

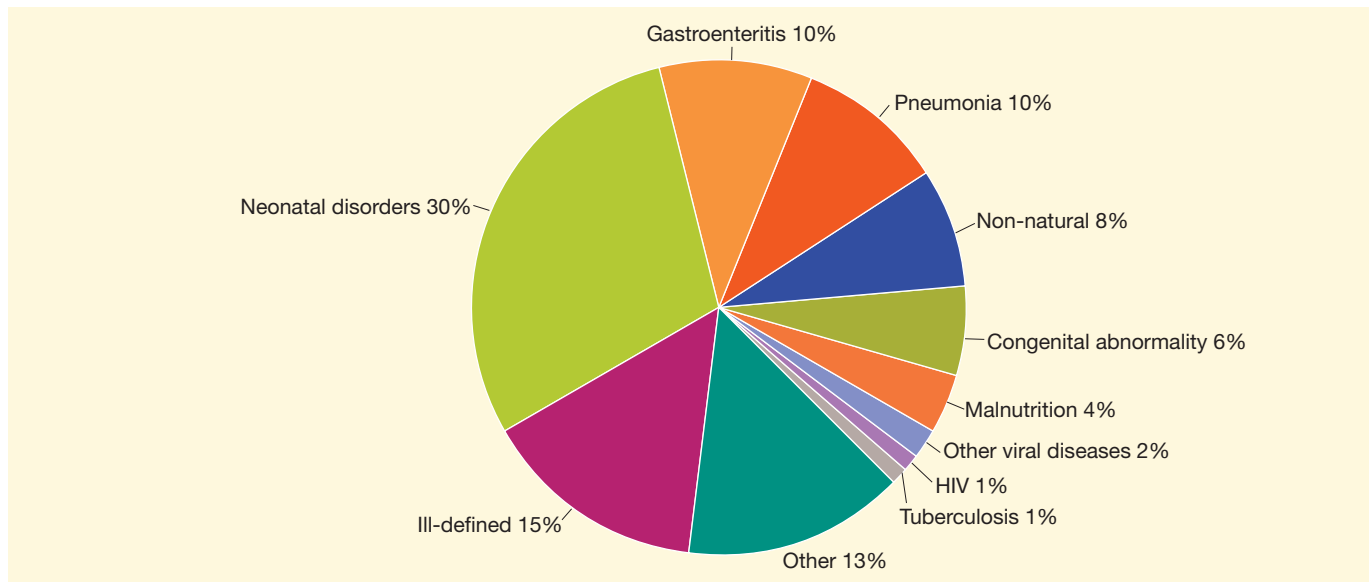
The triple burden of malnutrition in childhood: Causes, policy implementation and recommendations

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Evidence shows that investing in children’s nutrition early in the life course can enhance their survival, health, development and school achievement. It is important to prevent stunting, overweight, obesity and micronutrient deficiencies (e.g. vitamin A, zinc, iron and iodine) in childhood as these are risk factors for child mortality, poor development, adult obesity, the metabolic syndrome, non-communicable diseases and early adult mortality.¹ This chapter focuses attention on efforts to address the triple burden of undernutrition,ⁱ overnutritionⁱⁱ and micronutrient deficiencies in South Africa by exploring the following questions:

- How does undernutrition impact on children’s health, development and survival?
- Is South Africa making progress towards the World Health Organization’s nutritional targets?
- What are the key drivers of childhood undernutrition and overnutrition?
- What are the challenges in implementing nutrition policies and programmes?
- What are the key recommendations for addressing the burden of childhood undernutrition and overnutrition?

Figure 44: Causes of under-five mortality in South Africa, 2015



Source: National Department of Health (2017) *3rd Triennial Report of the Committee on Morbidity and Mortality in Children under 5 Years (COMMIC): 2017-2017*. Pretoria: NDoH.

i Undernutrition encompasses stunting (low height-for-age), underweight (low weight-for-age), wasting (low weight-for-height) and micronutrient (iron, vitamin A and iodine) deficiencies.

ii Overnutrition encompasses overweight and obesity.

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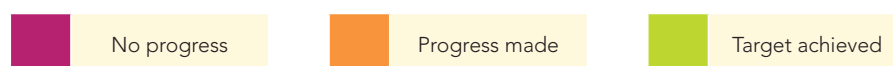
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Table 23: Indicators of children's anthropometric and micronutrient status: 1999 – 2016

	NFCS 1999 1 – 9 years (n=2,613)	NFCS-FB 2005 1 – 9 years (n=2,157)	SANHANES 2012 0 – 14 years (n=2,123)	SADHS 2016 Under-five years (n=2,024)	
Wasting ^a	3.7%	4.5%	2.9%	2.5%	Target achieved
Underweight ^b	10.3%	9.3%	5.8%	6%	Target achieved
Stunting ^c	25.5% (1-3 years)	23.4% (1-3 years)	26.5% (1-3 years)	27%	No progress
Overweight ^d	12.4%	10.6%	16.5% (girls) 11.5% (boys)	13.3%	No progress
Obesity ^e	6.6%	4.8%	7.1% (girls) 4.7% (boys)	N/A	No progress
Vitamin A deficiency*	N/A	64%	43.6%	N/A	Progress made
Zinc deficiency	N/A	45%	N/A	N/A	No progress
Iron deficiency and iron deficiency anaemia	N/A	20%	10%	N/A	Progress made
Iodine deficiency	N/A	15%	N/A	N/A	Progress made

Source: NFCS: National Food Consumption Survey;¹³ NFCS-FB: National Food Consumption Survey- Fortification Baseline;¹⁴ SANHANES: South African National Health and Nutrition Examination Survey;¹⁵ SADHS: South African Demographic Health Survey.¹⁶ N/A: not available.



- a Wasting is determined by measuring the child's weight-for-height which relates the body mass to height or length; the child is considered to have acute malnutrition when the weight-for-height is below two standard deviations (-2SD) of the median of the reference population.
- b Underweight is determined by measuring the child's weight-for-age which is a composite of the child's weight and height; the child is underweight indicating acute or chronic malnutrition when the weight-for-age is below two standard deviations (-2SD) of the median of the reference population.
- c Stunting is determined by measuring height-for-age which relates to linear growth. The child whose height-for-age is below two standard deviations (-2 SD) of the median of the reference population is considered short for their age (stunted) which could result from chronic malnutrition; there are other reasons for a child being short.
- d Overweight in children 2 – 18 years is based on age-appropriate body mass index (BMI) cut-offs corresponding to a BMI at 18 years of over 25 and less than 30kg/m² and obesity BMI≥30kg/m².
- e Obesity in children 2 – 18 years is based on age-appropriate body mass index (BMI) cut-offs corresponding to a BMI at 18 years ≥30kg/ m².

