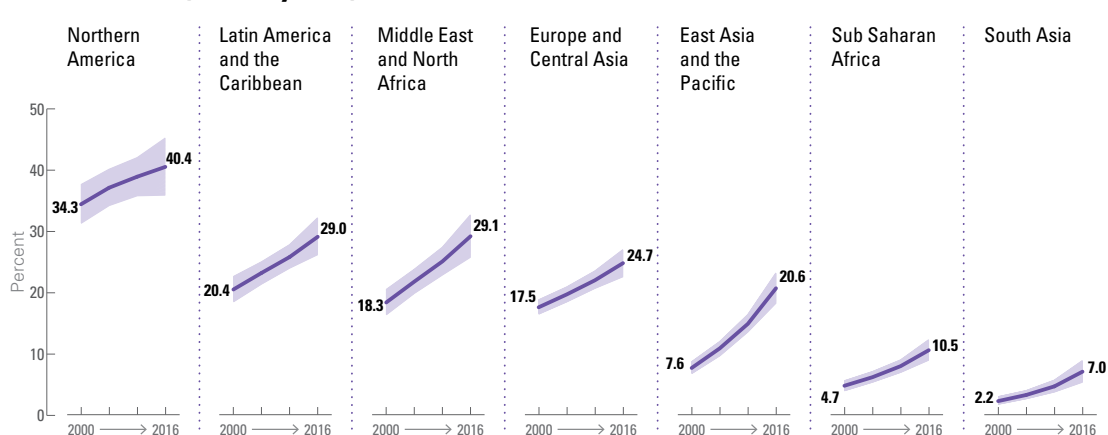


Figure 1.4: Percentage of adolescents (10–19 years) who are overweight, by UNICEF regions, 2000–2016

Of the **638 million** school-age children globally, a total of **131 million** are affected by overweight or 20.6%.



Of the **1 billion** adolescents globally, a total of **207 million** are affected by overweight or 17.3%.



Source: NCD Risk Factor Collaboration (NCD-RisC), based on Worldwide trends in body-mass index, underweight, overweight and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults. *The Lancet* 2017, 390 (10113): 2627–2642

Overweight has in the past mostly been a concern in higher income countries, predominantly an urban and middle-class phenomenon of higher middle-income countries. In established overweight epidemics, the burden of overweight has affected lower socioeconomic groups disproportionately.

New evidence suggests that these patterns are changing, with increasing prevalence of overweight among both urban and rural poor children and children in low-and-middle-income countries.⁹ Middle income countries account for over three quarters of all children with overweight: 38 per cent of all children with overweight live in lower middle-income countries while 39 per cent live in upper-middle income countries. Since 2000, the increase in the number of under-fives with overweight has been highest in lower middle-income countries (from 9.8 million in 2000 to 12.5 million in 2017).¹⁰

Overweight does not happen in isolation and nor does it occur only in certain people or countries. Different forms of malnutrition (stunting, wasting, micronutrient deficiencies, overweight and diet-related non-communicable diseases) can coexist in the same country, the same community and even the same family and individual. This is called the 'double burden' of malnutrition.¹¹

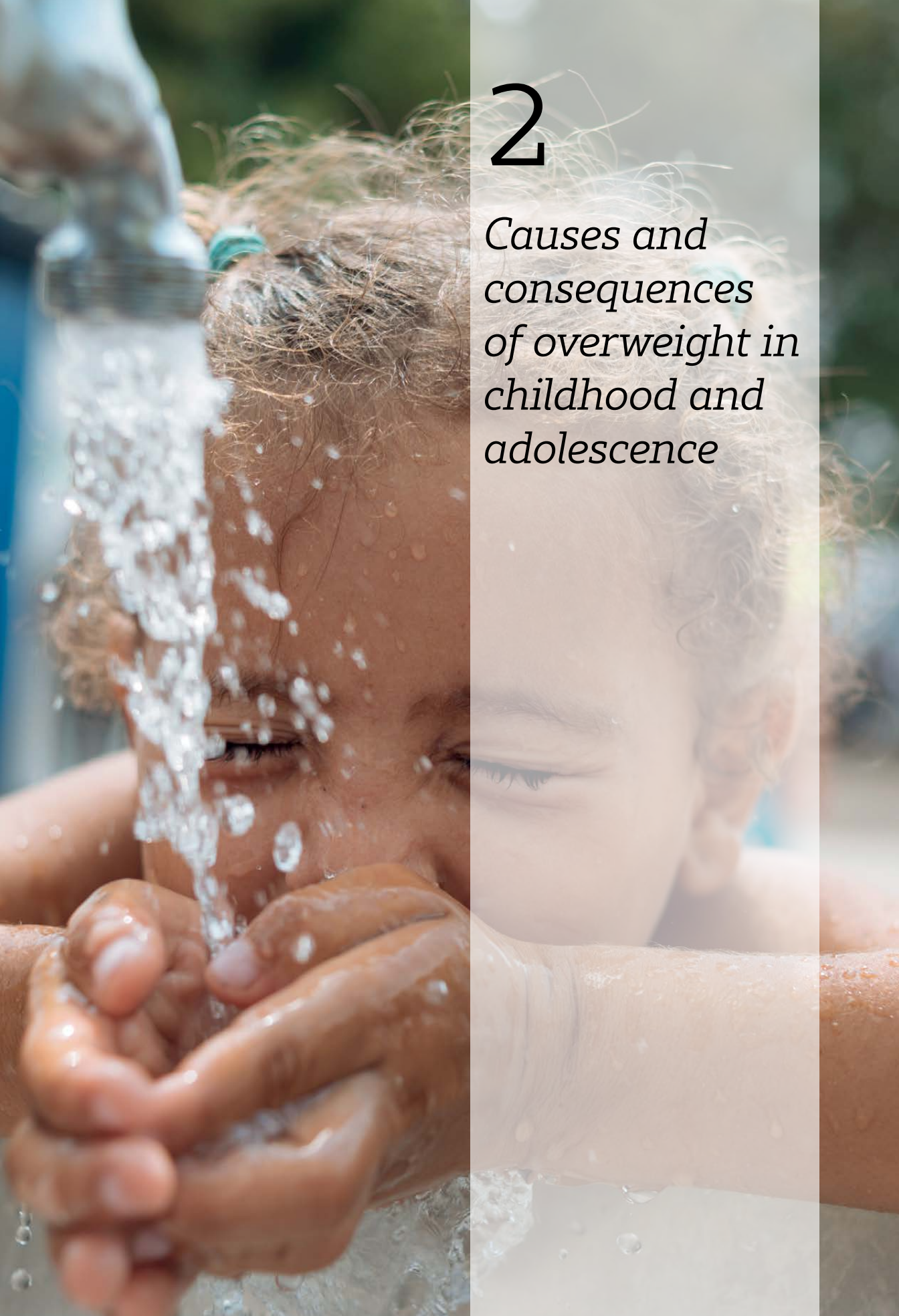
**1.2 Prevalence and burden of
overweight in middle childhood
(5-9 years) and adolescence
(10-19 years)**

The data on overweight in children between 5 and 19 years of age are collected in multiple surveys, each with their own age group disaggregation and methodology (for example household surveys or school-based surveys). Globally the prevalence of overweight in this age group is increasing. In 2016, nearly one in five school-age children and adolescents (18.4%) were overweight, representing 338 million children aged 5-19 years worldwide.¹²

Figure 1.3 shows the data for school-aged children (5–9 years) according to UNICEF region, while Figure 1.4 shows the data for adolescents

(10–19 years). Northern America has the highest prevalence among both age groups (42.2 per cent among school-aged children; 40.4 among adolescents), followed closely by Latin America and the Caribbean and the Middle East and North Africa regions.

The lowest prevalence (8.7 per cent among school-aged children; 7.0 among adolescents) is observed in the South Asia region. Trend data from 2000 reveal that overweight has increased across all regions. The steepest increases, across both age groups, have been observed in East Asia Pacific region. These figures are broadly similar to those provided in an analysis of DHS data for 15-19-year olds, which also show a rise in overweight and obesity in parts of Latin America and the Caribbean, the Middle East and North Africa, Europe and Central Asia.¹³ It also aligns with other analyses of global and regional trends in the nutritional status of young people that have found that one in three adolescent girls has overweight, and the prevalence of obesity among 5 to 19-year-old girls to be 5.6 per cent, and 7.8 per cent in boys in 2016.^{14,15}



2

*Causes and
consequences
of overweight in
childhood and
adolescence*

2.1 Causes of overweight in childhood and adolescence

Overweight in children and adolescents is the result of the interaction between: **1)** individual factors that regulate physiological processes, food preferences, and physical activity patterns over the life course; and **2)** an *obesogenic environment* that promotes high energy intake and sedentary behaviour.¹⁶ Overweight is primarily driven by a persistent imbalance in dietary energy intake and energy expenditure, and the excess consumption of "ultra-processed" foods high in calories, fats, free sugars and/or salt has been particularly implicated. However, overweight and obesity should not be viewed entirely in isolation from other forms of malnutrition. Rather, the various forms of malnutrition, and risks thereof, are intertwined throughout the life cycle. Undernutrition can give rise to increased risk of overweight later in life, especially when confronted with the obesogenic environment. The main risk factors for overweight in children and adolescents are summarized here.

1. Maternal and paternal overweight.

Maternal overweight and/or diabetes before and during pregnancy predispose the child to increased fat deposits, which in turn are associated with child obesity and metabolic disease - including high blood pressure, high density lipoprotein cholesterol and excess abdominal fat- later in life.^{17,18} There is also increasing evidence that paternal overweight during spermatogenesis could increase the risk of overweight in children.¹⁹

2. Maternal undernutrition and undernutrition in early life.

Maternal thinness before and during pregnancy can result in poor foetal growth, low birth weight and stunting in early life, which can predispose children to accumulate fat later in life, thereby increasing the risk of overweight, obesity and metabolic disease.^{20,21} In children who were small at birth, rapid weight gain after the age of 2–3 years can lead to a higher risk of overweight and chronic disease in later life.²² Wasting in the first two years of life can

also be a risk factor for overweight and non-communicable diseases (NCDs), also referred to as *thrifty growth*.²³

3. Inadequate breastfeeding practices.

Breastfeeding (be it ever breastfeeding, exclusive breastfeeding or a longer duration of breastfeeding) reduces the risk of overweight.^{24,25} A recent meta-analysis calculated a 13 per cent reduced chance of overweight for children who were breastfed.²⁶ Among the pathways for the protective role of breastfeeding is better gut health, achieved by population of the child's body and gut with maternal microbiome during skin-to-skin contact and early and exclusive breastfeeding.²⁷ Breastfeeding also establishes better satiety patterns which are related to the nutrients in breastmilk. It also helps avoid the disadvantages of bottle feeding.²⁸

4. Inadequate complementary feeding practices and food habits in older children.

Contributing to poor diets are foods and liquids for children aged 6-23 months that do not secure the minimum dietary diversity and/or foods with a high content of sugar, salt or fat. They predispose children to overweight and unhealthy food preferences in later life.^{29,30,31} Furthermore, feeding practices that are not responsive to children's hunger and satiety cues can contribute to unhealthy eating patterns.^{32,33,34}

5. Unhealthy food habits in older children and adolescents.

These are being increasingly documented^{35,36} and contribute to overweight. Adolescents are developmentally and socially vulnerable to unhealthy diets. They are often more impulsive and they are typically more subject to peer influence, and are less likely to follow guidance on healthy eating.^{37,38,39}

6. Obesogenic food environments.

Major drivers of food choice include price, availability, convenience, product taste and marketing. Unhealthy food environments include: a) low availability, accessibility, desirability and affordability of healthy foods;⁴⁰ b) marketing of unhealthy foods,

snacks and beverages, and increasing portion size^{41,42} and c) inadequate labelling of industrially-prepared foods that prevents caregivers, children and adolescents from understanding whether such foods contribute to a healthy diet or not.⁴³ Recurring exposure to the same unhealthy food environment can shape preferences and lead to routine or habitual behaviours.

