# UNICEF PROGRAMMING GUIDANCE

# Nutrition in Middle Childhood and Adolescence

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**NUTRITION GUIDANCE SERIES** 

for every child

# Acknowledgements

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# Abbreviations

AA-HA!	Global Accelerated Action for the Health of Adolescents		
вмі	Body Mass Index		
ccc	Core Commitments for Children in Humanitarian Action		
COSI	Childhood Obesity Surveillance Initiative		
DALYs	Disability-adjusted life years		
DHS	Demographic and Health Survey		
FRESH Focusing Resources on Effective School Health			
GSHS	Global School-Based Health Survey		
HBSC	Health Behaviour in School-Aged Children survey		
IFA	Iron and folic acid		
IOTF	International Obesity Task Force		
NMS	National Micronutrient Survey		
RDI	Recommended daily intake		
SBCC	Social and behaviour change communication		
STH	Soil-transmitted helminths		
WASH	Water, sanitation and hygiene		
WIFS	Weekly iron and folic acid supplementation		

# **Key definitions**

Anaemia	A pathological condition characterized by low levels of haemoglobin or poor oxygen carrying capacity of the red blood cells. Anaemia is an indicator of poor nutrition, health and wellbeing. <sup>1</sup>		
Adolescence	transitional phase of growth and development between childhood and thood. Adolescents are defined as those between the ages of 10 and 19 s. The age ranges of 10–14 years and 15–19 years are referred to as early escence and late adolescence, respectively. <sup>2</sup>		
Agency	The personal capability to act and make free choices to pursue a specific goal. It influenced by an adolescent's belief in his or her own effectiveness in performing specific tasks (known as self-efficacy), and by his or her actual skills. <sup>3</sup>		
Body Mass Index	A measure for indicating nutritional status and an accepted measure of adiposity. It is calculated as weight in kg/height in metres.2 BMI is gender-and age-specific. BMI-for-age is based on the WHO child and adolescent growth standards. <sup>4</sup> , <sup>5</sup>		
Child	Every person below the age of 18 years. <sup>6</sup>		
Disability-adjusted life years	The sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability. It is the only quantitative indicator of burden of disease. <sup>7</sup>		
Double-duty interventions	Programmes and policies that have the potential to simultaneously reduce the risk or burden of both undernutrition (including wasting, stunting and micronutrient deficiency or insufficiency) and overweight, obesity or diet-related non- communicable diseases (including type 2 diabetes, cardiovascular disease and some cancers). <sup>8</sup>		
Humanitarian crises	S Any circumstance where humanitarian needs are sufficiently large and complex enough to require significant external assistance and resources, and where a multisectoral response is needed, with the engagement of a wide range of international humanitarian actors. This may include smaller-scale emergencies; in countries with limited capacities, the threshold will be lower than in countries wit strong capacities. An emergency is a situation that threatens the lives and well-being of large numbers of people and requires extraordinary action to ensure thei survival, care and protection. <sup>9</sup>		
Middle childhood	The age range of 5–9 years. <sup>10</sup> , <sup>11</sup>		
Multi-component approach	An approach that involves more than one intervention to achieve desired goals. In reference to this Guidance, such interventions include nutrition education, physical education, improvements in school food environments, school-wide promotion of healthy eating and active lifestyles, capacity strengthening of teachers and school staff, and parental engagement to address healthy diets and active living. <sup>12</sup>		
Obesity	WHO defines obesity in middle childhood and adolescence as BMI-for-age above +2 standard deviations (SD) of the WHO growth reference median for children of the same age and sex. <sup>13</sup>		

Overweight	WHO defines overweight in middle childhood and adolescence as a BMI-for-age above +1 SD of the WHO growth reference median for children of the same age and sex. <sup>14</sup>
Processed foods	Foods that have been commercially prepared or packaged using baking, canning, drying or freezing. Not all processed foods are unhealthy, but some highly- processed or ultra-processed foods (e.g., ready-to-eat meals and snack foods) contain high levels of salt, sugar and unhealthy fat, which have been shown to increase the risk of overweight, obesity and chronic diseases. <sup>15</sup>
School-age	For the purpose of this publication, school-age children are those between 5–14 years of age. <sup>16</sup> However, definitions vary across settings.
Sedentary behaviours	Sedentary behaviour is assessed by number of hours or minutes spent daily watching television, playing video games, using computers and telephones. <sup>17</sup>
Self-efficacy	A person's own perception of what he or she is capable of doing given certain circumstances. Self-efficacy is determined by past experience, observed attempts by others, verbal persuasion, and physiological and emotional states. <sup>18</sup>
Thinness	WHO defines thinness in middle childhood and adolescence as a BMI-for age below -2 SD of the WHO growth reference median for children of the same age and sex. <sup>19</sup>
Ultra-processed foods	Formulations containing little or no whole food that are also extremely palatable, highly energy-dense and low in essential nutrients. It comprises of snacks, drinks, ready meals and other food products formulated mostly or entirely from substances extracted from foods or derived from food constituents. <sup>20</sup>
Young people	Persons between the ages of 15–24 years. <sup>21</sup>

# **Executive summary**

During middle childhood and adolescence, nutritious and safe diets, essential nutrition services and positive nutrition practices help children grow, learn and stay physically active. In contrast, poor nutrition can delay children's physical growth and development throughout childhood and adolescence. Malnutrition during middle childhood and adolescence has long-term physical, social, mental and economic consequences. Children who are stunted often enrol late in school and therefore benefit from fewer years of schooling and earn less as adults.<sup>22,23</sup> Chronic infectious diseases caused by intestinal worms and malaria can affect children's attendance at school or their ability to learn, while hunger - the most visceral effect of undernutrition - can impair children's attention and ability to concentrate on their lessons and schoolwork. Similarly, children with overweight are at risk of developing non-communicable diseases, (NCDs) such as diabetes. As adults, they may develop cardiovascular disease, which can be lethal and have long-term economic costs.24

This Guidance on Nutrition in Middle Childhood and Adolescence articulates UNICEF's programme priorities for children during this period, in line with the UNICEF Nutrition Strategy 2020–2030. These programming priorities are: (1) nutritious foods, in schools and beyond; (2) healthy food environments, in schools and beyond; (3) micronutrient supplementation and deworming; (4) nutrition education in school curricula; and (5) healthy dietary practices for school-age children and adolescents. This guidance provides technical and operational guidance for the design, implementation, monitoring and evaluation of these priorities. It recognizes the central role of the education system for reaching children with essential nutrition interventions; the role of the food system in creating healthy food environments, including in and around schools; and the roles of the health, water and sanitation, and social protection systems in ensuring access to diets, services and practices that support adequate nutrition, growth and development among children and adolescents everywhere.

# Introduction

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1.



# Middle childhood and adolescence are crucial developmental stages during the life course.

The period between 5 and 9 years of age is a time of continued growth and development.<sup>25</sup> Physical, social and mental skills develop at a steady pace during middle childhood and children become much more capable of making decisions, maintaining sustained attention and making and following plans.<sup>26</sup>

Adolescence, between the ages of 10 and 19 years, offers a second window of opportunity for growth and development.<sup>27</sup> In early adolescence (10–14 years), puberty commences, growth spurts occur, and the brain's reward system begins to remodel. This remodelling affects emotional reactivity, cognitive control, and self-regulation (known together as executive function), which influence how adolescents make decisions, including their choices on what and when to eat.<sup>28,29,30,31</sup> Puberty, physical and emotional growth continue in late adolescence (15–19 years) and the capacity for analytical and reflective thought is greatly enhanced.<sup>32</sup>

Adolescence is often referred to as a time of evolving capacities, when children develop the ability to understand the consequences of different courses of action, enhance their competencies and agency, learn how to make informed decisions, and form values and an identity.<sup>33</sup> It is through these abilities and subsequent informed actions that children can build on and accumulate nutrition and health capital.<sup>34</sup>

## Overview of the nutritional status of children during middle childhood and adolescence

During middle childhood and adolescence, children experience steady linear growth with lower nutrient needs in relation to body size than during early childhood. Adolescents experience rapid increase in physical growth and development during puberty, requiring high amounts of energy, protein, and micronutrients.<sup>35</sup> Children aged 5–19 years may experience catch-up linear growth if they consume improved diets after previous nutritional deprivations.<sup>36</sup> Children increasingly consume meals outside the home during middle childhood and adolescence, such as in schools or through street vendors,<sup>37</sup> and develop increasing autonomy in their food habits with strong peer influence.<sup>38</sup> Lifelong dietary and lifestyle habits are established during this time, presenting unique opportunities and challenges to ensuring that children are wellnourished (*Spotlight 1*).<sup>39</sup> Moreover, in the context of humanitarian crises and fragile settings, malnutrition in the form of wasting, underweight or micronutrient deficiencies are key concerns.

There is growing evidence that children aged 5–19 years are affected by multiple forms of malnutrition.<sup>40,41,42</sup> Diets that are limited in animal-source food place children and adolescents at risk of poor growth and micronutrient deficiencies.<sup>43</sup> Monotonous plant-based diets comprised of cereals, roots and tubers remain common among children and adolescents in low-income settings, especially those in rural areas.<sup>44</sup> Yet, nutrient intakes below recommended levels are also a problem in high-income settings.<sup>45</sup>

Data from Demographic and Health Surveys (DHS) indicate that the rate of anaemia among adolescent

girls aged 15–19 years ranges from 16 per cent in the Middle East and North Africa, to 54 per cent in South Asia.<sup>46</sup> Indeed, iron deficiency anaemia is the leading cause of lost disability-adjusted life years (DALYs) for adolescent girls aged 10–19 years and adolescent boys aged 10–14.<sup>47,48</sup>

At the same time, the increased availability and affordability of energy-dense, nutrient-poor processed foods; edible oils and sugar-sweetened beverages; away-from-home food intake; and reductions in physical activity<sup>49</sup> have spurred a global rise in overweight, obesity and dietrelated NCDs among children aged 5–19 years, with consequences for their current and future health, education and productivity.<sup>50</sup> According to estimates from select low- and middle-income countries, the consumption of ultra-processed foods comprises between 18–35 per cent of overall food consumption, with children being the largest consumers.<sup>51,52</sup>

In 2016, 131 million children aged 5–9 years (or 20.6 per cent) and 207 million adolescents 10–19 years (or 17.3 per cent) globally were affected by overweight. Of all children 5–19 years with overweight, 125 million are affected by obesity,



Of all children 5–19 years with overweight in 2016, **125 million** are obese, up from **11 million** in 1975.

8.4% (75 million)

12.4% (117 million)

Girls, 5-19 years

Boys, 5-19 years

an increase from 11 million in 1975. In turn, 8.4 per cent of girls (75 million) and 12.4 per cent of boys (117 million) aged 5–19 years suffered from thinness in 2016.<sup>53</sup> In many settings, different forms of malnutrition overlap in the same community, household and child; therefore, a paradigm shift is needed in developing, targeting and implementing programmes and policies to address all forms of malnutrition.<sup>54</sup>

#### Existing frameworks and guidance

The overarching framework for this Guidance is aligned with the UNICEF Nutrition Strategy 2020–2030, which is guided by the Convention on the Rights of the Child and the 2030 Agenda for Sustainable Development.<sup>55</sup> It is rooted in a vision to contribute to the Sustainable Development Goals (SDGs) and World Health Assembly global nutrition targets. The Guidance complements various global approaches to support health, nutrition and wellbeing in middle childhood and adolescence.

This Guidance should be read alongside key UNICEF sectoral guidance documents and frameworks, including the UNICEF Nutrition Strategy 2020–2030, the Innocenti Framework on Food Systems for Children and Adolescents,<sup>56</sup> and the UNICEF Guidance on the Prevention of Overweight in Children and Adolescents.<sup>57</sup> The Guidance aligns with UNICEF's Programme Guidance for the Second Decade: Programming with and for Adolescents,<sup>58</sup> and resonates with intersectoral strategies and frameworks, including the UNICEF Global Education Strategy, 2019–2030.<sup>59</sup>



# Spotlight 1 Ecological framework mapping levels of influence on dietary choices and eating behaviours

**Dietary choices and lifestyle behaviours are influenced by a range of factors at different levels – intrapersonal, interpersonal, organizational, environmental and policy level.**<sup>60</sup> The socioecological framework provides the conceptual base for explaining the interdependence of personal and environmental factors on behaviours.<sup>61</sup> The framework also emphasizes that interventions should be behaviour-specific, with multi-level interventions being the most effective in facilitating behaviour change;<sup>62</sup> therefore, all levels of influence should be considered when designing interventions. At the same time, the decision to prioritize, target or intervene at a given level is a function of the resources available for the programme.<sup>63, 64</sup>



**A KIN Individual/intrapersonal factors** influencing food choices consist of personal characteristics intrinsic to the individual.<sup>65</sup> These factors include personal preferences around food, healthy eating, perceived benefits around healthy eating, dietary choices made during the day, willingness to learn about healthy eating, skills, time spent with friends after school, taste preferences, meal frequency, and screen time. Among children and adolescents, greater self-efficacy (the perceived confidence in one's ability to engage in positive behaviours) is associated with making healthy food choices.<sup>66,67</sup> As children grow, they also start to develop some degree of autonomy over the foods they eat.<sup>68,69</sup>Adolescents have a higher degree of autonomy compared with school-age children; they may have substantial control over breakfast, lunch and snack choices.<sup>70</sup> Most times, intrapersonal choices are shaped by interpersonal interactions and broader socio-cultural influences.

**Interpersonal factors** include socio-cultural norms and the community social network and social support systems that surround children, including parents, family, peers and religious networks.<sup>71</sup> Dietary choices may be governed by the family's food choices, parenting style and dietary preferences. In later childhood and adolescence, peer relationships can guide decision-making and food consumption choices.<sup>72</sup> Also, the frequency of family meals and interactions during meals are linked to an increased intake of fruits and vegetables, calcium-rich foods, protein, fibre and essential micronutrients among children and adolescents.<sup>73</sup>

# Organizational and environmental factors

include physical surroundings and the institutional and structural environments that directly influence dietary choices and behaviours.<sup>74</sup> Factors related to the availability, accessibility and affordability of food in the home, school and local neighbourhood also influence dietary intake in children and adolescents.75 School food environments influence dietary intake among children and adolescents because most children spend a substantial part of their day in school, and at least one third of their daily energy requirement is fulfilled during school hours. Actions around healthy school food environments include components such as having a written guideline on healthy diets and healthy eating, serving nutritious food in the school, promoting healthy eating through campaigns, providing nutrition education, issuing school lunch guidelines, and providing lunch breaks. The school environment also includes the linkages schools have with parents to promote messages around healthy

eating and related choices. At the same time, among adolescents, the influence of the home environment decreases as their exposure to peer pressure and media advertising increases.<sup>76,77</sup>

In most countries, school meals are provided through the education system; however, the foods and beverages distributed by these programmes - through canteens, tuck shops, food vendors, cafeterias, vending machines and fundraisers - are not regulated.<sup>78</sup> Indeed, ultra-processed foods and sugarsweetened beverages are now ubiquitous through many of these venues in and around schools, which promotes the consumption of unhealthy foods and fuels the overweight and obesity epidemic.<sup>79</sup> Further, the retail food environment - i.e., food sold through the supermarket, grocery stores and convenience stores – also influences food choices.<sup>80</sup> Similarly, limited access to playgrounds, transportation, sports and safe playing spaces also constraints opportunities for physical activity.

**Macro-level factors** include policies and legislation that regulate food availability, accessibility, affordability, and promotional messaging.<sup>81</sup> Macrolevel factors form the outermost layer of influence: they include the policies and legislation that safeguard the health and nutrition rights of children and adolescents and are developed at the national, subnational and local level.<sup>82</sup> It is important that policies and legislation aid in improving the adoption and implementation of evidence-based best practices to reduce the risk of unhealthy eating and promote healthy food choices and behaviours. Policies on agriculture to improve farm produce, farming and production, purchasing, distribution and marketing of food have an important influence on food availability and accessibility.<sup>83</sup>

The eating behaviours of children and adolescents are easily influenced by marketing and advertising on media platforms and channels, as well through instore displays, food industry sponsorship in schools, and celebrity endorsement. The need to strengthen regulations and legislations around these forms of marketing through tax instruments and front-of-pack labelling therefore becomes imperative.<sup>84</sup> Efforts to enact such policies often meet resistance, as transnational conglomerates aim to manipulate public opinion and thwart the implementation of policy instruments around taxation, restrictions on marketing and promotion, and nutrition labelling.<sup>85</sup>



# 2.

Strategic Framework

Preventing of all forms of malnutrition in middle childhood and adolescence

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UNICEF's vision is "a world where all children and adolescents realize their right to nutrition." The goal of UNICEF's programming in this age group is "to protect and promote diets, services and practices that support optimal nutrition, growth and development in middle childhood and adolescence". The Strategic Framework (*Figure 1*) illustrates the vision and the various components that lead to the realization of the goals specified under the result area on middle childhood and adolescence.

**Figure 1** presents the UNICEF's strategic framework for the prevention of all forms of malnutrition in middle childhood and adolescence, including undernutrition, micronutrient deficiencies and overweight.

For most children, schools provide a formal structure through which essential nutrition interventions can be delivered, while out-of-school children can be reached through community-based approaches, outreach and networks (Spotlight 2)



Strategic Framework for Middle Childhood and Adolescence

**Figure 1.** Strategic framework for UNICEF programming for the prevention of all forms of malnutrition in middle childhood and adolescence



# Spotlight 2 Strategies and approaches to reach out-of-school children and adolescents

Community platforms can be used to deliver interventions to out-of-school children and adolescents. It is important to engage communities and the parents of both school-going and out-ofschool children on the importance of good nutrition and physical activity because food patterns and habits during childhood and adolescence form the foundation of future dietary preferences and eating behaviours.<sup>86</sup> Children are influenced by the behaviours, norms, and values of the adults and peers in their communities.<sup>87</sup> Therefore, parental and community involvement is crucial to create a supportive environment and to ensure that services are accepted by the community.