How does undernutrition impact on children's health, survival and development?

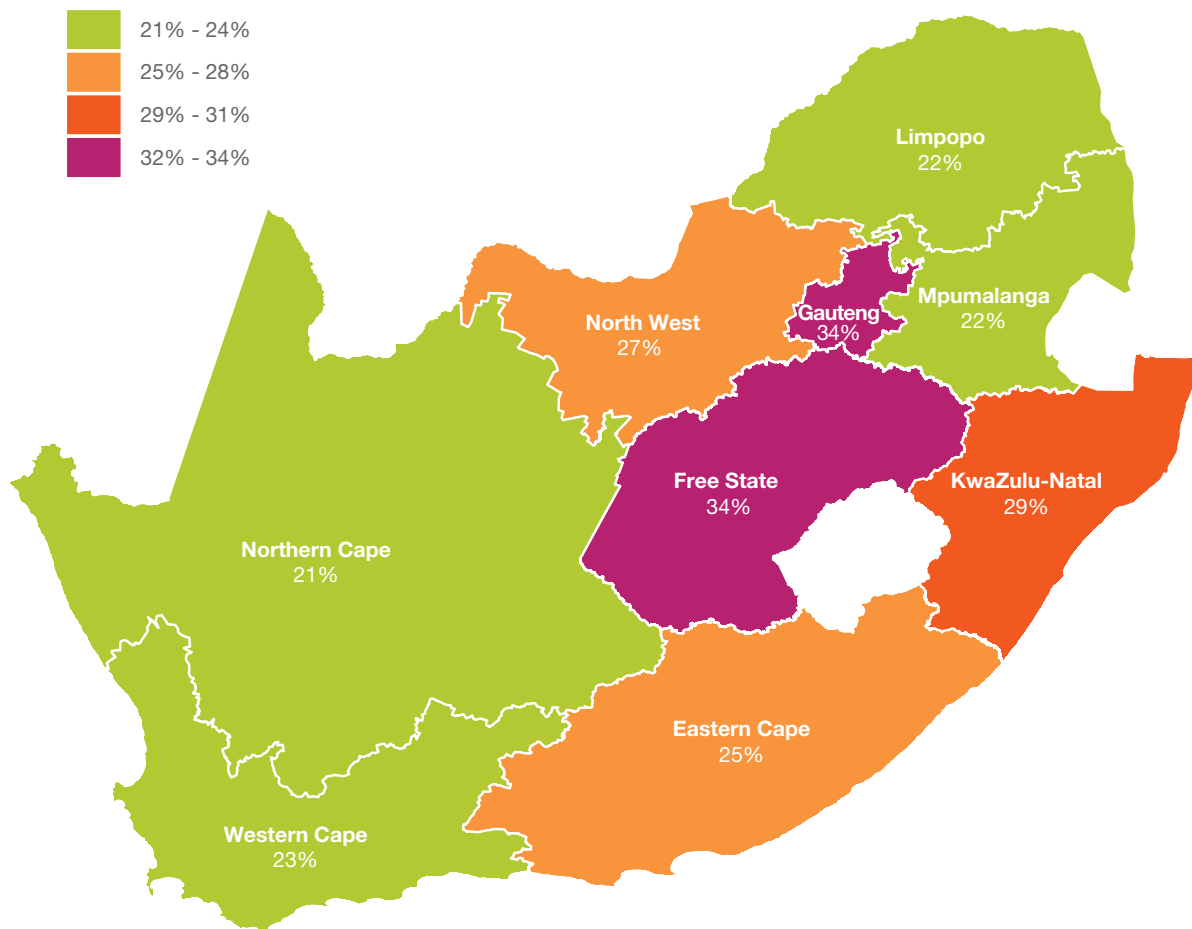
Undernutrition is a key driver of infant and young child mortality and morbidity. Although only 4% of under-five mortality was directly due to severe acute malnutrition (SAM) in 2015 (Figure 44), undernutrition increases children's risk of dying from neonatal disorders and infectious diseases such as diarrhoea and pneumonia.² In 2018, the National Child Healthcare Problem Identification Programme (Child PIP) found that 25% and 24% of hospital deaths were associated with SAM and moderate acute malnutrition (MAM), respectively.³ Undernutrition, especially stunting, together with deficiencies of iron and iodine, can contribute to impaired motor and cognitive function and to children not reaching their developmental potential.

Is South Africa making progress towards the World Health Organization's nutritional targets?

South Africa is facing a triple burden of malnutritionⁱⁱⁱ like other low- and middle-income countries,⁴ with the co-existence of undernutrition and overnutrition. Table 23 presents nutrition surveys that were conducted in children across different age groups and over a 17-year period. There has been a decline in acute malnutrition as shown in the decreasing prevalence of wasting to 2.5% in 2016. The prevalence of stunting, an indicator of long-standing undernutrition, has remained stubbornly high over a 20-year period⁵ and was estimated at 27% in 2016.⁶ The stunting prevalence varies within the country and is highest in Gauteng and the Free State (as illustrated in Figure 45).⁷

iii Malnutrition refers to an inadequate, unbalanced or excessive consumption of macronutrients (energy or protein) or micronutrients. It encompasses both undernutrition and overnutrition.

Figure 45: Percentage of children under five years who are stunted, by province, 2016



Source: National Department of Health, Statistics South Africa, South African Medical Research Council and ICF (2019) *South Africa Demographic and Health Survey 2016*. Pretoria, South Africa, and Rockville, Maryland, USA: NDoH, Stats SA, SAMRC & ICF.

The prevalence of overweight in children increased from 10.6% in 2005 to 13.3% in 2016,⁸ which is more than twice the global prevalence of 5.6%.⁹ Data from smaller in-depth studies, such as a prospective study conducted in a rural village in Limpopo, also show that a proportion (19%) of children are both stunted and overweight.¹⁰

National data also show poor micronutrient status (particularly vitamin A and iron) in children under five years. Children deficient in vitamin A are at increased risk of mortality from diarrhoea, HIV and measles; while those with iron deficiency are at increased risk of morbidity, poor cognition and development. Although the prevalence of vitamin A deficiency has decreased over time, 43.6% of children were vitamin A deficient in 2012,¹¹ and zinc deficiency stood at 45% in 2005. Anaemia and iron status in children have improved, and in 2012 the prevalence of anaemia, iron deficiency and iron deficiency anaemia were 10.7%, 8.1% and 1.9% respectively.¹²

Global and national targets

The World Health Organization (WHO) has adopted a resolution on maternal, infant and young child nutrition that includes six targets aimed at reducing the burden of disease from malnutrition by 2025. This is consistent with Sustainable Development Goal 2 which aims to end all forms of malnutrition – including undernutrition, obesity and micronutrient deficiencies – by 2030.¹⁷ The WHO targets include a 40% reduction in global stunting in children under-five years; a 50% reduction in low birth weight; a 50% reduction in anaemia in women of reproductive age; no further increase in overweight in children under five years; an increase in exclusive breastfeeding in the first six months to 50% and a reduction in wasting to less than 5%.¹⁸ In South Africa, this would entail a reduction in the prevalence of stunting to 14.2% and in the estimated number of stunted children by 526,600 at an average annual relative reduction rate of 3.9% per year.¹⁹ The target for wasting has been

achieved. However, the current trends indicate that there is no progress in reducing the prevalence of stunting nationally.