- 7. Inadequate physical activity.** There is incontrovertible evidence that predictors of overweight and obesity in children and adolescents are: a) lack of physical space or opportunity for an active lifestyle or physical exercise and sports; and b) increasing acceptability of sedentary behaviours and screen time among children from early childhood through middle childhood and adolescence.^{44,45,46}
- 8. Obesogenic cultural environments** are characterized by low levels of parental knowledge about healthy feeding, eating and nutrition; low levels of nutrition literacy among school-age children, adolescents, teachers, and health professionals; and social norms pertaining to body image that include appreciation of overweight body shapes for boys and/or girls.⁴⁷
- 9. Epigenetic mechanisms** – changes in gene function caused by external or environmental influences – possibly also play a role in the relationship between parental overweight and maternal undernutrition and overweight in children.^{48,49}
- 10. Socioeconomic status** determines income, and low income and lack of access to good quality food have an impact on the likelihood and severity of each of these risk factors. Overweight increasingly impacts poorer and more disadvantaged groups.

2.2 Immediate and longer-term consequences of overweight in childhood and adolescence

Obesity and even overweight in childhood and adolescence can have adverse health and financial consequences throughout life.

Children with overweight, and specifically those who have obesity, are at a higher risk of developing gastrointestinal, musculoskeletal and orthopaedic complications, sleep apnoea, accelerated onset of cardiovascular disease, fatty liver, impaired glucose intolerance and Type 2 diabetes.^{50,51}

Child obesity and, to a lesser extent, overweight in childhood may contribute to cognitive, behavioural and emotional difficulties including lower scores in cognitive tests and low self-esteem, and may also lead to stigmatization, poor socialization, depression and reduced educational achievement.^{52,53,54,55}

It is difficult to slow weight gain during child growth and achieve and maintain weight loss at the end of growth, especially without professional support. Obesity in childhood is therefore associated with a higher risk of adult obesity^{56,57} and premature death and disability in adulthood.⁵⁸ Other consequences of overweight are cardiovascular diseases (principally heart disease and stroke), Type 2 diabetes and certain cancers.⁵⁹ Obesity in adulthood has severe health consequences and has a direct economic impact on families because of treatment costs and on society because of losses in productivity.

Obesity is becoming increasingly common in low- and middle-income countries and is affecting women and the poor in particular.⁶⁰ Taking a broader picture, nutrition-related NCDs account for nearly half of all deaths and disability in low- and middle-income countries.⁶¹

The global economic impacts of obesity are estimated at USD 2 trillion, or 2.8 per cent of global gross domestic product (GDP), a similar economic impact to that of smoking or armed violence, war and terrorism.⁶² The lifetime costs of overweight and obesity in childhood and adolescence depend on the country and the specific assumptions made but are likely to be substantial, as examples from the United States and Europe show.^{63,64}

Available evidence suggests that preventing childhood overweight and obesity is cost-effective.⁶⁵

3

*Global goals
and guidance for
the prevention
of overweight
in children and
adolescents*



3.1 Global goals on the prevention of overweight in children

In 2012, the World Health Assembly (WHA) adopted the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition. Its goals include achieving no increase in the prevalence of overweight among children under five by 2025.⁶⁶ The reduction of overweight is prioritized in the Sustainable Development Goals (SDGs) as a key objective to protect children, adolescents and adults against obesity and diet-related NCDs. One of the indicators of SDG2 for nutrition (indicator 2.2.2) is the prevalence of overweight in children under five.

The Global Nutrition Report 2017, however, indicated that the vast majority of countries (146) had no or insufficient data on the prevalence of child overweight. Acceptable data was available for only 47 countries. Among these, 16 had shown no progress or were experiencing a worsening situation, and only 31 were on track to meet the WHA target.⁶⁷

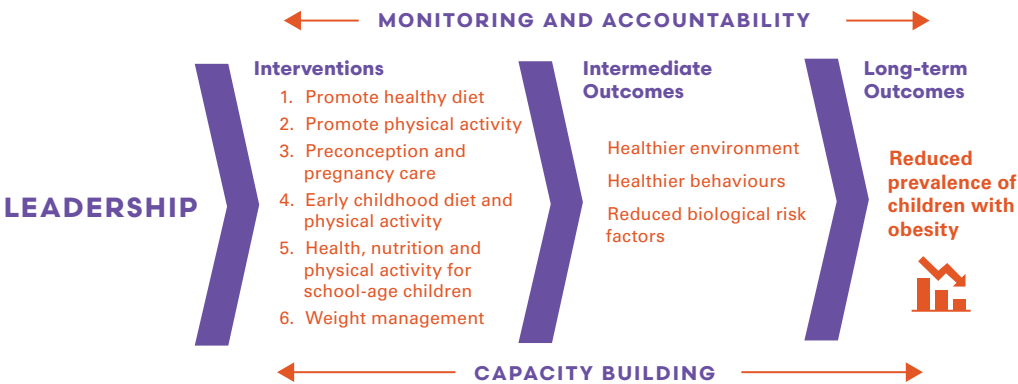
3.2 Global policy and guidance for the prevention of overweight and obesity

In 2014, WHO established the *Commission on Ending Childhood Obesity*. In 2016, the Commission made six specific recommendations to address children’s obesogenic environments from conception to adolescence.⁶⁸

1. 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.
2. Implement comprehensive programmes that promote physical activity and reduce sedentary behaviours in children and adolescents.
3. Integrate and strengthen guidance for non-communicable disease prevention with current guidance for preconception and antenatal care to reduce the risk of childhood obesity.
4. Provide guidance on, and support for, healthy diet, sleep and physical activity in early childhood to ensure children grow appropriately and develop healthy habits.
5. Implement comprehensive programmes that promote healthy school environments, health and nutrition literacy and physical activity among school-age children and adolescents.
6. Provide family-based, multicomponent, lifestyle weight management services for children and young people who are obese.

The Commission published the Implementation Plan for its recommendations in 2017.⁶⁹ Figure 3.1 depicts the six recommended interventions and how they contribute to intermediate and long-term outcomes.

Figure 3.1: Action framework for the prevention of overweight and obesity in children



Source: Implementation Plan of the Commission on Ending Childhood Obesity

In most low- and middle-income countries, child overweight co-exists with a larger/similar burden of child undernutrition (stunting, wasting and micronutrient deficiencies), a reality referred to as the *double burden of malnutrition*. To address

this double burden, a holistic set of *double-duty actions* is required. These actions need to be integrated and complement actions that are specifically addressing the issue of overweight. Double-duty actions fall into three categories:⁷⁰

- 1. Do no harm with existing actions:** Existing policies and programmes that aim to reduce one type of malnutrition should not inadvertently increase the risk of other types of malnutrition. For example, cash transfer programmes to reduce poverty and undernutrition could contribute to increased overweight if targeting of vulnerable groups is not done adequately, supplementary foods are not designed carefully, and supplementation is not accompanied by guidance on healthy diets.
- 2. Retro-fit or design new actions to be double duty:** These are actions that are re-examined or pro-actively designed to deal with the double burden of maternal and child malnutrition. For example, the promotion of adequate infant and young child feeding is traditionally aimed at reducing child undernutrition but the messaging needs to adapt to make sure the reduction of overweight in children is also seen as an integral part of adequate nutrition. There are various ways in which this shift in messaging can be supported through actions: the enforcing of the *International Code of Marketing of Breastmilk Substitutes* and subsequent WHA resolutions (the Code);⁷¹ ensuring that maternity facilities practice the Ten Steps to Successful Breastfeeding of the Baby-friendly Hospital Initiative;⁷² supporting maternity protection regulations;⁷³ providing nutrition education, skills, guidance and support to caregivers around healthy diets for children and the benefits of an active lifestyle; and growth assessments combined with nutrition counselling.⁷⁴
- 3. Overweight-specific actions:** These actions will have less immediate impact on undernutrition, but are important to create supportive environments for childhood overweight prevention. They may also help minimise displacement of nutritious foods from children's diets and have been referred to as "de novo" double duty actions. These include: health-related taxes on sugary drinks and other unhealthy foods and beverages; regulating the marketing of unhealthy foods and beverages to children;⁷⁵ implementing front-of-pack labelling; and requiring childcare settings, schools and events for children to ensure healthy food environments. Of particular importance in this category is the enactment and enforcement of national legislation aligned with WHO's *Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages to Children* published in 2010.⁷⁶

The WHO *Best Buys*, which sets out the most cost-effective interventions and other interventions for the prevention and control of NCDs, also presents relevant guidance to address unhealthy diets.⁷⁷

3.3 Implementation of global policy and guidance for the prevention of overweight and obesity

The WHO *Global Nutrition Policy Review 2016-2017*, based on self-reporting by national governments and verified by WHO, reports that 78 per cent of the 167 countries that included nutrition-relevant policies, strategies and plans in their responses had a target to address overweight in children. However, only 16 per cent of countries had a regulation on the marketing of complementary foods and 40 per cent had policies on regulating marketing of food and non-alcoholic beverages to children.