School buildings might be used during out-of-school hours or holidays as a place for non-enrolled children to receive nutrition and health services from health service providers. Alternatively, health facilities, government buildings or community buildings could be used. Care should be taken not ensure the venue does not dissuade certain populations – e.g., members of one religion may not be willing to let their child go to another religious venue to receive nutrition services. All sites being used to deliver services should be child-friendly, neutral and nonjudgemental, otherwise parents may prevent children from attending. Incentives for non-enrolled children to attend may be offered, such as healthy snacks, music, sports events and games. Organized and regular contacts between non-enrolled children and health staff can be used to provide the same services available to school-going children, including education about nutrition and health.<sup>88, 89</sup>

Community-based platforms such as youth clubs/ organizations, sports and religious institutions provide formal and informal opportunities for adolescents to engage, participate and learn, while also delivering mobile nutrition and health services or communitybased sexual and reproductive health education.<sup>90, 91,</sup> <sup>92</sup> For out-of-school adolescents, community basedinteractions may be their only opportunity to receive the information, services and support they need. Interventions delivered through informal community spaces with peer groups and mentoring components are often preferred by this age group.93, 94 Information about these opportunities can be disseminated via announcements at markets and other public venues. Such events need to be publicized to make them an attractive for out-of-school children to attend.

# **3.** Programmatic priorities

To achieve its programme goal, UNICEF will focus on five programming priorities to prevent malnutrition in middle childhood and adolescence, for both school-going and out-of-school children. These programmatic priorities – *articulated around doubleduty actions to prevent malnutrition in all its forms among children 5–19 years of age* – will be delivered through a systems approach focusing primarily on food, education, health, social protection, and water and sanitation systems, according to the local context. These programming priorities have been synthesized from evidence-based interventions for preventing all forms of malnutrition among schoolage children and adolescents and incorporate a multi-component approach.<sup>95, 96, 97</sup>

# Programmatic priority 1: Nutritious foods, in schools and beyond

Meals provided to children in schools, through school lunches, breakfast programmes, school milk or fruit programmes, have shown positive improvements on nutritional status, school enrolment and attendance.<sup>98,99</sup> The provision of school meals is one of the largest and oldest social safety net programmes, providing educational and health benefits to children, especially the most vulnerable. School meals are an important part of daily food consumption for many children and can also account for a significant proportion of diversity in their diets.<sup>100</sup> School meals provide an opportunity to promote food sustainability, including by improving consumption behaviours, reducing food waste and supporting locally sourced food products. This approach helps connect the school to the local community, farms and agriculture producers for the procurement and sourcing of foods. Although school meal programmes respond to different contexts, a greater focus on food quality, adequacy and nutritional composition is required in many countries,<sup>101</sup> including to avoid contributing to overweight and obesity.<sup>102</sup>

School meals should be based on national dietary guidelines for specific age groups and adhere to nutrition standards.<sup>103</sup> Further, they should not contain ultra-processed foods and beverages *(Spotlight 3).*<sup>104</sup> The provision of school meals should be timed so that children do not go for more than 3–4 hours without eating.

The addition of micronutrient powders (MNP) to cooked food before serving can help fill nutrient gaps when school meals have limited micronutrient content. This practice, known as 'point-of-use fortification' of foods with iron-containing MNP is recommended to improve iron status and reduce anaemia in populations where prevalence is high among children aged 5–12 years (*Table 1*).<sup>105</sup> One strategy for administering MNP to this age group is through school lunches.<sup>106, 107</sup>

# Spotlight 3 WHO recommendations for a healthy diet

WHO defines a healthy diet as comprising fruit and vegetables, whole grains, roots, beans, nuts and animal products, with limits on free sugars, sugary snacks and beverages, processed meats, saturated and industrially produced trans-fats and salt.<sup>108</sup> Recommendations for the general population, including children aged 5–19 years, are to consume at least 400g (i.e., five portions) of fruit and vegetables per day (excluding potatoes, sweet potatoes, cassava and other starchy roots) and reduce consumption of free sugars to 10 per cent or less of total intake (recognizing that a reduction to less than 5 per cent provides additional health benefits). Further, intake of saturated fats should comprise less than 10 per cent of total energy intake, and trans-fats less than 1 per cent of total energy intake. A shift towards unsaturated fats is recommended, with the goal of eliminating industrially produced trans-fats. Salt intake for children should be adjusted downward from the recommended 5g intake for adults, based on their energy requirements relative to adults.<sup>109</sup> **Table 1.** Suggested scheme for improving the quality of diets for children aged 5–12 years through pointof-use fortification with multiple micronutrient powders<sup>110</sup>

Age group	Children 5–12 years of age		
Settings	Area where the prevalence of anaemia in children under 5 years of age is 20 per cent or higher		
Regimen	Programme target of 90 sachets/doses over a 6-month period		
Supplement form and composition	<ul> <li>Composition per sachet:</li> <li>Iron: 12.5–30 mg elemental iron</li> <li>Vitamin A: 300 µg retinol</li> <li>Zinc: 5 mg elemental zinc with or without other micronutrients to achieve 100 per cent of the recommended nutrient intake</li> </ul>		
Special considerations	<ul> <li>In malaria-endemic zones, iron (including in MNP) should be provided in conjunction with measures to prevent, diagnose and treat malaria</li> <li>In settings where iron supplementation is being provided to children, MNP with iron should be avoided</li> </ul>		

In addition to school-based interventions, large-scale food fortification is an efficient and inexpensive strategy for addressing micronutrient malnutrition, which has been shown to substantially increase the nutrient quality of children's diets, including iron, folate, vitamin A and iodine.<sup>111</sup> Population-based strategies to fortify commonly consumed foods, such as cereals, cooking oil, milk and salt, have been effective in improving dietary micronutrient adequacy.<sup>112</sup> Key drivers of programme success of large-scale food fortification in low- and middleincome countries include mandatory legislation, evidence-based fortification standards, adequate regulatory monitoring, and industry consolidation.<sup>113</sup>

## **UNICEF ACTION**

UNICEF advocates for and supports policies, strategies and programmes that improve dietary quality in middle childhood and adolescence. This includes supporting the design and implementation of guidance for nutritious and safe school meals; advocating for the use of fortified foods in schools in settings where micronutrient deficiencies are common; and strengthening salt iodization programmes and the fortification of wheat flour, rice, cooking oil and other context-relevant forms of largescale food fortification.

## Programmatic priority 2: Healthy food environments, in schools and beyond

Food environments refer to the physical space or entry points where food is purchased or obtained, and the infrastructure that supports access to these entry points. They also include the personal determinants of consumer food choices, and the socio-political milieu and cultural norms that influence these interactions.<sup>114</sup> Food environments are shaped by the information available about food and food products, their pricing and their promotion (including marketing, advertisements, branding, food labels, packages and promotions).<sup>115</sup>

Interventions to improve food environments include the adoption of policies and standards that influence the availability, accessibility and affordability of food for children in schools and in the surrounding area, which in turn affects healthy food consumption.<sup>116,117</sup> Policies should mandate that the food available in schools includes fruits, vegetables, whole grains and non-fat dairy products to help children and adolescents develop healthy consumption habits. Under the Convention on the Rights of the Child, States Parties are mandated to protect children's right to health, which includes reducing their exposure to unhealthy foods and beverages through marketing, advertising, sponsorships and other promotional strategies that aim to entice and attract them.118

School food environment policies and safety standards can be effective in improving targeted behaviours, such as reducing the intake of commercially sold food and beverages and unhealthy snacks.<sup>119</sup> In addition to the food environment within the school walls, children and adolescents are also exposed to the food environment in their surroundings while they travel to and from school. Fast food outlets, corner stores and vendors near schools increase the likelihood of students purchasing food from outside, especially high fat foods.<sup>120,121,122,123</sup>

Policies, regulations and standards are needed to regulate the commercial marketing of foods to children.<sup>124,125</sup> These regulations should prevent food companies from sponsoring schools, including school sports activities, canteens and nutrition education materials. School sponsorships create a conflict of interest; for example, marketing materials may be disguised as promoting nutrition education and physical activity while instead encouraging the consumption of unhealthy foods. To foster an enabling environment for good nutrition, policies should aim to promote the consumption of fruit, vegetables, pure milk and clean water by children in schools; prevent the sale of sweetened or carbonated drinks, flavoured milk, salty snacks and fatty foods in school canteen shops or vending machines; restrict what foods and drinks can be sold by vendors near to schools; and provide guidelines on the foods that parents give to their children to bring to schools as snacks or in a packed lunch.<sup>126,127</sup>

## **UNICEF ACTION**

UNICEF advocates for policies, standards and services that improve the availability of nutritious, safe, affordable and sustainable foods; and free, safe and palatable drinking water, in schools and beyond (*Spotlight 4*). This includes supporting the development and enforcement of policies that protect children from the marketing of unhealthy foods and beverages and advocating for food labelling and regulatory incentives/disincentives that support good diets in school-age children and adolescents.



# Spotlight 4 Key considerations for assessing school food environments

In partnership with the Africa Academy for Public Health and the Harvard School of Public Health, UNICEF supported a formative study to assess the impact of school environment on the nutrition and health of school-age children in Ethiopia, the Sudan and the United Republic of Tanzania. Information was collected at the school level through a school environment survey, coupled with an observation tool and food vendor survey.

The study's primary objective was to assess the policies, services, and curriculum that are available to students at the school. Tools were developed to understand the food environment, including factors such as food diversity, availability, access (e.g., markets and vendors), promotion, desirability, affordability and safety, as well as opportunities for physical activity and the availability of water and sanitation services. As part of the school environment assessment, school administrators

and teachers were consulted and questions were posed around school-based policies and programmes and their contribution to children's growth and development. A food vendor survey was conducted with all formal and informal food vendors in and around the school periphery. For each participating school, direct observations were also conducted to observe the physical environment and the food environment. The physical environment assessment considered the school infrastructure, water and sanitation facilities, and the physical activity environment. The food environment assessment examined the food served at schools as part of school meal programmes and food availability through school canteens, kitchens and school gardens to assess the diversity and availability/accessibility of foods for schoolgoing adolescents. The school food environments assessment tool is comprised of the following components.

## Considerations for developing a school food environment assessment tool



# National and subnational level considerations:

- Enabling policy and institutional environments at the national, regional, and local levels
- Coordination and enforcement between national, regional and local regulatory bodies
- Organization and governance of school health and nutrition



#### School-level considerations:

- School policies, guidelines, and protocols related to nutrition, food, health, hygiene and physical activity
- School curriculum related to nutrition, food, health, hygiene and physical activity
- School-based health and nutrition services (i.e., deworming, micronutrient supplementation, school feeding programme, routine screening services, physical and mental health counselling, etc.)
- Water, sanitation and hygiene environment, including availability of water (for drinking and hand washing) and private toilets
- Availability, quality, and price of school meals
- Food-based dietary guidelines for school meals
- Availability of school cafeteria/canteen for eating meals
- Formal and informal food vendors in and around the school
- Availability of school gardens
- Training of staff and teachers on nutrition, health, hygiene and physical activity
- Availability of school clubs or extracurricular activities related to nutrition, health, hygiene and physical activity
- Food marketing in and near schools

# Individual-level considerations:

- Adolescent knowledge, attitudes and behaviors around nutrition, health, hygiene and physical activity
- Parent education level, socioeconomic status and knowledge of nutrition, health, hygiene and physical activity
- Parent influence on adolescent behaviours
- Peer norms and influence on adolescent behaviours
- Male/female gender differences
- Anaemia status
- Adolescent purchasing
   power
- Adolescent food
   preferences

# Programmatic priority 3: Micronutrient supplementation and deworming

Iron deficiency and iron deficiency anaemia are the leading causes of lost DALYs for 10–19-year-old girls and 10–14-year-old boys.<sup>128</sup> Anaemia leads to fatigue, slow cognitive and socio-emotional development, difficulties in concentration and diminished school performance in children and adolescents.<sup>129</sup> Daily and intermittent iron supplementation is effective for increasing haemoglobin concentration and reducing anaemia in school-age children and adolescents.<sup>130,131,132,133</sup> In settings with a high anaemia prevalence, WHO recommends daily iron supplementation for school-age children and adolescent girls.<sup>134,135</sup> In settings with a moderate anaemia prevalence, WHO recommends intermittent iron supplementation for these same groups (*Table 2*).<sup>136,137</sup>

The cost of delivering a weekly iron and folic acid supplementation (WIFS) programme, after taking into account the cost of supplements, logistics and mode of service delivery, has been estimated at US\$0.46–0.63 per child, per year, when delivered through a school-based programme, and US\$0.21– 0.78 per child, per year, through community health workers.<sup>138</sup>

Table 2: Recommended preventive iron supplementation schemes for school-age children a	and
adolescents <sup>139,140</sup>	

Age group	Children 5–12 years of age		Non-pregnant adolescent girls 10–19 years of age		
Settings	Populations where the prevalence of anaemia among children under 5 years is 40 per cent or higher	Populations where the prevalence of anaemia among school-age children is 20 per cent or higher	Populations where the prevalence of anaemia among menstruating adult women and adolescent girls is 40 per cent or higher	Populations where the prevalence of anaemia among menstruating adult women and adolescent girls is 20–39.9 per cent	
Frequency and duration	Daily	Weekly	Daily	Weekly	
Supplement form and composition	Tablets or capsules; 30–60 mg elemental iron	Tablets/capsules; 45 mg elemental iron	Tablets; 30-60 mg elemental iron	Tablets; 60 mg of elemental iron and 2800 μg of folic acid	
Duration	Three consecutive months in a year	Three months of supplementation followed by three months of no supplementation and again restarting the supplementation; if feasible, intermittent supplementation throughout the school calendar year	Three consecutive months in a year	Three months of supplementation followed by three months of no supplementation and again restarting the supplementation; if feasible, intermittent supplementation throughout the school calendar year	
Special considerations	<ul> <li>In malaria-endemic zones, iron supplementation should be provided only in conjunction with measures to prevent, diagnose and treat malaria</li> <li>The concomitant use of iron supplementation and MNP with iron should be avoided</li> </ul>				
	weekly iron and folic acid supplementation programmes may also target adolescent boys				
	<ul> <li>To avoid contusion related to overlapping age groups for 10–12-year-olds, consider the recommendations for adolescents</li> </ul>				

In most contexts, weekly supplementation targets adolescent girls aged 10–19 years to meet their high physiological iron needs. However, in settings where anaemia among adolescent boys is high, WIFS programmes may also include adolescent boys.<sup>141,142</sup> Girls and women of reproductive age – especially during pregnancy and adolescence – are at high risk of multiple forms of micronutrient deficiency (not only iron deficiency). As such, they may benefit from multiple micronutrient supplementation; however, more scientific and operational evidence is required to make this recommendation.<sup>143,144</sup>

To be effective, large-scale programmes to prevent anaemia among children and adolescents require advocacy, technical support, convergence and the involvement of multiple stakeholders. Other critical factors for success include leveraging behaviour change communication at scale, establishing good supply chains, and institutionalizing monitoring and reporting.<sup>145,146</sup> Soil-transmitted helminths (STH) are a common cause of anaemia, especially among people living in poverty and in areas with poor sanitation and open defecation. Preschool children, school-age children and women of reproductive age are considered particularly vulnerable to STH infections, and WHO recommends the periodic deworming treatment (i.e., preventive chemotherapy) for these at-risk groups in countries endemic for STH.<sup>147,148</sup> The recommended frequency of preventive chemotherapy is once or twice per year according the STH prevalence in the population at baseline (*Table 3*).

School-based deworming programmes entail treatment delivered through existing education infrastructure, administered by teachers with support from the health system. Such programmes are proven to be safe, cost-effective and scalable.<sup>149,150</sup> Preventive chemotherapy programmes should be evaluated every 3–4 years to help inform programme decision-making.<sup>151, 152</sup>

Age group	Girls and boys 5–14 years of age		Non-pregnant adolescent girls 10–19 years of age	
Settings	Populations where the prevalence of any STH infection is 20–50 per cent	Populations where the prevalence of any STH infection is >50 per cent	Populations where the prevalence of any STH infection is 20–50 per cent	Populations where the prevalence of any STH infection is >50 per cent
Frequency	Annual	Bi-annual	Annual	Bi-annual
Supplement form and composition	Albendazole 400 mg; mebendazole 500 mg	Albendazole 400 mg	Albendazole 400 mg	Albendazole 400 mg
Special considerations	<ul> <li>Provision of adequate water, sanitation and hygiene services is fundamental for controlling STH infections. Water and sanitation services should be prioritized to areas that are endemic for STH.</li> <li>Delivering preventive chemotherapy to adolescent girls and women of reproductive age entails extra care and precaution to ensure that those receiving anthelminthic medicines are not pregnant. Policymakers may decide to withhold preventive chemotherapy among adolescent girls and women of reproductive age if pregnancy status or gestational age is uncertain, or in areas where rates of unplanned pregnancies are high and coverage of antenatal care is low.</li> <li>Among pregnant adolescents, deworming with single-dose albendazole (400 mg) or mebendazole (500 mg) is recommended as a public health intervention after the first trimester in areas where both (i) the baseline prevalence of hookworm and/or T. trichiura infection is 20 per cent or more among pregnant women, and (ii) where anaemia is a severe public health problem, with a prevalence of 40 per cent or higher among pregnant women, in order to</li> </ul>			

# Table 3: Recommended preventive chemotherapy (deworming) schemes for school-age children and adolescents<sup>153,154</sup>

# Iron products supported by UNICEF Supply Division, Copenhagen

For weekly iron and folic acid supplementation among adolescent girls, WHO recommends 60 mg of elemental iron and 2800 µg of folic acid. UNICEF Supply Division has introduced a product to cater to these programmatic requirements, which is catalogued as: S1550009- iron 60 mg+ folic acid 2800 mcg tablets/PAC-100-HDPE bottle *(elemental iron 60 mg as ferrous fumarate or ferrous gluconate and folic acid 2800 mcg tablets, in a pack of 100 bottles).* 

#### **UNICEF ACTION**

In settings where nutrient-poor diets and micronutrient deficiencies are common, UNICEF advocates for and supports micronutrient supplementation policies, strategies and programmes to address deficiencies in essential micronutrients in middle childhood and adolescence. In settings with high burdens of STH, we promote and support the use of deworming prophylaxis for school-age children and adolescents. See Annex 5, case study 1, for an example of these programme actions in Ghana.