What are the key drivers of undernutrition and overnutrition^{iv} in children?

Dietary factors in malnutrition

Breastfeeding affords significant life course protection against obesity and non-communicable diseases such as type-2 diabetes, cardiovascular disease and certain cancers.²⁰ For this reason, WHO recommends exclusive breastfeeding (EBF) for the first six months of life, and continued breastfeeding following the introduction of complementary foods until 24 months and beyond. In South Africa, the EBF rate in infants under six months has increased from 8% in 2003²¹ to 32% in 2016,²² but more needs to be done to improve infant feeding practices. Furthermore, the EBF rate decreases significantly with age, with only 23% of infants exclusively breastfed at 4 – 5 months. Complementary feeds are introduced from six months of age, and infants and young children then need a diverse diet rich in energy and micronutrients to ensure optimal growth and development. Yet only 23% of children aged 6 – 23 months are fed a minimum acceptable diet.²³ Instead a high proportion of children under two years consume unhealthy diets containing sugary foods (26%) and drinks (13%), and salty snacks (32%), placing them at risk of obesity.²⁴

Numerous biological factors are linked to the development of overweight and obesity, including conditions like diabetes and placental insufficiency which can restrict the growth of the foetus. It is speculated that in order to survive, the foetus permanently adjusts its homeostatic system²⁵ to utilise nutrients as efficiently as possible and following birth there is rapid weight gain and a greater risk of obesity later in life.

Formula milk has also been associated with the development of overweight or obesity as it has a higher protein content than breastmilk and this contributes to accelerated growth and obesity during infancy.²⁶

The dietary transition and the role of the food system

In South Africa, the rising trend of obesity and persistent stunting is a consequence of the global increase in the consumption of ultra-processed foods.²⁷ These highly refined foods are high in sugar, unhealthy fats and salt; low in fibre and micronutrients; and laced with additives to extend their shelf life and to modify flavour, colour and texture.²⁸ These

include most breakfast cereals, biscuits, sugar-sweetened beverages (SSBs), sweets, snack bars, cheese, as well as key dietary staples such as bread and processed meat like polony. Ultra-processed foods are formulated to be overly tasty and habit-forming, leading to excessive consumption and rapid weight gain.²⁹ This can predispose children to obesity, diabetes and autoimmune diseases.³⁰ Moreover, making such foods available to young children who do not have the means or knowledge to make better choices, sets dietary habits and preferences which are very difficult to change at a later age.

Obesity is seen by some as a sign of happiness and wealth³¹ and by others as a mark of greed, sloth and dietary apathy. But instead of blaming individuals, it is important to recognise the role of an increasingly globalised food system, dominated by fewer and fewer large transnational corporations.

People's food choices are shaped by a range of structural and environmental forces which operate at different levels.³² The food system includes all the processes and infrastructure involved in feeding a population including the production, processing, marketing, distribution and consumption of food as illustrated in Figure 46. At a global level, the food system is increasingly dominated by "Big Food" – a small number of transnational corporations who are making ultra-processed food increasingly available and desirable.³³ These changes have been facilitated by the liberalisation of global trade agreements and the consolidation and automation of all levels of the food system – from production, processing and packaging to storage, distribution, marketing and retail. These changes in the global food system have reduced job opportunities in the food sector, contributed to rapid urbanisation³⁴ and enabled agricultural and food corporations to accumulate super profits.

At the local level, these changes are shaping the food environment in schools, clinics, taxi ranks, train stations, streets and shopping malls. South Africa has experienced a rapid expansion of supermarkets,³⁵ accompanied by the growth of the informal food retail economy which has helped extend the reach of ultra-processed foods into the informal settlements and former homelands which trap many of South Africa's poor. Local food environments are also shaped by the media where aggressive marketing of processed foods is transforming cultural food preferences³⁶ and moulding young children's preferences for sweet and ultra-processed food.³⁷

iv Overnutrition in children 2 to 18 years is based on age-appropriate BMI cut-offs where overweight corresponds to BMI at 18 years ≥ 25 but $< 30 \text{ kg/m}^2$ and obesity $\text{BMI} \geq 30 \text{ kg/m}^2$.

Figure 46: The food system



Adapted from: Kahler E, Perkins K, Sawyer S, Pipino H, Onge J (2013) *Farm to Plate Strategic Plan: A 10-year strategic plan for Vermont's food system. Executive summary.* Vermont: Vermont Sustainable Job's Fund.

How poverty and food insecurity entrench childhood malnutrition

Despite slight improvements, poverty remains widespread in South Africa, with 40% of the population living below the lower-bound poverty line in 2015.³⁸ The Pietermaritzburg Agency for Community Social Action's (PACSA) food price barometer has recorded consistent and high increases in food prices over the past several years.³⁹ Yet incomes are not growing in step with food price inflation, and increasing numbers of households are struggling to feed themselves. Nationally, 54% of households experienced hunger or were at risk, with especially high levels in urban informal areas (68%).⁴⁰ To cope, households reduce the quality and diversity of diets, by reducing costly fresh, whole foods and prioritising dietary staples like maize meal, oil, sugar and bread.⁴¹ Cheap, ready-to-eat ultra-processed foods are appealing in conditions of income-, fuel- and time-poverty which are common in poor and informal settlements.

A recent study conducted in Khayelitsha found that most households consumed a range of ultra-processed and obesogenic foods such as polony, brown bread, SSBs and sugar.⁴² These foods were made available through supermarkets, fast food outlets and informal spaza shops. Although some roadside traders make fresh fruit and vegetables easily accessible, most deal almost exclusively with obesogenic sweets and snacks.

It is also clear that state capacity to regulate Big Food is severely limited and that significant pressure from researchers and civil society is needed for the state to develop the "will to transform"⁴³ this sector and protect children's constitutional rights to healthy, nutritious food.

What policies and programmes are in place to address the triple burden of malnutrition in children?