While 61 per cent of 160 countries included nutrition education in the school curriculum, only 18 per cent had a ban on vending machines in schools and just 24 per cent had standards for regulating marketing of foods and beverages in schools.⁷⁸ A report by WHO's office for Europe reported that 54 per cent of European countries have some form of policy to restrict the marketing of high fat, salt and sugar products to children, although the policies documented were of varying scope and quality.⁷⁹

By 2018, 136 of 194 countries had adopted legal measures to translate some or most of the provisions of the Code into legislation. Of these, 35 countries have full Code provisions covered in law, 31 have legal measures that put many Code provisions into law. However, 58 countries had no legal measures in place.⁸⁰ But by the end of 2018, more than 40 countries were implementing some kind of tax on sugary drinks, one of WHO's *Best Buys*.⁸¹



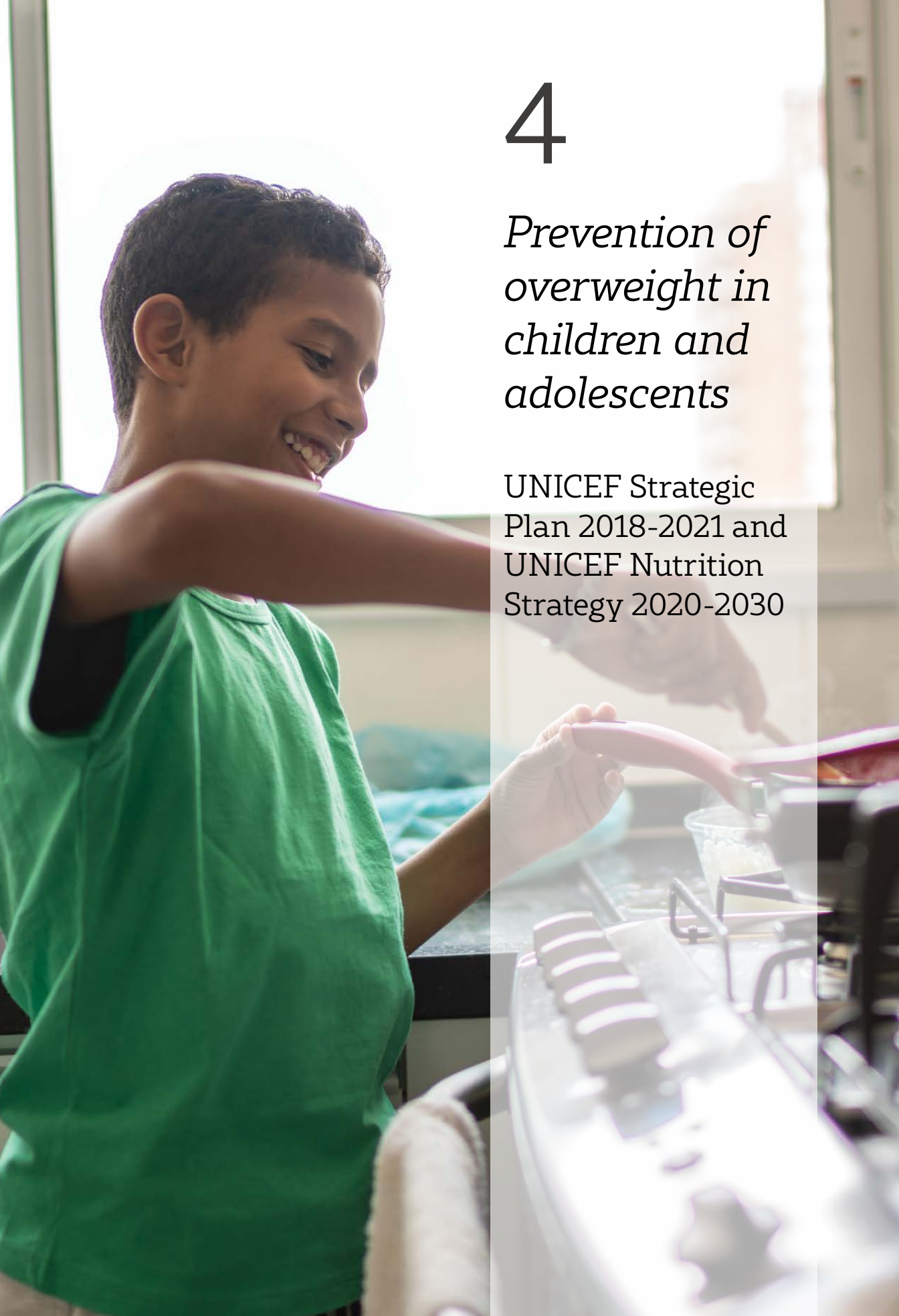
PART II

UNICEF programming for the prevention of overweight in children and adolescents

4

Prevention of overweight in children and adolescents

UNICEF Strategic
Plan 2018-2021 and
UNICEF Nutrition
Strategy 2020-2030





Preventing malnutrition in all its forms, including overweight, plays an integral role in guaranteeing children's right to food, health and nutrition as a cornerstone of their human rights. Therefore, working to prevent overweight in children and adolescents needs to be part and parcel of UNICEF's work.

In recent years, UNICEF regional and country offices and headquarters sections have started to take action on the prevention of overweight. This has led to the drafting of regional guidance for East Asia and the Pacific;^{82,83} studies on the marketing and advertisement of unhealthy food and beverages targeted at children in Latin America and the Caribbean (LAC);⁸⁴ a study on food marketing and children's rights;⁸⁵ a review of the regulations and practices related to labelling of food and beverage targeting children in LAC;⁸⁶ an overview report on the use of sugar taxes;⁸⁷ and the drafting of messages for behaviour change communication (awaiting publication).

UNICEF's Supply Division has started to monitor and reduce excess sugar content in lipid-based supplements for the treatment and prevention of malnutrition. The division is also liaising with WHO and other partners to establish a minimal level of added sugar for these products to reduce sugar content and still comply with treatment protocols.

In 2016, UNICEF organized a global meeting that brought together a selected group of internal and external experts to advise UNICEF on the key focus of UNICEF programming for the prevention of overweight in children and adolescents.⁸⁸ The consensus reached by this group was that UNICEF's programmatic focus should prioritize the following.

- Emphasis on the prevention of malnutrition in all its forms, including both undernutrition and overweight, while ensuring treatment for children with severe forms of malnutrition
- Emphasis on the prevention of malnutrition in early childhood, including through strengthening the enabling environment and adopting a life cycle approach to

malnutrition prevention from conception to adolescence

- Emphasis on improving the quality of children and women’s diets – better diets for better growth – from conception and birth through to adolescence
- Emphasis on double-duty actions that help prevent both undernutrition and overweight in children and adolescents
- Integration in UNICEF-supported programmes of de-novo actions specifically directed at preventing overweight in children and adolescents

In 2017, for the first time, the prevention of overweight in children and adolescents was integrated in UNICEF Strategic Plan (2018-2021) as part of Goal Area 1: Every child

survives and thrives.⁸⁹ The relevant outcome statement, output statement and indicators are described in Table 4.1.

For the baseline data collection for the Strategic Plan 2018-2021, the Nutrition Section at UNICEF New York asked country offices to report their activities for the prevention of overweight in children and adolescents in 2017. Twenty-one countries were already acting on one or more policy actions or programme activities.

The UNICEF Strategy for Maternal and Child Nutrition 2020-2030 will take a fresh look at how gains in maternal and child nutrition can be accelerated. It will address malnutrition in all its forms, including comprehensive action for the prevention of overweight in children and adolescents.

Table 4.1: Outcome and output statements and indicators related to the prevention of overweight in children in the results framework of the Strategic Plan 2018-2021

Goal Area 1: Every child survives and thrives	
Impact indicator: D. Percentage of children who have overweight (SDG 2.2.2)	
Outcome Statement 1: Girls and boys, especially those that are marginalized and those living in humanitarian conditions, have access to high-impact health, nutrition , HIV and ECD interventions.	
Output statement 1.d: Countries have accelerated the delivery of programmes for the prevention of stunting and other forms of malnutrition .	Output statement 1.i: Countries have developed programmes to deliver gender-responsive adolescent health and nutrition services.
Output indicator 1.d.4: Number of countries that are implementing policy actions or programmes for the prevention of overweight and obesity in children.	Output indicator 1.i.1: Number of adolescent girls and boys provided with services to prevent anaemia and other forms of malnutrition through UNICEF programmes.

Note: This table sets out the outcomes and outputs on overweight prevention mentioned in the results framework of the Strategic Plan.



5

*Recommended
actions for
UNICEF
prevention of
overweight
programmes*



This guidance aims to set out recommended actions for UNICEF country programmes that aim to support government efforts to develop policies, strategies and programmes for the prevention of overweight in children and adolescents. The guidance covers the full process, from the planning stage to implementation, monitoring and learning. It is based on current evidence and global guidance and is in line with UNICEF’s mandate and organizational strengths.

A six-step process is recommended:

1. Conduct a situation analysis.
2. Conduct a stakeholder analysis to identify the key actors implicated in the increase in childhood overweight and the key actors relevant to the prevention of childhood overweight.
3. Establish partnerships with key actors for joint advocacy and coordination of activities.
4. Engage in dialogue with the government to design and prioritize interventions in three key areas (for further details of the priority interventions, see Section 6):
 - a. improvement of the enabling environment – policies, regulatory frameworks and strategies and their implementation;
 - b. support for the design and delivery of interventions across the life cycle (pregnancy, under 5 years, 5-9 years, 10-19 years); and
 - c. leading of knowledge generation, dissemination and use.
5. Establish monitoring and reporting systems and track progress, including advances towards the 2025 and 2030 Nutrition targets.
6. Document progress and lessons learned (that is, support a learning culture).

In all UNICEF’s actions, interventions need to be reviewed for a potential unintended increase in risk of overweight and obesity (*‘do no harm’*; see Section 3.2). Further guidance for specific situations can be provided when needed.

Detailed descriptions of these actions and the suggested interventions follow.

5.1 Conduct a situation analysis

The first step is to undertake a situation analysis of overweight in children of all age groups, either as part of a broader situational analysis of the fulfilment of children’s rights in a country or as a stand-alone exercise, for instance when a country is considering interventions to prevent overweight in children and adolescents. For details about the recommended timing and implementation of a situation analysis, see the Programme, Policy, Procedure (PPP) Manual.⁹⁰ There are a number of key aspects to include in the analysis.

a. Equity analysis: prevalence of overweight and obesity and other forms of malnutrition (stunting, wasting, micronutrient deficiencies) disaggregated by age or age group: under-fives, 5-9 years old, young adolescents (10-14 years old) and old adolescents (15-19 years old), men and women of reproductive age; and by sex, geography, socioeconomic group, ethnic group, etc. If possible, analyse trends over time. Some data sources that country offices may use are the Global School-Based Health Surveys, Health Behaviour Surveys, Demographic and Health Surveys and MICS Surveys. When resources are available, country offices can consider conducting a survey that combines multiple indicators.

b. Review existing laws, policies, current circumstances and strategic planning documents that are relevant for the prevention of overweight, to understand:

- the food system in the country and its role in contributing to, or preventing overweight in children and adolescents;
- any policy, strategy, and/or programme/ action plan already in place for the prevention of overweight in children;
- strategies or policies on food and nutrition standards for school meals, sale of foods and beverages in and around schools,

nutrition in school curricula and physical activity/physical education in schools;

- whether the Code and enforcement measures are implemented;
- what regulations are in place to restrict the marketing of foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars and/or salt, both to the general population and to children in particular – including whether they cover advertising, sponsorship, product placement, packaging, portion size, in-store and point-of-sale promotions, price promotions discounting and sales enticements and availability;
- whether the composition of commercially-produced foods and snacks and foods that are high in saturated fats, trans-fatty acids, free sugars and/or salt is regulated;
- whether nutrition labelling and the use of nutrition and health claims are regulated;
- what relevant fiscal measures are in place, such as subsidies for specific foods or taxes on items like snack foods and sugar-sweetened beverages;
- any other relevant laws, policies and strategic planning documents.

c. Review the marketing of unhealthy foods and beverages, specifically to children, and the involvement in and influence of food and beverage companies on different sectors and interventions.

d. Review the existing capacity for the prevention of overweight in children among UNICEF staff, government policymakers, health professionals, teachers and other relevant service providers, including other implementing partners.

e. Understand local social norms and/or knowledge, attitudes and practices related to healthy and unhealthy dietary patterns, physical activity and overweight in children.

f. Review the obesogenic environment

in rural and urban communities, the food system, schools and the home, including the availability and accessibility of healthy and unhealthy foods, the impact of urbanization on physical activity and on access to healthy foods, and opportunities for physical activity in general.

