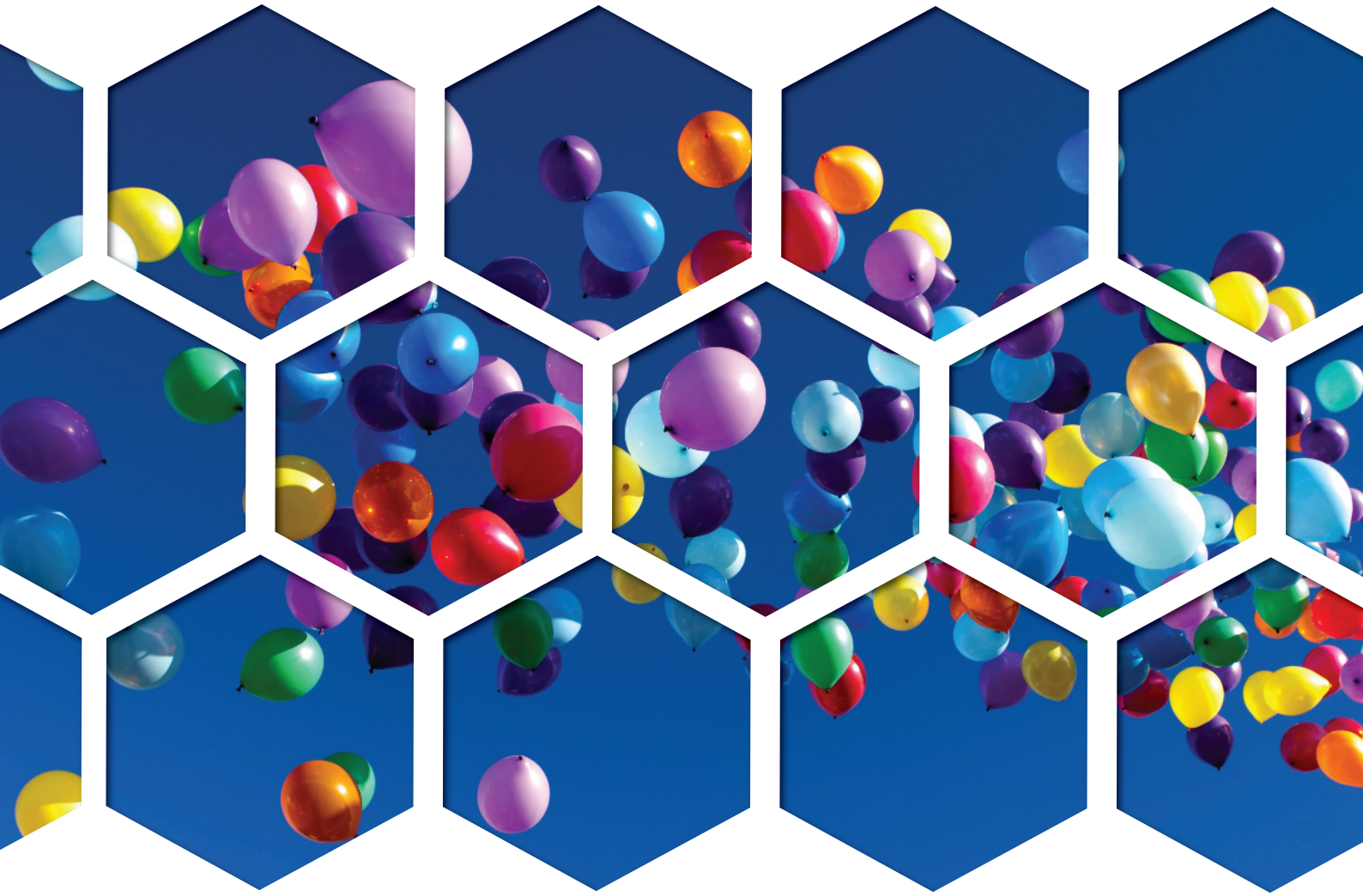
Healthy Weight for Children (0-6 years) Framework

(November 2018)



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Healthy Weight for Children (0-6 years) **Framework**

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Foreword

This framework provides a strategic direction for a national and sustainable approach to facilitating healthy weight and the prevention of obesity in children aged 0-6 years in Ireland.

