



# Mainstreaming nutrition within universal health coverage

2012. Washington DC, US.

A clinical dietitian teaches a patient how to manage weight and blood pressure through better nutrition.  
Photo: US Department of Agriculture/Stephen Ausmus.

# KEY POINTS

- 1** Poor diets and resulting malnutrition are among the greatest societal challenges in our era, causing vast health, economic and environmental burdens.
- 2** The global commitment to universal health coverage is a unique opportunity to address malnutrition in all its forms. Integrating nutrition within health systems would generate substantial health gains and be highly cost-effective.
- 3** WHO's six building blocks of a health system provide a helpful framework for comprehensively integrating nutrition into health systems.
- 4** Coverage and quality of nutrition actions within primary healthcare settings are limited and generally focused on undernutrition.
- 5** Nutrition actions are supported by only a minuscule portion of national health budgets and are typically not delivered by qualified nutrition professionals.
- 6** Mainstreaming nutrition within universal health coverage requires a joint effort by governments and key stakeholders to build functional and resilient health systems, supported by strengthened governance and coordination.

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## The case for nutrition as a key element of primary healthcare

The 2019 United Nations General Assembly had for the first time a dedicated focus on universal health coverage (or universal healthcare) (UHC). This General Assembly reaffirmed that “health is a precondition for and an outcome and indicator of all three dimensions of sustainable development” and strongly committed to “achieve universal health coverage by 2030, with a view to scaling up the global effort to build a healthier world for all”.<sup>1</sup> The call for achieving universal health coverage as enunciated in Sustainable Development Goal (SDG) 3.8, is loud and clear: all countries of the world should make efforts to ensure that everyone has access to a minimum set of high-quality healthcare interventions without facing financial hardship. Optimal health and well-being is a human right and not the privilege of only those who can afford to pay.

The UN declaration on UHC recognises primary healthcare as the most inclusive, effective and efficient whole-of-society approach to ensuring people’s physical and mental health and social well-being. The declaration further highlights the fundamental role of healthy diets and of healthy, equitable and sustainable food systems – along with quality education, gender equality and women’s empowerment, access to safe drinking water and sanitation, and social protection mechanisms – in building healthier societies.

The case for including nutrition as an integral component of primary healthcare is compelling:

- For decades, health systems and clinicians have focused on the medical, drug-treatment-based model of disease that ignores fundamental causes such as diet and lifestyle. The consequences of this narrow approach are evident: the global malnutrition epidemic that is sweeping the world.
- Poor diets are among the leading health and societal challenges of the 21st century, leading to disability and death, growing inequalities, staggering healthcare costs and environmental implications.

- As governments and policymakers increasingly recognise the depth and breadth of malnutrition burdens, they are compelled to act. Integrating nutrition actions into health systems to promote healthier eating, and prevent and treat undernutrition and diet-related chronic diseases, could generate substantial health gains and be highly cost-effective.<sup>2</sup>

There is increased recognition that key stakeholders, including governments and the private sector, are accountable for healthier and more equitable food and health systems. This change reflects a shift away from placing the full responsibility – and blame – on individuals for making healthier choices, and has translated into growing population-based nutrition actions on a global scale. Population-based interventions can reach broader segments of society, require less individual effort and can be less costly, compared with individual-based approaches. Such ‘upstream’ strategies should benefit everyone, particularly those less privileged and of lower socioeconomic status, especially if integrated within a universal health coverage system. While policies and programmes were created over decades to address hunger and food insecurity, far less was known about how to improve diet quality and address diet-related non-communicable diseases (NCDs). Recent advances and efforts in nutrition policies to prevent NCDs can inform current priority areas and contribute to the development of a universal health coverage plan to address diet-related chronic diseases.

Ensuring equitable access to effective nutrition interventions within health systems can play a pivotal role in improving diets, preventing and treating disease, reducing healthcare costs, and ultimately improving everyone’s health. However, these justifications are not yet matched by a robust approach that unites nutrition and healthcare in terms of equitable policy, financing, monitoring and evaluation. Nutrition is frequently under-prioritised in national healthcare policy and financing discussions. The current Global Nutrition Report highlights the need to integrate nutrition into universal health coverage<sup>3</sup> as an indispensable prerequisite for improving diets, saving lives and reducing healthcare spending, while ensuring that no one is left behind.

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This chapter focuses on key challenges and opportunities in the comprehensive integration of nutrition into healthcare, so that everyone can access the nutrition care they need, when and where they need it and without financial hardship.

## Integrating nutrition into universal health coverage

The vision of WHO and UNICEF for universal coverage of primary healthcare in the 21st century is:

**a people-centred approach to health that aims to equitably maximise the level and distribution of health and well-being by focusing on people's needs and preferences (both as individuals and communities) as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as possible to people's everyday environment.<sup>4</sup>**

Primary healthcare is essential to the achievement of universal health coverage and leads to a range of health and economic benefits.<sup>5</sup> As such, it is the principal means by which nutrition care should be streamlined and delivered at the community level, while ensuring optimal coverage and delivery of high-quality services. Still, nutrition services should be introduced at multiple levels of healthcare delivery, including secondary and tertiary care. Lack of access to primary healthcare with appropriately integrated nutrition actions can mean that quality nutrition services do not reach everyone. It is often the most vulnerable and disadvantaged people who have least access to services. When nutrition services are delivered through other mechanisms, there is a risk that they are not of consistently high quality or optimal coverage, and that they are not systematically monitored and evaluated.

To integrate nutrition into primary healthcare tailored to different contexts and needs, a range of governance and operational levers are required. These include policy frameworks, equitable allocation of resources, engagement with community stakeholders and the private sector, appropriate health workforce, and physical infrastructure.<sup>6</sup> The nature of primary healthcare services available – and hence the extent and type of nutrition interventions that can and should be integrated – varies from country to country, according to context-specific needs, government structure, coordination and financing. For example, primary healthcare systems in fragile states are tailored to deal with increased levels of stunting, wasting, and micronutrient deficiencies, while also facing multiple other societal challenges such as restricted population access, systems disruption, supply breaks and high staff turnover. Crucially, primary healthcare systems need to be sensitive and responsive to differential population needs and social determinants, such as those influenced by location, age, gender, wealth, ethnicity, migration status, and disability, in order to target and tailor interventions according to need. Strikingly, worldwide, only 4.4 million of the 16.6 million children under 5 years of age with severe acute malnutrition currently have access to treatment, highlighting the urgent need to address this unacceptable burden.<sup>7</sup>