A 2008 review identified a range of policies and programmes to improve nutrition in South Africa, as outlined in Table 24⁴⁴ Yet the nutritional status of children in South Africa has stagnated,⁴⁵ suggesting that these policies and programmes have been poorly implemented, or that inequality and poverty have diminished the impact of improved infant and young child feeding practices.⁴⁶ The rise of obesity in young children underlines the role of these structural factors in shaping a food environment that promotes a high energy, low-quality diet.

The Integrated Nutrition Programme (INP) Roadmap has therefore been updated to include a Strategy for the Prevention and Control of Obesity in South Africa 2015 – 2020.⁴⁷ The strategy recognises the limited control that individuals have over their food environment,⁴⁸ and the limitations of behaviour change interventions and nutrition education in preventing under- and overnutrition in resource poor settings.⁴⁹

Table 24: Policies and programmes that have the potential to improve child nutrition

Current key policies and programmes:
<ul style="list-style-type: none"> • Support for the nutrition of pregnant women⁵⁰ • Breastfeeding promotion, protection and support (Tshwane Declaration)⁵¹ • Infant and young child feeding⁵² • Growth monitoring and promotion⁵³ • Social protection and food provisioning programmes • The National School Nutrition Programme⁵⁴ • Vitamin A supplementation⁵⁵ • Fortification of food staples with micronutrients • Sugar tax to reduce the amount of sugar in sugary beverages⁵⁶
Additional policies and programmes that have potential:
<ul style="list-style-type: none"> • Front-of-pack labelling regulations to educate consumers about healthy and unhealthy foods • Subsidising basic nutritious foodstuffs • Regulating trade on unhealthy foodstuffs

Promotion, protection and support for breastfeeding

The Lancet Series on Breastfeeding provides clear evidence that breastfeeding is the optimum feeding option for infants and children for the first two years of life. Not only does breastmilk provide perfect nutrition for infants, it also has life-long health benefits.⁵⁷ Yet breastfeeding is no longer the norm in South Africa. The Lancet series describes how the growth of the multi-billion dollar formula milk industry and its marketing practices undermine breastfeeding, and calls on States to actively promote, support and protect breastfeeding.⁵⁸ This includes promoting the early initiation of breastfeeding, providing community-based support to help mothers sustain breastfeeding when they return home, providing paid maternity leave and breastfeeding breaks to enable working women to continue breastfeeding, and

regulating the marketing of breastmilk substitutes in order to remove commercial pressures from the infant feeding arena, as outlined in Case 19.

Infant and young child growth and nutrition

There are several government interventions to promote optimal growth and development in children. These centre on growth monitoring and promotion (GMP), mostly carried out by nurses at primary care facilities. This includes the regular weighing and measurement of the infant's height and weight-for-height and mid-upper arm circumference and recording these measurements in the Road to Health Book (RTHB). These growth parameters are used to identify children who are malnourished or faltering in growth and where corrective action can be taken through appropriate counselling of the caregiver.

Case 19: Enforcing Regulation 991 to remove commercial pressures from the infant feeding arena

Chantell Witten and Max Kroon (Department of Neonatology, University of Cape Town and School of Physiology, Nutrition and Consumer Science, North-West University)

In 1981 the World Health Assembly adopted the International Code of Marketing of Breast Milk Substitutes⁵⁹ to protect mothers' infant feeding decisions from the "aggressive and inappropriate marketing" of breastmilk substitutes.

Yet the infant formula industry continued to engage in inappropriate marketing of breastmilk substitutes through advertising, distribution of free samples and engagement with health professionals.⁶⁰ Efforts to promote breastfeeding were further undermined in 2001 when the Department of Health adopted formula feeding as the default infant feeding choice in the prevention of mother-to-child transmission of HIV (PMTCT) programme and provided free formula milk to HIV-positive mothers, which in turn affected the feeding practices of HIV-negative mothers.⁶¹ Yet growing evidence of the negative impact on HIV-exposed infants, and evidence that antiretroviral treatment helped prevent transmission of HIV, lead to a shift in national policy.

Following the adoption of the Tshwane Declaration in 2011,⁶² South Africa introduced several policy shifts to purposefully position itself as a breastfeeding country. Among these are the active promotion of breastfeeding, the adoption of breastfeeding as the preferred feeding choice in the PMTCT programme, and the implementation of the Regulations relating to Foodstuff for Infants and Young Children, R991 to prevent the inappropriate marketing of formula milk.

Since then, the National and Provincial Departments of Health, together with academia and civil society, have engaged in efforts to address, curtail and report violations of R991.⁶³ Noteworthy was the public outcry and the swift action of the National Department of Health to take down the Nestle breastfeeding pop-up station that was placed at the Baragwanath taxi rank.⁶⁴ Even more encouraging and inspiring are the actions of individuals and institutions refusing to participate in or to accept funding opportunities from the infant formula industry, an example being the withdrawal of the formula milk companies from sponsorship of the University of Cape Town's Paediatric Refresher Course in 2019 after being reported for contravening R991. However, these efforts need to be appreciated in the context of limited resources, underdeveloped monitoring structures, and the substantial marketing networks and budgets of the formula industry.⁶⁵

If South Africa is to meet the Global Nutrition Target of 50% exclusive breastfeeding by 2025, breastfeeding promotion must be ramped up urgently, and monitoring and enforcement of R991 must be formalised and adequately resourced with consequences for transgressors. This will send a strong message to the infant formula industry, build confidence in the efforts of the National Department of Health and strengthen collective efforts to prevent inappropriate marketing of breastmilk substitutes and associated conflicts of interest in the South African infant and young child feeding arena.

However, there are implementation challenges, including little or no feedback to caregivers. GMP can be improved by better use of the RTHB at all levels of the health system. For example, all health workers who see the child should routinely use the RTHB to monitor growth and be sufficiently literate in nutritional counselling and motivational interviewing techniques to be able to guide and motivate mothers to adopt optimal child feeding practices. A child who is not growing may also have an underlying disease, e.g. tuberculosis or HIV, which would require further investigation.

Community health workers (CHWs) should also be enrolled in GMP, but a lack of portable weighing scales, the failure to prioritise community-based child health care, and insufficient practical training and support undermine their potential. The Philani Mentor Mother programme is an exemplary CHW project with a strong focus on preventing undernutrition and rehabilitating underweight children through home visits, weighing children under five years and counselling mothers.⁶⁶ A randomized controlled intervention trial showed that mentor mothers could successfully assist mothers of malnourished children to solve problems around the nutrition of their child, and children in the intervention group were five times more likely to achieve a healthy weight at three months than those in the control group.⁶⁷

Micronutrient supplementation and fortification programmes

A recent systematic review showed that vitamin A supplementation (VAS) reduced the risk of mortality by 12%, and the incidence of diarrhoea and measles.⁶⁸ Based on these findings the authors recommended the continued supplementation of young children in populations at risk of vitamin A deficiency (VAD). In South Africa, coverage of vitamin A supplementation is only 54%,⁶⁹ which contributes to the high prevalence of VAD and highlights the need to improve VAS at the primary care level.