## Programmatic priority 4: Nutrition education in school curricula

Nutrition education comprises strategies for empowering children with knowledge, skills and the motivation to voluntarily adopt good diets and lifestyle choices, which help build a strong foundation for a healthy and active life.<sup>155</sup> Schools are a unique setting for delivering interventions to school-going children and adolescents, and the school curriculum provides an opportunity to promote healthy eating and ensure physical activity through food, nutrition and physical education classes.<sup>156,</sup>

School-based food and nutrition education is more likely to be effective when it focuses on behaviour change and action rather than on knowledge alone. It is also more effective when it systematically links theory, research and practice.<sup>157, 158</sup> For instance, garden-based interventions that provide hands-on experience to children in planting, harvesting and preparing vegetables and fruits can increase their intake of these foods and make younger children more willing to try them.<sup>159,</sup> Similarly, providing education to help children interpret nutrition labelling can improve their food behaviours and purchase choices (Spotlight 5).<sup>160, 161, 162</sup>



# Spotlight 5 Key considerations for nutrition education in curricula

Nutrition education interventions should aim to improve food and nutrition literacy, empower children and adolescents to seek information about food and nutrition, and equip them to process, analyse, and act upon the knowledge gained. School-based nutrition education interventions should help develop skills and behaviours related to food preparation, handling, preservation, and storage; promote the social and cultural aspects of food and eating; and improve self-esteem and positive body image.<sup>163</sup>

Formal education systems provide important platforms for addressing issues related to food and nutrition and other determinants of malnutrition. A behavioural focus – rather than a knowledge focus – is crucial for integrating nutrition education in curricula. Key steps to articulating a well-designed and implementable approach to nutrition education in school curricula are illustrated below:<sup>164</sup>

- Conduct a robust situation and needs assessment of food and nutrition problems and existing practices and barriers; and perform a landscape analysis of existing policies, models, and approaches around school food and nutrition environments, including existing capacities of the education system around nutrition education.
- Identify learning objectives based on needs identified during situation analysis; and develop age-appropriate target capacities and competencies (outlook, perception, behaviours and practices) to promote and support

consumption and enjoyment of fruits and vegetables and improve dietary patterns and related behaviours.

- Identify opportunities for incrementally building knowledge and skills in each school grade.
- Develop or revise the curriculum package and organize consultations with stakeholders.
- Conduct pre-testing and consolidate feedback to allow opportunities for adapting curriculum design and provide time to improve acceptance.
- Develop a monitoring and review mechanism.

Successful models of school-based nutrition education demonstrate that vertical integration (as a separate subject) or horizontal integration (delivered within other subjects, such as science, home economics, biology, etc.) of nutrition education in curricula for specific age-groups can be impactful. Additionally, nutrition education should be supported by a well-designed curriculum; motivated and trained teachers and educators equipped with appropriate teaching-learning aids; proper training of school staff dealing with school meals; active engagement and involvement of parents to participate in nutrition education activities, wherever feasible; and accompanied by an enabling food environment.<sup>165</sup>



The school food and nutrition environment also provides an opportunity to reach children, adolescents, their families and the broader community in a regular and continuous way to foster lasting healthy food practices (Spotlight 5). Although children spend a substantial part of their day at school, -many of their dietary behaviours and eating practices are acquired well before they begin school; indeed, the home environment plays a substantial role in supporting and sustaining a healthy lifestyle.<sup>166, 167</sup> Parental modelling, feeding styles and the availability of varied food options help shape eating behaviour and choices. Active involvement of and engagement with parents, a substantial duration of this intervention, and the integration of nutrition education in curricula can have a positive impacts on dietary behaviour and physical activity.<sup>168,169,170</sup>

Good diets, healthful nutrition practices and physical activity shape children's growth and development, including by improving their physical and mental health, fitness, cognition and academic achievement.<sup>171,172</sup> Evidence indicates that a combination of nutrition education and physical activity interventions can lead to healthier body weight among children and adolescents *(Spotlight 6)*.<sup>173</sup>



# Spotlight 6 Recommendations for physical activity

Fostering an active lifestyle during childhood and continuing through adulthood reduces the risk of obesity and morbidity and mortality from cardiovascular disease and diabetes later in life.<sup>174</sup> Moreover, adequate physical activity supports cognitive development and enhances academic achievement among children and young people.<sup>175</sup> WHO recommends that children aged 5–17 years accumulate an average of 60 minutes of moderate to vigorous intensity physical activity daily. More than 60 minutes of physical activity each day provides additional health benefits.<sup>176</sup>

Physical activity among school-age children and adolescents may involve walking to and from school, active play during lunch breaks, recreation and dance routines, school athletics, planned exercise, and structured sports and physical education. Most daily physical activity should be aerobic, with vigorous intensity activities incorporated at least three times per week, including those that strengthen muscle and bone density. Activities such as jogging, bicycling uphill, football and basketball increase the heart and breathing rate to a considerable level, and are thus categorized as vigorous physical activities.<sup>177</sup> Moderate physical activity results in smaller increases in heart and breathing rate and could include activities such as brisk walking, dancing, and bicycling on flat surfaces.

Children with special needs and disabilities have an equal need for physical activity. Some studies have indicated that the prevalence of overweight and obesity among children with disabilities is significantly higher than in other children.<sup>178</sup> Therefore, physical education in schools must be inclusive and consider adaptations as needed. For instance, running or walking may be adapted to rolling across a mat or walking with a fellow student, while throwing a ball can be modified to rolling or carrying a ball. Similarly, the physical environment can be changed by placing comfortable gym mats or positioning benches in the gym to allow children to rest as needed.<sup>179</sup>

#### **UNICEF ACTION**

UNICEF advocates for and support policies, strategies and programmes that enhance school curricula to improve knowledge and skills about good nutrition and physical activity among school-age children and adolescents. This involves promoting nutrition education and physical education in primary and secondary school curricula and improving the capacities of teachers and school managers to deliver nutrition education and promote good nutrition and physical activity. See Annex 5, case study 2, for an example of these programme actions in Indonesia.

## Programmatic priority 5: Healthy dietary practices for school-age children and adolescents

Social and behaviour change communication (SBCC) is vital for identifying, reinforcing and modifying social norms and behaviours that need to be changed to achieve a positive impact on dietary choices and nutrition behaviour.<sup>180</sup> Nutrition SBCC combines elements of interpersonal communication, social change and community mobilization, mass media outreach and advocacy to support individuals, families, communities, institutions, and countries to adopt and maintain high-impact nutrition-related practices (Annex 1).<sup>181,182</sup>

Influencing positive behaviours among children requires tapping into the unique drivers that motivate them, using an approach that empowers and encourages by giving responsibility, rather than taking it away.<sup>183, 184</sup> Moreover, as children grow, their level of autonomy also changes, meaning that adolescents should be addressed differently than younger children.<sup>185</sup> Behaviour change interventions are more effective when children and adolescents are treated as competent and valued people with agency and autonomy, and when they are empowered to make choices that benefit them over the long-term.<sup>186</sup> Information communication technology-based programmes can deliver messages and information through social media, videos, comics, games and other interactive formats, which helps in promoting healthy eating habits and physical activity.<sup>187</sup> Despite the opportunity for digital media to improve diets and physical activity (through health education, goal setting, self-monitoring) their use also carries risks, including exposure to the marketing of unhealthy foods.<sup>188,189,190</sup> Screen time impacts energy intake and is linked to obesity, as children and adolescents may consume fewer healthy foods and more foods and beverages that are high in fat, salt and sugar. These consumption patterns are linked with lack of physical activity, inadequate sleep and exposure to food advertising. Policy regulations should include restrictions on the marketing of unhealthy commodities through online environments.<sup>191</sup> This type of food marketing not only infringes children's right to health, but also, importantly, their rights to privacy and to be protected from exploitation.

SBCC can be leveraged to improve the capacities of children, adolescents and families in addressing harmful norms and practices, including unhealthy diets and physical inactivity. However, SBCC efforts should not be framed as stand-alone interventions; rather, they should be integrated within the broader implementation strategy to bolster other systemic interventions to ensure heathy diets and active lifestyles for children and adolescents (Spotlight 7).

#### **UNICEF ACTION**

UNICEF advocates for and supports large-scale SBCC programmes that increase awareness about the benefits of good diets, healthy eating practices and physical activity among school-age children and adolescents and their families and communities. This involves identifying gender-sensitive, contextappropriate messages and messengers as well as effective delivery channels and communication strategies.

#### Spotlight 7

# Key considerations for designing social behaviour change communication programmes to promote diets and active lifestyles

SBCC is a common evidence-based approach for promoting positive changes at intrapersonal, interpersonal, organizational, environmental and policy levels. Large-scale improvements in dietary and lifestyle behaviours are possible through an SBCC approach targeting multiple levels of influence.

SBCC for improving diets and lifestyle choices among children and adolescents may include the following components:

- Advocacy for improving the macro-level policy environment with stakeholders and decisionmakers, such as policymakers, professional groups, religious and community groups and media personnel.
- Mass communication to engage a wide range of audiences – e.g., children and adolescents, parents, teachers, school staff, administrators and community groups – through various channels of communication, such as radio, television, digital media, U-reports, social media, posters, and other forms of information, education and communication material.
- Behaviour change communication to improve individual knowledge, attitudes, motivation, efficacy and empowerment through dialogue, using methods such as peer interactions, school clubs, individual and group counselling, home visits and outreach, social networks, social mobilization, campaigns, special events, community engagement, social movements, U-Reports, and other collective efforts.

Children and adolescents need to be actively involved at all stages of the SBCC programme. The steps to develop a SBCC programme are illustrated below:

• Understanding the situation: This phase helps in establishing an in-depth understanding of the problem and the factors that influence decisions regarding dietary choices and lifestyle behaviours in children and adolescents. This includes gaps and challenges, root causes, people and factors that can influence decisions, and communication needs and resources. Information can be collected through a review of existing programmes and policies aimed at behaviour change; an assessment of the reach, accessibility and capacities of communication channels frequented by children, adolescents, and influencers; and an identification of potential partners. This process helps identify the needs, perceptions, existing knowledge, attitudes, behaviours, social norms and priorities of the population. Both primary and secondary sources of data can be collected, using qualitative and quantitative tools.

- Designing and developing the communication programme: At this stage, the information collected through the formative research is synthesized to establish the goal of the SBCC programme. Synthesis from situation analysis will guide the development of the programme objectives; for instance, if one of the root causes of poor diets and sedentary lifestyles is children's exposure to unregulated marketing and advertising of unhealthy foods and behaviours, then a policy level objective may be articulated to prohibit the use of specific persuasive techniques that appeal to children. Further, the intended audience (e.g., policymakers) and related approaches (e.g., consultations, media engagement), content of the messages (e.g., evidence on the benefits of healthy eating), channels of communication (e.g., print media, electronic and digital media), and the timeframe need to be defined.
- Developing an implementation and monitoring plan: Once the SBCC strategy is developed, it is important to consult wider stakeholders, as collective ownership is a critical element for success. The implementation plan should be costed (including staff time, materials development, pre-testing and finalization, training), and include a schedule of activities, with defined indicators to assess progress, as well as clear delineation of roles and responsibilities with the internal team and external partners. Monitoring indicators and sources of information should also be defined to gauge the success and acceptance of the messages.

# 4.

Programming principles





The implementation of interventions in programmatic priority areas will be guided by the following programming principles:

Rights-based: The United Nations Convention on the Rights of the Child forms the basis of all UNICEF programmes. All boys and girls have the same rights, and should be afforded the same opportunities, resources and protections.<sup>192</sup> The Committee on the Rights of the Child emphasizes that the implementation of these rights must recognize children's development and their evolving capacities. Thus, implementation approaches to realize the rights of adolescents may be different from those required for younger children. For instance, as children age, they start making their own food choices; therefore, implementation strategies should be designed to identify the internal and external influences that affect the targeted behaviour. Dutybearers, including governments, must ensure that all children are provided with heathy food environments and equitable access to nutritious food.<sup>193</sup>

**Equity-focused:** According to UNICEF's mission statement, the most disadvantaged children and the countries in greatest need have priority in programmatic activities. These disadvantages and vulnerabilities - related to poverty, food insecurity, gender inequality, disability and ethnic discrimination - can limit access to food and nutrition services and foster unhealthy dietary patterns in children and adolescents.<sup>194</sup> To lessen equity gaps for children aged 5-19 years, it is important to advocate for, design and implement interventions specifically for out-of-school children and adolescents and those who are otherwise marginalized and hard to reach. UNICEF will identify barriers that limit children's and adolescents' access to services and will strengthen advocacy for programmes with a scale and intensity proportionate to the level of vulnerability.<sup>195</sup>

**Gender-responsive:** Gender discrimination and bias affect how girls and boys are raised, including their access to food, health services and education, and their sense of empowerment and control over choices and resources.<sup>196</sup> Throughout all UNICEF's programming, including nutrition, it is essential to understand and address gender inequality, gender stereotyping and specific discrimination and

disadvantages that affect how girls and boys, and those that identify as other genders, survive and thrive.<sup>197</sup> Policies, programmes and services need to respond to the changing and differing gender-related needs of boys and girls as they grow, especially in terms of diets, food environment, sanitation, hygiene and water.<sup>198</sup>

#### Context-specific and evidence driven:

Programming decisions will be guided by a thorough situation analysis of the nutrition status of schoolage children and adolescents. Each country will prioritize actions based on the nutrition situation, resources, and other factors (Spotlight 8). To strengthen the linkages between nutrition and learning outcomes, UNICEF will advocate for and support the scale-up of a context-specific nutritionin-schools package to support good diets and evidence-based nutrition practices and services. Programme priorities and approaches need to be articulated on the basis of sound evidence and data. To strengthen policy advocacy, UNICEF will support and encourage rigorous evaluations and quality data to guide programmatic decisions.

**Engagement and participation:** Meaningful engagement and participation means that children and adolescents are involved in more than just consultative and tokenistic ways; rather, they are embraced as knowledge producers and people who can influence decision-making processes and outcomes. Research on meaningful youth engagement and participation suggests that adolescents need to feel a sense of belonging and trust in others, opportunities to socialize with peers and to be involved in activities that they consider fun (See Annex 2).<sup>199</sup> Young people's unique body of knowledge, ideas and lived experiences – in private and public spheres, in the home, in alternative care settings, at school, in the workplace, in the community, on social media and in broader governance processes – make them singularly positioned to lead and influence the nutrition matters that impact their lives and their communities.<sup>200</sup>

**Systems-centred:** To protect and promote diets, services and practices that support optimal nutrition in middle childhood and adolescence, a coordinated approach is required, underpinned by responsive actions across multiple systems – particularly the education, food, health, water and sanitation and child protection systems (see Chapter 5). Strengthening the capacities of national and subnational systems and fostering shared accountability to realize the right to nutrition will bring about sustained improvements in children's growth, development and well-being in middle childhood and adolescence.



#### Spotlight 8

# Key considerations for prioritization of nutrition programmes for school-age children and adolescents<sup>201</sup>

Prioritizing interventions in resource-constrained environments is essential. When identifying programming priorities, decision-makers should consider the following factors.

- Malnutrition problem: Information should be obtained on the burden of malnutrition (undernutrition, overweight and micronutrient deficiencies) in terms of its magnitude, severity, urgency and perception. Magnitude and severity are understood in terms of mortality and morbidity among the population and sub-groups. Severity is gauged by the impact of a problem on quality of life and perceptions of the community are also shaped by the severity of the problem, which influences demand and health seeking behaviours.
- Effectiveness of the intervention: This is assessed in terms of how the problem can be addressed and the potential for the selected intervention to yield expected results. Another consideration for selecting a priority will be contextualization of the solution in terms of applicability, deliverability and sustainability. Two situations may emerge when deciding about the effectiveness of an intervention: (1) strong global evidence is not available, in which case the solution will have to be tested at the field level; and (2) global evidence exists, but it may have to be tested for applicability and effectiveness in the local context. For instance, a recommendation for which evidence is only available from high-income countries may have to be contextualized and

adapted to low- and middleincome countries. This may require establishing a proof-ofconcept, pilot or study.