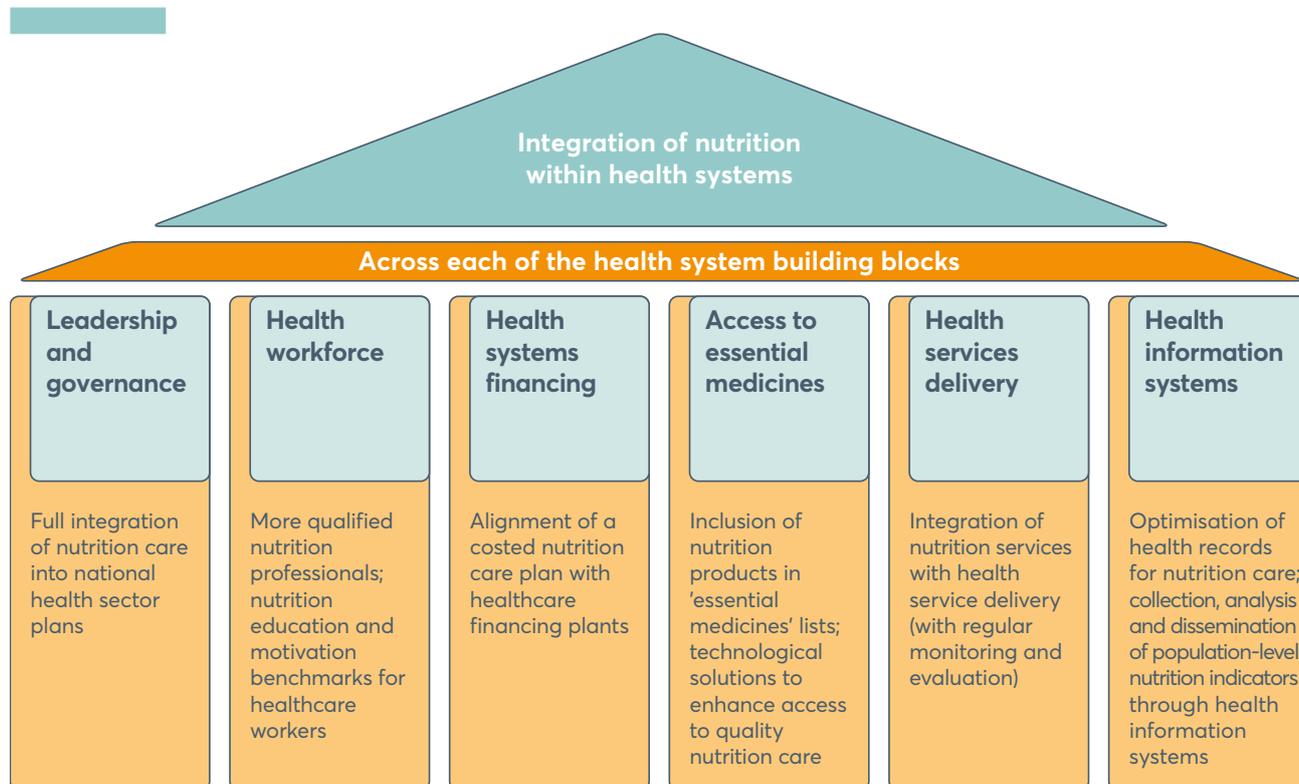
The major global impacts of food insecurity and undernutrition have long been recognised, leading to a traditional focus on actions concentrated on undernutrition. Failing to recognise and target the staggering diet-related NCD burdens – that can coexist with undernutrition – through our health systems, will aggravate nutrition inequalities and the malnutrition burdens. The essential nutrition actions put forward by WHO highlight a minimum set of nutrition interventions across the life course that should be universally available, aimed primarily at undernutrition.<sup>8</sup> Key essential nutrition actions relevant to primary healthcare include micronutrient (e.g., iron, vitamin A, iodine) supplementation, treatment of acute malnutrition, and promoting and supporting adequate infant and young child feeding. Yet, of the thirty essential nutrition actions proposed, only one focuses on overall diet and diet-related NCDs by means of creating a broader environment that promotes healthy diet habits (mainly focused on fruits and vegetables, total fats, saturated fats and trans

fats) that has extensions to primary healthcare provision. Interventions targeting other areas of the health sector (e.g., infectious disease control and reproductive health) also have the potential to collectively improve nutritional status.

In recent years, several other key dietary targets and strategies have been identified to tackle universally undernutrition and diet-related NCDs that could be considered for integration into universal health coverage.<sup>9</sup> Examples include medical prescriptions for free or discounted healthy foods,<sup>10</sup> integration of standardised clinical assessments of diet quality and food insecurity into electronic health records,<sup>11</sup> and medically tailored meals for high-risk, food-insecure patients with complex chronic conditions.<sup>12</sup> It is essential for health systems to expand their services to target diets and diet-related NCDs, to address malnutrition rigorously and comprehensively.

Mainstreaming nutrition within universal health coverage will require a joint effort by governments and key stakeholders to build functional and resilient health systems, supported by strengthened governance and coordination. Delivery of high-quality and effective healthcare services, and nutrition care, depends on available health workforce, supplies and financing, and is vital to achieving universal health coverage. We used the WHO's health systems framework, encompassing six building blocks, to assess how nutrition could be comprehensively integrated into health systems.<sup>13</sup> To ensure equitable, effective and sustained access to high-quality nutrition care, it is necessary to consider how each of these six essential components – or building blocks – of a health system could mainstream nutrition within health systems. The six components are: leadership and governance, health workforce, financing, access to essential medicines, service delivery and information systems (Figure 3.1).<sup>14</sup> The following sections consider how nutrition can be integrated and mainstreamed within each of these components, highlighting key challenges and opportunities, and with a focus on equity.

**FIGURE 3.1**  
Framework for equitable integration of nutrition within health systems



Source: Adapted from WHO, 2007.<sup>15</sup>

Note: Nutrition care covers all services that would comprehensively prevent and treat malnutrition in all its forms.

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## Leadership and governance

Leadership and governance form the core of a strong health system and are critical to addressing nutrition inequities within health systems through strengthened policy frameworks, oversight and accountability.<sup>16</sup> Given the multisectoral nature of nutrition, the administration of nutrition programmes is divided between multiple government ministries and departments, with only few countries having a designated coordinating department or ministry for nutrition information.<sup>17</sup> Effective leadership will, therefore, foster synergies both within the health sector and with other relevant sectors. It will also promote and ensure access of services by the most vulnerable, including marginalised or traditionally overlooked population groups. This is crucial to meeting the 2025 global nutrition targets.

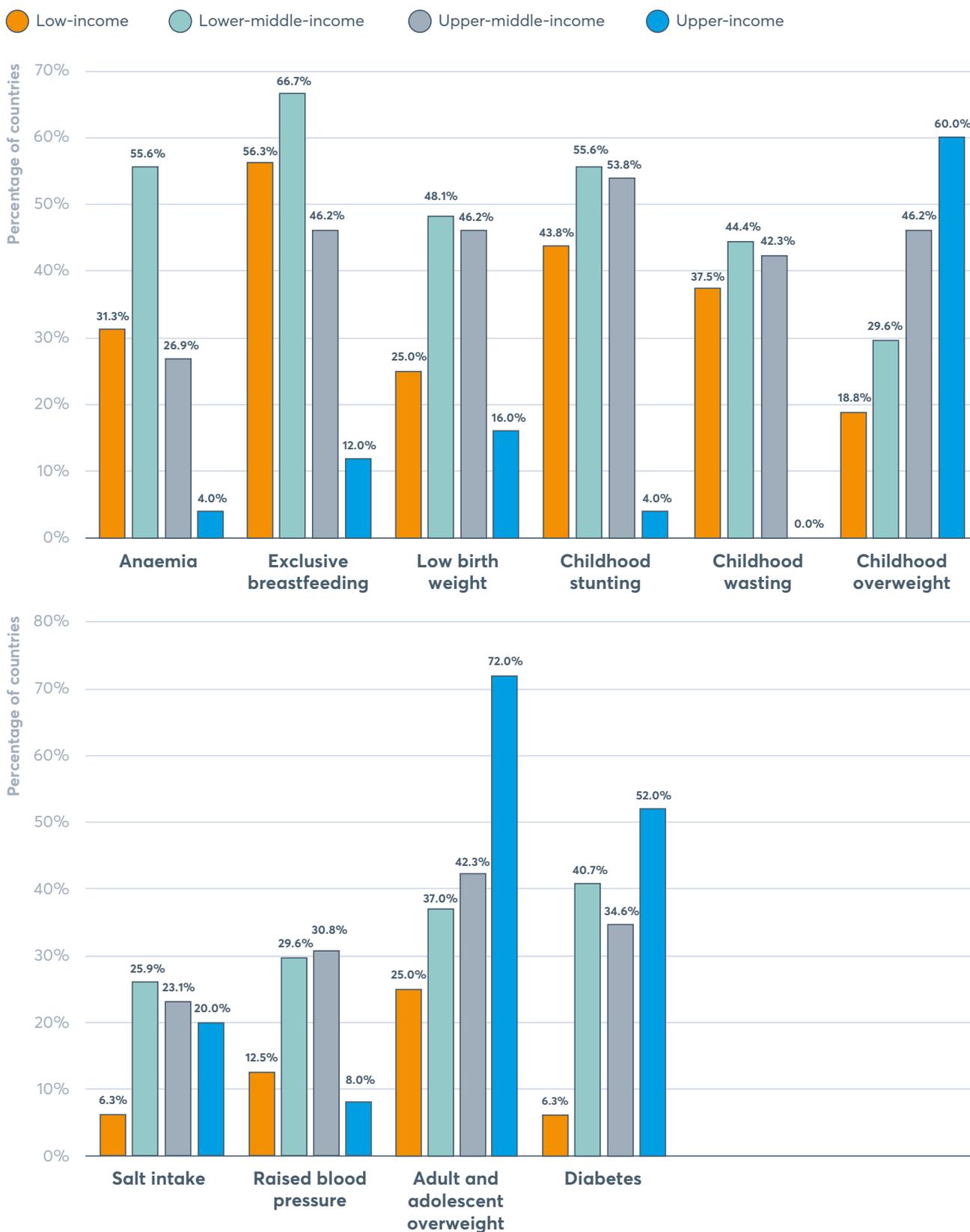
Nutrition must be fully integrated into national health planning. According to the Global Nutrition Policy Review 2 (GNPR2),<sup>18</sup> of 167 countries reporting nutrition policies, strategies and plans, only 95 reported health-sector plans with integral nutrition objectives. Among these, there is substantial variation in how goals, indicators or national targets align with the global nutrition targets. As shown in Figure 3.2, the integration of global nutrition targets is most comprehensive among lower-middle-income and upper-middle-income countries. The focus of lower-middle-income country plans is mainly on countering undernutrition, especially through promoting exclusive breastfeeding, and reducing stunting and wasting. High-income countries focus more on overweight, obesity and diabetes. It is important for lower-income countries to not overlook overweight, obesity and other diet-related NCDs, and to ensure that their policy instruments are fit to tackle both sides of malnutrition, particularly when these coexist. It is also important for higher-income countries to recognise the persistence of anaemia and low birth weight still experienced in vulnerable population subgroups. The low level of attention paid to breastfeeding in high-income countries is concerning given the role of breastfeeding as a 'double-duty action' for the prevention of both undernutrition and obesity.<sup>19</sup>