The South African Government has also introduced legislation for the mandatory fortification of bread flour and maize meal⁷⁰ with vitamin A, zinc, iron, folic acid, thiamine, riboflavin, niacin and pyridoxine.⁷¹ Since the introduction of mandatory fortification in 2003, there has been a 30% decline in the incidence of neural tube defects due to increased folic acid intake.⁷² However, studies have shown that high rates of vitamin A, iron, and zinc deficiencies still exist.⁷³

While over 95% of households in Gauteng and the Eastern Cape reported consuming maize meal and salt,⁷⁴ fortification levels may not always be optimal. This may be due to the quantities of micronutrients being insufficient to meet the

needs of consumers who are not able to complement their diets with nutrient rich food. Reports suggest insufficient addition of the premix at the point of maize meal and wheat flour fortification.⁷⁵ All wheat flour products will be fortified, and maize meal and wheat flour will need to comply with minimum levels when new regulations come into effect at the end of 2019.⁷⁶

While food fortification is essential, it is also important to put regulations in place to limit consumption of unhealthy foods. For example, in 2016, South Africa implemented a mandatory upper limit for sodium permitted in various processed foods.⁷⁷

Social protection and social provisioning programmes

Early childhood development programmes

Early childhood development (ECD) research and training organisations have played a crucial role in supporting childcare and educational development programmes for poor families and those residing in rural areas. These research and training organisations provide community-based ECD centres with training, guidance and support, while some funding for ECD programmes is provided by national, provincial, and local government. Yet many ECD programmes do not have sufficient resources to meet the developmental needs of young children.

Those ECD centres that are registered or conditionally registered by the Department of Social Development are eligible for a state subsidy.⁷⁸ A per capita subsidy (for children attending centres who fall below the income threshold) is intended as a partial contribution towards nutrition, staff and administrative costs. But this is not enough to cover the full costs of running a centre, and additional income needs to be raised through fees. ECD centres in poorer communities therefore struggle to break even, and nutrition is often compromised.

Many ECD centres are unregistered, primarily because they do not meet the infrastructure norms and standards and therefore do not qualify for an ECD subsidy. This is likely to further compromise the nutritional status of children attending centres in informal settlements and rural communities.

In order to address this problem, conditionally registered facilities are now eligible for the ECD subsidy, and the Department of Social Development has made some funding available to improve infrastructure and enable ECD facilities to meet the registration requirements.⁷⁹ However, this will be a lengthy process, as many such centres are hidden from the authorities, sometimes in fear of being closed for failing to

Case 20: Challenges in using the Child Support Grant to meet children's nutritional needs

Wanga Zembe-Mkabile (Health Systems Research Unit, Medical Research Council)

In a study conducted between 2014 and 2015, caregivers of CSG recipients from villages in Mt Frere, Eastern Cape, and Langa township in Cape Town, provided detailed information about the challenges they faced in meeting their children's nutritional needs, despite receiving the grant. The caregivers spent the CSG on food. Most primary caregivers described feeding patterns that showed diets that were mostly starchy and sugary, with very little protein, vegetables, fruit and dairy products. Caregivers explained this as being the result of not having enough money.

"They [children] eat whatever is in front of them. Porridge, rice, potatoes as well. Milk no, they only get it when I have money, then I'll buy them then... right now they drink Rooibos [tea]."

(CSG recipient, Langa)

Across households in both sites, food shortages were commonplace. Caregivers accessed their networks to borrow money and/or food to feed their children. Sometimes these networks were in far-off areas, requiring travel on foot for kilometres at a time:

"What I usually do when there is no food is to wash and leave this [15-month-old] child with the younger children and then I walk to eNcinteni...I go to my sister's in-law...come back with things I can cook for the kids, like potatoes, then I make the fire outside in the three-legged pot and I cook for my children and they go to bed having eaten."

(CSG recipient, Mt Frere)

meet prescribed standards. Community-based workers have the potential to address this critical issue by helping to locate these informal centres and providing advice and support to such facilities. In addition, the state should consider increasing the value of the subsidy to ensure that registered centres serving children in poor communities are adequately funded and providing a nutrition subsidy for unregistered centres.

While ECD centres provide one potential platform for reaching young children, alternative strategies are needed to support the nutrition of children who are either too young^v or too poor to attend ECD centres.

Extreme levels of food insecurity in some households led caregivers to significantly change their diets, to sacrifice their share of meals and to dilute food in order to make it go further and spread it among more children in the household.

"I sometimes try the [Maas] that's sold [in shops], but I myself cannot eat it, even though it's my favourite. I cannot eat it because, even [my youngest] and the others eat it. You realize that if you buy a 2 litre or a 5 litre [Maas], I think: "If I make pap and maas for myself as well, this maas will get finished quickly... but it's supposed to last a few days [at least]."

(CSG Recipient, Mt Frere)

Several respondents shared stories of extreme hardship as they negotiated their day to day lives and tried to provide food for their children in contexts of high unemployment or precarious, intermittent work. Caregivers shared stories about how they 'made a plan', in very dire circumstances, to ensure that their children had food and other needs met.

"You know when you're a woman, you make a plan. Mm, to be a woman is to make a plan."

(CSG recipient, Mt Frere)

Source: Zembe-Mkabile W, Surender R, Sanders D, Swart R, Ramokolo V, Wright G & Doherty T (2018) 'To be a woman is to make a plan': A qualitative study exploring mothers' experiences of the Child Support Grant in supporting children's diets and nutrition in South Africa. *BMJ Open*, 8: e019376. doi:10.1136/bmjopen-2017-019376.

Social assistance

While the South African Government offers a Child Support Grant (CSG) to over 12 million children from poor households, it has been ineffective in reducing stunting due to rising food prices,⁸⁰ and Case 20 outlines the challenges caregivers face in trying to stretch the grant to meet the nutritional needs of their children. Devereux and Waidler have pointed out that while social grants in South Africa are an important source of income for poor households, the amounts are too low and must be aligned to the cost of a nutritious food basket.⁸¹ They also recommend that social protection provision should be linked to broader non-cash services and inputs such as

^v In 2017, 69% of 3–5-year-olds and 21% of 0–2-year-olds were enrolled in an early learning group programme. While older children will thrive from social interaction with their peers, younger infants learn optimally from interactions with nurturing caregivers – home settings are therefore ideal for infants and toddlers.

health, education, social services and sanitation and the promotion of appropriate nutrition and hygiene practices.⁸²

School nutrition

The National School Nutrition Programme (NSNP) provides nutritious meals to learners in poorer primary and secondary schools. The programme is led by the Department of Basic Education (DBE) working in partnership with other government departments. The programme also teaches learners and parents how to lead a healthy lifestyle and promotes the development of school vegetable gardens.