5.2 Design and prioritize interventions

Using the context offered by the situation analysis, UNICEF country staff should, in coordination with government and other partners, select a relevant set of interventions. These can be included in the country programme or inform the drafting of a country programme.

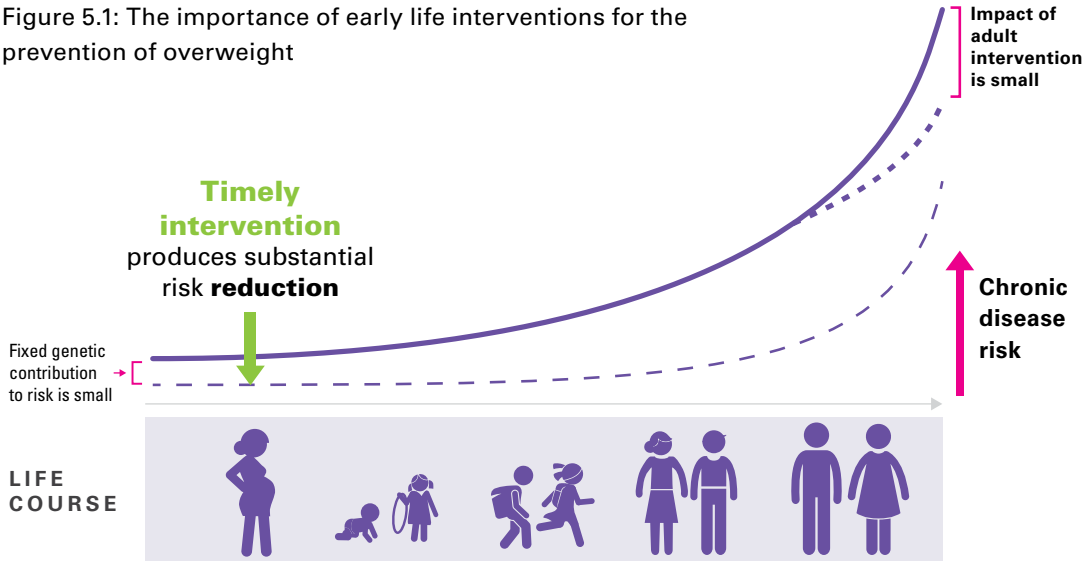
This section offers an overview of possible relevant interventions for the prevention of overweight in children (also summarized in Tables 5.1 and 5.2) that country offices can consider. The selection of interventions needs to be based on the nutrition situation, the existing policy environment, the capacities and opportunities available in-country and UNICEF's comparative advantage and value addition.

A mix of interventions and actions that both address the policy environment and have impact at every stage of the life course – from conception and pregnancy up to the age of 18 – is vital. Efforts should not focus on the small part of the life course where overweight and obesity might be most visible, such as among school-age children and adolescents. In many instances, UNICEF's interventions will need to shift the balance to specific parts of the life course that are receiving less attention from the government and other partners, such as prevention in early childhood.

Additional factors should be taken into account when prioritizing interventions.

Balance in interventions across the life course. Actions in the first years of life will have the most impact on the rest of a child's life. (see Figure 5.1).

Figure 5.1: The importance of early life interventions for the prevention of overweight



Source: Hanson M and Gluckman P. Developmental origins of noncommunicable disease: population and public health implications. *Am J Cl Nut*, 2011; 94(suppl): 1754S-8S.⁹¹
 Note: In the authors' words: 'The maximum effect will be gained from timely interventions in early life when plasticity permits a sustained reduction in the trajectory of risk to be attained'.

UNICEF staff capacity and/or the possibility of attracting qualified or experienced staff.

In countries where UNICEF has strong capacity for nutrition policy, social policy and social protection and/or where positions in these areas can easily be filled, UNICEF has a clear added value. Where a country programme has a stronger emphasis on systems-strengthening for service delivery, policy advocacy will still be an important facet of any supported intervention even if the emphasis is more on service delivery and 'double-duty' actions.

Emphasis on a government's nutrition-related investment and programmes, including UNICEF-supported programmes.

In countries where IYCF (infant and young child feeding) programmes have been considered as relevant only for child survival, and investment in such programmes has decreased, it is important to advocate for re-investing or investing more in IYCF through the lens of preventing childhood overweight. These activities need to be placed in a life cycle context and accompanied by relevant policies and interventions for other age groups.

A country's specific priority nutrition challenges. For countries where undernutrition and child mortality are the main challenge,

service delivery efforts may still be focused on the alleviation of stunting, wasting and micronutrient deficiencies. However, it will still be important to make sure that policies and regulations cover the prevention of malnutrition in all its forms, and to initiate nutrition awareness and literacy interventions for school-age children and adolescents. The aim will be to put a regulatory and knowledge infrastructure in place that can deal with all aspects of nutrition as food and activity patterns transition. This will place a broader package of interventions to hand when prevalence of overweight and obesity begins to increase (most likely starting with adults).

5.3 Promote multisectoral and multi-stakeholder coordination and collaboration

Collaboration with UNICEF sections

As mentioned earlier, the prevention of overweight in children is a multisectoral undertaking. The Nutrition Section will lead on the technical engagement and policy dialogue with governments, and will provide overall guidance as to what needs to happen. However, collaboration with the following UNICEF programme sectors and areas is crucial.

Communication for Development (C4D):

support for the design and implementation of relevant C4D and social and behaviour change strategies and interventions, including for harnessing social media and other channels for targeting various stakeholders.

ECD: support for the inclusion of nutrition literacy in curricula, physical activity and physical education; and policies on meals and sale and promotions of foods and beverages in and around preschools and ECD centres that can help prevent overweight and obesity.

Education: support for the inclusion of nutrition literacy in school curricula; for physical activity and physical education; for policies on school meals and school feeding programmes; and on the sales and promotion of foods and beverages in and around schools, to help prevent overweight and obesity in the context of other life skills where possible.

Health: support for inclusion of nutrition counselling in antenatal care, support for breastfeeding in maternity facilities and IYCF counselling in relevant health centres, with counselling also incorporating the prevention management of overweight and obesity (where possible).⁹²

Private Sector Fundraising: support in convening; reaching different actors, including via multi-stakeholder platforms; influencing business models and calling for changes in industry practices; improved accountability of business in relation to child rights and food.

Social policy: support with advocacy and technical support for health-related taxes and other fiscal measures and with nutrition-sensitive social protection interventions.

Urban planning: improve opportunities for safe physical activity by people of all ages, including through improvements in the built environment.

WASH: support for increased access to free safe drinking water in (pre-)schools and schools and promote safe drinking water as core to healthy diet for children, adolescents and adults.

Multi-agency and multi-stakeholder coordination

UNICEF will seek opportunities for joint advocacy with other actors on topics such as reducing the impact of the commercial determinants of overweight. UNICEF will also collaborate on the development of an investment framework for overweight prevention, similar to the one that was developed for the global nutrition targets on stunting, anemia, breastfeeding and wasting.⁹³

It is important to coordinate actions for the prevention of overweight in children with other UN agencies at all levels (global, regional, country), depending on their regional and in-country presence.

WHO is the lead technical agency for health and nutrition. It sets guidelines, norms and standards, including for the prevention of NCDs, with a focus on policy advocacy. Collaboration with the Food and Agriculture Organization (FAO) is relevant for a focus on nutrition-sensitive agriculture, Codex Alimentarius (jointly with WHO) and agrifood systems.

Among others, WHO and UNFPA can partner on interventions aimed at adolescents and World Food Programme (WFP) on interventions in schools. At country level, UN coordination will take shape in the context of the UN Development Assistance Frameworks.

The Interagency Task Force on Non-communicable Diseases (IATF-NCD) brings together about 25 agencies at the global level. The task force has established a Nutrition Working Group under coordination of the United Nations Standing Committee for Nutrition and it has representation from FAO, IAEA, IFAD, OCHA, UNEP, UNICEF, UNDESA, UNHCR, UN Women, WFP and WHO.

Coordination with multilateral institutions, non-governmental organizations (NGOs) and civil society organizations, including youth organizations, professional associations and consumer associations where these exist, is also important. Engagement with the private sector can be strategic for specific goals. In this regard, UNICEF has developed *Engagement*

with *Business* programme guidance for country offices to help determine how to engage most effectively with business programmatically, including consideration of benefits and risks.⁹⁴

When selecting partners and collaborating with other actors, it is crucial to avoid conflicts of interest, both real and perceived. A conflict of interest is a situation where there is a risk that an organization's or individual's secondary interest unduly influences, or is perceived to influence, the independence or objectivity of professional judgement or actions around a primary interest, or to undermine public trust in those operations. UNICEF has clear guidance on due diligence when considering engagement with private sector partners.⁹⁵ Governments and other partners might not have such guidance and it is important to make them aware of the 'conflict of interest' concept and provide support to avoid it.

The role of UNICEF headquarters and regional offices

The Nutrition Section (Programme Division (PD), New York headquarters) leads the UNICEF approach to the prevention of overweight in children. PD Nutrition will work closely with regional offices to support country offices. Regional offices will be the first port of call for country offices in providing technical support to countries that are planning, designing or implementing interventions for the prevention of overweight in children. This support can

be provided remotely or in person. Where appropriate, the Regional Advisors will connect and engage input directly from PD Nutrition.