Nutrition actions within health systems need to carefully consider nutrition equity in relation to both undernutrition and diet-related NCDs, to ensure that they are inclusive and that no one is left behind. Such population-based strategies should be evidence-based and recognise that society may be unevenly and simultaneously affected by different forms of malnutrition, in order to tackle inequities and target populations according to need.

Corruption (or healthcare fraud) should also not be neglected by governments as it poses a major threat to universal health coverage, by giving rise to inequities in access to healthcare and leading to detrimental health and economic outcomes.<sup>20</sup> It is estimated that more than US\$500 billion in health resources are lost due to corruption worldwide annually, exceeding the US\$371 billion needed per year to achieve the health-related SDG targets.<sup>21</sup> Corruption in the healthcare sector can take various forms and impact all countries in some way, leading to compromised delivery and access to essential healthcare services.<sup>22</sup> Appropriate anti-corruption regulations should be carefully considered, integrated and monitored to ensure equitable access to healthcare.

**FIGURE 3.2**

Inclusion of goals, targets or indicators related to the global nutrition targets in health sector plans across 94 countries by country income, 2016–2017



Source: Further analysis of GNPR2.<sup>23</sup>

Notes: Bars correspond to the percentage (%) of countries within a given income group that have included in their health sector plans nutrition objectives related to the global nutrition targets. Of 167 countries reporting nutrition policies in 2016–2017, 95 reported health sector plans with integral nutrition objectives. Of those, 94 (all but Niue) were classified by gross national income per capita as high- (25, 26.6%), upper-middle- (26, 27.7%), lower-middle- (27, 28.7%) and low- (16, 17.0%) income groups.<sup>24</sup> Generalisations may be affected by the lack of representativeness within and across country income groups.

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## Health workforce

The health workforce is at the heart of the healthcare delivery system, consisting largely of healthcare providers/professionals, including physicians (medical doctors), nutrition professionals (dietitians/nutritionists), nurses and midwives, health management and support workers. This includes both skilled professional as well as lay health workers, those who are paid and unpaid, and the public and private sector.<sup>25</sup>

Universal health coverage cannot be achieved unless the capacity of the health workforce is increased. Health workforce capacity broadly relates to availability (numbers and supply), distribution (recruitment, allocation and retention) and performance (productivity and quality of delivered services).<sup>26</sup> Low- and middle-income countries are faced with large deficiencies and inequitable distribution of qualified health workers. This is a major barrier in delivering essential health services,<sup>27</sup> and the situation is projected to worsen.<sup>28</sup>

In the case of nutrition, this inequitable distribution is even more profound. The density of trained nutrition professionals<sup>29</sup> (per 100,000 people) has been identified as an appropriate measure of capacity.<sup>30</sup> While norms for an acceptable level for this indicator have not yet been developed, the figures are far too low at the moment. Of the 194 countries surveyed, 159 responded and 126 of those provided detailed information to enable assessment. The median number of trained nutrition professionals stands at only 2.3<sup>31</sup> per 100,000 people.<sup>32</sup> Only 23 countries have densities of 10 nutrition professionals per 100,000 population or higher as reported in GNPR2.<sup>33</sup> The same report also highlights that the WHO Americas and Western Pacific regions have the highest densities of nutrition professionals (median 3.7 and 4.2 per 100,000 people respectively), while the Africa region has the lowest (median 0.9 per 100,000 people), with no trained nutrition professionals at all reported in six countries.<sup>34</sup> Quality standards in nutrition education, by means of national qualifying exams and board certification, as well as continuous education requirements, are also essential to ensure quality of provided nutrition care. Notably, national licence and qualification systems for dietitians and nutritionists are currently largely absent from lower-income countries.<sup>35</sup>

Utilising a variety of health professionals for delivery of nutrition interventions would facilitate the integration of nutrition into health platforms and help alleviate inequities in access. The number of qualified nutrition professionals should be increased as part of strengthening the delivery of nutrition services within the health system. Depending on the type of the intervention and country-specific context, other health professionals could and should play important roles. Recognising the central role of physicians in healthcare provision, benchmarks for minimum nutrition knowledge and skills should be established for physicians, such as through compulsory nutrition education and continuing educational requirements. Yet, currently physicians are not necessarily equipped to deliver high-quality and effective nutrition care.<sup>36</sup> Similar benchmarks for nutrition education should be established for all other key allied healthcare providers, such as nurses and midwives, to ensure that any health professionals involved in the delivery of nutrition care are consistently and rigorously trained.

It is important also to recognise the critical role of frontline workers, such as community health workers, in covering the increased demand for essential nutrition services at a lower cost and especially when there are key staff shortages (that can be further aggravated in humanitarian emergencies). It is imperative to ensure that these workers receive adequate nutrition training and are appropriately equipped to provide quality nutrition care. Yet, pre-service nutrition training curricula for health workers typically lasts less than 20 hours, while the trainers have limited capacity.<sup>37</sup>

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Innovative technological solutions, such as mobile applications, are a promising tool for delivering standardised treatment and protocols and improving provision of care.<sup>38</sup> Financial and non-financial incentives, such as training and job advancement opportunities, community recognition, mentorship and supervision for professional growth (and support of protocol adherence), can have a considerable impact on frontline health worker job satisfaction and performance.<sup>39</sup> Conversely, insufficient incentives, such as increased workloads and time commitments, and payment delays, can lead to lower motivation and performance, even interruption of service delivery.<sup>40</sup> The size, nature and role of frontline workers should be carefully considered and appropriately integrated in the delivery of nutrition services, depending on the country-specific context and needs.

Education and training programmes for all healthcare providers need to be institutionalised and adapted to meet the evolving nature of nutrition care delivery – covering the whole spectrum of poor diets and malnutrition forms – to ensure that every member of the health workforce contributes to their fullest extent. National health systems, with fully integrated nutrition care, should carefully consider the appropriate number, distribution and skillset of health workers delivering nutrition care, and enhance their performance through development opportunities. This is critical to achieving high-quality primary healthcare and ensuring that all people can access quality nutrition services.

## Health systems financing

Adequate financing of fully integrated nutrition care into health systems is key to achieving universal health coverage and equitable access to nutrition services. The recent United Nations General Assembly on universal health coverage recognises “the fundamental importance of equity, social justice and social protection mechanisms as well as the elimination of the root causes of discrimination and stigma in health-care settings to ensure universal and equitable access to quality health services

without financial hardship for all people, particularly for those who are vulnerable or in vulnerable situations”.<sup>41</sup> Fee-for-service approaches limit access and exclude vulnerable populations; ensuring services are free at the point of delivery and tailored to population-specific needs will result in fair and equitable access for all.

Given the hidden nature of some forms of malnutrition, and variable self-perception of diet intake and quality, it is likely that those most in need of nutritional care will not seek it if they must pay for it. This is a major equity issue, as requiring out-of-pocket expenditures for what may appear to be non-urgent health and nutritional care could exclude those with limited resources and place them at greater risk of adverse health consequences. Nutrition financing is, therefore, critical to achieving and maintaining high-quality and equitable nutrition care for all, and particularly for those in greatest need.