- Cost of intervention: Affordability and efficiency of the intervention should be considered in every decision. Cost effectiveness helps guide the prioritization process by highlighting the areas where maximum benefit can be achieved. Evaluating the cost of an intervention is important as it helps answer questions around its feasibility and sustainability. For a robust cost analysis, good quality data and information on implementation modalities should also be available. The processes and opportunities established under existing systems, such as school settings under the education system, may contribute to the cost-effectiveness of the intervention, and thus help prioritize programme decisions.
- Acceptability of the intervention: Interventions for school-age children and adolescents need to be acceptable to children themselves and to parents, caregivers, teachers and community groups. Indeed, acceptability is associated with the feasibility of delivering the selected intervention in the local setting. Both social and cultural acceptability (norms and values) of the interventions must be considered, and those conflicting with social and cultural norms may be rejected

and fail at the implementation level. Gaining insights about the social and cultural norms that may impact the uptake of the intervention is therefore important and all stakeholders should be included in consultations from the very beginning of the prioritization process.

• Fairness: This dimension ensures adherence to the principle of equality and equity. Fairness is an important consideration as it is linked to weighing the options and striking a balance between the problem of malnutrition and the effectiveness of the intervention. For instance, a certain sub-group of the population may be at an increased risk of obesity due to poor dietary habits, sedentary lifestyle and substance abuse. This may be due to historic or systemic marginalization, fewer opportunities, poor or no means of livelihood and poor health. In such circumstances, special attention and provisions are needed to support this high-risk group. Sometimes, decision-makers will face ethical dilemmas in deciding between the most affected and at-risk and maximizing the aggregated benefit.<sup>202</sup> Such decisions should factor in the risk and magnitude of mortality if no interventions are put in place, as well as the improvement in the quality of life that some special provisions may achieve for the marginalized group.

# 5.

A systems approach to prevent all forms of malnutrition in middle childhood and adolescence



The UNICEF Nutrition Strategy 2020-2030 emphasizes five key systems - education, food, health, water and sanitation, and social protection - that are critical for improving nutrition in middle childhood and adolescence. To realize the vision of "a world where all children, adolescents and women realize their right to nutrition", UNICEF advocates for and works through a systems approach to nutrition, which aims to make these five systems better equipped and more accountable for improving nutrition and ending malnutrition in all its forms. This approach strengthens actions across the various systems to establish a common sense of purpose to prevent malnutrition among children and adolescents. Additionally, it helps generate a coordinated response and ensure clarity on sectoral accountabilities.

The education system provides an important platform for reaching large numbers of children, parents and communities through its network of schools, staff and curricula. Schools are a key setting for delivering nutrition interventions and provide an enabling environment for improving the quality of children's diets and nutrition services and practices in middle childhood and adolescence (Spotlight 9). Nutrition education gives children an opportunity to learn food and nutrition skills and apply them in school settings and within the community.<sup>203</sup> Schools and educational institutions can help prevent malnutrition among schoolage children and adolescents by establishing guidelines for school meals, defining guidelines for school food environments, ensuring provision of nutritious foods in school canteens and in the vicinity of schools, integrating school food and nutrition education within curricula, providing micronutrient supplementation and deworming prophylaxis, promoting and supporting active lifestyles through physical activity, building the capacities of teachers and school staff on nutrition education and physical activity, promoting parental engagement and involvement and monitoring the outcomes of these interventions.

# Spotlight 9 Integrating nutrition in education goals: Intersectoral convergence with Ministries of Education

Malnutrition in all its forms puts children at risk of missing out the opportunity to learn. It also increases absenteeism and can lead children to drop out of school. For children to learn, they need to be healthy and well-nourished. School-age children who receive proper nutrition and healthier diets are more likely to have better achievements in language and science.<sup>204</sup>, <sup>205</sup> Further, education on the benefits of good diets can help improve the health and nutrition status of learners across the life course.<sup>206</sup> Investment in both nutrition and education interventions at all

stages of development is also imperative for improving human capital.<sup>207</sup>

The education system, through school settings, provides a foundation for delivering preventive nutrition interventions to school-going children.<sup>208</sup> Since most countries have more schools and teachers than health facilities and health workers, promoting nutrition interventions through schools is a cost-effective and efficient way to improve children's growth, development and well-being.<sup>209</sup> Moreover, good nutrition supports cognitive development and productivity and keeps children alert and ready to learn.

Nutrition interventions in schools fit perfectly under the Ministry of Education mandate, as nutrition contributes to the overall vision of inclusive and quality education for all and promotes lifelong wellbeing. Ministries of Education can play a defining role in integrating health and nutrition interventions within the existing institutional and legal frameworks, such as education sector plans, education policy, education acts and similar instruments.<sup>210, 211</sup>

# Nutrition-in-Schools Package: Essential nutrition interventions in schools and beyond:

#### **Nutritious foods and diets**

- Nutritious school meals, including fortified foods, to improve children's diets
- Safe drinking water in schools to improve children's diets

#### **Healthy food environments**

- · Policies and guidelines to ensure nutritious foods and drinking water in and around schools
- Standards and regulations to eliminate the marketing of unhealthy foods and beverages

#### Supplementation and deworming

- Micronutrient supplements to protect children from vitamin and other deficiencies.
- Deworming prophylaxis to protect children from helminth infections and anaemia

#### **Nutrition literacy**

- Curricula to improve knowledge on good diets and healthy dietary practices
- Communication to promote good diets and positive dietary practices

#### **Physical activity**

- Curricula to include physical education and promote physical activity
- · Communication to promote physical activity and active living
The food system comprises the policies, services and actors needed to ensure a population's access to nutritious, safe, affordable and sustainable diets. The food system plays a central role in shaping the diets of school-age children and adolescents; different actions are needed across the system to increase the supply of and demand for nutritious food and to reduce food wastage. Priorities for reshaping food systems to deliver better diets for school-age children and adolescents include: adopting legislation to ban the sale of foods and beverages high in sugar, salt, fat in schools; improving the production and supply of good quality nutritious meals in schools; restricting exposure to unhealthy food and beverages in school settings (including via sales and marketing); banning food industry sponsorship and food branding on school equipment and infrastructure; and improving the school food environment by ensuring affordable and nutritious food options in and around schools.<sup>212</sup> Engaging with the food system will require advocacy with ministries working on food distribution in schools, food safety, food labelling and food promotion and marketing. Also, governments will need to be supported to regulate the practices of the private sector, especially the food and beverage industry.

The health system comprises the policies, programmes and actors that ensure a population's access to health services. Under the mandate of universal health care, the health system plays a significant role in preventing malnutrition and promoting health and nutrition for children in and out of school.<sup>213</sup> Many countries implement school health programmes, which include a wide array of health and nutrition services.<sup>214</sup> Although most children can be reached through school-based or school-linked health and nutrition programmes, it is vital to strengthen service delivery and community outreach through primary health care to ensure that out-of-school children and other vulnerable groups are not left behind.<sup>215</sup> Working with the health system should impact resource allocation and strengthen the capacities of health providers and facilities to deliver nutrition services, such as iron and folic acid (IFA) supplementation, deworming, health promotion to prevent diet-related NCDs and health and nutrition education. Additionally, health sector programmes for the prevention and

treatment of malaria, prevention of early pregnancy and adolescent health can also contribute towards improving children's growth, development and overall well-being.<sup>216, 217</sup>

The water and sanitation system comprises the policies, programmes, services and actors needed to ensure a population's access to safe drinking water and safe sanitation and hygiene services. Access to safe water and sanitation is an important element of children's living environment. Improved water, sanitation and hygiene (WASH) protects children against STH, reduces diarrhoeal episodes, improves WASH-related knowledge and practices and reduces absenteeism in schools.<sup>218</sup> In most schools, where basic facilities are available, the WASH environment can be enhanced through minimal investment and low-cost solutions. For example, separate, functional toilets improve a school's ability to meet girls' hygiene needs, especially during menstruation. Additionally, the availability of safe drinking water in schools improves water consumption and reduces the intake of sugar-sweetened beverages.<sup>219, 220, 221</sup> Water and sanitation systems must be engaged to ensure the availability of drinking water, gendersegregated safe sanitation facilities, soap and water for handwashing, support for menstrual hygiene management and hygiene education.<sup>222, 223, 224</sup>

The social protection system comprises the set of policies and programmes aimed at protecting all people against poverty, fragility and social exclusion, with a particular emphasis on vulnerable groups. Poverty reduction policies and programmes, such as cash transfers (conditional or unconditional), can help increase household income, improve school enrolment and attendance (especially for girls), improve access to preventive health care and support the procurement and consumption of diverse and nutrient-rich diets.<sup>225, 226</sup> The social protection system can contribute to improving diets, services and practices in middle childhood and adolescence by supporting and subsidizing nutritious school meals and nutrition education for out-ofschool children using behaviour change approaches. Some of these approaches include small group counselling and the provision of food vouchers and cash transfers to all families with school-age children to improve access to nutritious foods.

#### Implementation framework focusing on a systems approach

The implementation framework provided below demonstrates how evidence-based actions to prevent all forms of malnutrition among school-age children and adolescents can be integrated and rolled out through the various systems and related delivery platforms (*Table 4*).

	-AI-	80 Cg / 80			Call
Priorities	Education system	Food system	Health system	Water and sanitation system	Social protection system
Nutritious foods, in schools and beyond	Develop national guidance and standards for school meals and snacks consider- ing local food habits, logis- tics, hygiene/food safety, food availability and costs Advocate for setting upper limits for the concentration of saturated fats, trans-fats, sugar and sodium in food Strengthen the capacities of policymakers and im- plementers for monitoring, quality assurance and en- forcement systems for the implementation of these standards and guidelines	Advocate for the use of fortified staples in school feeding pro- grammes and the fortification of school meals Support the design and imple- mentation of man- datory large-scale food fortification programmes of staple and other context-specific foods	Support minis- tries of health to develop and imple- ment guidelines to ensure food safety and hygiene stan- dards in schools for food handlers and other actors Support ministries of education to conduct food audits to ensure adherence to nutri- tion guidelines and quality	-	Support gov- ernments to design effective school feeding programmes according to the context Advocate for government to pay special attention to ensuring that subsidized meals reach households with school-age children and adolescents, es- pecially those with disabilities
Healthy food environments, in and around schools	Develop and implement guidelines for enabling healthy food environments in and around schools Build the capacities of the education system and its functionaries on imple- menting and monitoring standards to ensure healthy food environments in schools (and through school canteens, tuck shops, food vendors); and enforce the prohibition of marketing and sponsorship by manufactur- ers of unhealthy foods	Advocate for and support the measures of rele- vant ministries to regulate the sale, sponsorship and advertising of un- healthy foods and beverages in and around schools Review current agricultural regu- lations in school policy and work with stakeholders to advocate for linkages between school food and sustainable agri- culture	Strengthen collab- oration between education and health systems to conduct school food environment audits and ensure compliance with the regulatory framework	Advocate for government to improve the availability of free, safe and palatable drinking water in schools, and ensure gender-re- sponsive policies and programmes	

#### Table 4: Illustrative implementation framework to guide priority actions across systems

Deineiting Education and an		Food anotom		Social protection		
Priorities	Education system	Food system	Health system	sanitation system	system	
Micronutrient supplementation and deworming prophylaxis	Advocate for collaboration between education and health ministries to develop and roll out integrated school health and nutrition programmes to address micronutrient deficiencies and helminth infections	-	Provide tech- nical support to ministries of health to develop national policies, guidelines and budgeted plans to prevent anaemia, micronutrient deficiencies and helminth infec- tions	Leverage WASH programmes for the prevention and control of helminth infections	Introduce link- ages between social protection programmes and nutrition programmes for better integration of a nutrition service package (including IFA supplementation, deworming and nutrition education sessions)	
Nutrition edu- cation in school curricula	Advocate for and support ministries of education to integrate age-appropriate nutrition and physical education in school curricula, including motivational, practical and skill-based lessons	Conduct a thor- ough SWOT anal- ysis (strengths, weaknesses, opportunities, threats) of the food system and identify lessons that can be integrated into the regular curricula <sup>227</sup>	Integrate modules on nutrition in middle childhood and adolescence into the pre- and in-service trainings of health service providers and provide on-the-job support Ensure that nutrition is a core component of ado- lescent-friendly health services	Identify opportu- nities to integrate messages on food safety and hygiene in WASH commu- nication modules	Integrate nutri- tion education messages in social protection programmes to improve diets and positive lifestyle behaviours	
Healthy dietary practices for school-age children and adolescents	Provide technical support to develop large-scale social behaviour change cam- paigns on healthy diets and physical activity, and institu- tionalize messages through 'edutainment' activities, meetings and school clubs Engage youth networks and young health and nutrition professionals as advocates and change-makers for establishing healthy eating, healthy food environments and active lifestyles as a norm	Support gov- ernments to implement multi-component behaviour change interventions across multiple channels Develop food- based dietary guidelines on healthy and sustainable eating with specific guid- ance for children and adolescents	Engage and build the capacities of policymakers and implement- ers in health ministries on diet-related NCDs, and support the integration of communication messages on healthy eating and active lifestyles with the national NCD prevention agenda Engage influenc- ers and celebrities with a significant following of chil- dren and adoles- cents as agents of empowerment and change	Promote mes- sages during WASH events and campaigns to en- courage children and adolescents to drink water for hydration (rather than sugar-sweet- ened beverages)	Identify behaviour change communi- cation opportuni- ties in cash trans- fer and livelihood programmes, and integrate nutrition education and pro- motion of healthy, nutritious diets	

# 6.

Programming, partnerships and coordination

#### Programming, coordination and partnerships

To ensure a systematic roll-out when designing a new programme or strengthening existing programmes to address all forms of malnutrition in middle childhood and adolescence, the following aspects may be considered:



## Analysing the nutrition situation of school-age children and adolescents

- Conduct a situation analysis on the nutrition situation of children by exploring quantitative and qualitative data, disaggregated by gender, disability and other intersectionalities; and by examining the determinants and drivers that affect the nutrition of children aged 5–19 years (Annex 3 a&b)
- Assess existing policies and programmes across various systems that directly or indirectly impact the nutrition situation of children (see Annex 5, case study 3)
- Examine systemic capacities, including those related to the institutions, human resources, supply chains and budgets needed to deliver services and map stakeholders and partners
- Prioritize interventions based on the urgency, frequency, scale and consequences of the burden of malnutrition; and consider the existence of effective, appropriate, acceptable and equitable interventions for reducing these consequences



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## Advocating for the protection, promotion and fulfilment of nutrition rights

- Engage stakeholders, partners, parliamentarians, youth networks, teachers and parent associations to advocate for an enabling environment and commitment to improve the quality of diets, nutrition services and practices for children 5-19 years (see Annex 5, case study 4)
- Prepare an advocacy strategy to reach multiple audiences through social mobilization, mass communication, interpersonal communication and social media
- Strengthen the capacities of stakeholders to align work and develop evidence-based messages around enabling food environments, nutritious diets and active lifestyles



## Designing evidence-based policies, strategies and programmes

- Provide technical support to ministries for formulating guidelines and standards to ensure the access and availability of nutritious diets for children in and out of school
- Support government to ensure measures to prevent the marketing of foods and drinks containing high concentrations of saturated fats, trans-fatty acids, sugar, salt or additives to children, including in middle childhood and adolescence
- Provide technical support to government to establish evidence-based multilevel and multi-component programmes to address all forms of malnutrition among school-age children and adolescents



## Supporting the scale-up of nutrition strategies and programmes

- Provide technical support to strengthen proof-of-concepts on programmes to improve diets, services and practices for preventing malnutrition among school-age children and adolescents
- Support national and subnational governments to strengthen capacity and prioritize and allocate adequate finances for implementing school-based and out-of-school programmes
- Strengthen collaboration between relevant ministries (such as education, health, water and sanitation and social protection) to roll out integrated school health and nutrition interventions

## Engaging communities and influencers for nutrition action

- Conduct formative assessments, develop large-scale behaviour change communication campaigns and engage influencers and celebrities to create a social movement to promote nutritious and sustainable diets, and encourage healthy lifestyles among schoolage children and adolescents
- Support the development of information, education and communication toolkits on good nutrition and physical activity (see Annex 5, case study 5)
- Galvanize youth networks to raise awareness, educate and motivate peers to promote nutritious and sustainable diets, and encourage healthy lifestyles

## Strengthening capacity for nutrition programming

- Map existing capacity building initiatives, including pre- and in-service training on school health and nutrition, and identify opportunities for strengthening the capacities of teachers and other school staff
- Provide technical support to develop resource materials for staff (teachers, school cooks and catering staff, health workers, supervisors and inspectors) to enable them to provide supportive school food environments and encourage healthy dietary choices among children
- Develop innovative and time-saving methodologies, such as online and distance learning toolkits, to strengthen capacities of staff on good nutrition and healthy lifestyles



## Strengthening supply chains for sustainable nutrition programmes

- Assess the existing supply chain mechanism and identify bottlenecks in supply estimation, procurement, quality assurance, transportation, distribution and end-user utilization
- Support the government to develop a costed supply plan for IFA and deworming, and advocate for the integration of standardized products into the national supply chain to ensure sustainability

#### Mobilizing financing for nutrition

- Map the fiscal space for nutrition responsive programmes focusing on school-age children and adolescents
- Prepare an investment case with a long-term vision to improve nutrition of school-age children and adolescents
- Engage with the ministry of finance to influence decisions on the allocation of finances for nutrition programmes for school-age children and adolescents

## Investing in data, monitoring and evaluation for nutrition

- Support the government to develop a monitoring framework and establish review mechanisms, such as school food environment audits and inspections, to assess progress of nutrition programmes for school-age children and adolescents (see Annex 5, case study 6)
- Strengthen the routine monitoring systems of health, education and other sectors to include key nutrition indicators on school-age children and adolescents, and build the capacities of programme planners to use monitoring data for informed decision-making and course correction
- Conduct robust evaluations to demonstrate programme effectiveness and strengthen the investment case for nutrition in middle childhood and adolescence



## Advancing knowledge, innovations and learning for nutrition

- Engage stakeholders, identify critical knowledge gaps and develop a knowledge management framework for advancing work on the prevention of malnutrition among school-age children and adolescents
- Collaborate with partners to establish a community of practice around school health and nutrition and explore options to co-create
- Document learning and share information and knowledge to promote best practices and innovations to improve diets, services and practices in middle childhood and adolescence

#### Humanitarian action

The UNICEF Core Commitments for Children in Humanitarian Action (CCCs) provide a framework for engagement in humanitarian response. Its programme commitments describe the scope of activities and advocacy undertaken by UNICEF and its partners in humanitarian settings.