PD Nutrition also works in close collaboration with other sections in the Programme Division, with the Division of Private Sector Fundraising and Partnerships (PFP), the Public Partnership Division (PPD), the Division of Analysis, Planning and Monitoring (DAPM), and Supply Division (SD). Some illustrative examples of collaboration include:

- liaison across Programme Division with relevant sections to ensure programmatic alignment and strengthening of interventions across relevant systems, and contribution to the broader NCD prevention agenda;
- coordination with other divisions, including DAPM for country data and guidance on relevant indicators and surveys, PFP for actions related to the private sector including guidance on sugar taxes and labelling, and Supply Division to ensure alignment between programme guidance and products procured by UNICEF;
- collaboration with PFP and PPD to seek financial resources to support implementation of relevant activities at all levels within the organization.

Regional offices, jointly with headquarters, will seek financial resources to support implementation of relevant activities at all levels within the UNICEF organization.

How can UNICEF engage with and support governments on overweight and obesity prevention?

Overweight and obesity is an issue that is multifactorial and requires a multi-sectoral response by government. Governments choose to organize their work on childhood overweight and obesity prevention in different ways, depending on traditions and context. The ministry of health is often a key partner, but collaborations are equally important with ministries with responsibility for education,

planning, transportation, agriculture and food, social protection and finance, as well as national technical agencies or institutes. In some contexts, the ministry of health coordinates activities on behalf of the government, in others a whole-of-government approach is in place with a decision-making body chaired by the head of government. UNICEF country programmes should consider and respond to the domestic political structures. Ways in which UNICEF can collaborate with different government actors include:

- Lead research on determinants of overweight, such as

obesogenic environments, breastfeeding practices or social norms

- Coordinate and commission evidence review to identify effective policy actions
- Facilitate policy dialogue with different sectors
- Organize national or international meetings to position UNICEF as a thought leader and support government with relevant expertise
- Perform evaluations of key policies and programmes, with recommendations to government

6

Priority interventions



6.1 Improve the enabling environment: policies, regulatory frameworks and strategies

The main relevant policies, regulatory frameworks and strategies for the prevention of overweight in childhood include the following:

General

- A national or sub-national strategy on the prevention of NCDs and/or overweight, including specific actions for children and adolescents. This may be a stand-alone document or embedded in a larger strategy on child health or nutrition. The strategy should be fully costed.
- Capacity-building of policymakers in the causes, consequences (including economic) and prevention of childhood overweight. Capacity-building should detail relevant actions policy-makers can take for its prevention.
- Advocacy and dialogue with policymakers and regulatory bodies on the adoption and implementation of regulatory frameworks for the prevention of overweight in childhood.
- Develop business case and investment framework for childhood overweight to support advocacy efforts and policy dialogue

Specific regulatory frameworks

These include:

- policies and standards on food, nutrition and physical activity in preschools, primary and secondary schools and for the sale of foods and beverages in and around schools;
- legislation and policies on parental leave and maternity protection (including maternity leave and breastfeeding breaks for women working outside the home);
- implementation of the Code;
- implementation of the *Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children*;⁹⁶

- implementation of the set of recommendations on the marketing of foods and non-alcoholic beverages to children;⁹⁷
- adoption of health-related food taxes, such as increased taxes on sugary and sweet beverages and 'junk food' and subsidies for healthy foods;^{98,99,100,101,102}
- reformulation of processed foods including portion sizes;
- adoption of front-of-pack nutrition labelling requirements that identify foods that are high in salt, sugar and fats^{103,104}; and
- use of urban planning regulations to promote healthy food and built environments for overweight prevention.¹⁰⁵

All regulatory frameworks need to be accompanied by monitoring and enforcement measures that are free from commercial influences and conflicts of interest.

Government action in these areas is needed to create supportive environments for children to learn and aspire to healthy diets. Public policies are important to level the playing field, positively influence the availability, affordability and appeal of healthy food, and safeguard children from unhealthy foods and beverages early in life.

6.2 Implement interventions across the life cycle

Possible strategies and interventions for inclusion in UNICEF country programmes include the following (also see Tables 6.1 and 6.2 for a schematic overview):

Pregnancy

It is suggested that UNICEF focuses its work in this area on the nutrition of adolescent girls (outlined in Section 4) and on the following aspects of care for nutrition during pregnancy.

- Promotion of antenatal care visits (minimum eight visits¹⁰⁶) by pregnant women, in communities and through social mobilization.
- Capacity-building and support for health facilities to provide counselling and relevant screenings (including for hyperglycaemia and hypertension) and monitor weight gain.
- Counselling about healthy eating to stay healthy and prevent excessive weight gain.
- In undernourished populations, nutrition education on increasing daily energy and protein intake with balanced energy and protein dietary supplementation.
- Preparatory breastfeeding counselling.
- Iron and folic acid supplementation.
- Counselling about adequate levels of physical activity.

Early childhood (children under five)

Protection, promotion and support of breastfeeding through implementation of comprehensive breastfeeding programmes based on formative research, including:

- support for the implementation of maternity protection legislation and breastfeeding breaks in the private and public sector;
- capacity-building of health care providers on the protection, promotion and support for breastfeeding, including counselling;
- support for early initiation of breastfeeding in maternity facilities (the *Ten Steps* of the Baby-friendly Hospital Initiative);
- promotion and support for early, exclusive and continued breastfeeding in communities;
- social and behaviour change communication for breastfeeding; and
- monitoring compliance with the Code.

Support for appropriate complementary feeding (healthy foods, responsive feeding) based on formative research, including:

- capacity-building of health care providers in facilities and communities for counselling for appropriate complementary feeding;
- support for IYCF or complementary feeding counselling in facilities;
- support for IYCF or complementary feeding counselling in communities; and
- social and behaviour change communication for appropriate complementary feeding.

For children attending preschools and other ECD programmes:

- advocacy and technical support for adoption and implementation of policies to support interventions for the prevention of overweight, and the creation of a healthy, non-obesogenic environment in preschools, including through advocacy for public procurements of healthy foods;
- advocacy for inclusion of nutrition education into ECD curriculum;
- capacity-building of preschool caregivers and teachers on the prevention of overweight; and
- support for interventions for the prevention of overweight in preschools including nutrition literacy classes, (increased) physical activity and others as relevant.

In health facilities and other settings where infants and young children seek care:

- weight and length or height measurements in all infants and children under five and their nutritional status classified according to the WHO child growth standards (*growth monitoring*);
- infant and young child nutrition counselling for caregivers and families of infants and children under five (*promotion of healthy growth*); and
- referral for counselling of families of children with overweight (*promotion of healthy growth*).

School age (5-9 years of age)

- Advocacy and technical support for adoption and implementation of policies to support interventions for the prevention of overweight in children and the creation of a healthy, non-obesogenic environment in primary schools.
- Advocacy for inclusion of nutrition education into the primary school curriculum.
- Social marketing and awareness-building in schools and communities on the consequences and causes of overweight and underweight.
- Sensitization and capacity-building for primary school teachers on the prevention of overweight.
- Support for interventions for the prevention of overweight in primary schools including nutrition literacy classes, encouraging healthy eating and counselling through school food and nutrition programmes, (increased) physical activity and others as relevant.
- Screening and referral for management of overweight and obesity in schools, health centres or another relevant platform.
- Support for infrastructural adaptations, where relevant, to create healthy (non-obesogenic) environments in schools and communities and a safe and supportive environment for physical activity.
- Promote and support physical activity in communities, among others via social and behaviour change communication.
- Involve and inform parents on healthy food choices and physical activity.
- Advocacy for inclusion of nutrition education into secondary school curricula.
- Social marketing and awareness-building in schools and communities on the consequences and causes of obesity and underweight.
- Sensitization and capacity-building for secondary school teachers on the prevention of overweight.
- Support for interventions for the prevention of overweight and obesity in secondary schools including nutrition literacy classes, (increased) physical activity and others as relevant, as part of a package of life skills interventions where possible.
- Screening and referral for management of overweight and obesity in schools, health centres or other appropriate services.
- Support for infrastructural adaptations, where relevant, to create healthy (non-obesogenic) environments in schools and communities.
- Promotion and support for physical activity in communities through channels such as social media and behaviour change communication.
- Use of social networks, peer groups and influential media persons.

It is important to use a **systems approach** that engages with all relevant areas of influence – policies, financing, management, implementation, monitoring and evaluation – rather than focussing on only one aspect of a delivery system. The aim should be to improve the prevention of overweight by strengthening promotion, implementation and delivery across all processes.

Adolescents (10-19 years of age)

- Advocacy and technical support for adoption and implementation of policies to support interventions for the prevention of overweight in adolescents and the creation of a healthy, non-obesogenic environment in secondary schools and communities.

Table 6.1: Overview of key interventions for the prevention of overweight in children

A) Advocacy and technical support for the introduction or strengthening of relevant policies, regulatory frameworks and strategies, and their implementation			
General			
1. A national or sub-national strategy on the prevention of NCDs and/or overweight and obesity, including in children and adolescents (this can be a standalone document or embedded in a larger (sub-)national strategy) 2. Capacity building of policymakers on the causes and consequences, including economic factors, of childhood overweight and obesity and relevant actions for its prevention 3. Advocacy and dialogue with policymakers and regulatory bodies on the adoption and implementation of regulatory frameworks, and for the prevention of childhood obesity and incorporation of overweight prevention in urban planning			
Specific regulatory frameworks, such as:			
1. Policies and standards on food, nutrition and physical activity in preschools, primary and secondary schools and the sale of foods and beverages in and around schools 2. Legislation and policies on parental leave and maternity protection (including maternity leave and breastfeeding breaks for women working outside the home) 3. Implementation of the Code 4. Implementation of the <i>Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children</i> 5. Implementation of the set of recommendations on the marketing of foods and non-alcoholic beverages to children 6. Adoption of health-related food taxes, such as increased taxes on sugary and sweet beverages and 'junk food' and subsidies for healthy foods 7. Reformulation of processed foods including portion sizes 8. Adoption of labelling requirements that identify foods high in salt, sugar and fats.			
B) Interventions over the life course for the prevention of overweight in children			
Preconception and pregnancy	Early childhood (under five years)	School age (5-9 years of age)	Adolescents (10-19 years of age)
• Promote eight antenatal care (ANC) contacts • Nutrition counselling (including capacity building of staff)	• Protection, promotion & support of breastfeeding • Support for appropriate complementary feeding (healthy foods, responsive feeding) • Nutrition literacy and physical education in preschools (including policies and capacity building of staff) • Weight and length or height measurements in primary health-care facilities • Infant and young child nutrition counselling for caregivers/ families	• Creation of a healthy, non-obesogenic environment in primary schools (including policies and capacity building of staff) • Nutrition literacy and physical education in primary schools • Promote and support physical activity in communities • School food and nutrition programmes to promote healthy eating • School health programmes for screening and referral for management of obesity	• Creation of a healthy, non-obesogenic environment in secondary schools (including policies and capacity building of staff) • Nutrition literacy and physical education in secondary schools • Promote and support physical and nutrition literacy activity in communities • Promote messages through peer group approach, social networks, sports clubs, youth networks etc. • Screening and referral for management of obesity



© UNICEF/UN136079/Friedman-Rudovsky

Snapshot of national policy actions

In recent years, countries in the Latin America and the Caribbean Region have been at the forefront of action to tackle childhood obesity. Mexico and Chile have taken significant steps to rebalance food environments in favour of healthy diets. East Asian countries are also ramping up their efforts to address childhood obesity. At the same time, countries like the United Kingdom have been looking to supplement existing policies with new measures in light of slow progress and widening inequalities.