Although funding for nutrition actions has increased in recent years, fewer than half of the countries with existing nutrition policies have a costed nutrition operational plan (58 of 149 countries).<sup>42</sup> Those plans are structured around nutrition-specific and nutrition-sensitive actions, while healthcare financing plans are developed separately and focus on health system investment needs, of which nutrition should be an inherent part (e.g., within health information systems, workforce, infrastructure and emergency preparedness). This disconnect poses a challenge for integrating and budgeting nutrition into healthcare financing plans, unless those plans are well-aligned with other nutrition multisectoral plans.

A model for projected resource needs in 67 low- and middle-income countries found that an additional US\$371 billion would be needed per year to reach the health-related SDG targets, three-quarters of which would need to go towards health systems strengthening. This represents an opportunity for nutrition to be costed and integrated into health systems as part of infrastructure strengthening. Of the remaining quarter, to cover disease prevention and control, and other programme-specific costs, nutrition would account for only 5%.<sup>43</sup>

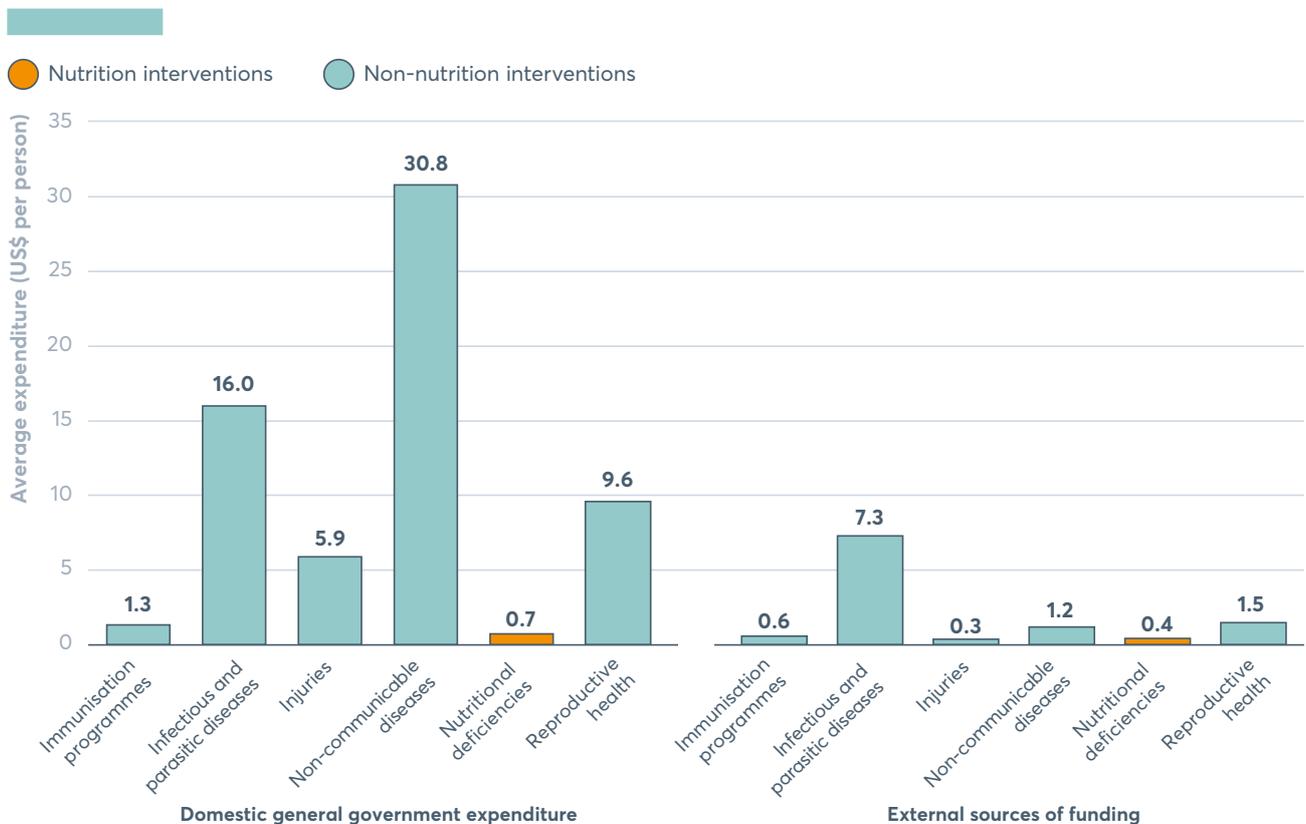
Data available from 48 mostly low-income countries that are part of the System of Health Accounts shows that average government expenditure on 'nutritional deficiencies'<sup>44</sup> is US\$1.87 per person – the lowest of government expenditures among all disease categories assessed (Figure 3.3). Funding from external sources of funding allocated to the same category is even lower, at US\$1.11 per person. Crucially, expenditure on nutrition is not proportionate to the burden of malnutrition.

In nearly all nations, healthcare spending continues to increase dramatically, with diet-related chronic diseases being a major driver of healthcare costs.<sup>45</sup> Given increased disease and economic burdens caused by poor diets, governments and policymakers should recognise the vital role nutrition can have in improving our health and reducing crushing healthcare costs. Identifying cost-effective – or even cost-saving – nutrition interventions that can be integrated into the health system would save lives and reduce healthcare spending.

Given that the US is heavily burdened by diet-related NCDs,<sup>46</sup> recent efforts there to integrate nutrition into healthcare can provide a basis for consideration in other contexts. Innovative healthcare strategies for healthier eating, such as implementing medical prescriptions of healthy food within large government healthcare programmes, could generate substantial health gains.<sup>47</sup> Such programmes have the potential to be highly cost-effective across population groups, including by age, ethnicity, education, income and disability, closing any potential inequality gaps.<sup>48</sup> From a healthcare perspective, such nutrition interventions can be as or more cost-effective than many currently covered medical interventions, such as statins for primary prevention or drug treatment for hypertension.<sup>49</sup>

**FIGURE 3.3**

Annual expenditure by disease category in 48 countries, 2016



Source: WHO Global Health Expenditure Database.<sup>50</sup>

Notes: Data was available for 48 unique countries that reported annual spending for at least one disease category. Number of countries with available data for a given disease category varies, ranging from 39 to 42.

Other examples of promising nutrition strategies within healthcare include incorporation of standardised clinical assessments (including nutritional screening tools) of diet quality and food insecurity into electronic health records, as part of routine care,<sup>51</sup> and medically tailored meals to high-risk, food-insecure patients with complex chronic conditions.<sup>52</sup> Depending on the country-specific context and population needs, such interventions can be considered for adaptation and extension to capture the whole spectrum and consequences of poor diets. Public-private partnerships could also help support nutrition strategies through the health system, as currently considered and implemented in the US.<sup>53</sup>

A group of experts, led by the World Bank, researched multiple health interventions focused on lower-income countries, based on their costs, effectiveness, feasibility of implementation, and capacity to deliver significant outcomes.<sup>54</sup> In 2017, they proposed two packages of interventions to be considered by countries when defining their national healthcare packages: the essential package

(EUHC), which comprised 218 interventions, and a high-priority package (HPP), which included a subset of 97 interventions of the EUHC, selected using more stringent criteria. Most strategies included in the EUHC are highly cost-effective and equitable (Table 3.1).

To improve the coverage of nutrition services, it is critical to ensure that essential nutrition actions are a core component of national universal health coverage packages and that nutrition interventions are well resourced and integrated more effectively into diverse health-delivery platforms. Equitable funding allocations to enable sustainable integration of nutrition within health systems are key to more effective and equitable universal health coverage. This can be achieved through the development of a costed plan that: accounts for the effectiveness and cost-effectiveness of nutrition interventions; uses allocative efficiency analyses across key interventions and geographical areas; considers cost-sharing with other interventions and public-private partnerships; and continuously tracks spending linked to performance monitoring and evaluation.