The CCCs, revised in 2020, recognize the need to include school-age children and adolescents in humanitarian response, with an emphasis on access to diets, services and practices to improve their nutritional status (*Table 5*). The CCCs promote meaningful participation of children and adolescents in the analysis, design and monitoring of humanitarian programmes (*Annex 4*).

There is an urgent need to develop operational experiences on reaching school-age children and adolescents with nutrition interventions in humanitarian emergencies. For one such example, see Annex 5, case study 7 on the State of Palestine. Schools can provide a safe place for children during civil unrest and emergencies if they are structurally sound and out of harm's way. Schools may also offer health and nutrition services; thus, sustaining and supporting them during conflicts is vital for protecting children's right to learn and their right to nutrition. In a long-term conflict where children miss immunizations, booster vaccinations may be offered along with a package of treatments for worms (if prevalent) and micronutrient supplements (where children are not consuming fortified rations).

Moreover, in the context of public health emergencies, such as the COVID-19 pandemic, considering the vulnerabilities all children face during humanitarian crises due to disruptions in access to food, essential health and nutrition services, it is important that implementation approaches be adapted to address the nutritional needs of these age groups (Spotlight 10). Children with disabilities are particularly vulnerable and need special attention.

Commitments	Benchmarks
Prevention of undernutrition,	<ul> <li>Children in middle childhood have access to a community-</li></ul>
micronutrient deficiencies and anaemia in	and school-based package of interventions that includes
middle childhood and adolescence <sup>*</sup>	at a minimum: iron supplementation, deworming
Children in middle childhood (5–9	prophylaxis,** nutrition education, counselling and support,
years) and adolescent girls and boys	according to context <li>Adolescent girls and boys have access to a community- and</li>
(10–19 years) benefit from diets, services	school-based package of interventions that includes at a
and practices that protect them from	minimum: IFA supplementation, deworming prophylaxis,
undernutrition, micronutrient deficiencies	nutrition education, counselling and support, according to
and anaemia	context

#### Table 5. CCCs for school-age children and adolescents

<sup>\*</sup> Undernutrition among adolescents includes stunting or thinness. In adolescents, thinness is defined as a BMI-for-age z-score below -2 SD from the 2007 WHO Growth Reference for Children and Adolescents (5–19 years). Severe thinness is defined as BMI-for-age Z-score below -3 SD. Stunting is defined as height-for-age below -2 SD. Severe acute malnutrition in adolescents aged 10–14 years is defined as a mid-upper arm circumference of less than 160 mm and signs of severe visible wasting or bilateral pitting oedema.

<sup>\*\*</sup> In areas where the baseline prevalence of any STH infection is 20 per cent or higher among children 5–12 years and non-pregnant adolescent girls aged 10–19 years.

#### Spotlight 10 Reimagine schools to better prepare for and respond to public health crises

The COVID-19 pandemic has debilitated delivery systems and services, and negatively affected the nutritional status of children.<sup>228, 229</sup> Nearly 1.5 billion children - more than 90 per cent of the world's learners - have been impacted due to school closures, which were needed to contain the spread of the virus. School disruptions have also threatened the delivery of essential nutrition interventions to school-age children and adolescents, widening existing inequalities and further impacting disadvantaged and vulnerable children, their families and communities.230, 231 Further, school closures make it more likely that children do not return to school, especially girls, due to the social and economic impact of the crisis.

UNICEF urges national governments to ensure equitable access to essential services for children's protection and well-being, along with continued learning in safe and inclusive school settings. In the context of COVID-19, UNICEF underscores the need to prioritize the reopening of schools after careful consideration of evidence and data, putting appropriate and adequate safety measures in place. During school closures, UNICEF emphasizes continued learning, school feeding and essential nutrition services for children and adolescents by establishing alternate delivery mechanisms.<sup>232</sup> UNICEF reiterates the need for school health and nutrition interventions to be integrated within the school reopening package and related messaging to ensure a safe and enabling environment for nutrition in schools.

#### Internal coordination across UNICEF programme sections

At country level, UNICEF Nutrition staff will lead the dialogue on nutrition in middle childhood and adolescence and will advocate for governments to develop relevant policies, strategies and programmes. UNICEF Nutrition will seek to work closely with other UNICEF sections on advocacy, co-creation, capacity building, development of an integrated package, behaviour change and evidence generation (Table 6).

Programme	Collaborative activities	Objective
Education	<ul> <li>Co-create 'nutrition-in-schools' package and endorse healthy school food environments as a component of safe schools</li> <li>Support inclusion of nutrition education and physical activity in school curricula</li> </ul>	Contribute to improvement in education outcomes as healthy and well-nourished children learn better
Health	<ul> <li>Integrate nutrition services through adolescent-friendly health centres</li> <li>Expand school health and nutrition programmes</li> </ul>	Ensure school-age children and adolescents survive and thrive
WASH	<ul><li>Support the provision of potable drinking water in schools</li><li>Support the narrative on safe and healthy environment for improved nutrition</li></ul>	Improve access to adequate, safe drinking water supply and hygiene practices
Child Protection	<ul> <li>Strengthen engagement with community-based organizations to expand nutrition programmes to out-of-school children</li> <li>Support governments to mandate legislations to protect children against harmful/abusive promotion and marketing</li> </ul>	Improve reach to out-of-school children and adolescents Ensure children's right to nutritious, safe, affordable and sustainable
	of unhealthy foods and beverages	aiets

Table 6. Internal coordination across UNICEF programme	nation across UNICEF programme	al coordinatior	le 6. Internal	Table
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Programme	Collaborative activities	Objective
Social Policy	<ul> <li>Integrate incentives, vouchers, cash transfers and other social protection measures to ensure nutritious and safe diets and nutrition services for children aged 5–19 years</li> <li>Support domestic budget analyses and allocations on programmes/initiatives to improve the nutrition of children 5–19 years of age</li> </ul>	Strengthen safety nets for school- age children and adolescents
Communication for Development	<ul> <li>Conduct formative assessments on enablers and barriers to healthy diets and active lifestyles</li> <li>Develop an SBCC programme to stimulate actions on healthy diets for children, parents, families and communities</li> </ul>	Empower children to seek healthy diets and active lifestyles and sustain behaviour change
Advocacy and Communication	<ul> <li>Support the development of advocacy strategies to engage various stakeholders such as governments, the private sector, individuals and key influencers</li> <li>Engage parliamentarians, youth leaders and community champions to lend their voice to the messages</li> </ul>	Enhance social momentum to improve the nutrition of children 5–19 years of age
Gender	<ul> <li>Identify gender-related barriers that affect diet, dietary behaviours, food distribution and consumption, physical activity and use of services among children in schools</li> <li>Collaborate to include gender analysis in programme development</li> </ul>	Implement gender-responsive programmes
Adolescent Development and Participation	<ul> <li>Develop tools to build the capacities of adolescents for healthy dietary choices and lifestyles through civic and social participatory opportunities, including youth-led- initiatives, sports for development and digital engagement (e.g., through Voices of Youth platforms)</li> <li>Build capacities on the meaningful and safe engagement of young people in nutrition-oriented policies and programmes</li> </ul>	Ensure adolescent health, nutrition and well-being programmes are applied in a multisectoral and holistic manner Integrate the participation and engagement of young people in assessment, design, implementation and monitoring
Programme Monitoring and Evaluation	<ul> <li>Support the design of evaluations to assess cost-effective and innovative approaches to deliver nutrition interventions to out-of-school children, as well as a cost-effectiveness analysis of the package of interventions delivered through schools and through outreach to out-of-school children and adolescents</li> </ul>	Expand the knowledge and evidence base to improve programme efficiency and effectiveness
Partnerships (Public Partnerships and Private Fundraising and Partnerships)	<ul> <li>Fundraise and engage donors to support programmes for school-age children and adolescents</li> <li>Determine how to engage with business programmatically, promote business respect and support for child rights, undertake due diligence and avoid conflicts of interest</li> </ul>	Expand and scale up UNICEF work to improve nutrition in middle childhood and adolescence
Supply Division	<ul><li>Coordinate to strengthen supply chains</li><li>Improve product specifications for IFA supplementation</li></ul>	Improve effective use of products

## Strategic partnerships to improve the nutrition of school-age children and adolescents

Partnerships are crucial for achieving results for children in the context of the 2030 Agenda for Sustainable Development. UNICEF is working closely with governments, academia, bilateral agencies, youth leaders, the private sector and other organizations to develop a shared vision, interests and comparative strengths and advantages. As part of United Nations reform, partnerships between agencies are instrumental in harmonizing efforts, harnessing knowledge and improving accountability to achieve better results for children.

The UNICEF and World Food Programme partnership on School Health and Nutrition provides an opportunity to scale up an integrated school health and nutrition package to improve nutrition, health and learning outcomes. UNICEF is supports the inter-agency partnership, for 'stepping up effective school health and nutrition', across health, education, agriculture, WASH, and social welfare sectors to align efforts among United Nations agencies to promote, protect and support the health, nutrition and well-being of school-age children and adolescents across sectors.

UNICEF supports the World Health Organization (WHO) by translating its normative guidelines and frameworks into implementable actions. The UNICEF-WHO Strategic Collaborative Framework prioritizes four strategic areas for immediate attention and action at all levels of the organizations: universal health coverage, through a primary health care and health systems approach; mental health and psychosocial well-being and development; public health emergencies; and maternal and child nutrition. In partnership with the Food and Agriculture Organization, UNICEF aims to support governments in strengthening their schoolbased programmes and policies to improve children's diets in diverse geographic regions by integrating effective and responsive school-based food and nutrition education.

UNICEF is a member of the Focusing Resources on Effective School Health Partnership and works closely with its members to promote educational success, health and nutrition, and development through schools. UNICEF works closely with the Scaling Up Nutrition Movement Secretariat and its Youth Leaders to strengthen advocacy and partnerships and build constructive momentum for policies, strategies and programmes to prevent all forms of malnutrition among school-age children and adolescents.

#### Engagement and partnership with private sector

UNICEF recognizes the role the private sector plays as a provider of essential goods and services; as a key stakeholder in producing nutritious, safe, affordable and sustainable food options; and as a significant contributor to improving the availability of such foods in schools and at local retail outlets. UNICEF encourages collaboration with the private sector to improve food environments by providing healthier options, promoting nutritious diets and ensuring food security. Private sector engagement can provide the opportunity to support small and medium producers to help improve the availability and affordability of locally sourced, nutritious foods for children, especially for school meals. UNICEF can work with industry coalitions to establish an agenda to fully protect children from exposure to unhealthy food and beverages in the school setting. Reporting and monitoring

7.



Historically, there has been an overall lack of data collected on nutrition in middle childhood and adolescence, especially in low- and middle-income countries. Available datasets often have limited information on the diets and nutritional status of school-age children and adolescents, making it difficult to understand and compare their needs, preferences, circumstances and experiences within and across countries. Perhaps the most significant gap is the lack of a monitoring framework that provides a comprehensive set of standard indicators to monitor school-age children and adolescent nutrition. Addressing existing data gaps is important to improve the evidence base for policy development and to plan effective strategies. To monitor progress towards UNICEF's organizational goals on nutrition in middle childhood and adolescence, relevant questions have been defined for the organization's Strategic Monitoring Questions and the Results Assessment Module. Additionally, **Table 7** provides an example of a related national reporting and monitoring framework based on key priorities defined in the programming priorities chapter. Certain considerations need to be assessed when developing the monitoring framework, such as the context, policy environment, capacities of health and education systems, gender, disabilities, availability of resources, infrastructure, evidence and data sources available in the country.

Level of indicator	Indicators	Source of information*
Impact	<ul> <li>Prevalence of thinness among children aged 5–9 years</li> <li>Prevalence of thinness among children aged 10–19 years</li> <li>Prevalence of overweight and obesity among children aged 5–9 years</li> <li>Prevalence of overweight and obesity among children aged 10–19 years</li> <li>Prevalence of anaemia among children aged 5–9 years</li> <li>Prevalence of anaemia among children aged 10–19 years</li> <li>Prevalence of anaemia among children aged 10–19 years</li> <li>Median urinary iodine concentration in children aged 6–12 years</li> </ul>	COSI, DHS, GSHS HBSC, NMS, NNS, School-based iodine surveys
Outcome	<ul> <li>Percentage of children receiving IFA supplementation in schools</li> <li>Percentage of children receiving deworming in schools</li> <li>Dietary diversity score among children and adolescents**.<sup>233</sup></li> <li>Percentage of children walking or bicycling to school</li> <li>Percentage of school children able to recall messages from communication campaigns or strategies on healthy diets and physical activity</li> </ul>	COSI, DHS, Food Frequency Questionnaires KAP surveys, 24-hour dietary recall, rapid assessments

**Table 7:** Illustrative matrix of indicators for measuring progress of programmes to prevent all forms of malnutrition in middle childhood and adolescence

<sup>\*</sup> COSI: Childhood Obesity Surveillance Initiative; DHS: Demographic Health Survey; HBSC: Health Behaviour in School-age Children Survey; GSHS: Global School-based Student Health Survey; NMS: National Micronutrient Survey; NNS: National Nutrition Survey; KAP survey: knowledge, attitudes and practices survey. \*Women's dietary diversity score is calculated from the ten defined food groups

<b>Priorities</b> (as articulated in the chapter on programming priorities)	Process	Output	Source of information*
Nutritious foods, in schools and beyond	<ul> <li>Existence of nutrition standards for school foods</li> <li>Number of stakeholders involved in the policy development process</li> <li>Number of school staff trained on provision and promotion of nutritious foods in schools</li> </ul>	<ul> <li>Percentage of schools having written policies and guidelines on school foods</li> <li>Percentage of schools that provide school meals in accordance with dietary guidelines</li> <li>Percentage of school staff handling school meals trained on school meal protocols, food handling and safety</li> </ul>	KAP survey, policy review, rapid assessment, self-report or independent school food service audit, school environment survey or checklist, media report, media analysis, training
Healthy food environments, in school and beyond	<ul> <li>Existence of a regulatory frame- work and/or self-regulatory mech- anism (<i>in schools and beyond</i>), along with clear definitions (<i>of age</i> <i>groups, communication channels,</i> <i>marketing techniques, content of</i> <i>marketing messages, and what</i> <i>constitutes unhealthy food</i>) to limit the marketing of food and sugar-sweetened beverages to children</li> <li>Existence of a policy framework on the marketing of food and non- alcoholic beverages to children, with a specific enforcement mechanism defining sanctions and a system of reporting violations</li> </ul>	<ul> <li>Percentage of schools with a written policy restricting the availability of high fat, sugar and salt products in all venues</li> <li>Percentage of schools with vending machines where children are allowed to purchase food or beverages</li> <li>Percentage of schools free from marketing and advertising of any energy-dense and nutrient-poor foods</li> </ul>	reports
Micronutrient supplementation and deworming	<ul> <li>Existence of a policy on prevention of anaemia among children and adolescents</li> <li>Streamlining of supply and logistics</li> </ul>	<ul> <li>Percentage of schools/community outreach sites providing IFA supple- mentation to children</li> <li>Percentage of schools/ community outreach sites providing deworming</li> <li>Percentage of schools with zero stockouts of IFA/deworming tablets</li> </ul>	
Nutrition education in school curricula	<ul> <li>Existence of nutrition education programmes at schools</li> <li>Existence of teaching and learning aids for teachers, parents, caregivers and children</li> </ul>	<ul> <li>Percentage of schools teaching nutrition education as part of school curriculum</li> <li>Percentage of teachers (or health workers) trained on nutrition curricu- la (pre- or in-service)</li> </ul>	
Healthy dietary practices for school-age children and adolescents	• Existence of a national/ subnational social behaviour change communication strategy to promote healthy diets and physical activity	<ul> <li>Percentage of children reached with communication messages on healthy diets and physical activity</li> <li>Number of channels used to communicate messages on healthy diets and physical activity through campaigns or outreach</li> </ul>	

<sup>\*</sup> COSI: Childhood Obesity Surveillance Initiative; DHS: Demographic Health Survey; HBSC: Health Behaviour in School-age Children; GSHS: Global School-based Student Health Survey; NMS: National Micronutrient Survey; NNS: National Nutrition Survey; KAP survey: knowledge, atti-\*\* Women's dietary diversity score is calculated from the ten defined food groups

# 8.

Research considerati<mark>ons</mark>





For children aged 5–19 years, the evidence base for several nutrition interventions needs to be further strengthened. This includes studying the effectiveness of interventions to tackle undernutrition, overweight and obesity, and micronutrient deficiencies, especially in low- and middle-income countries.<sup>234</sup> More data are needed on the costing and effectiveness of different delivery platforms (including during emergencies), especially to reach out-of-school adolescents. Furthermore, there are large gaps in the survey and monitoring data available on nutritional status, diets and service provision. Addressing these gaps is important to characterize burdens of malnutrition, inform policy development and plan effective strategies. UNICEF has joined more than 100 other organizations in a Call to Action listing seven priority areas for improving nutrition data during adolescence; these are also highly relevant for the period of middle childhood.235

In addition to addressing data needs, it will be useful to look into the knowledge gaps on developing an effective nutrition education package, establishing physical activity curricula, improving diets and food environments, evaluating a nutrition-in-schools package, reaching out-of-school children through community engagement, and using information and communications technology or mobile SBCC for sustainable behaviour change. Some key questions that will be useful to iterate during programme implementation are articulated below:

- Conduct quantitative and qualitative research to measure, analyse and address the underlying determinants of malnutrition and the context-specific factors affecting adolescents' food choices, diets and eating practices, physical activity and social and emotional well-being
- 2. Assess how nutrition policies and regulations shape the food environment and influence adolescent nutrition and diet quality
- Conduct rigorous evaluations of interventions to assess their impact and determine the right combination and dosage of macro and micronutrients, as well as the optimal age and duration of adolescent interventions to enhance growth and development outcomes
- Identify effective strategies for reaching out-of-school children, with programmes and services to prevent all forms of malnutrition in development and humanitarian contexts
- Design implementation research to assess the costeffectiveness of packages to prevent all forms of malnutrition in middle childhood and adolescence





UNICEF's vision is a world where all children, adolescents and women realize their right to nutrition. The UNICEF Nutrition Strategy 2020–2030 reiterates the organization's goal to protect and promote diets, services and practices that support optimal nutrition, growth and development for all children, adolescents and women. This programme guidance outlines UNICEF's roadmap for achieving the priorities for nutrition in middle childhood and adolescence set forth in the Nutrition Strategy. This guidance can also be considered as a toolkit to support countrylevel action.