Tax on sugar-sweetened beverage (SSBs) in Mexico

Almost three quarters of Mexican adults and 1 in 3 children and adolescents are affected by overweight or obesity in Mexico, putting them at increased risk of immediate and longer-term health harm. SSBs account for an average 9.8% of total energy intake in the Mexican population, and have been identified as an important target for lowering the excess intake of free sugars that leads to weight gain.¹ To reduce the consumption of SSBs, the Mexican government implemented an excise tax of 1 peso/L on SSBs as of 2014 (an approximate 10% price increase based on prices in 2013). By increasing the price on SSBs, the average reduction of SSBs purchased was 7.5% (with a reduction of 5.5% in 2014, and

9.7% in 2015). The reductions were largest for households of lower socioeconomic status.²

Chile's food labeling and advertising law

Chile faces high prevalence of overweight and obesity among children and adults and is among the countries with the highest sales of processed food and beverages globally. To address this challenge, the Chilean Law of Food Labeling and Advertising was adopted to improve nutrition information at point of purchase via "easy to understand" front-of-package (FOP) warning labels for packaged food and beverage products with high levels of sodium, total sugars, and saturated fats and energy. Products carrying a warning label are also subject to restrictions

regarding both their marketing to children (<14 y) and their sale and promotion in schools.³ One year after the implementation, studies found that caregivers widely understood that the new regulations were instituted to combat childhood obesity, and they recognized that products with the most labels were less healthful choices. Children, particularly the youngest, have positive attitudes toward the regulation and have become promoters of change in their families.⁴ In addition, the availability of foods that exceed the warning label cutoffs for calories, sugar, sat fat or salt dropped from 90.4% to 15%.⁵

Tackling unhealthy food retail environments in the United Kingdom

The UK Government has set itself the ambition of halving childhood obesity and reducing the gap in obesity between children from the richest and poorest areas by 2030.⁶ To achieve this, the UK has announced a suite of policy actions, including introducing a sugary drinks levy and the world's first sugar reduction programme aimed at a 20% reduction in the most popular products commonly consumed by children⁷. The UK Government is consulting on new legislation to ban the placement of products high in fats, sugar and salt at checkout areas, store entrances and end of aisles. A ban on price promotions that specifically encourage overconsumption of these products is also planned, such as buy one get one free and multi-buy offers or unlimited refills⁸.

Malaysia's tax on sugary drinks

Malaysia has one of the highest burdens of overweight and obesity in Asia. In 2006, 7.7% of children and adolescents aged 5-19 were overweight; a decade later, this had risen to an alarming 26.5% among this age group.

In 2019, the new tax entered into force, covering non-alcoholic beverages containing more than 5 grams of total sugar per 100 ml and fruit and vegetable juice drinks that contain more than 12 grams of total sugar per 100 ml. Malaysia, along with Brunei, the Philippines and Thailand, is one of four countries in South-East Asia to impose a tax on sugary drinks.⁹

UNICEF Malaysia played a significant role in advocating and lobbying for this important measure together with support from UNICEF's East Asia and the Pacific Regional Office and WHO. To promote adoption of the new tax, UNICEF conducted joint advocacy with WHO and supported the Malaysia Ministry of Health to host an ASEAN meeting aimed at developing a regional framework for sugary drinks taxes. The results of UNICEF's landscape analysis on child nutrition, conducted jointly with the Ministry of Health, shone the spotlight on the double burden of malnutrition in Malaysia, with burgeoning obesity but persisting significant rates of stunting and wasting.

References

- 1 Aburto TC, Pedraza LS, Sanchez-Pimienta TG, Batis C, Rivera JA. Discretionary foods have a high contribution and fruit, vegetables, and legumes have a low contribution to the total energy intake of the Mexican population. *J Nutr* 2016; 146(9): 1881s-7s.
- 2 Colchero MA, Rivera-Dommarco J, Popkin BM, Ng SW. In Mexico, evidence of sustained consumer response two years after implementing a sugar-sweetened beverage tax. *Health Aff (Millwood)* 2017; 36(3): 564-71.
- 3 Corvalán C, Reyes M, Garmendia ML, Uauy R. Structural responses to the obesity and non-communicable diseases epidemic: update on the Chilean Law of Food Labelling and Advertising. *Obes Rev*. 2019; 20(3): 367- 374.
- 4 Correa, Teresa, et al. "Responses to the Chilean law of food labeling and advertising: exploring knowledge, perceptions and behaviors of mothers of young children." *International Journal of Behavioral Nutrition and Physical Activity* 16.1 (2019): 21.
- 5 Massri, C., Sutherland, S., Källestål, C. and Peña, S., 2019. Impact of the Food-Labeling and Advertising Law Banning Competitive Food and Beverages in Chilean Public Schools, 2014–2016. *American journal of public health*, (0), pp.e1-e6.
- 6 HM Government, Childhood obesity: a plan for action. Chapter 2, June 2018. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718903/childhood-obesity-a-plan-for-action-chapter-2.pdf>
- 7 Public Health England, Sugar Reduction: Achieving the 20%. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/604336/Sugar_reduction_achieving_the_20_.pdf
- 8 Government Response to the House of Commons Health and Social Care Select Committee report on Childhood obesity: Time for action, Eighth Report of Session 2017–19, UK Government, 2019. Available at: <<https://www.parliament.uk/documents/commons-committees/Health/Correspondence/2017-19/Childhood-obesity-Government-Response-to-eighth-report-17-19.pdf>>.
- 9 <https://www.unicef.org/malaysia/press-releases/sugary-drinks-tax-important-first-step-obesity-malaysia-demands-further-action>

Table 6.2: Overview of key interventions by service delivery system

Policies	Strengthened regulatory frameworks on a healthy school and community environment, the marketing of breast milk substitute (BMS), the marketing of unhealthy foods to children, food labelling, health-related taxes and reformulation.
Food systems	Promote adequate availability of and access to healthy foods including through public procurements.
Health system	Optimal ANC including: nutrition counselling, nutrition education, energy and protein supplementation in undernourished populations, iron and folic acid supplementation, weight monitoring, iron and folic acid supplementation, and counselling on adequate levels of physical activity Protection, promotion and support for breastfeeding during ANC and in maternity facilities Infant and young child nutrition counselling Weight and length/height measurements of children under five Screening and referral for management of overweight
Water and sanitation system	Promotion and support for increased availability of free and safe drinking water in communities, schools and health facilities, as a key component of a healthy diet.
Education system	School food and nutrition programmes including nutrition literacy in preschools, primary and secondary schools, for both children and parents, and implementation of policies for the prevention of overweight and obesity Improving the school food environments through the promotion of fruit, vegetables and water, and reducing access to sweetened beverages and large portions of high-fat snacks Physical activity; physical education Provision of safe drinking water Screening and referral for management of overweight
Social protection system	In social protection programmes, ensure the promotion and support of a healthy diet (including ‘do no harm’). Discourage subsidy of unhealthy foods; consider subsidy of healthy foods where relevant.
Communities	Promotion of and support for ANC contacts IYCF counselling Social mobilization and social and behaviour change. Communication for families and adolescents on healthy diet and physical activity through a range of channels such as social networks, peer groups and social media Promotion and support for a healthy, non –obesogenic environment
Private sector	Comply with the UN Guiding Principles on Business and Human Rights, the Children’s Rights and Business Principles and national regulations, including for all actors to prioritize the protection of children’s rights and act in best interests of children. UNICEF, government and civil society holding the private sector to account Identify appropriate opportunities to engage with private sector actors, such as ICT and finance sectors, to explore novel ways to promote healthier diets and incentivize better business behaviour so that healthier foods are more available, affordable and accessible.



Children drink water, taking a break from recreation, at Baan Bang Muang school in Thailand.
© UNICEF/UNI43002/Mohan

6.3 Lead knowledge generation and use

Country offices and HQ and regional offices will engage in knowledge generation and use on the prevention of overweight in childhood.

Since this is a new area of programming for UNICEF and the evidence base is still growing, it will be crucial to document ‘what works’ in low- and middle-income countries in a robust manner. UNICEF can emerge as a thought leader in the area of child overweight in lower and middle-income countries by prioritizing quality evidence generation and knowledge dissemination. Priorities include documenting relevant situation analyses, establishing regulatory frameworks for the prevention of overweight, and monitoring the impact of healthy practices and overweight prevention interventions for specific target groups across the life course. Partnering with academic and research institutions may be useful to generate evidence.

The Nutrition Section at HQ is working with the Data & Analytics Unit to develop indicators for the diets of school-age children and adolescents and a global assessment of these diets. Indicators for unhealthy eating will also be developed and used in the analysis of national and subnational surveys.

Data collection and surveillance systems also need to be established for documenting overweight in children over five at the national and global level.

As part of the development of country programme documents, country offices need to select relevant indicators for measuring impact, outcomes and progress of activity implementation. Where there are no monitoring systems for overweight in children and the coverage and quality of interventions to address child overweight, it would be important to establish them, and they could cover both routine systems and surveys. Ideally, indicators should be integrated into existing systems.

Table 6.3: Examples of relevant indicators for country level monitoring

Level	Examples of indicators
Impact indicators	Prevalence of overweight and obesity in children under five, 5-9 years and adolescents 10-19 years of age by country and region
	Burden of overweight and obesity in children under five, 5-9 years and adolescents 10-19 years by country and region
Outcome indicators	Existence of relevant policies, regulatory frameworks and strategies (for the type of policies, please refer to Section 6.1)
	The number of countries working to develop or approve specific policies, regulatory frameworks and strategies
	Consumption of unhealthy snacks by children aged 5 to 19 years
	Feeding practices of children between 0 and 23 months including consumption of unhealthy foods
	Caregivers’ knowledge of appropriate IYCF practices
Output indicators (depending on interventions implemented in a given country)	The number and percentage of community health workers trained in IYCF counselling
	The number and percentage of children (disaggregated by age and sex) under five who have their height and weight measured at specific intervals (as determined by the country)
	The number and percentage of children between 5 and 19 years old who have their height and weight measured at specific intervals (as determined by the country)
	The number of preschools, primary and secondary schools implementing food and nutrition literacy activities

6.4 Monitoring and reporting

Monitoring and reporting of interventions and progress is crucial. Questions on interventions for the prevention of overweight in children are incorporated in the Strategic Monitoring Questions (SMQs) and in Nutridash for internal monitoring purposes.