**TABLE 3.1**

Nutrition interventions included in the Essential Universal Health Coverage (EUHC) developed by the World Bank in 2017

REVISED INTERVENTION NAME (FOR THOSE APPEARING IN MULTIPLE PACKAGES OR REQUIRING CLARIFICATION)	INCLUDED IN HEALTH PRIORITY PACKAGES	COST-EFFECTIVENESS SCORE	EQUITY SCORE
Counselling of mothers on providing thermal care for preterm newborns (delayed bath and skin-to-skin contact)	Yes	High	Moderate
Detection and management of severe acute malnutrition and referral in the presence of complications	Yes	High	Best
Promotion of breastfeeding or complementary feeding by lay health workers	Yes	Moderate	Best
Provision of iron and folic acid supplementation to pregnant women, and provision of food or caloric supplementation to pregnant women in food-insecure households	Yes	Moderate	Best
Provision of vitamin A and zinc supplementation to children according to WHO guidelines, and provision of food supplementation to women and children in food-insecure households	Yes	High	Best
School-based education on sexual health, nutrition and healthy lifestyle	No	Low	N/A
Mass drug administration for lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases and trachoma, and foodborne trematode infections	Yes	High	Best

Source: Watkins et al., 2017.<sup>55</sup>

Notes: Adapted from source; Cost-effectiveness score: No data = no economic evaluation data are available; Not cost-effective = Incremental cost-effectiveness ratios (ICER) greater than US\$4,100 per DALY averted; Low = ICER between US\$1,301 and US\$4,100 per DALY averted; Moderate = ICER between US\$251 and US\$1,300 per DALY averted. High = ICER generally less than US\$250 per DALY averted; Equity score: Best = Health-adjusted age of death (HAAD) greater than 50 years (greatest potential to help the worst off); Moderate = HAAD between 40 and 49 years; Worst = HAAD of less than 40 years.

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## Access to essential medicines

The ability to provide equitable nutritional care tailored to needs is critically dependent upon access to and delivery of essential nutrition-related products and technologies. Essential nutrition products, as essential medicines, should be “available within the context of functioning health systems at all times, in adequate amounts, in the appropriate dosage, with assured quality, and at a price that individuals and the community can afford”.<sup>56</sup> Tracking the availability and use of essential nutrition products and improving local production processes, supply-chain management, monitoring of stocks, and distribution models could help ensure that nutritional products and technologies are available when and where they are needed and for those who need them most.

Inclusion of nutrition products in national Essential Medicines Lists (EMLs) can facilitate integration within national supply chains, and enhance access to development funding and provision of tax breaks to support local production. The WHO EML model serves as a guide for the development of national and institutional EMLs, and is revised every two years.<sup>57</sup> The most recent edition of the WHO EMLs includes several nutrition-related products, such as iron, folic acid, zinc (only for diarrhoea), micronutrient powders, vitamin C, calcium, vitamin D, iodine, some B vitamins, and vitamin A.<sup>58</sup>

Of the 137 countries with a national EML in 2017, most include all nutrition-related products listed above, except for the micronutrient powders, which were a new addition to the 2019 EMLs.<sup>59</sup> However, some important nutrition products, such as ready-to-use therapeutic foods (RUTFs) for severe acute malnutrition in children are not yet part of the WHO EMLs.<sup>60</sup> Taking into account how critical EMLs are in promoting primary healthcare, inclusion of such nutrition-related products could help in the management of severe acute malnutrition and other diet-related health conditions.

In addition to ensuring access to essential nutrition products, we need to accelerate the development of low-cost, field-friendly technological solutions to assess nutritional status, and ensure timely administration of nutritional support and active follow-up for compliance and progress assessment. Examples of technological solutions include anthropometric devices/tools to measure birth weight or screen for health conditions such as severe acute malnutrition, overweight or obesity,<sup>61</sup> and non-invasive techniques, including mobile applications, to measure micronutrient deficiencies<sup>62</sup> or other biomarkers of dietary intake.<sup>63</sup> Such technologies could complement traditional clinical assessments and screening tools, facilitate the screening and diagnosis of nutrition-related conditions at the point of care, and be collectively integrated into standard practice. Some of these devices are already available, while others are at various stages of development.

Another promising low-cost opportunity to improve access to quality nutrition care is the provision of remote (phone or online) counselling. These so-called digital interventions have been used to help with weight and NCD management, and with nutritional support during pregnancy and lactation, among others.<sup>64</sup> Such digital interventions have multiple advantages, including: extending nutrition services beyond the facility context to more remote or harder-to-reach communities; reaching individuals who do not traditionally attend clinics and are not identified during routine surveillance activities; and offering opportunities to resource-limited countries to implement integrated nutrition actions, especially for addressing overweight, obesity and other diet-related NCDs. New or simplified technologies that enable greater reach, coverage and speed of assessment or delivery present avenues for enhancing equity and quality of interventions.

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## Health services delivery

There is considerable evidence to suggest that integrating nutrition services into health systems is an effective, equitable and cost-effective approach. However, the extent to which nutrition interventions are integrated

within the health system is not well understood, nor do we know what a successful integration would look like. In addition, coverage in many developing countries is low.<sup>65</sup> The recent Transformation of Aspirational Districts initiative, in India, highlights a successful integration and delivery of equitable nutrition services as part of a broader effort to transform healthcare (Spotlight 3.1).

### SPOTLIGHT 3.1

#### Addressing equity and social justice: India's Transformation of Aspirational Districts initiative

Alok Kumar, Rajan Sankar and Basanta Kumar Kar

In India, one in two women of reproductive age is anaemic, one in three children under five years of age is stunted, and one in five children under five years is wasted. Inequalities are evident for stunting, with stunting prevalence being 10.1% higher in rural vs urban areas. Rates of overweight or obesity reach 20.7% in adult women and 18.9% in adult men. With this coexistence of undernutrition and overweight or obesity, India faces the double burden of malnutrition.<sup>66</sup>

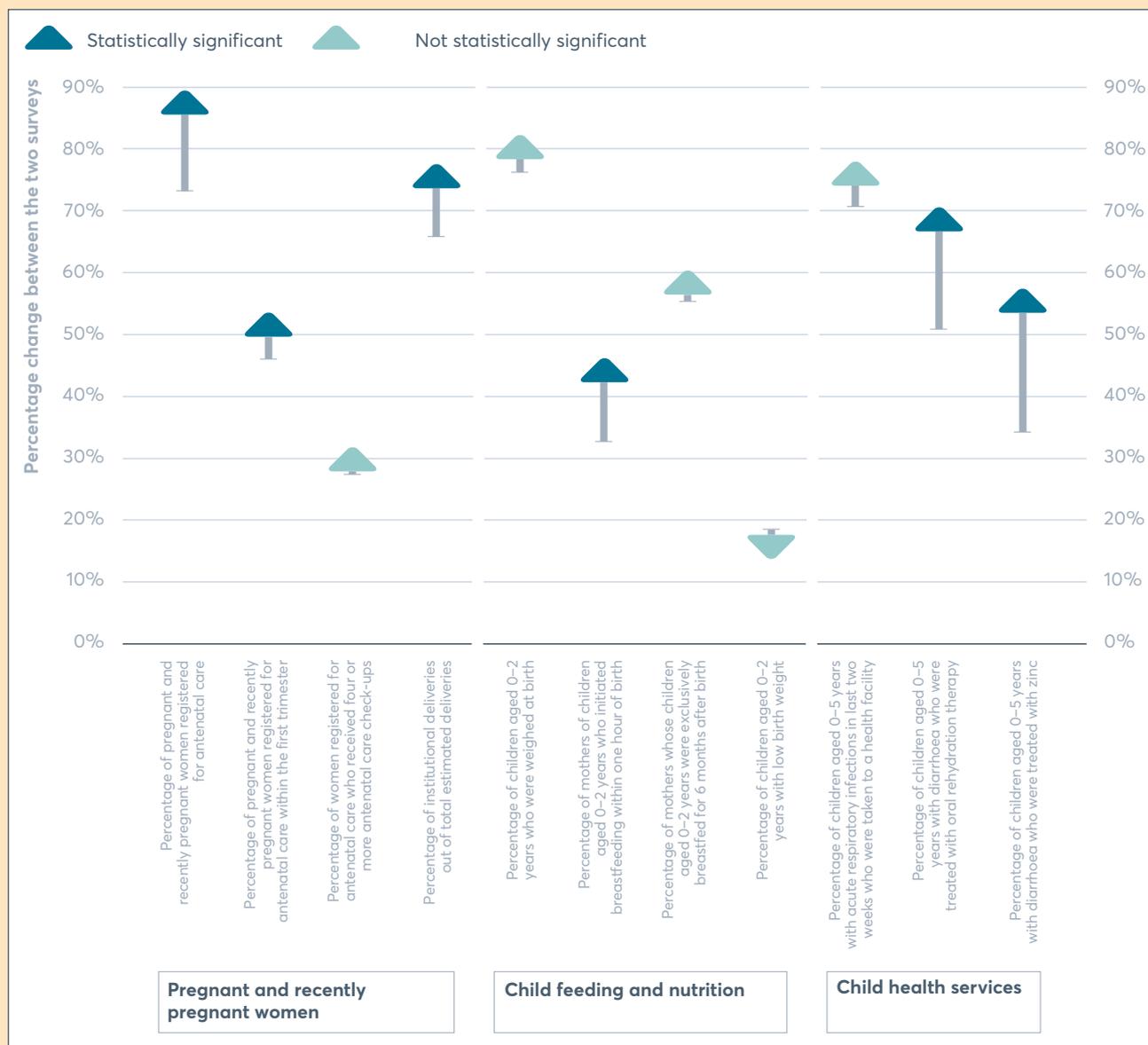
Recognising that the quality of life of all its citizens is not consistent with India's significant economic growth over the past ten years, and that there is major variation within states in terms of social and economic development indicators, India launched the Transformation of Aspirational Districts programme in January 2018. This is a unique programme that focuses policy attention towards addressing inequity, social injustice and exclusion in 115 'aspirational districts' in 28 states, through a concerted effort to improve the performance of services – including health, nutrition, education, infrastructure, agriculture and water resources – in districts with pockets of under-development. The programme aims to remove heterogeneity in living standards in India and improve the ability of all individuals to participate fully in the economy through the rapid and effective transformation of the target districts.