However, there are concerns around food safety and quality following several outbreaks of food poisoning and the absence of a proper monitoring and evaluation system to assess the nutritional value of meals and impact of the programme.⁸³

Although the DBE stipulates that meals should account for at least 30 – 45% of the recommended daily allowance and that schools should use locally produced food when possible,⁸⁴ anecdotal reports suggest that meals provided in many schools are nutritionally poor and often obesogenic. This calls for an evaluation of the NSNP, including the ability of this expensive programme to generate livelihoods, as is the case in Brazil where legislation provides that 30% of all food supplied to their school nutrition programme must be sourced from small, local producers.⁸⁵ In South Africa, some schools employ local women to assist in food preparation. While this realises some of the potential of livelihoods creation, it seems clear that more is possible with detailed planning. Employing women has a well-established positive impact on children's diets and thus their nutrition.

The wider food environment in and around schools is also crucial. Greater marketing and access to unhealthy foods in and around schools have been associated with overweight, obesity and poor diet quality among school children in Guatemala, Mexico and Finland.⁸⁶ Schools are trusted places of education and information for children, parents and communities. Policies that are clear, comprehensive and consistent in encouraging healthy eating are therefore essential.

Studies have found that the food environments in and around South African schools do not support healthy eating habits in school children. Healthy options are limited. Instead learners are consuming high sugar, salt and fat foods daily⁸⁷ from school tuck shops and/or vendors,⁸⁸ often replacing home-prepared breakfast, lunch boxes and the NSNP meals.⁸⁹ Pilot school-based interventions have been limited to date to nutrition education and physical education programmes.⁹⁰

No reports on the outcome of reducing marketing on school environments in the South African context have been published.

Fiscal policies, including taxation of unhealthy foods

There is consensus that drinking sugary drinks and a general excess sugar intake are two major causes of obesity and associated diseases such as diabetes⁹¹ and this has prompted the introduction of a health levy or sugary drink tax as outlined in Case 21.

VAT exemption

When Value-Added Tax (VAT) was introduced in South Africa in 1991, 19 items were exempted from VAT.⁹² The debate on VAT exemption on foodstuffs has resurfaced whenever food prices have increased drastically, as was the case in 1999, 2002 and currently. It is estimated that the 2018 increase in VAT would raise the tax on the poorest 50% of households by R1.8 billion or R216 per household per annum.⁹³ After a review by a panel of experts, the Minister of Finance added sanitary pads, bread flour and cake flour to the VAT exempted list.

The main food items exempted from VAT include dried beans, samp, maize meal, rice, brown bread, fresh vegetables, fresh fruits, vegetable oil, mealie rice, pilchards in tins, edible legumes and pulses of leguminous plants, eggs, milk, dried mealies, dairy powder blend, cultured milk, milk powder, brown wheaten meal, sanitary pads, bread flour and cake flour.⁹⁴

The three VAT exempted food items that contribute the most to children's energy intakes are maize meal (20%), bread (10%) and milk (9%), while the greatest contributors to the cost of foods consumed by children are maize, vegetables, milk and bread.

Imminent and potential policies to address the triple burden of malnutrition in children

Regulation of marketing to children

Children are targeted for marketing for three reasons: They are consumers in their own right; they have a very strong effect on adult purchases through "pester power",⁹⁵ and because brand loyalty⁹⁶ created during childhood will pay off when children become adults. Marketing to children takes many forms and includes: product placement at the eye level; endorsement by idolised celebrities or sports stars; toys or free gifts; competitions and reward programmes; and the use of child voices, cartoon characters, play and games.⁹⁷

Younger children are particularly vulnerable to marketing as they are still learning to distinguish fact from fallacy.

Case 21: Levelling the obesogenic playing field: The case for the sugary drink tax

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South Africa is one of the most obese countries globally with 19 million obese or overweight adults. Women are especially at risk with obesity prevalence growing over the past decade from 27.4% to 39.2%.⁹⁸ This crisis affects not only adults but children and adolescents who later in life suffer from multiple non-communicable diseases (NCDs) such as cancers, heart disease and diabetes.⁹⁹ Shorter lifespans and disabilities from these diseases place a major financial strain on families and on the already overburdened healthcare system. This has an impact on the workplace too by increasing turnover, absenteeism and worker compensation claims, and decreasing productivity.¹⁰⁰

Sugary beverages are one key culprit. It is well established that excess sugar consumption, especially in liquid form, increases weight gain and the risk for NCDs.¹⁰¹ Sugary beverages are excessively high in sugar and contain no nutritional value. The WHO recommends a daily sugar limit of six teaspoons,¹⁰² yet an average 330ml cold drink contains eight teaspoons of sugar. Consuming just one of these drinks a day increases the chances of adults being overweight by almost 30% and children by over 50%.¹⁰³

Over the past decade, consumption of these drinks has increased alongside all types of ultra-processed foods,¹⁰⁴ with nine and 10-year-old South Africans now the highest consumers of sugary beverages globally. In the absence of preventive measures, consumption is projected to grow at 2.4% a year, furthering the impact on ill health.

The South African beverage industries are explicit about their target market being lower income groups and are strategic about how to achieve growth.¹⁰⁵ Their strategy is driven by marketing and advertising to connect brands with aspirations and passions, as well as extensive distribution to ensure products are easily available and accessible to lower income groups. This places an already vulnerable population at even greater risk for obesity-related diseases, and is exacerbated by poor access to

quality disease screening and health-care.¹⁰⁶ The impact on children is even worse. Although many of the leading brands have committed to not marketing unhealthy products to children under 12 years of age, research by PRICELESS shows that some billboard advertising for sugary beverages in Soweto are deliberately close to schools, or in school grounds, with nearby vendors providing convenient access.¹⁰⁷

There is an overwhelming perception that if consumers are educated, they will make good choices, but food and beverage choices are shaped by availability, affordability and ubiquitous marketing. This makes it increasingly difficult to make healthy choices and is why action is needed.

Taxation is considered a cost-effective intervention which targets the entire population and is relatively inexpensive to implement. The sugary beverage tax, renamed the health promotion levy, was introduced in April 2018, and is one step in the right direction. Several countries around the world have introduced similar taxes with positive results. The Mexican tax was implemented in 2013 and consumption fell by 5% in the first year and by 9% in the second year.¹⁰⁸ South African research demonstrates that a 20% tax on sugary beverages could reduce the number of obese people by 220,000.¹⁰⁹ Although pushback from industry weakened the tax rate, it is expected that the current measure will still have an impact.