The SMQs, which country offices need to report on annually, include two questions on overweight prevention, namely:

- *Has your country office supported policy actions or programmes for the prevention of overweight in children and/or adolescents in the reporting year?* If the answer to this question is yes, then country offices are asked to answer the following question:
- *Which policy actions or programmes for the prevention of overweight in children and/or adolescents were implemented in the country in the reporting year?* Respondents select the relevant answers from a menu.

From 2017 onwards, the Nutrition Section's monitoring system *Nutridash* also includes questions related to interventions for the prevention of overweight in children. These are:

1. IYCF Module:

- Is UNICEF working to prevent overweight and obesity in preschool settings? [If the answer to this question is yes, then country offices are asked to select the specific area(s) of intervention and the number of preschools reached through UNICEF support, the number of children reached in those preschools and the total number of preschools in the country.]

2. Module on school-age children, adolescents and women:

- Did the UNICEF country office provide technical or financial support to implementation of interventions to improve the nutrition of school-age children/adolescents (5-19 years) in 2018?
- Does the government have a policy, strategy or plan of action to improve the nutrition of school-age children/adolescents (5-19 years)? [When the answer to this question is yes, country offices are asked to select the specific components of the programmes for school-age children.]
- Did the government provide funding to improve the nutrition of school-age children/adolescents (5-19 years) (besides salaries) in 2018?





7

Conclusion

Overweight in children and adolescents is a reality in all regions of the world. The inclusion of this topic in the measures set out in the Strategic Plan 2018-2021 provides an excellent opportunity to accelerate and scale up preventative actions. To have an impact, efforts should start before pregnancy and continue through infancy and childhood and include the creation of supportive environments and interventions throughout the life course. Key to achieving this is an implementation strategy based on strong knowledge generation and use that takes a multisectoral and systems-based approach.

Within a UNICEF-supported program, they had a chance to participate in healthy food workshops, and to learn the difference between healthy and unhealthy food. Working with relevant ministries across Bosnia and Herzegovina, UNICEF supported development of healthy nutrition strategies and guidelines for promotion of healthy lifestyles. © UNICEF/UN040452/Panjeta

Resources for further reading

Several NGOs and foundations have developed useful guiding documents for specific aspects of the prevention of overweight and obesity in children, including the American Heart Association¹⁰⁷ the Robert Wood Johnson Foundation¹⁰⁸ and the World Obesity Federation¹⁰⁹. The website of the WHO Regional Office for the Western Pacific region also has several relevant materials.¹¹⁰

The World Health Organization Global Coordination Mechanism on the Prevention and Control of Noncommunicable Diseases (GCM/NCD) hosts a Knowledge Action Portal for information and engagement of actors in this area.¹¹¹

UNICEF is a member of the UN Interagency Task Force on NCDs, which has its own web page.¹¹²

Endnotes

- 1 UNICEF. The State of the World's Children 2011; Adolescence an age of opportunity. New York: UNICEF, 2011.
- 2 Bundy, DAP, de Silva N, Horton S, Jamison DT and Patton GC, editors. Child health and development. *Disease Control Priorities* (third edition). Volume 8. Washington, D.C.: World Bank, 2017.
- 3 WHO. Obesity and overweight. 2018. Available at: <http://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight> (accessed 13 May 2019).
- 4 De Onis M, Borghi E, Arimond M *et al.* Prevalence thresholds for wasting, overweight and stunting in children under 5 years. *Public Health Nutrition*. 2019; 22(1):175-179.
- 5 Bundy, DAP, de Silva N, Horton S, Jamison DT and Patton GC, editors. Child health and development. *Disease Control Priorities* (third edition). Volume 8. Washington, D.C.: World Bank, 2017.
- 6 UNICEF. Programme guidance for early life prevention of non-communicable diseases. New York: UNICEF, 2018.
- 7 UNICEF, WHO, World Bank Group. Joint Malnutrition Estimates. New York: UNICEF, 2019.
- 8 UNICEF, WHO, World Bank Group. Joint Malnutrition Estimates. New York: UNICEF, 2019.
- 9 Popkin BM, Adair L, Ng S. Global nutrition transition and the pandemic of obesity in developing countries. *Nutr. Rev.*, 2012; 70(1): 3-21.
- 10 UNICEF, WHO, World Bank Group. Joint Malnutrition Estimates. New York: UNICEF, 2019.
- 11 WHO. The double burden of malnutrition, Policy Brief. Geneva: World Health Organization, 2017.
- 12 NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128.9 million children, adolescents, and adults. *Lancet*, 2017; 390(10113): 2627-2642.
- 13 Benedict, RK, Schmale A, Namaste S. Adolescent nutrition 2000-2017: DHS data on adolescents aged 15-19. DHS Comparativ
- 14 Akseer, N, Al Gashm S, Mehta S, Mokdad A, Bhutta ZA. Global and regional trends in the nutritional status of young people: a critical and neglected age group. *Ann. N.Y. Acad. Sci.*, 2017; 1393: 3-20.
- 15 Institute for Health Metrics and Evaluation. Global Burden of Disease Results, home page. Available at: <http://www.healthdata.org/gbd> (accessed 13 May 2019).
- 16 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 17 Mitanchez D and Chavatte-Palmer P. Review shows that maternal obesity induces serious adverse neonatal effects and is associated with childhood obesity in their offspring. *Acta Paediatrica*, 2018; 107(7): 1156-65.
- 18 Martinez A. Epigenetics within the double burden of malnutrition. Presentation to the IAEA/UNICEF/WHO Symposium on the Double Burden of Malnutrition, December 2018. Available at: <https://humanhealth.iaea.org/HHW/Nutrition/Symposium2018/presentations/7.2.Martinez.pdf> (accessed 13 May 2019).
- 19 Soubry A, Guo L, Huang Z *et al.* Obesity-related DNA methylation at imprinted genes in human sperm: results from the TIEGER study. *Clin Epigenetics*, 2016; 8: 51.
- 20 Barker DJP. Maternal nutrition, fetal nutrition, and disease in later life. *Nutrition*, 1997; 13(9): 807-813.
- 21 Martinez A. Epigenetics within the double burden of malnutrition. Presentation to the IAEA/UNICEF/WHO Symposium on the Double Burden of Malnutrition, December 2018. Available at: <https://humanhealth.iaea.org/HHW/Nutrition/Symposium2018/presentations/7.2.Martinez.pdf> (accessed 13 May 2019).

- 22 Gluckman P, Hanson MA, Beedle AS. Early life events and their consequences for later disease: A life history and evolutionary perspective. *Am. J. Hum. Biol.*, 2007; 19: 1–19.
- 23 Lelijveld N, Seal A, Wells J *et al.* Chronic disease outcomes after severe acute malnutrition in Malawian children (*ChroSAM*): a cohort study. *Lancet*, 2016; 4: 654–62.
- 24 Rito AI, Buoncristiano M, Spinelli A *et al.* Association between characteristics at birth, breastfeeding and obesity in 22 countries: The WHO European Childhood Obesity Surveillance Initiative – COSI 2015/17. *Obes Facts*, 2019; 12:226–243.
- 25 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*, 2015; 104(467): 30–7.
- 26 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*, 2015; 104(467): 30–7.
- 27 Victora CG, Bahl R, Barros AJD *et al.* Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*, 2016; 387(10017): 475–90.
- 28 Lumeng JC, Taveras EM, Birch L, Yanovski SZ. Prevention of Obesity in Infancy and Early Childhood; a National Institutes of Health workshop. *JAMA Pediatr*, 2015; 169(5): 484–490.
- 29 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 30 Park S, Pan L, Sherry B, Li R. A longitudinal analysis of sugar-sweetened beverage and 100% juice intake during infancy with sugar-sweetened beverage intake at six years old. *Pediatrics*, 2014; 134(suppl 1): S56–S62.
- 31 WHO. Guidance on the inappropriate promotion of foods for infants and young children: Implementation manual. Geneva: WHO, 2017.
- 32 Hurley KM, Cross MB, Hughes SO. A systematic review of responsive feeding and child obesity in high-income countries. *J. Nutr.*, 2011; 141: 495–501.
- 33 Lindsay AC, Sitthisongkram S, Greaney ML *et al.* Non-responsive feeding practices, unhealthy eating behaviors, and risk of child overweight and obesity in Southeast Asia: A systematic review. *Int. J. Environ. Res. Public Health*, 2017; 14(4): 436.
- 34 Bentley ME, Wasser HM, Creed-Kanashiro HM. Responsive feeding and child undernutrition in low- and middle-income countries. *J Nutr*, 2011; 141(3): 502–507.
- 35 WHO. Global school-based student health survey. Undated. Available at: <https://www.who.int/ncds/surveillance/gshs/en/> (accessed 13 May 2019).
- 36 WHO. Adolescent obesity and related behaviours: Trends and inequalities in the WHO European Region, 2002–2014. Copenhagen: WHO Regional Office for Europe, 2017.
- 37 Fitzgerald A, Heary C, Nixon E *et al.* Self-efficacy for healthy eating and peer support for unhealthy eating are associated with adolescents’ food intake patterns. *Appetite*, 2013; 63: 48–58.
- 38 Stead M, McDermott L, MacKintosh AM *et al.* Why healthy eating is bad for young people’s health: identity, belonging and food. *Soc Sci Med*, 2011; 72:1131.
- 39 Ochola, S, Masibo PK. Dietary intake of schoolchildren and adolescents in developing countries. *Ann Nutr Metab*, 2014; 64(suppl 2): 24–40.
- 40 Swinburn BA, Kraak VI, Allender S *et al.* The global syndemic of obesity, undernutrition and climate change: The Lancet Commission Report. *Lancet*, 2019; 393(10173): 791–846.
- 41 Coon KA, and Tucker KL. Television and children’s consumption patterns. A review of the literature. *Minerva Pediatrica*, 2002. 54(5): 423–436.
- 42 WHO. Marketing of foods high in fat, salt and sugar to children: update 2012–2013. Copenhagen: WHO Regional Office for Europe, 2013.
- 43 Swinburn BA, Kraak VI, Allender S *et al.* The global syndemic of obesity, undernutrition and climate change: The Lancet Commission Report. *Lancet*, 2019; 393(10173): 791–846.
- 44 Akseer, N, Al Gashm S, Mehta S, Mokdad A, Bhutta ZA. Global and regional trends in the nutritional status of young people: a critical and neglected age group. *Ann. N.Y. Acad. Sci.*, 2017; 1393(2017): 3–20.
- 45 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 46 Guthold R, Stevens GA, Riley LM and Bull FC. Worldwide trends in insufficient physical activity from 2001 to 2006: A pooled analysis of 358 population-based surveys with 1.9 million participants. *Lancet Global Health*, 2018; 6(10): 1077–86.
- 47 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 48 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 49 Martinez A. Epigenetics within the double burden of malnutrition. Presentation to the IAEA/UNICEF/WHO Symposium on the Double Burden of Malnutrition, December 2018. Available at: <https://humanhealth.iaea.org/HHW/Nutrition/Symposium2018/presentations/7.2.Martinez.pdf> (accessed 13 May 2019).
- 50 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 51 Lobstein T, Jackson-Leach R. Planning for the worst: Estimates of obesity and comorbidities in school-age children in 2025. *Pediatric Obesity*, 2016; 11: 321–325.
- 52 Li N, Yolton K, Lamphear BP *et al.* Impact of early-life weight status on cognitive abilities in children. *Obesity*, 2018; 26: 1088–95.
- 53 Miller AL, Lee HJ, Lumeng JC. Obesity-associated biomarkers and executive function in children. *Pediatric Res.*, 2015; 77(1-2): 143–7.