One aim of the programme is to increase the number of women and children in the 1,000-day window of opportunity who are identified by Accredited Social Health Activists and Anganwadi<sup>67</sup> workers in these districts and targeted with a set of converging health and nutrition interventions. These include four antenatal-care visits, iron supplementation during pregnancy, treatment of anaemia, increasing the number of institutional and home deliveries attended by a skilled birth attendant, early initiation of breastfeeding, counselling on infant and young-child feeding, birth weight measurement, child growth monitoring and treatment of diarrhoea with oral rehydration salts and zinc.

A key innovation within this programme was to introduce six-monthly household surveys to gauge the coverage and quality of the interventions. The results demonstrate encouraging progress in health and nutrition outcomes (Figure 3.4). This progress can be attributed to an inclusive approach with firm appreciation of ground realities, which ensures the district is kept at the locus of inclusive development.

**FIGURE 3.4**

Delivery of Poshan Abhiyaan (National Nutrition Mission) interventions in the aspirational districts: results from two rounds of household surveys



**Source:** National Family Health Survey (NFHS-4), Champions of Change, Aspirational District, NITI Aayog, Poshan Abhiyaan (National Nutrition Mission), Ministry of Women and Child Development, Government of India.

**Note:** The length of the line indicates the magnitude of the change (delta) between the two rounds of surveys; an upward pointing arrow denotes positive change, and a downward pointing arrow a negative change.

Improved programme delivery is spurred by competition, based on outcomes and sustained targeted efforts of the state and local governments. District implementation teams are also provided with small-area estimates derived from sophisticated statistical analysis of the household data, providing ‘development intelligence’ to direct field action.

Full sources for this spotlight can be found in the notes.<sup>68</sup>

Available health services should meet minimum quality standards to ensure that all people have access to the care they need. Although the structure, coordination and type of available health services differs between countries, it is possible to identify essential elements of 'good service delivery' against which progress can be assessed. These elements include: comprehensiveness, accessibility, coverage, continuity, quality, person-centredness, coordination, and accountability and efficiency.<sup>69</sup> Optimal nutrition is increasingly recognised as the foundation to achieving a healthy life – and that it should be integral to health service delivery. However, there is little data available to understand the type and extent of inequities in existing nutrition service delivery.

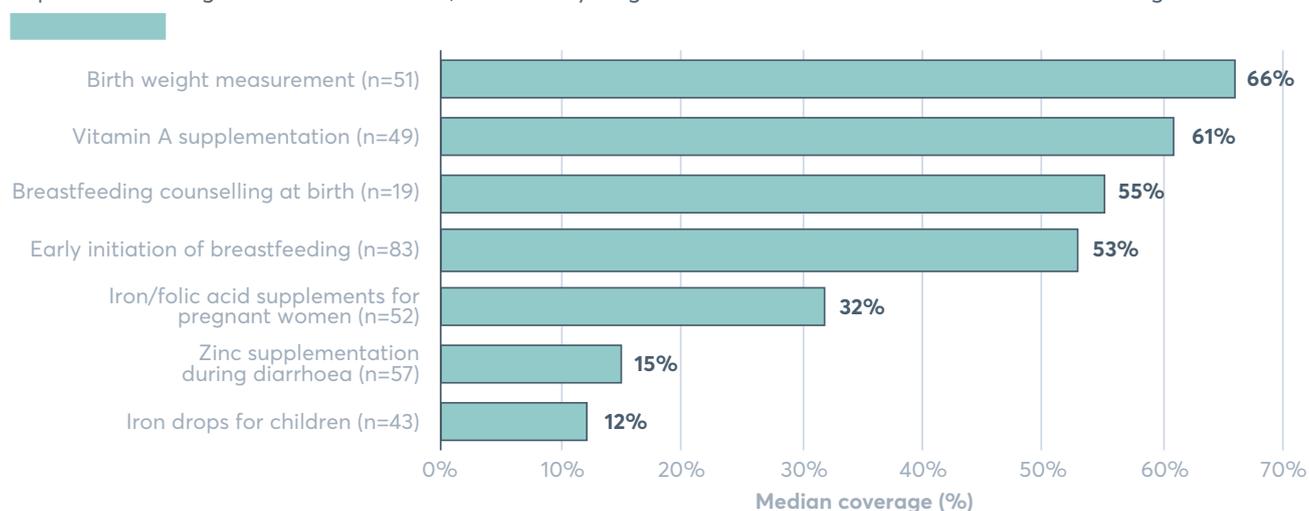
The GNPR2 reports that most countries in 2016–2017 have health systems in place for delivering interventions on infant and young child nutrition (120 of 122 countries), promotion of healthy diets (76 of 119 countries), and delivery of vitamin and mineral supplementation (96 of 131 countries).<sup>70</sup> Using coverage as a measure of service delivery, analysis of Demographic and Health Surveys (DHSs) and Multiple Indicator Cluster Surveys (MICSs) between 2012 and 2018 revealed that the median coverage of specific maternal, infant and young child interventions is low among low- and lower-middle-income countries (Figure 3.5). Median rates are only: 12% for childhood iron supplementation, 15% for childhood zinc supplementation; and 32% for iron and folic acid supplementation in pregnancy.

Interventions that are better integrated into perinatal care or delivered alongside immunisations have higher coverage values of their target populations: highest for birth weight measurement (66%), followed by vitamin A supplementation for children under 5 years of age (61%), breastfeeding counselling at birth (55%) and early initiation of breastfeeding (53%).

Population coverage was higher for the richest compared to poorest groups, with the exception of early initiation of breastfeeding (Figure 3.6). Largest absolute wealth differences were seen for birth weight measurement (33.2%), breastfeeding counselling at birth (22.3%) and iron/folic acid supplementation for pregnant women (17.4%). These findings suggest potential inequities in the delivery of antenatal and postnatal nutrition care across primarily low- and lower-middle-income countries. This can lead to worsened health outcomes, and highlights the need to strengthen nutrition care delivery.