Programming to prevent all forms of malnutrition among school-age children and adolescents will depend on country context, including institutional capacity, effective cross-sectoral and multisectoral partnerships and programming, financial resources, policy and legal frameworks and ultimately a commitment to bring them to scale. Five key systems can be leveraged to help realize these priorities – including education, food, health, water and sanitation, and social protection.

UNICEF aims to support national governments in developing a systematic approach and advocating for context-specific programmes for school-age children and adolescents. UNICEF will also work with governments and partners to strengthen the capacities and agency of children and adolescents, parents, service providers and communities by empowering and engaging meaningfully with them.

This programme guidance should be used to support and develop existing school health and nutrition programmes and existing national or regional guidance on interventions that may include nutrition components for school-age children and adolescents.

# Annexes

### Annex 1. Key strategies to support healthy eating

Interactions between service providers (such as teachers) and children should address food preparation and consumption as an essential positive and enjoyable aspect of life, while also providing opportunities for students to practice important skills, such as decision-making about food choices. These interactions should incorporate examples of eating behaviours that promote health and learning abilities; reduce malnutrition; enhance physical, social and mental health; and ensure food safety, as explored further below. These strategies are intended for school-going children, but may also apply to out-of-school children.

## Strategies to enhance personal characteristics that support healthy eating

- Explain the effects of diet and physical activity on current and future health, overweight/obesity, underweight, eating disorders, sense of wellbeing and capacity for physical activity.
- Share the principles of dietary guidelines; instil pride in students for choosing to eat meals and snacks that align with these principles.
- Teach students how to identify foods high and low in fat, saturated fat, cholesterol, sodium and added sugars, and foods that are good sources of fibre, complex carbohydrates, calcium, iron, vitamin A, vitamin C and folate.
- Teach the importance of balancing food intake and physical activity.
- Help students increase the value they place on health and their sense of control over food selection and preparation.
- Increase students' confidence in their ability to eat healthily by gradually building up their skills and giving them opportunities to practice; and help students examine what motivates them and others to adopt particular eating habits.
- Encourage children to keep a food diary noting what factors cue their own eating behaviour, such as mood, hunger, stress or other people.

## Strategies to enhance behavioural capabilities that support healthy eating

- Let students plan and prepare healthy meals and select nutritious food in cafeterias, stores and restaurants.
- Teach students how to make food choices associated with health, and where appropriate, how to read nutrition labels.
- Teach students how to evaluate nutrition claims from advertisements and nutrition-related news stories.
- Teach students ways to modify recipes and prepare foods with appropriate levels of fat, sodium, sugar, calories and fibre that are consistent with their needs.
- Help students identify incentives and reinforcements for their current eating and physical activity.
- Have students examine media and social inducements to adopt healthy or unhealthy eating and physical activity patterns and teach them how to respond to these pressures, letting them use their new knowledge to identify their own resistance strategies.
- Have students analyse environmental barriers to healthy eating and physical activity and explore strategies for overcoming these barriers.
- Have students set goals for healthy changes in eating and physical activity, identify barriers and incentives and assess alternative strategies for reaching their goals; and show students how to monitor progress, revise their goals if necessary and reward themselves for successfully attaining their goals.
- When appropriate, give students practice in encouraging parents to make healthy choices about eating and physical activity at home.
- Teach students to record their food intake and assess and compare their diets with the standards in dietary guidelines and food guide models, including their intake of key nutrients such as calcium and iron.

## Annex 2 Key considerations for adolescent participation and civic engagement

#### Annex 2a – Dimensions of adolescent participation and civic engagement

To improve nutrition outcomes for adolescents, UNICEF may consider some of the following practices for adolescent participation and civic engagement.

#### LAWS, POLICIES, PRACTICES AND BUDGETS

- Advocate for laws, policies and practices with commensurate budgets – that institutionalize equitable adolescent participation in communities, schools, health facilities and regional and national governance structures, to help adolescents influence the nutrition issues affecting them and give suggestions for delivering adolescent-friendly health services.
- Advocate for policies and procedures that ensure adolescents' right to expression, informed consent and confidential medical counselling for their own nutrition treatment. As adolescents mature, they should be allowed to make decisions about their medical treatment while continuing to get support from their caregivers and health professionals.71
- Support adolescent participation in the formulation of nutrition-related policies/strategies that are relevant to them.

#### **POSITIVE SOCIAL NORMS AND ATTITUDES**

- Engage religious and traditional elders to publicly support positive norms about equitable adolescent participation in the domain of nutrition.
- Promote intergenerational dialogue on nutrition in families, communities and wider public settings to increase mutual understanding and respect for the perspectives of all actors and contributions across age, gender and background groups.
- Partner with adolescent girls and boys to develop and implement social and behaviour change strategies on key health and well-being issues. This includes working with adolescents to develop and implement behaviour and social change strategies that improve how adolescents, especially marginalized groups (e.g., those with

disabilities, ethnic minorities, girls, refugees and migrants) are portrayed.

## AWARENESS, SKILLS AND CAPACITIES OF ADULTS

- Provide government officials and professionals with capacity building, technical support and mentoring on key principles and approaches to adolescent participation (e.g., peer education to promote nutrition, adolescent health advisory platforms, etc.).
- Build the capacities of health and social providers to create an adolescent-friendly environment that encourages healthy behaviours and the use of available health services. Health workers should be trained in effective, non-discriminatory communication with adolescents, which fosters trust-building and sincere efforts to receive and act on adolescent feedback.

#### AWARENESS, SKILLS AND CAPACITIES OF ADOLESCENTS

- Work with adolescents to develop and increase access to adolescent-friendly, gender-sensitive and disability-appropriate knowledge on nutrition.
- Build adolescents' capacities in decision-making, reflective thinking, self-efficacy and gender equality to equip them to defend their rights and negotiate relationships and choices for healthy well-being.
- Provide capacity building and mentoring to strengthen adolescents' ability to serve as nutrition promoters and peer educators.
- Support adolescent-led participatory research and action initiatives that inform service delivery, practice and policy developments on nutrition.

#### PLATFORMS FOR ADOLESCENT PARTICIPATION AND CIVIC ENGAGEMENT

- Support adolescents' participation in offline and online clubs, networks and forums (e.g., school health clubs, youth clubs, adolescent girls' groups, etc.,) where they can discuss, analyse and plan actions on nutrition-related issues that affect them.
- Support the establishment of adolescent client feedback mechanisms, such as adolescent health advisory boards with clear terms of reference and roles/ responsibilities in health settings. Institutionalized platforms provide a regular space for adolescent representatives to dialogue with policymakers and practitioners and to influence adolescent-friendly services, laws and policies.
- Establish accessible, adolescent-sensitive feedback and complaints mechanisms in health settings to allow adolescents to share concerns and receive feedback on related decisions.
- Support adolescent participation in programming processes, including analysis, planning, implementation, monitoring and evaluation.
- Partner with adolescent- and youth-led organizations and networks working on nutrition to advocate for the nutrition-related rights of disadvantaged groups. Build the capacities of adolescents and youth in organizational development, management, resource mobilization and advocacy.

#### Annex 2b – Strategies for meaningful youth engagement

Research conducted by Anthrologica in Cambodia, Guatemala, Kenya and Uganda on the experiences, needs and priorities of adolescents regarding their health and nutrition identified a common set of recommendations for effective engagement. These include:

- 1. **Meet adolescents where they are:** Nutrition Interventions need to meet adolescents in places they already frequent and at a convenient time.
- 2. Make learning relevant to their lives: Adolescents are more engaged in sharing and learning when they discuss real life experiences with programming facilitated by youth leaders similar to them in age and socio-economic status.
- 3. **Make activities entertaining:** Activities can be made engaging, informative and understandable through music, dance, theatre and sports.
- 4. Use logical/natural groupings: Adolescents want to be in groups of people similar to themselves such as girls only, in school, married, older, younger, etc.
- 5. Use local languages and dialects: Adolescents are more comfortable being engaged in their local language and dialects that are age-appropriate and colloquial.
- 6. **Ask and include them:** Engage adolescents in interpersonal activities rather than one-directional methods such as billboards, posters and brochures. Give them a chance to ask questions and to become involved in decision-making processes.

- 7. Be transparent about who is being reached and why: Adolescents do not want to be discriminated against and they expect trust and privacy. Be transparent about the purpose of engagement and ensure there is equity in-service provision.
- 8. **Involve gatekeepers:** Initiatives directed at adolescents need to involve their families, or at the minimum, secure their consent. Girls may need extra support to help them negotiate with their families to facilitate their participation in activities.
- Convey the immediate benefits of food: Convey how food will benefit them now (e.g., more energy for school and completing their daily workload, improved concentration and better learning, etc.) and in the future.
- 10. Build skills and interests they deem important: Adolescents will be more receptive to learning and engagement when it is relevant to skills they want to develop and improve. Prioritize issues they identify as important.

#### Annex 2c – Youth engagement in research, monitoring and evaluation: supply and demand

Effective youth engagement in research, monitoring and evaluation (RM&E) involves strengthening the supply of qualified professionals through capacity development by improving the technical knowledge, skills, and attitudes to effectively implement participatory activities with young people.<sup>236</sup> Effective traits for adults and communities to support participatory work include being humble, considering young people's views as equal to those of adults, being genuinely interested in their best interests, and being able to talk to young people in a clear and child-friendly manner.<sup>237</sup>

In addition, for supply, there must also be demand among individuals, households and communities for

youth participation in RM&E. An important demand strategy includes raising awareness on how RM&E can help create social accountability and enable young people to define their own criteria for well-being.<sup>238</sup>

Sound processes, and an enabling environment in which young people's data can be heard and acted on by decision-makers, must also be strengthened to support youth participation.<sup>239</sup> Strategies to improve the enabling environment include forming partnerships with responsible state actors and leveraging networks with governments, the private sector and civil society organizations.<sup>240</sup>

## Annex 3 Key considerations for situation analysis

#### Annex 3a – A tool to support situation analysis

While developing a Programme Strategy Note, countries may consider the following questions for the situational analysis:

Objective	Key questions	Reference indicators and database	Other considerations	Methodology
Information on health and nutrition status	<ul> <li>What are the most significant health and nutrition problems faced by girls and boys 5–19 years of age?</li> <li>Which subgroups of girls and boys 5–19 years of age might be the most vulnerable to malnutrition?</li> </ul>	Examine the trends around the following: Anaemia prevalence Thinness Short stature Iodine deficiency Overweight and obesity Dietary diversity score Dietary behaviours Low birthweight; high birth- weight for age (>4kg) Per cent of women pregnant by age 18 Per cent of women married by age 18 Age at first birth Level of physical activity Source: DHS, HBSC, GSHS, NMS, WHO-GHO and other relevant surveys	Assess the context of malnutrition among adolescents, with special attention to data on child marriage, early pregnancy and access to school as a platform for delivering nutrition services. Additionally, young peo- ple should be engaged in the design (needs assessment phase)	<ul> <li>Desk review</li> <li>Literature review</li> <li>Survey</li> </ul>

Landscape analysis of policies, programmes and stakeholders	•	What are the national, local and schoollevel policies that support the provision of health and nutrition interventions in the impact area, and to what extent do they comprehensively address the health and nutritional needs of girls and boys? What are the existing national and subnational plans, laws and regulations that impact the nutrition status of children 5–19 years of age? Who are the key stakeholders and what is their involvement and influence in the policy and programme discourse on nutrition of children 5–19 years of age? What is the existing coordination mechanism that addresses nutrition of children 5–19 years of age? Are nutrition outcomes integrated into various systems (health, education, social protection, water and sanitation)? Is industry (private sector) involved? What is the role of the private sector in the policy landscape? What are the existing foodbased dietary guidelines and do they include specific recommendations for children 5–19 years of age?	•	Government policy documents WHO Global Nutrition Policy Review Global surveys for school meals (Global Child Nutrition Foundation) Online reports and publications Media reports	Analysis should include both nutrition-specific and nutrition-sensitive dimensions	•	Desk review (web search of government documents) Mapping Interviews with policymakers and programme implementers and other stakeholders (https://netmap. wordpress.com/ about/)
Capacity assessment		What are the existing guidelines and protocols for improving nutrition outcomes among children and adolescents? Who are the key government and community duty bearers that contribute to service delivery (schools, health facility and community)? Are the duty bearers aware of the guidelines and protocols (dietary guidelines, supplementation, physical activity)? What is the capacity (pre and inservice) of the key dutybearers to support or implement nutrition programmes for this target group? What are the existing financial resources to support nutrition programmes for children 5–19 years of age? Is there an explicit budget line for the selected school health and nutrition programme in the Ministry of Health and Ministry of Education budgets or other ministry budgets? Is information on nutrition indicators for children 5–19 years of age being collected on a routine basis and used for decisionmaking? What are the existing communication strategies, channels and messages to reach children, adolescents and parents? What is the reach of the communication medium/channel?		Policy documents Government guidelines and orders WHO Global Nutrition Policy Review Pre- and in-service training curriculum	Identify key gaps at the national, subnational, district and sub-district level	•	Desk review of guidelines and documents (web search of the government documents) Review of the training curriculum

Barriers	•	What behaviours are linked to poor nutrition among children 5–19 years of age? How are existing social norms influencing diets, behaviours and practices? Can we map the interplay of individual, interpersonal, organization/environmental influences on dietary choices and lifestyle behaviours?	•	Surveys: HBSC, GSHS, Food Consumption Survey, National Survey on Physical Activity Behaviours KAP reports from stakeholders	Examine the influences and barriers that children and adolescents may face due to gender inequality and other vulnerabilities	•	Survey of the targeted population Qualitative assessment Budget analysis		
	•	What are the behaviours that could lead to poor nutrition and health outcomes in the future (such as increased consumption of unhealthy foods and physical inactivity)?							
	•	What are the exposures (food environment in schools, sale and advertising of unhealthy foods, sponsorship) that can influence nutrition behaviours and decisionmaking among children and adolescents?							
	•	How adequate is the resource allocation across the various systems (ministries, sectors) on nutrition programmes in middle childhood and adolescence?							
Skills and knowledge- based nutrition	•	Does your country have a school curriculum that integrates nutrition education and is required for all students?	•	Policy documents Systems Approach for Better Education Results (SABER)-	Conduct systematic analysis of school-based food and nutrition	•	Desk review of School curriculum Qualitative		
and health education	•	How is nutrition education delivered within the school curricula?				Assessments by World Bank	education		assessments with students,
	•	Is nutrition education assessed (linked to grades/extra credit/marks) in schools?					teachers, school staff and parents		
	•	Is there a stipulated number of instructional hours for nutrition education within the school curriculum?							
	•	Is the curriculum ageappropriate?							

#### Annex 3b – Key considerations for assessing the nutritional status of children 5–19 years of age

Information on the nutrition and health of children aged 5–19 years can be obtained through two main approaches: (1) by reviewing and summarizing existing information in published papers and reports; and (2) by undertaking a descriptive survey.

#### **1. Existing information**

An Internet search of published literature should be undertaken using carefully chosen search terms. School-age children aged 5–14 years as an age group are not specifically identified in the index of medical subject headings (MeSH) of PubMed; rather, the two categories are 'child' (ages 6–12 years) and 'adolescent' (ages 13–18 years). The term 'school health services' is identified. There are several common issues that should be borne in mind when reviewing research papers and reports on the nutrition of school-age children and adolescents:

- Surveys reported before 2007 do not use the revised WHO growth references for children aged 5 to 19 years to calculate anthropometric indices and they do not calculate BMI-for-age, so any data need to be re-analysed before they can be presented.
- Some papers may not use the term 'thin', which is applied by WHO to describe a small BMI-forage child, but may use the terms 'underweight' or 'wasting', which are classifications based on weight-for-age or weight-for-height respectively.<sup>241</sup> Adult cut-offs of BMI should not be applied to school-age children and adolescents.
- The cut-offs to classify all children of a normal height are between -2 and 2 z-scores of height-for-age, a range which includes about 95 per cent of the reference population, but the cut-offs proposed by WHO for a healthy BMI-for-age for children aged 5–19 years are -2 to 1 z-scores.<sup>242</sup> This means that about 2 per cent of the reference normal distribution are classified as thin and about 14 per cent are classified as overweight.