The health promotion levy is an important first step in addressing this commercially driven health crisis. It ought to be followed by a comprehensive package of policy interventions, including marketing and advertising regulations, front-of-package labelling, and restricting access to unhealthy food and drinks in the public sector, including schools. These policy levers would help to level the playing field and make it easier for consumers to make the healthier choice, and in so doing help stem the tide of obesity and NCDs.

While children aged 12 years or older may have greater discernment, studies from neuroscience and behavioural psychology suggest that teenagers continue to be susceptible to marketing as their brains are biased towards rewards and they have less inhibitory control than adults.¹¹⁰

Currently South Africa does not regulate the marketing of foodstuffs to children. Draft regulations on food labelling published in 2014 proposed limiting marketing directed at children on food packaging, but progress has stalled. Similarly, there is work in progress on the marketing of unhealthy food

to children within schools but the only formal action has been the Department of Basic Education's adoption of voluntary guidelines for tuckshops, which are not being enforced.¹¹¹

Simplified nutrition information labels on food

Behavioural economic theories suggest that the availability, price and presentation of food (or 'choice architecture') can be used to override the short-term gratification of sweet and salty foods and promote healthy choices.¹¹² Strategies to reduce unhealthy food consumption include consumer education, reformulation of foods, taxation and front-of-package labelling (FoPL).¹¹³

Given that consumers spend less than ten seconds selecting an item, a simplified FoPL system may help discourage unhealthy food choices and increase consumers' understanding of nutritional quality.¹¹⁴ It may also encourage food manufacturers to provide healthier choices to consumers.¹¹⁵ The energy content of foods in the United States has declined following the introduction of calorie labelling. Although South African consumers find food labels difficult to understand,¹¹⁶ they have been found to help consumers with decision-making.¹¹⁷

Food labelling is regulated by Act 54 of 1972 through the Department of Food Control in the Department of Health. While the R429 draft regulation on health claims includes aspects of FoPL,¹¹⁸ it has not yet been finalised. But the department is considering revising FoPL to make the key nutritional attributes of foods – both positive and negative – more transparent to consumers.

Other potential policies that could help improve children's nutrition include:

- subsidising basic, nutritious foodstuffs such as milk, eggs and fruit – possibly using revenue derived from the sugar tax; and
- regulating trade in unhealthy food products, although the implications of this for trade agreements will need to be explored. Stronger regulation of fast food outlets is also needed to improve the nutritional composition of fast foods, including calorie counts (as in New York City where calorie boards are placed in all restaurants and fast food outlets).

What are the key recommendations to address the triple burden of malnutrition in children?

The recommendations have been structured using the framework (Figure 47) for optimum nutrition and development over the life course. It highlights the need for both nutrition-specific and nutrition-sensitive interventions in order to

create an enabling environment that addresses the drivers of the triple burden of malnutrition and the increase in NCDs.

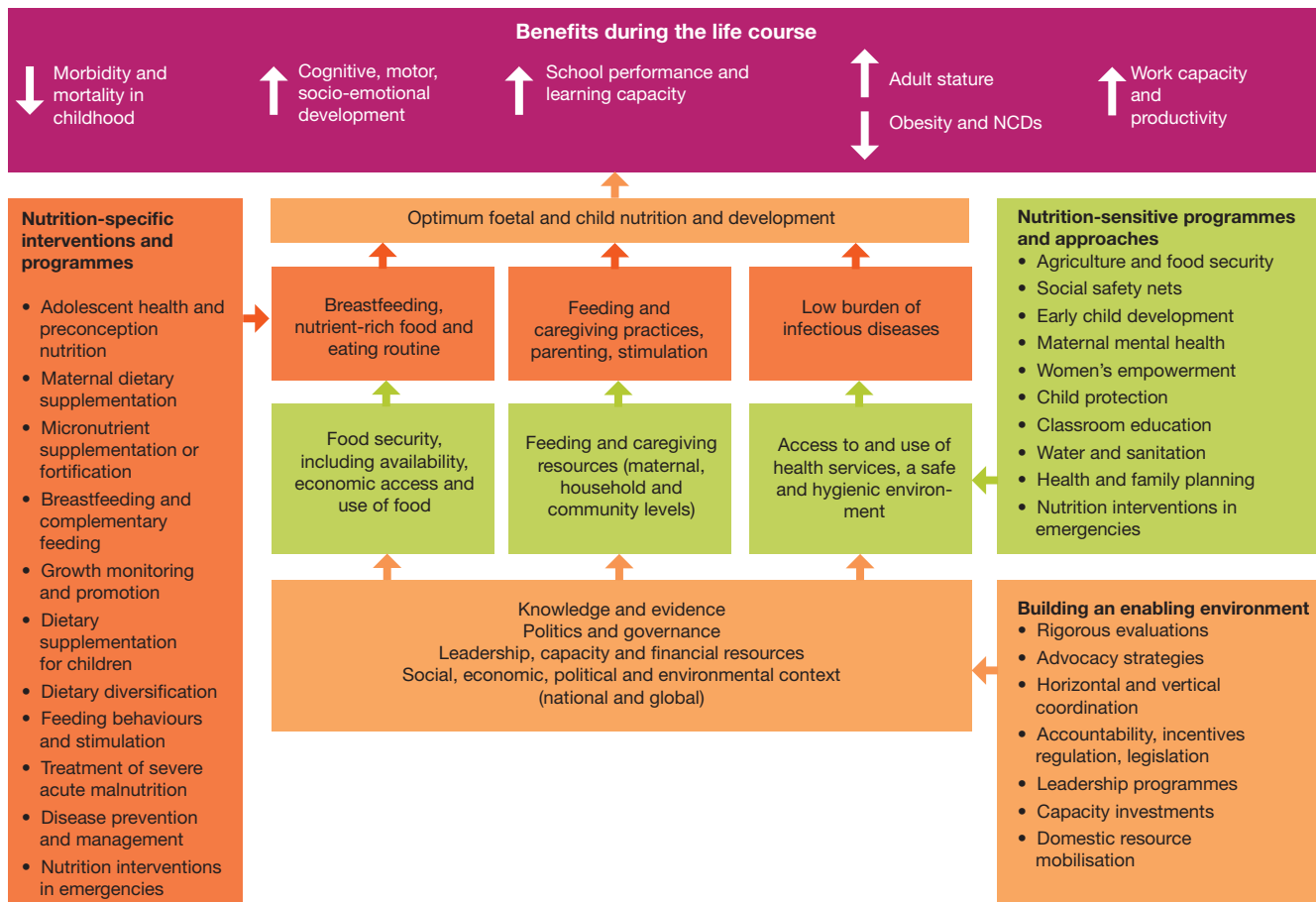
Recommendations to address undernutrition

Recommendations for nutrition-specific interventions

The following evidence-based nutrition-specific interventions, if implemented at scale, could ensure that the WHO nutrition targets are met by 2025.