**FIGURE 3.5**

Population coverage of selected maternal, infant and young child interventions delivered in healthcare settings



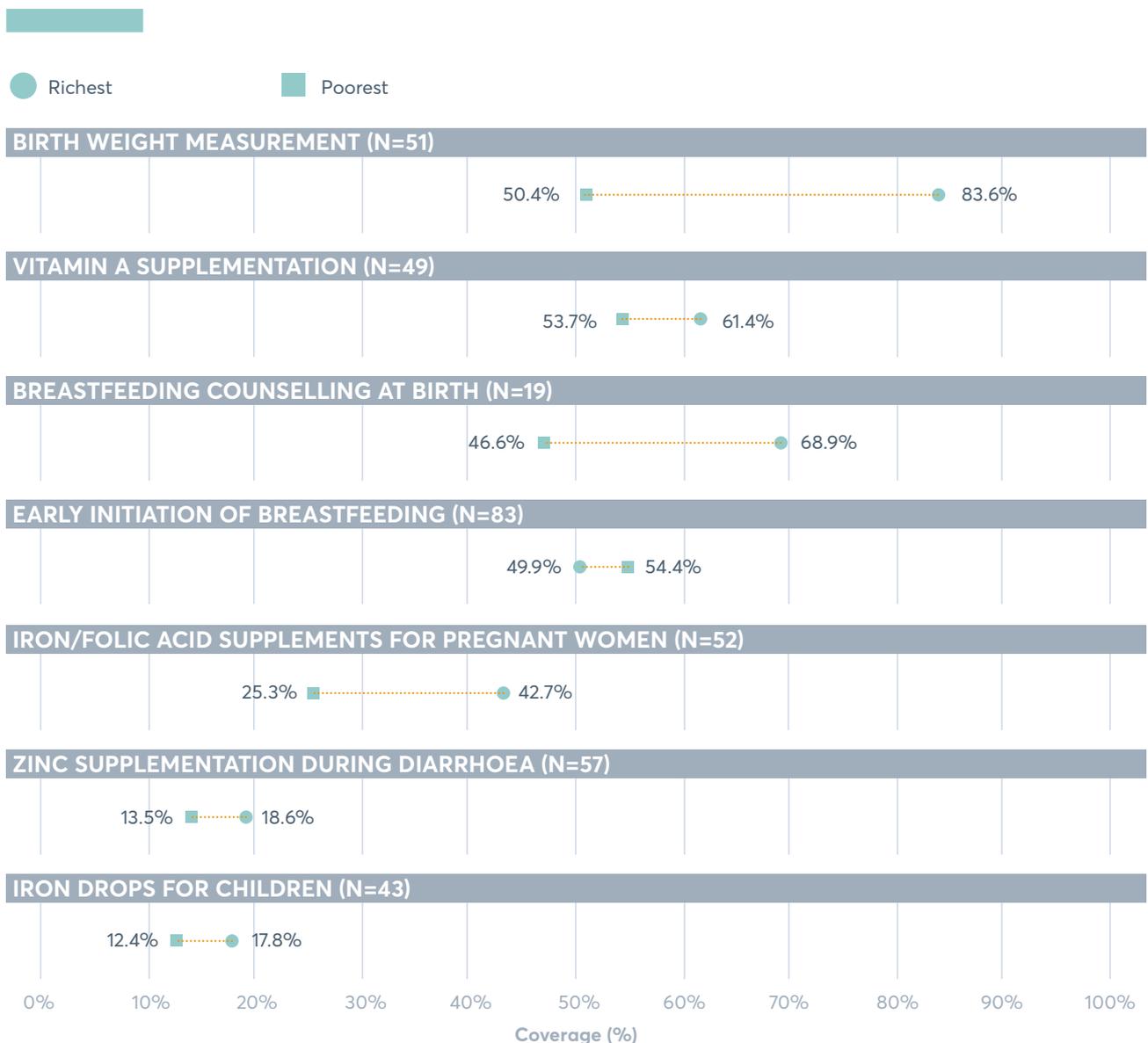
**Source:** Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) published between 2012 and 2018, latest available data used by country.  
**Notes:** Coverage is defined as the proportion of people who receive a specific intervention or treatments. Numbers in parentheses correspond to total number of countries with data on the specific nutrition intervention.

The coverage of nutrition interventions in healthcare typically lags far behind the coverage of traditional health ('non-nutrition') services. For example, in an analysis of 35 lower-income countries covered by DHSs (Figure 3.7), the median coverage of iron and folic acid supplementation during pregnancy (33.4%) was only half of that for at least four antenatal care visits (66.6%). It is important to extend such analyses to other nutrition

interventions, and to understand the reasons that could be driving inequities in coverage, that will ultimately lead to suboptimal health outcomes. Improving adherence and compliance for nutrition interventions, such as through targeted counselling and management of potential adverse effects, from skilled nutrition professionals, is essential for enhanced delivery of nutrition care.

**FIGURE 3.6**

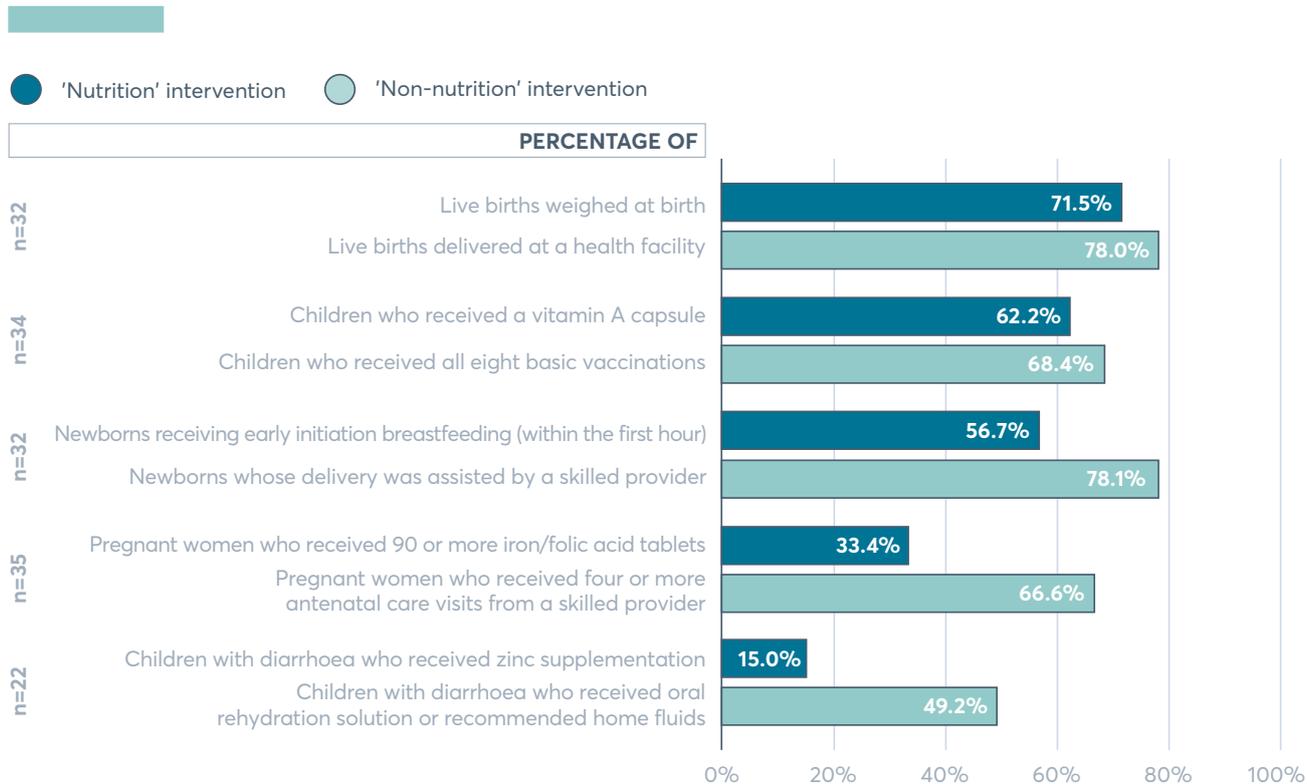
Population coverage of selected maternal, infant and young child interventions delivered in healthcare settings, by population wealth



**Source:** Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) published between 2012 and 2018, latest available data used by country.  
**Notes:** Coverage is defined as the proportion of people who receive a specific intervention or treatments. Interventions are ranked by the median percentage (%) of whole population coverage as shown in Figure 3.5. Wealth is asset-based wealth score at the household level and is classified as 'poor' (lowest wealth quintile) and 'rich' (highest wealth quintile).

**FIGURE 3.7**

Population coverage of maternal and child 'nutrition' vs 'non-nutrition' interventions in 35 countries



**Source:** Demographic and Health Surveys (DHSs) published between 2012 and 2018, latest available data used by country.

**Note:** Population coverage is defined as the proportion of people who receive a specific intervention or treatments.

All considered, nutrition care should be an integral part of healthcare delivery services to ensure improved diets and related health outcomes, particularly for those who would benefit most. Multi-component interventions collectively targeting nutrition, as well as non-nutrition targets, have the potential to be even more equitable, effective and cost-effective.<sup>71</sup> There is a need for 'good nutrition service delivery', consistently monitored and evaluated across all related dimensions, with a focus on equity, for people to achieve and retain their fullest health potential.