This brings into question the prevalence at which overweight is of public health concern; currently, there are no recommendations.

- Different cut-offs can be applied to classify children as thin, overweight or obese: WHO and the International Obesity Task Force (IOTF) have different cut-offs of BMI by age and sex, while the United States Centers for Disease Control (CDC) use BMI cut-offs based on percentiles.<sup>243</sup>, <sup>244</sup> The IOTF also offers three cut-offs for thinness by age and sex for children aged 2–18 years, which correspond to adult BMIs of 16.0, 17.0 and 18.5. These different cut-offs will give different prevalence estimates and cannot be compared.
- Data are disaggregated in different age ranges, such as 5–9 years and 10–14 years, or 5–11 years and 12–18 years, which makes them hard to compare. Data may not be disaggregated by sex; however, they should be, as the differences in growth between girls and boys become distinct during the school-age years.

#### 2. Planning and undertaking a survey

The design of a survey of the nutrition and health of children aged 5–19 years will depend on four main things:

- The need for data to describe the geographic distribution of common conditions and enable local planning
- The need to disaggregate data by sex, age group and enrolment status
- The precision and statistical confidence required in the estimates of prevalence
- The budget available for the survey

If a high proportion of children are not enrolled in school, then a census of households should be considered so that samples of enrolled or nonenrolled children can be studied and compared at the same time.<sup>245</sup> This survey needs to be done during school holidays, so that both enrolled and non-enrolled children can be found at home with a similar probability. As households cannot be sampled randomly, a random sample of villages should be selected, and then within each village a random sample of households should be taken. Large-scale surveys of children in households are uncommon, as they can be time-consuming and costly; most national surveys are of children in schools, as a large sample of children can easily be sampled and studied each day.  $^{\rm 246}$ 

A sample size calculation should be done according to the design of the survey, depending on whether children are sampled totally randomly or randomly in villages or in schools, so they constitute a cluster sample. The core data required on subjects are:

- Date of birth, or at least age in whole months
- Sex
- Body weight to a precision of 0.1 kilograms
- Height to precision of 0.1 centimetres to calculate z-scores or recorded in metres to calculate body mass index
- School grade

Data should be disaggregated by three age groups: 5 - 9, 10 - 14 and 15 - 19 years, and by sex whenever the sample size is sufficient (n >30). The following indices can be calculated using WHO Anthro Plus software or the macros provided for Stata, SPSS, R, S-Plus or SAS.<sup>247</sup> The cut-offs shown in **Table 8** can then be applied to calculate the indicators:

- Z-score of height-for-age to classify a child as stunted
- Z-score of BMI-for-age to classify a child as thin, overweight or obese
- Z-score of height-for-age for children <10 years old, to classify a child as underweight

Weight-for-height, which is used to assess whether a child is wasted and is the SDG indicator of malnutrition (SDG 2.2.2), cannot be calculated for school-age children. Body mass index can be calculated manually as weight in kilograms divided by height in metres squared; so BMI = weight in kg/ height in m2. This is the same as weight in kilograms divided by height in metres and then divided again by height in metres (e.g., 32.5/1.383 = 23.5/1.383 = 17.0).

An age-for-grade score can illustrate late enrolment or retention: this is the difference between a child's actual age in years and the age a child should be in the same grade in school. A value of zero means that the child is in the right grade for age. The distribution of values, which are typically negative, indicating late enrolment, shows the scale of late enrolment **Table 8.** Indices and measurements used to classify school-age and adolescent children as malnourished and the cut-offs recommended by the WHO<sup>69,\*</sup> or the International Obesity Task Force (IOTF)<sup>70,\*\*</sup> to classify the degree of malnutrition. The IOTF cut-offs apply only to children from the ages of 2 to 18 years. Weightfor-height, an index of wasting, is not calculated for children older than 60 months.

					Age groups				
					5 – 9 years	10 – 14 years	15-19 ye	ears	
					61 – 119	120 – 179	180-228	}	
					months	months	months		
Index or measurement	Units	Degree	Classification	Org	Cut-off	Cut-off	Cut-off		
Z-score of height-for-age (WHO)		Moderately	stunted	WHO	<-2	<-2	<-2		
Z-score of height-for-age (WHO)		Severely	stunted	WH0	<-3	<-3	<-3		
Z-score of weight-for-age (WHO)		Moderately	underweight	WH0	<-2	Not calculated***	Not calcu	ulated	
Z-score of weight-for-age (WHO		Severely	underweight	WH0	<-3	Not calculated***	Not calcu	ulated	
Body mass index (WHO/IOTF)	kg/m2		thin	WH0/IOTF	Cut-offs by age	e for each sex			
Body mass index (WHO/IOTF)	kg/m2		overweight	WH0/IOTF	Cut-offs by age	for each sex			
Body mass index (WHO/IOTF)	kg/m2		obese	WH0/IOTF	Cut-offs by age	for each sex			
Z-score of BMI-for-age (WHO)		Moderately	thin	WH0	<-2	<-2	<-2		
Z-score of BMI-for-age (WHO)		Severely	thin	WH0	<-3	<-3			
Z-score of BMI-for-age (WHO)		Moderately	thin, boys	IOTF		-1.014			
Z-score of BMI-for-age (WHO)		Moderately	thin, girls	IOTF	-0.975				
Z-score of BMI-for-age (WHO)		Severely	thin, boys	IOTF	-2.565				
Z-score of BMI-for-age (WHO)		Severely	thin, girls	IOTF	-2.436				
Z-score of BMI-for-age (WHO)			overweight	WH0	>1	>1	>1		
Z-score of BMI-for-age (WHO)			obese	WH0	>2	>2	>2		
Z-score of BMI-for-age (IOTF)			overweight, girls	IOTF		>1.244			
Z-score of BMI-for-age (IOTF)			overweight, boys	IOTF		>1.310			
Z-score of BMI-for-age (IOTF)			obese, boys	IOTF		>2.288			
Z-score of BMI-for-age (IOTF)			obese, girls	IOTF		>2.192			
Median urinary iodine <sup>61,136</sup>	µg/L	Inadequate		WH0		< 100			
	µg/L	Excessive		WHO		≥ 300			
Serum retinol concentration <sup>137</sup>	µmol/L	Deficient		WH0		< 70			
					Boys and girls	5	Boys	Girls	
					5 — 11 y	12—14 у	≥15 y	≥15 y	
	g/L		anaemic	WHO	<115	<120	<130	<120	
Haamaglahin <sup>78</sup>	g/L	Mildly	anaemic	WHO	110-114	110-119	110-129	110-119	
(not corrected for altitude)	g/L	Moderately	anaemic	WHO	80-109	80-109	80-109	80-109	
	g/L	Severely	anaemic	WHO	<80	<80	<80	<80	

\*https://www.who.int/tools/growth-reference-data-for-5to19-years/indicators/bmi-for-age

\*\*https://www.worldobesity.org/about/about-obesity/obesity-classification

\*\*\* Weight-for-age can be calculated for children aged exactly 120 months only

or retention. Late enrolment has been associated with stunting and children affected by stunting tend to receive fewer years education than children who enrol in school at the right age.<sup>248</sup> They also earn less as adults.<sup>249</sup>

A finger-prick blood sample can be taken from a subsample of children to measure their haemoglobin concentration using a portable device such as a Hemocue (Hemocue, Ängelholm, Sweden) to estimate the percentage of children that are anaemic using the cut-offs shown in Table 8. The same finger-prick can provide a blood sample to test for malaria.<sup>250</sup> To assess vitamin A status, a venous blood sample taken with a syringe is required to extract the serum and freeze it for transport to a specialist laboratory where the concentration of retinol in serum can be estimated using high pressure liquid chromatography. This is difficult to do and expensive. Some tests may be able to use dried blood spots. A urine sample can be collected and easily preserved to estimate the concentration of iodine. The school-age group is used to assess the iodine status of the general population.<sup>251</sup> Data on reported dietary intake and habits can be collected using a questionnaire. The WHO/CDC Global Schoolbased Health Survey collects data on hunger, fruit and vegetables eaten, and carbonated drinks and fast foods consumed (the definition of which differs between countries). Data can also be collected on reported personal hygiene habits. All reported behaviours are susceptible to social desirability bias, especially if poor habits conflict with lessons taught in school.

A sample of faeces can be collected and examined under a microscope for the eggs of *Ascaris, Trichuris,* hookworms and *Schistosoma mansoni* (if present locally).<sup>252</sup> If urinary schistosomiasis occurs locally, then a urine specimen can be collected around midday either to test for blood using a dip-stick, or to be examined for worm eggs, or both. This survey of parasitic infections will determine the need for children to receive treatment in schools in the area, and the frequency of the treatment needed.<sup>253</sup> In many countries, periodic treatment for worms has been given to school-age children with support from WHO, so the prevalence of infection should be low. In a survey of households, the location of the house and nearest school can be recorded using a global positioning system so that the direct distance between the two can be calculated, which may influence enrolment. Other data to be collected will depend on the local context and interests. Data collected from children by questionnaire should be validated, if possible, and questionnaires should take no longer than 30–40 minutes to administer. Informed consent should be obtained from a parent to interview a child or collect biological samples such as blood and faeces, and the child should agree. The design of the survey should be given ethical clearance by a suitable independent review committee. The core indicators to be reported are:

- Percentage of very stunted and moderately stunted children, using cut-offs of height-for-age
- Percentage of very thin, moderately thin, overweight or obese children, using cut-offs of BMI-for-age
- Percentage of anaemic children using cut-offs by age
- Percentage of children infected with each type of intestinal worm and the percentage with any worm infection
- Percentage with schistosomiasis, by species, if endemic
- Percentage reporting particular dietary behaviours, exercise and personal hygiene habits

When analysing data to report the findings, the data for each geographic area should be disaggregated by sex and into equal age groups:<sup>254</sup>

- 5–9 years or 60 to 119 months (late childhood)
- 10–14 years or 120 to 179 months (early adolescence)
- 15–19 years or 180 to 228 months (late adolescence), if this older age group is covered

The sample size in each group should be given with the results. As a rule of thumb, any sub-group for analysis should have a minimum sample of 30 children. Percentages should be reported with 95 per cent confidence intervals, calculated to account for any clustering in the sampling process, such as sampling by school or village. The results should be published, disseminated and used to inform and improve policies and programmes.

### Annex 4. Key actions for Nutrition programming at each stage of the humanitarian programme cycle (HPC)

Tip Sneet		
HPC phases	What to do	Tips for young people's participation
1 Needs assessment and analysis	<ul> <li>Collect data on the nutritional needs of adolescents and youth, especially menstruating girls, pregnant girls and young women and breastfeeding mothers, and analyse these data disaggregated by sex, age and disability</li> <li>Conduct nutrition surveys in the community to understand where and how young people engage with services and how they access information about nutrition</li> </ul>	<ul> <li>Consult young people to understand their diets, dietary preferences and any barriers to consuming a nutritious diet</li> <li>Hold consultations – grouped by age and sex of participants – with a diverse cross-section of young people in order to understand and establish their needs with regard to nutrition and diet</li> </ul>
2 Strategic planning	<ul> <li>Ensure that the nutrition response plan addresses the needs identified during the needs assessment, and those from any other data sources</li> <li>Plan programming for young people in coordination with agencies providing health services, especially sexual and reproductive health, and maternal, newborn and child health services</li> </ul>	<ul> <li>Facilitate the participation of adolescents and youth in strategic planning to enable them to identify opportunities and mitigate barriers to good nutrition</li> <li>Involve a diverse cross-section of young people in the design of nutrition programmes</li> </ul>
3 Resource mobilization	<ul> <li>Include information and key linkages to engage young people in the nutrition sector and budget for those interventions (e.g., assessments, supplies, capacity building)</li> <li>Report regularly to donors and humanitarian stakeholders on resource gaps, especially for those most vulnerable (e.g., female-headed households, pregnant and breastfeeding mothers, young people with disabilities) in the nutrition sector</li> </ul>	<ul> <li>Engage young people in developing meaningful advocacy messages for improving access to nutritious food</li> <li>Seek young people's views and feedback, especially on how their needs are being addressed and how they are being engaged in the nutrition sector, when developing proposals and reports for donors and partners</li> </ul>
4 Implementation and monitoring	<ul> <li>Ensure that all young people are aware of distribution sites and distribution timing (consider the needs of remote populations, female and adolescent-headed households, literacy barriers, etc.).</li> <li>Develop and maintain feedback mechanisms for young people to express their views on the effectiveness and quality of nutrition programmes</li> <li>Raise awareness among pregnant adolescents and adolescent parents on the nutritional and health benefits of breastfeeding for both baby and mother</li> <li>Make provisions for breastfeeding support starting with early pregnancy and continuing through the postpartum period</li> <li>Provide nutritionally appropriate alternatives for young parents unable to breastfeed, and conduct training for those parents on the importance of clean water in the preparation of breastmilk alternatives. Appropriate facilities should be made available in order to ensure that the water used to prepare breastmilk alternatives is clean</li> <li>Provide referral to mental health and psychosocial support for young mothers as part of food security and nutrition programming</li> <li>Provide support for young people with children who conduct outreach in their communities for nutrition interventions (e.g., ensure they have access to safe spaces)</li> </ul>	<ul> <li>Engage with young people in the coordination, design and implementation of nutrition programmes</li> <li>Train young people to raise awareness among their peers and engage with decision-makers on essential nutrition interventions</li> </ul>
	<ul> <li>Monitor access to nutrition assistance for young people and develop targeted interventions accordingly</li> </ul>	

5 Operational peer review and evaluation	<ul> <li>Review projects within the nutrition response plan to assess to what extent the needs of adolescents and youth were effectively addressed through programmes and interventions</li> <li>Document and disseminate good practices on effectively addressing the needs of young people in nutrition</li> </ul>	• Ensure that vulnerable groups, such as pregnant and breastfeeding women and young mothers, are able to safely and effectively raise their concerns during reviews and evaluations
Other resources	<ul> <li>Inter-Agency Standing Committee, Thematic Area Guide for: Guidelines for Integrating Gender-Based Violence Interventions in Humanitari- an Action: Reducing risk, promoting resilience and aiding recovery: Nutrition, IASC, 2015. <a href="https://gbvguidelines.org/wp/wp-content/uploads/2015/09/TAG-nutrition-08_26_2015.pdf">https://gbvguidelines.org/wp/wp-content/ uploads/2015/09/TAG-nutrition-08_26_2015.pdf</a>&gt;</li> </ul>	
	<ul> <li>Bahwere, P., Anthropometric Cut-off Points for Older Children and Adolescents in Syria, Field Exchange 54, Emergency Nutrition Network, 2017. </li> </ul>	

## Annex 5. Country case studies



#### Case study 1:

## Assessing programme effectiveness to scale up programmes to prevent anaemia among Ghanaian Adolescent Girls

In Ghana, nearly one in four adolescent girls aged 15–19 years are anaemic.<sup>255</sup> To address anaemia among girls, Ghana launched the Girls' Iron and Folic Acid Supplementation (GIFTS) programme in 2017. Under the programme, adolescent girls receive weekly IFA supplements, while both girls and boys receive educational information on nutrition behaviours and practices.

Phase I of this integrated school-based adolescent nutrition and health programme was rolled out between 2017 and 2018 in four regions. The programme was scaled up nationwide in 2019 and 2020. Under GIFTS, IFA tablets are provided to the implementing districts through the government health system, while supplementation is delivered through the education system. In some schools, meals are also offered to the students. Since malaria is endemic in Ghana, malaria prevention is also one of the components included in the programme.

An impact evaluation in 2018, led by the CDC, assessed programme performance across 60 schools in the Northern and Volta regions. The evaluation showed positive results, with a reduction in the prevalence of anaemia from 25 per cent to 19.5 per cent among targeted girls.<sup>256</sup> Critical factors in improving the coverage of and adherence to IFA supplementation include: training of school staff and school leadership; sensitization of and motivation for school staff to establish positive attitudes for the programme; guidance on missed doses and their administration; and maintenance of proper accounting for IFA tablets.<sup>257</sup>



#### Case study 2

## A systematic approach to develop learning modules to promote healthy diets and physical activity in Indonesia

Indonesia faces a triple burden of malnutrition across all age groups, including adolescents. Since 2016, UNICEF has supported the Government of Indonesia to address malnutrition among adolescents by designing and implementing a multisectoral, gender-responsive nutrition programme, which aims to improve the dietary intake and physical activity of adolescent girls and boys.

From the outset, adolescents have been fully engaged in co-creating the programme, with national and subnational governments jointly implementing the initiative. In 2017, a series of quantitative and qualitative research was conducted to support the evidence-based design of the intervention package, which includes three components: weekly IFA supplementation to address anaemia, multisectoral nutrition education to improve adolescents' knowledge on healthy eating and lifestyles, and SBCC to enhance adolescent attitudes and behaviours and to mobilize support from their parents, families, schools and communities.