- 54 Pizzi MA, Vroman K. Childhood obesity: Effects on children's participation, mental health, and psychosocial development. *Occup Ther Health Care*, 2013; 27: 99–112.
- 55 Lee PY, Cheah WI, Chang CT, Siti Raudzah G. Childhood obesity, self-esteem and health-related quality of life among urban primary schools children in Kuching, Serawak, Malaysia. *Malays J Nutr*, 2012; 18(2): 207-19.
- 56 Geserick M, Vogel M, Gausche R *et al.* Acceleration of BMI in early childhood and risk of sustained obesity. *NEJM*, 2018; 379: 1303-1312.
- 57 Ward, ZJ, Long MW, Resch SC *et al.* Simulation of growth trajectories of childhood obesity into adulthood. *NEJM*, 2017; 377: 2145-53.
- 58 WHO. Obesity and overweight. Available at: <https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight> (accessed 13 May 2019).
- 59 WHO. Obesity and overweight. Available at: <https://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight> (accessed 13 May 2019).
- 60 Niessen LW, Mohan D, Akuoku JK *et al.* Tackling socioeconomic inequalities and non-communicable diseases in low- income and middle-income countries under the Sustainable Development Agenda. *Lancet*, 2018; 391(10134): 2036-46.
- 61 IFPRI. 2016 Global Nutrition Report. Washington, D.C.: IFPRI, 2016.
- 62 McKinsey Global Institute. Overcoming obesity: An initial economic analysis. London, San Francisco, Shanghai: McKinsey Global Institute, 2014.
- 63 Finkelstein EA, Graham WC, Malhotra R. Lifetime direct medical costs of childhood obesity. *Pediatrics*, 2014; 133: 854–62.
- 64 Muller-Riemenschneider F, Reinhold T, Berghofer A, Willich SN. Health-economic burden of obesity in Europe. *Eur J Epidemiol*, 2008; 23: 499–509.
- 65 Lobstein T, Jackson-Leach R, Moodie ML *et al.* Child and adolescent obesity: Part of a bigger picture. *Lancet*, 2015; 385: 2510-20.
- 66 WHO. Comprehensive implementation plan on maternal, infant and young child nutrition. Geneva: WHO, 2012.
- 67 Development Initiatives. Global nutrition report 2017: Nourishing the SDGs. Development Initiatives: Bristol, UK, 2017.
- 68 WHO. Report of the commission on ending childhood obesity. Geneva: WHO, 2016.
- 69 WHO. Ending childhood obesity implementation plan: Executive summary. Geneva: WHO, 2017.
- 70 WHO. Double-duty actions for nutrition: Policy brief. Geneva:WHO, 2017.
- 71 WHO. International Code of Marketing of Breast-Milk Substitutes. Geneva: WHO, 1981.
- 72 WHO, UNICEF. Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services – the revised Baby-friendly Hospital Initiative. Geneva: WHO, 2018.
- 73 ILO. Convention No. 183 Convention concerning the revision of the maternity protection convention (revised) 1952. Geneva: ILO, 2000.
- 74 WHO. Guideline: assessing and managing children at primary health-care facilities to prevent overweight and obesity in the context of the double burden of malnutrition. Updates for the Integrated Management of Childhood Illness (IMCI). Geneva: WHO, 2017.
- 75 WHO. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: WHO, 2010.
- 76 WHO. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: WHO, 2010.
- 77 WHO. 'Best buys' and other recommended interventions for the prevention and control of noncommunicable diseases. Geneva: WHO, 2017.
- 78 WHO. Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition. Geneva: WHO, 2018.
- 79 WHO Regional Office for Europe. Better food and nutrition in Europe: a progress report monitoring policy implementation in the WHO European Region. Copenhagen: WHO, 2018.
- 80 WHO, UNICEF, IBFAN. Marketing of breastmilk substitutes: national implementation of the international code, status report 2018. Geneva: WHO, 2018.
- 81 UNICEF. Implementing Taxes on Sugar-Sweetened Beverages: An overview of current approaches and the potential benefits for children. New York: UNICEF, 2019.
- 82 UNICEF EAPRO. Holistic early child development toolkit guidance and recommendations for the integration of health, nutrition, WASH and early learning services. Bangkok, Thailand: UNICEF EAPRO, 2015.
- 83 UNICEF EAPRO. Improving Nutrition in Adolescent and School-Age Children. Bangkok, Thailand: UNICEF EAPRO, 2015.
- 84 UNICEF LACRO. Estudio exploratorio sobre la promoción y publicidad de alimentos y bebidas no saludables dirigida a niños en América Latina y el Caribe. Panama City: UNICEF LACRO: 2015.
- 85 UNICEF. A child rights-based approach to food marketing: A guide for policymakers. New York: UNICEF, 2018.
- 86 UNICEF LACRO. Review of current labelling regulations and practices for food and beverage targeting children and adolescents in Latin America countries (Mexico, Chile, Costa Rica and Argentina) and recommendations for facilitating consumer information. Panama City: UNICEF LACRO, 2016.
- 87 UNICEF. Implementing Taxes on Sugar-Sweetened Beverages: An overview of current approaches and the potential benefits for children. New York: UNICEF, 2019.
- 88 UNICEF. Designing a UNICEF strategy for child overweight and obesity. Workshop report. 2016.
- 89 UNICEF. UNICEF Strategic Plan, 2018-2021. New York: UNICEF, 2017.

- 90 UNICEF. PPP Manual. Editor's note: I suspect this document is behind a staff security wall. I have deleted the link because attempts to access it make this Word document very unstable. I strongly recommend that any new attempts to link to the document are tested in a separate document.
- 91 Hanson M and Gluckman P. Developmental origins of noncommunicable disease: population and public health implications. *Am J Cl Nut*, 2011; 94(suppl): 1754S-8S.
- 92 Brumana L, Arroyo A, Schwalbe N, Lehtimäki S, Hipgrave D. Maternal and child health services and an integrated, life-cycle approach to the prevention of noncommunicable diseases. *BMJ Global Health*, 2017; 2: 295.
- 93 Shekar, Meera, *et al.* An investment framework for nutrition: reaching the global targets for stunting, anemia, breastfeeding, and wasting. Washington, D.C.: The World Bank, 2017.
- 94 UNICEF. Engagement with business. Programme guidance for country offices. (https://unicef.sharepoint.com/sites/portals/RF/Regulatory%20Framework%20Library/UNICEF%20Guidance%20on%20Engagement%20with%20Business_Programme%20Guidance%20for%20Country%20Offices.pdf?csf=1&cid=019c3e67-48e5-482c-b6ee-ef1396ba901b)
- 95 UNICEF. Due diligence criteria and processes for corporate fundraising and partnerships (for external use) <https://unicef.sharepoint.com/sites/icon-pfp/partnerships-and-advocacy/due-diligence/Documents/Appendix%201%20-%20revised%20due%20diligence%20process%20FINAL.pdf>
- 96 WHO. Guidance on the inappropriate promotion of foods for infants and young children: Implementation manual. Geneva: WHO, 2017.
- 97 WHO. Set of recommendations on the marketing of foods and non-alcoholic beverages to children. Geneva: WHO, 2010.
- 98 WHO. Taxes on sugary drinks: Why do it? Geneva: WHO, 2016.
- 99 Colchero MA, Popkin BM, Rivera JA, Ng SW. Beverage taxes from stores in Mexico under the excise tax on sugar sweetened beverages: observational study. *BMJ*, 2016; 352(6704): 1-12.
- 100 Nugent R, Bertram MY, Jan S *et al.* Investing in non-communicable disease prevention and management to advance the Sustainable Development Goals. *Lancet*, 2018; 391(10134): 2029-35.
- 101 Roache SA and Gostin LO. The untapped power of soda taxes: Incentivizing consumers, generating revenue, and altering corporate behavior. *IJHPM*, 2017; 6(9): 489-493.
- 102 WHO. Fiscal policies for diet and prevention of noncommunicable diseases: technical meeting report, 5-6 May 2015. Geneva: WHO, 2016.
- 103 WHO. Guiding principles and framework manual for front-of-pack labelling for promoting healthy diet. Available at: <https://www.who.int/nutrition/publications/policies/guidingprinciples-labelling-promoting-healthydiet.pdf?ua=1>
- 104 Kelly, B.; Jewell, J. What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European Region? In Health Evidence Network (HEN) Synthesis Report 61; WHO Regional Office for Europe: Copenhagen, Denmark, 2018.
- 105 UNICEF. Shaping urbanization for children: A handbook on child-responsive urban planning (2018). Available at: https://www.unicef.org/publications/index_103349.html
- 106 WHO. WHO Recommendations on antenatal care for a positive pregnancy experience. Geneva: WHO, 2016.
- 107 American Heart Association. Available at: <https://news.heart.org/aha-guidelines-resource-center/> (accessed 13 May 2019).
- 108 Robert Wood Johnson Foundation. Leadership for better health; home page. Available at: <https://www.rwjf.org/> (accessed 13 May 2019).
- 109 <https://www.worldobesity.org> (accessed 13 May 2019).
- 110 http://www.wpro.who.int/nutrition_wpr/topics/childhood_obesity/en/ (accessed 13 May 2019).
- 111 <https://www.knowledge-action-portal.com/> (accessed 13 May 2019).
- 112 <https://www.who.int/ncds/un-task-force/en/> (accessed 13 May 2019).

© United Nations Children's Fund (UNICEF)

August 2019

Permission is required to reproduce any part of this publication. Permissions will be freely granted to educational or non-profit organizations.

Published by:

UNICEF

Nutrition Section, Programme Division

3 United Nations Plaza

New York, NY 10017, USA

For the latest data, please visit:

<<https://data.unicef.org/topic/nutrition/malnutrition/>>