## Health information systems

Access to reliable and up-to-date nutrition information is essential to a range of stakeholders, including governments, policymakers, healthcare providers and scientists. It is therefore imperative that the routine collection of high-quality nutrition information (data) becomes an integral part of, and tracked through, government health information systems. Health information systems serve multiple users and purposes and are designed to support planning, management and decision-making in the health system, both on a routine basis and during emergencies.<sup>72</sup>

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A good health information system ensures the collection, analysis, dissemination and use of reliable and timely health information through three key functions: generation of individual-, facility- and population-level data; capacity, in reasonable time, to detect, investigate, communicate and contain events that pose a threat to public health; and capacity to collate, disseminate and promote the application of this knowledge.<sup>73</sup>

The integration of nutrition within these functions is essential for collecting and utilising high-quality nutrition data to: assess individual and population nutritional status/needs; provide sound individual nutrition care; and design, monitor and evaluate targeted nutrition policies and interventions.<sup>74</sup> Yet, there are several gaps and challenges, but also opportunities, in achieving this.

Health information systems use different types, or sources, of data, each type serving different purposes.<sup>75</sup> These types include: individual-level data on a patient's profile, needs, and treatment (i.e., health records), which serve as the basis for sound individualised care; health-facility-level (public and private) data to document and/or manage daily operations, such as human resources, scheduling, equipment/supplies, billing/financing, and coverage and performance of services and programmes; population-level data for public health decision-making, mainly through national health and demographic surveys; and nutrition-surveillance facility and community information, mainly to cover urgent services, such as for epidemic diseases or emergency relief.

Optimising (electronic) health records for nutrition care should be the first step in delivering high-quality nutrition services, from screening, assessing, diagnosing intervening and monitoring, to discharge planning.<sup>76</sup> The two key elements to achieve this include using a systematic framework and language to facilitate the documentation of nutrition care delivery, such as the Nutrition Care Process (NCP),<sup>77</sup> and incorporating this framework's components into patients' health records. Over the past decade, NCP has been implemented increasingly around the world.<sup>78</sup> However, clinical assessments of diet quality and food insecurity, along with

relevant screening tools, are generally not comprehensively integrated or standardised in health records.<sup>79</sup> Likewise, health facility data is rarely optimised to document coverage and performance of preventive or curative nutrition programmes, and is not necessarily representative of services available to the population as a whole.<sup>80</sup> This is limiting the ability to provide tailored nutrition care, particularly to those who need it most,<sup>81</sup> and making time-management less efficient for health professionals.<sup>82</sup> Incorporating such assessments into standard health records (ideally electronic) and routine care would streamline the integration of nutrition into healthcare, and could lead to decreased health and economic burdens.<sup>83</sup>

Population-level nutrition data is critical for population-level problem diagnosis, surveillance, planning, evaluation and monitoring. Large-scale nationally representative health and nutrition surveys, that collectively assess the health and nutrition status of the population, are a key source of such data. Ideally, data should be collected at the individual level, using standardised assessment tools and methods, and in a systematic, consistent and comparable manner.<sup>84</sup> Moreover, the data should allow disaggregation and analysis by key demographic characteristics, such as sex, age, ethnicity, wealth, migration status, disability, geographic location, and others as relevant to national contexts. Granular data is essential to identify inequalities in nutritional status across different population groups and inform the design and implementation of equitable nutrition interventions. Examples of such ongoing large-scale health and nutrition surveys include the US National Health and Nutrition Examination Survey (NHANES)<sup>85</sup> and the UK National Diet and Nutrition Survey (NDNS),<sup>86</sup> which, although thorough and detailed, may not be feasible in lower-income countries, due to a range of different challenges, including increased costs.<sup>87</sup>

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Lower-income countries are either lacking nutrition data or relying on limited data. In these settings, population-level nutrition data is primarily derived from: national household consumption and expenditure surveys (HCESs), that do not collect individual-level dietary intakes, thus precluding assessment of sociodemographic differences; Demographic and Health Surveys<sup>88</sup> or Multiple Indicator Cluster Surveys,<sup>89</sup> that are relatively infrequent (roughly every three years);<sup>90</sup> sporadic small-scale surveys on population subsamples with limited generalisability; and community and facility nutrition data that aims to address significant public health issues (such as micronutrient deficiencies and supplementation, infant and young children feeding practices, and anthropometry/growth status),<sup>91</sup> or inform decision-making during emergencies.<sup>92</sup>

These sources rarely collect data on other important nutrition indicators such as: individual-level dietary intakes, biomarkers, multiple other anthropometric indicators, related health outcomes, nutrient supplementation during pregnancy, clean water accessibility, sanitation and hygiene practices, or other indicators to track the coverage and quality of preventive or curative nutrition actions.<sup>93</sup> A recent mapping of nutrition components within health information systems in 57 countries of the Scaling Up Nutrition (SUN) movement showed that systems most commonly track vitamin A supplementation (48), followed by breastfeeding counselling in antenatal care (33) and management of acute malnutrition (32).<sup>94</sup> Only 18 countries routinely collect data on iron and folic acid supplementation during pregnancy.

We need mechanisms to streamline and improve the routine collection, use and integration of high-quality nutrition data in lower-income settings. It is important to leverage existing infrastructures and resources to increase the capacity and upgrade nutrition assessment methodology and tools. At the same time, this is also an opportunity for innovation, given the rapidly expanding availability and application of mobile platforms and other technologies in higher-income countries.<sup>95</sup> The International Dietary Data Expansion (INDDEx) Project seeks to address high-quality dietary data collection impediments and expand capacity in low-income countries, by developing and validating standardised and streamlined technologies for the collection and processing of individual dietary data.<sup>96</sup> The National Information Platforms for Nutrition (NIPN) initiative supports low-income countries in strengthening their information systems for nutrition and improving data analysis to more efficiently prevent malnutrition.<sup>97</sup> Data for Decisions to Expand Nutrition Transformation (DataDENT) aims to transform the availability and use of nutrition data by addressing gaps in nutrition assessment and advocating for stronger nutrition data systems.<sup>98</sup>

Optimising the collection, quality, availability and accessibility of population-level nutrition data worldwide, and integrating this into health information systems, would be a major improvement and an invaluable asset for public health. Peru and Guatemala are two examples of middle-income countries that have managed to develop and annually update health information systems with integrated nutrition information.<sup>99</sup> Several low-income countries are currently building their own nutrition information systems.<sup>100</sup>

It is crucial, now more than ever, to invest in the comprehensive integration of nutrition into health information systems. This will ensure the sound provision of targeted nutrition care, timely identification of those at increased nutritional risk, fastest possible response to emergencies, greater accountability, informed policy design and prevention initiatives, and efficient and effective management of financial, human and other resources. Comprehensive health and nutrition information systems are a complex, yet feasible, undertaking. If achieved, such systems will have multiple benefits for public health.

# RECOMMENDED ACTIONS

- ▶ Nutrition care, preventive and curative, must be fully integrated into national health-sector plans, supported by a strengthened multisectoral approach. Essential nutrition services should be part of the standard package of available healthcare services, universally available to all.
- ▶ The number of qualified nutrition professionals should be increased to enhance the delivery of quality nutrition care. Frontline workers involved in nutrition service delivery should have the required pre- and in-service training, means and motivation to perform their assigned roles.
- ▶ Costed nutrition-care plans should be developed and aligned with healthcare financing plans. Nutrition-care financing should be scaled up and sustained, for all people to achieve and maintain the healthiest diet and life possible.
- ▶ Nutrition products, such as ready-to-use therapeutic foods, should be readily available and affordable. Innovative technological solutions, such as remote counselling and web applications, can enhance access to quality nutrition care, particularly for those harder to reach.
- ▶ Nutrition services within health systems should be regularly monitored and evaluated to address inequities in delivery, coverage and access.
- ▶ Optimising health records for nutrition care should be the basis for delivering sound nutrition services and identifying those in greater need. The collection, analysis and dissemination of high-quality disaggregated nutrition data should be mainstreamed in public health information systems, to underpin the design and implementation of equitable nutrition interventions.

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# NOTES

## Chapter 3

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