Notably, multisectoral nutrition education materials were designed with four line ministries including health, education, planning and religious affairs, and include a variety of topics ranging from nutrition to NCDs, mental health, reproductive health, violence and injuries, HIV/AIDS, substance use and WASH. Education modules were designed to be fun, interactive and innovative. In 2018 and 2019, a pilot programme was implemented in two selected districts to model the successful delivery of the intervention package through schools. Based on the promising evidence generated from the pilot, a policy decision was made in 2020 to scale up the intervention package nationwide using the School Health Programme as the platform. The following actions were undertaken to frame the modules:

- Conducting a robust situation and needs assessment of nutrition-specific and nutritionsensitive issues in adolescents, including their knowledge and attitudes on nutrition and healthy lifestyles, and preferred learning methods at school
- Carrying out a comprehensive mapping of existing nutrition and education materials and identifying gaps and opportunities
- Conducting multiple consultations and in-depth discussions with various stakeholders, including national and subnational government partners from four line ministries, including health, education, planning and religious affairs, to design a one-year nutrition education curriculum (described above)

- Developing the initial draft of nutrition modules and supporting materials and tools
- Conducting pre-testing and consolidating feedback by engaging adolescents through focus group discussions and in-depth and seeking feedback from teachers and school management on the delivery methods and platforms
- Developing a monitoring and review mechanism
- Presenting the final modules, tools and implementation plans to multisectoral government counterparts and other stakeholders for further inputs and endorsement
- Training teachers, health workers and school management on the use of nutrition education modules and implementation of the programme



#### Case Study 3

#### Analyzing the nutrition situation of school-age children and adolescents: Commissioning a regional review in Europe and Central Asia region

The Eastern Europe and Central Asia region is a large and diverse group of 21 countries that have been through economic and nutrition transitions over the last 20 years that have likely affected the nutritional status of school-age children and adolescents. UNICEF conducted a review of nationally representative survey data in the region to understand the nutritional status of children and adolescents (aged 7-18 years), and identify programmes focusing on nutrition in this age group. A systematic literature search was carried out in Pubmed, Cochrane Library, and ScienceDirect databases using search terms linked to the research question; and surveys with nationally-representative data collected in countries of the region (n=21) from 2000-2019 (and which included anthropometric data on adolescents or data on their nutritional status or dietary habits) were also reviewed. The analysis also comprised a desk review of documents from nine countries, including published and grey literature sourced from UNICEF country offices and through internet searches, including databases of WHO and the European Commission. A total of 112 documents were reviewed, including national food security and nutrition programmes, national NCD strategies and national health strategies and policies.

The review highlighted that the region exhibits three broad sub-sets of nutrition profiles: Central and Eastern Europe, where overweight and obesity are major concerns; the Caucasus, where overweight and micronutrient deficiencies are of concern; and Central Asia, where stunting as well as micronutrient deficiencies remain a challenge. Overall in the region, the most significant nutrition issue among children and adolescents aged 7–18 years is overweight and obesity. Fourteen countries have an overweight prevalence of  $\geq$  20 per cent (in boys) and ten countries have an overweight prevalence of  $\geq$  20 per cent (in girls). Three countries have an overweight prevalence of more than 30 per cent among boys.

While several of the nine countries are making progress in their steps to address malnutrition in this age group through national policy and programmes, there are gaps in the policy framework for prevention of obesity and iron deficiency anaemia in all countries, and very little attention has been given to these issues. The review findings suggest that countries are increasingly adopting measures to control the presence of unhealthy food in the schools; however, they are less advanced in tackling the marketing of unhealthy foods for children beyond the school environment.

The review findings shed light on areas that need urgent attention in the various countries. Further, they help inform the advocacy efforts of European Union partners and member states and contribute to the development of a nutrition roadmap for the region.





#### Case study 4

#### Advocating for the protection, promotion and fulfilment of nutrition rights: Engaging stakeholders to improve the enabling environment in Latin America and the Caribbean

Obesogenic food environments have been linked to the growing prevalence of overweight and obesity among children and adolescents in the Latin American and Caribbean region. Such food environments are typified by the increased availability, accessibility, affordability and marketing of unhealthy foods and beverages containing high levels of sugar, salt and fat, resulting in a shift away from traditional healthier diets that are higher in vegetables, fruits and wholegrains. Today the prevalence of childhood overweight in some countries of the region is nearing 40 percent among 5–19-year-olds.

Around 2014, countries in the region began supporting governments (*e.g., sectoral ministries, legislative and executive branches*) to respond to this problem; Argentina, Ecuador and Mexico are three countries where this agenda has been most advanced. Preventing overweight and obesity first and foremost requires upstream policy actions, typically legislation and/or regulations, to create an enabling environment where healthy food choices are available and affordable, and where children are protected from the harmful promotion of unhealthy foods. Programming activities in the region that have supported an enabling environment include evidence generation, in-depth assessment and analysis of a country's political and policy landscape, and direct dialogue and advocacy with governments.

The experience in these countries has demonstrated that UNICEF can play an important role in commissioning policy-relevant research and evidence reviews and bringing a child rights perspective to the policy conversation - a unique comparative advantage that UNICEF holds vis-avis other organizations. UNICEF has also provided direct technical assistance to governments during the decision-making processes on the scope, definition and implementation of policies, and combined efforts with other United Nations agencies (e.g., WHO and FAO), research and academic groups and civil society organizations to support governments. Having UNICEF staff with policy experience and/or legal training can be invaluable to navigating the complex governmental review and approval processes related to regulations around front-of-pack nutrition labelling, marketing restrictions and the school food environment.



#### Case-study 5 Engaging and empowering young people to innovate: The nutrition 'hackathon' initiative in Zimbabwe

In Zimbabwe, mobile phone reach among young people in Zimbabwe is as high as 92 per cent, and 57 per cent are active subscribers. UNICEF worked with the Ministry of Health and Child Care and the Boost Fellowship to harness the power of digital media to promote messages on healthy eating and active lifestyles among young people. Young people were engaged in planning, designing, pilottesting and monitoring digital applications relevant to young people on nutrition, which were selected through a three-day 'hackathon'.

The best three solutions were awarded seed funding of US\$1,500 each to scale up and fully develop the solutions. The top team produced a prototype for a nutrition gaming application named KULA Africa that is fun for young people to play and provides education on nutrition. The second team produced a social media-based application named YOLO4Health that adolescents and young people can use to interact and share food and health goals. The application also provides information to the user based on an individual's profile. The third team produced a prototype for a web-based application named H-globin that promotes iron-rich diets and tests for anaemia using an eye scanner. Post-hackathon, the three winning teams have been supported to register as companies and work towards improving the digital solution. To sustain the engagement, all selected young people are mentored and receive technical support in nutrition, business, and innovation from the BOOST Fellowship and UNICEF.
#### Case Study 6

## Investing in data, monitoring and evaluation for nutrition: Development of an information-sharing and decision-making tool to address anaemia in India

The Anaemia Mukt Bharat (AMB) programme of the Government of India aims to accelerate reductions in anaemia prevalence in India. Data and information sharing are critical to the programme's success. UNICEF supported the Ministry of Health and Family Welfare to develop a monitoring and reporting dashboard.

The AMB dashboard (anemiamuktbharat.info/) adopts a holistic approach to provide timely and systematic information on AMB strategies, targets and achievements. It provides programme data with visualization, communication and resource materials for stakeholders and beneficiaries; distribution and programme targets for monitoring; state and district-wise denominators for resource planning; and state and district-wide quarterly and monthly progress reports and scorecards for regular reviews and assessments by union and state governments.

Data for key AMB programme indicators are sourced from standard reports produced by the Health Management Information System of the Ministry of Health and Family Welfare. These data are reported from grassroots-level health facilities and schools and aggregated at the administrative blocks and district level to support state level monitoring and performance assessments. The AMB scorecards are developed based on the coverage data comprising the following indicators: a) percentage of children (under 5 years) provided 8-10 doses (1 ml) of IFA syrup; b) percentage of children (aged 5–9 years) provided with 4–5 IFA tablets per month (in- and out-of-school); c) percentage of children (aged 10-19 years) provided with 4-5 IFA tablets per month (in-school); d) percentage of pregnant women given 180 IFA tablets during antenatal care visits; and e) percentage of breastfeeding women given 180 IFA tablets during the breastfeeding period. The percentage coverage is estimated based on the targets and denominators approved by the union and state governments.

Data quality checks, such as data validation, errors, outliers and reporting gaps, are verified as standard practice. State and district scorecards are generated based on the data uploaded to the dashboard. In future, this system will be replaced with an automated data fetching system after an upgrade of the Health Management Information System. The review and use of such dynamic data by programme personnel is the hallmark of any programmatic dashboard and is critical for monitoring and course correction. Since its launch in September 2018, the AMB Dashboard is increasingly being used by programme managers and stakeholders at all levels for activity planning, for corrective actions, and for developing a holistic understanding of programme performance.

With thematic scorecards for programmatic reviews, there has been an increased focus on programme coverage and reporting. The impact was most noticeable in school-based reporting and demonstrates the role of information sharing in facilitating policy convergence. The AMB Scorecard has motivated inter- and intra-state competition to secure greater improvements in programme coverage and service delivery. Based on the AMB scorecards and reviews, state and district teams are recognized for their contributions. The scorecards are also reported in media, which helps in community awareness on anaemia.





### CASE STUDY 7 Advocating for and establishing a proof-of-concept for mainstreaming the 'nutrition-in-schools' package in the State of Palestine

Palestinian adolescents are highly vulnerable and exposed to multiple sources of deprivation and distress, with potentially severe and long-term impacts on their nutritional status and well-being. To address malnutrition among adolescents, the Ministries of Education and Health collaborated to implement a Nutrition-Friendly Schools Initiative, which was piloted across 24 primary schools in Gaza and the West Bank in 2019. UNICEF supported the engagement of government ministries, parents, teachers and other partners to establish a comprehensive nutrition policy for schools, with a clear process, timeline and action plan for accrediting schools as 'nutrition-friendly'.

The initiative aims to foster an enabling school environment for nutrition through a package of interventions, including: capacity building trainings for teachers, children and parents; improved WASH facilities, gardening and school play areas; improved diversity of foods provided in school canteens; screening for anaemia and micronutrient supplementation as needed; community mobilization workshops; and physical education, particularly among girls. The Ministry of Education is committed to developing a national strategy and an eight-year action plan for mainstreaming and scaling up actions to address all forms of malnutrition among school-age children.

# Annex 6 Other resources

#### Health, nutrition and well-being

- Global accelerated action for the health of adolescents (AA-HA!): guidance to support country implementation https://www.who.int/maternal\_child\_adolescent/topics/adolescence/framework-accelerated-action/en/
- Technical Guidance for Prioritizing Adolescent Health https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA\_EWEC\_Report\_EN\_WEB.pdf
- Disease Control Priorities, third edition, volume 8: Child and adolescent health and development https://openknowledge.worldbank.org/handle/10986/28876
- Rethinking school health: A key component of education for all https://openknowledge.worldbank.org/handle/10986/2267
- Global school-based student health survey in 108 countries https://www.who.int/ncds/surveillance/gshs/en/
- Engaging young people for health and sustainable development: Strategic opportunities for the World Health Organization and partners https://apps.who.int/iris/bitstream/hand le/10665/274368/9789241514576-eng.pdf?ua=1
- All in school, the global initiative on out-of-school children http://allinschool.org/
- Global Partnership for Education
   https://www.globalpartnership.org/focus-areas/out-of-school-children
- Results for Development https://www.r4d.org/education/out-of-school-children/
- UNESCO Institute for Statistics http://uis.unesco.org/en/topic/out-school-children-and-youth

#### Nutrition education

- FAO Nutrition Education in Primary Schools, Vol 1. The Reader. Vol 2. The Activities. Part 3. The classroom curriculum chart http://www.fao.org/3/a0333e/a0333e00.htm
- Health Education Curriculum Analysis Tool
   https://www.cdc.gov/healthyschools/professional\_development/e-learning/hecat.html
- Parents for Healthy Schools https://www.cdc.gov/healthyschools/professional\_development/e-learning/P4HS/index.html
- School Health Guidelines to Promote Healthy Eating and Physical Activity https://www.cdc.gov/healthyschools/professional\_development/e-learning/shg/index.html
- School Health Index: A Self-Assessment and Planning Guide https://www.cdc.gov/healthyschools/professional\_development/e-learning/shi.html http://www.fao.org/3/i1689e/i1689e00.pdf

- Setting up and Running a School Garden: Teaching Toolkit http://www.fao.org/3/i1118e/i1118e00.htm
- ENACT (Education for Effective Nutrition in Action) and ENAF (Education Nutritionnelle en Afrique Francophone)
   http://www.fao.org/nutrition/education/professional-training/en/
- Challenges and issues in nutrition education
   www.fao.org/ag/humannutrition/nutritioneducation/en/
- Guidelines for assessing nutrition-related Knowledge, Attitudes and Practices http://www.fao.org/3/i3545e/i3545e00.htm
- Stepping up school-based food and nutrition education. Exploring challenges, finding solutions and building partnerships http://www.fao.org/3/CA3063EN/ca3063en.pdf
- SFNE: White paper on the current state, principles, challenges and recommendations for low- and middleincome countries https://doi.org/10.4060/cb2064en

#### Deworming treatments

- Helminth control in school-age children. A guide for managers of control programmes https://www.who.int/neglected\_diseases/resources/9789241548267/en/
- Preventive chemotherapy to control soil-transmitted helminth infections in at-risk population groups: Guideline https://www.who.int/nutrition/publications/guidelines/deworming/en/
- School deworming at a glance, WHO and World Bank Joint Statement 2003 https://www.who.int/intestinal\_worms/resources/en/at\_a\_glance.pdf?ua=1
- Conducting a school deworming day: A manual for teachers http://apps.who.int/iris/bitstream/10665/84742/1/9789241505192\_eng.pdf?ua=1
- Deworm the World Initiative (Evidence Action) https://www.evidenceaction.org/dewormtheworld/
- Global Atlas of Helminth Infections
   www.thiswormyworld.org

#### Nutritious, safe and healthy diets, including school meals (school feeding in some contexts)

- Rethinking school feeding. Social safety nets, child development and the education sector https://openknowledge.worldbank.org/handle/10986/2634
- Home grown school feeding resource framework
   https://docs.wfp.org/api/documents/WFP-0000074274/download/
- School meal planner at Home Grown School Feeding http://www.hgsf-global.org/en/bank/menu-planner
- Nutrition guidelines and standards for school meals: A report from 33 low- and middle-income countries http://www.fao.org/3/CA2773EN/ca2773en.pdf

 The SABER School Feeding. Manual for SABER-SF Exercise https://openknowledge.worldbank.org/bitstream/handle/10986/26517/114317-WP-PUBLIC-SABER-SchoolFeeding-Manual.pdf?sequence=1&isAllowed=y

#### Nutrient profile models: Tools to inform policies and regulatory environment

- Nutrient profile model for the marketing of food and non-alcoholic beverages to children in the WHO Eastern Mediterranean Region http://www.who.int/iris/handle/10665/255260
- WHO Regional Office for Europe nutrient profile model http://www.who.int/iris/handle/10665/152779
- Nutrient profile model for South-East Asia Region http://www.who.int/iris/handle/10665/253459
- WHO nutrient profile model for the Western Pacific Region: A tool to protect children from food marketing http://www.who.int/iris/handle/10665/252082
- Be smart drink water: A guide for school principals in restricting the sale and marketing of sugary drinks in and around schools http://www.who.int/iris/handle/10665/208340
- United Kingdom Food in Schools Policy https://www.education-ni.gov.uk/publications/healthy-food-healthy-outcomes

#### Promotion of healthy diets and active lifestyles

- Improving Nutrition in Adolescent and School-Age Children Toolkit https://unicefeaproinasactoolkit.wordpress.com/inasac-toolkit/#\_Toc436749481
- School Policy Framework: Implementation of the Global Strategy on Diet, Physical Activity and Health https://www.who.int/dietphysicalactivity/SPF-en-2008.pdf?ua=1
- Framework to monitor and evaluate implementation of the Global Strategy on Diet, Physical Activity and Health

https://www.who.int/dietphysicalactivity/M&E-ENG-09.pdf?ua=1

Comprehensive School Physical Activity Programs: A Guide for Schools E-Learning Module
 https://www.cdc.gov/healthyschools/professional\_development/e-learning/CSPAP/index.html

#### Micronutrient supplementation

- Model List of Essential Medicines for Children https://apps.who.int/iris/bitstream/handle/10665/325772/WHO-MVP-EMP-IAU-2019.07-eng.pdf?ua=1
- Antianaemia Drugs. Supply Division catalogue for IFA supplementation https://supply.unicef.org/all-materials/pharmaceuticals/antianaemias/antianaemia-drugs.html

#### Adolescent engagement, participation and empowerment

- Adolescent development and participation https://www.unicef.org/adolescence
- Conceptual Framework for Measuring Outcomes of Adolescent Participation https://www.unicef.org/media/59006/file

#### Education system

- Every child learns: UNICEF education strategy 2019–2030 https://www.unicef.org/reports/UNICEF-education-strategy-2019-2030
- Stepping up effective school health and nutrition: A partnership for healthy learners and brighter futures https://www.unscn.org/en/news-events/recent-news?idnews=2059

#### Water and sanitation system

• Water, Sanitation and Hygiene (WASH) in Schools: A companion to the Child-Friendly Schools Manual https://www.unicef.org/publications/files/CFS\_WASH\_E\_web.pdf

#### Social protection system

• UNICEF Global Social Protection Programme Framework https://www.unicef.org/reports/global-social-protection-programme-framework-2019

#### Emergencies and humanitarian context

- Framework for reopening schools https://www.unicef.org/media/71366/file/Framework-for-reopening-schools-2020.pdf
- Guidance: Including children with disabilities in humanitarian action. https://reliefweb.int/sites/reliefweb.int/files/resources/disability\_inclusive\_humanitarian\_action.pdf

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