- Address micronutrient deficiency e.g. anaemia and reducing obesity, especially in adolescent girls, to optimise nutrition later in the life course.¹¹⁹
- Screen and treat all pregnant women with anaemia. Provide supplements for those experiencing food insecurity and undernutrition through the Nutrition Therapeutic Programme. Provide iron, folic acid and calcium supplements to all women at basic antenatal care sites and through CHWs as outlined in the national maternity care guidelines.¹²⁰ Screen for maternal mental health problems and ensure support and referral.
- Increase coverage of exclusive breastfeeding in the first six months by systematising the mother-baby friendly initiative in all health facilities and communities. Monitor and enforce R991. Extend maternity leave with full benefits for the first six months after birth.¹²¹
- At every opportunity, and whenever GMP is performed, counsel caregivers about a minimum acceptable diet at six to 23 months to reduce stunting rates. This includes information on breastfeeding, complementary feeding, micronutrient supplementation and early learning stimulation drawing on the RTHB and Side-by-Side campaign, face-to-face interactions, community radio, MomConnect, Facebook, pamphlets, posters, videos and community events.
- Consider food supplementation together with counselling of caregivers to reduce stunting of children under two years old in food insecure settings.¹²² In the Western Cape, a manual containing recipes with affordable meals has been developed and implemented at registered ECD centres in low-income communities. This should be extended to unregistered centres in targeting the most vulnerable children.
- Regulate, monitor and strengthen the fortification of maize meal and wheat flour to ensure compliance with fortification standards. Ensure the addition and control of adequate quantities of the premix at the mills so that these fortified foods have satisfactory micronutrient levels.¹²³

Figure 47: Interventions for optimum nutrition over the life course



Source: Adapted from: Black R, Victora C, Walker S, Bhutta Z, Christian P, De Onis M, Ezzati M, Grantham-McGregor S, Katz J, Martorell R & Uauy R (2013) Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890): 427-451.

Recommendations for nutrition-sensitive interventions

- Increase the Child Support Grant so that it covers the cost of a nutritious food basket for families.
- Improve maternal education and ensure universal maternal and child health care.
- Ensure access to adequate water, sanitation and hygiene especially in homes, ECD centres and schools.

Recommendations to build an enabling environment

Implementing maternal and child health nutrition policies should consider all the components of the health system. The recommendations include:

- Implement evidence-based programmes at all service delivery levels including health facilities and community-based platforms; and model good practice (exclusive breastfeeding, GMP, provision of nutritious and affordable meals) in hospitals.
- Build a skilled workforce to plan, implement, and monitor programmes by Government. Consider employing a public health nutritionist at a district level to oversee

nutrition interventions in the district. Employ enough CHWs to ensure an optimal ratio per household.

- Allocate enough financial and human resources, especially nurses and CHWs, to ensure effective implementation of programmes.
- Support programme and service delivery with an adequate supply of equipment and infrastructure.
- Document progress and impact of programmes and use this to drive quality improvement.
- Ensure strong leadership and governance to oversee and coordinate implementation of nutrition programmes.

Recommendations to address overnutrition

The NOURISHING framework provides a useful structure for outlining the key recommendations relating to overnutrition as outlined in Table 25.¹²⁴ These are structured across three main domains – the food environment, food system and behaviour change communication. Some of these policies already exist while those that still need to be developed are listed in italics.

Table 25: A framework of policies and actions to promote a healthy diet and address overnutrition

		Policy area	Policies and actions needed
Food environment	N	Nutrition label standards and regulations	Labelling and advertising of foodstuffs ¹²⁵
	O	Offer healthy foods at public institutions and set standards	Healthy meal provisioning in the workplace ¹²⁶ <i>Standards on healthy diets</i>
	U	Use economic tools to ensure affordability of food and to provide incentives	<i>Taxes and subsidies to encourage healthy diets</i> <i>Discounts on healthy foods for the broader public</i>
	R	Restrict advertising of unhealthy food	Restriction on the marketing of unhealthy food ¹²⁷
	I	Improve quality of food supplied	Elimination of trans fats, ¹²⁸ restrictions on sodium intake ¹²⁹ and introduction of the sugar tax <i>Restrictions on ultra-processed food</i> <i>Increase fruit and vegetable consumption</i>
	S	Set incentives for healthy retail environment	<i>Incentivise retailers to provide healthy foods</i>
Food system	H	Harness supply chain and actions across sectors	<i>Promote a universal healthy reference diet</i> Link with the global strategies to transform the food system
Behaviour change communication	I	Inform through public awareness	Food-Based Dietary Guidelines
	N	Nutrition counselling and advice	Review existing guidelines e.g. IMCI
	G	Give nutrition education	Integrate healthy eating with existing campaigns

Food environment

- Hold the state accountable for protecting and upholding children’s rights to health, adequate food, culture and a healthy environment.
- Develop standards for healthy meals; regulate the sale of food and beverages at tuckshops and by vendors; restrict the marketing of unhealthy foods;¹³⁰ provide incentives to vendors to provide healthy meal alternatives;¹³¹ monitor and evaluate the NSNP and consider establishing income generation projects to support the local production and preparation of food.
- Implement health-related taxes and subsidies that encourage healthy diets and consider using revenue generated from the sugar tax for school nutrition programmes, obesity reduction programmes and health promotion initiatives.
- Enforce policies and actions on the marketing of unhealthy food to children and communities.
- Implement policies that promote the production, consumption and marketing of fruit and vegetables.
- Enforce existing policies that limit the intake of trans fat, salt and added sugar.
- Regulate the import and sale of ultra-processed foods and the establishment of fast food outlets near schools and incentivise the sale of healthy foods by retail outlets.

Food system

- Promote consumption of a universal healthy reference diet that is environmentally sustainable as recommended by the EAT Lancet series. This should be plant-based with moderate amounts of poultry and seafood, and minimal amounts of red meat, processed meat, added sugar, refined grains and starchy vegetables.¹³²
- South Africa needs to keep pace with the call for global transformation of the food system. This requires Government commitment to ensure the consumption of a healthy diet; to reorient agricultural policies to produce a diversity of good quality crops by supporting small and medium farms; to intensify the production of high quality crops which are environmentally sustainable; to maintain natural ecosystems with minimal expansion of new agricultural land; and to reduce food wastage.¹³³

Behaviour change communication

- Integrate the recommendations for an environmentally sustainable healthy reference diet into the existing Food-Based Dietary Guidelines (FBDGs). The revised guidelines should then be promoted through the media, schools, community-based organizations and civil society groups, and through nutrition counselling delivered through health care facilities, the RTHB, MomConnect and the Side-by-Side campaign.

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