Obesity is not just about a person's size or shape, it is a major public health challenge. The consequences of childhood obesity can be lifelong and even intergenerational. The medical consequences of obesity previously only seen in adulthood are now being seen in children and adolescents. We also know that children who are overweight or obese are more like to be bullied and experience poor self-esteem and depression.

The total lifetime costs of childhood obesity in the Republic of Ireland are estimated to be €4.6 billion, with annual direct healthcare associated costs estimated at €1.7 million. A body mass index (BMI) reduction of just 5% would reduce the lifetime cost of childhood overweight and obesity by €1.1 billion.

We know that overweight and obesity can be prevented by changing behaviours and the obesogenic environment. In order to achieve healthy behaviours among our children, the scientific evidence supports interventions that are aimed at prevention and targeted early in the life-course. Hence this framework focuses on the preconception to school entry stage. During this time there are several opportunities for prevention and intervention with potential for multisectoral involvement. These should be supported by additional interventions in the areas of legislation, mass communications (including social marketing), community-based interventions and additional targeted supports for those most in need.

We must provide parents and carers with the support and resources that they need to ensure the most positive outcome for their children.

The content of this framework is consistent with the recently launched *First 5* strategy by the Department of Children and Youth Affairs. It is underpinned by the principle that government and society have a moral and legal responsibility to act on behalf, and in the best interests of children in reducing the risk of obesity through protecting children's rights to health, including their right to healthy, wholesome food. A comprehensive response for tackling childhood obesity is consistent with the universal acceptance of the rights of the child to a healthy life as well as the obligations assumed by State Parties to the Convention on the Rights of the Child.

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Acknowledgements

This framework has been produced with contributions from, and in consultation with, the members of the *National Healthy Childhood Programme* and the *Healthy Eating and Active Living Programme's* multidisciplinary *Healthy Weight for Children Group*. Members of this group are listed in Appendix 1 and include representatives from the HSE, TUSLA (the Child and Family Agency), *safe*food and academia.

We would also like to acknowledge the input in relation to parenting from Mr. Conor Owens, Senior Psychologist and manager of the HSE's Triple P Positive Parenting Programme.

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CHAPTER 1

Introduction – setting the scene

The importance of healthy weight for children has been emphasised nationally by the Department of Health's *A Healthy Weight for Ireland Obesity Policy and Action Plan 2016-2025*[1] and internationally by the World Health Organization *Report on Ending Childhood Obesity*.[2]

This framework is set in the context of the *Healthy Ireland*[3] framework which aims to increase the proportion of people who are healthy at all stages of life. Among the Policy Priority Programmes established by the Health Service Executive (HSE) aimed at improving the health and wellbeing of the population in Ireland are the *National Healthy Childhood Programme* and the *Healthy Eating and Active Living Programme*. Both of these work collaboratively and have convened a multidisciplinary *Healthy Weight for Children Group* (Appendix 1) with membership from the HSE, TUSLA (the Child and Family Agency), *safe*food and academia. This framework has been prepared by that subgroup and it aims to guide the delivery of *A Healthy Weight for Ireland Obesity Policy and Action Plan* 2016-2025[1] for children from the preconception stage, through the antenatal stage, infancy and early childhood up to and including six years of age.

Action for young children in Ireland is very important as currently one in every four children up to three years of age is overweight or obese, and up to age five years, the proportion affected is one in five.[4] For many of these, the unhealthy weight established in early childhood will track into their adulthood.[5]

Purpose of this framework

The purpose of this framework is to provide a strategic direction for a national and sustainable approach to facilitating healthy weight and the prevention of obesity in children aged 0-6 years in Ireland (see Appendix 2 for profile by gender and age). It is intended for all of the institutions, services, groups and personnel who are involved with children, families and those who are planning to have children.

Drawing on national policy and review of the best available evidence, this framework presents a portfolio of recommendations for potential action for use by the wide range of stakeholders. These include policy makers; statutory organisations such as health and education services; partnerships and non-governmental organisations (NGOs); service managers; professional organisations and individual practitioners; community leaders; parents, guardians, carers, families, prospective parents and children.

There are key roles for personnel working in the health, education, childcare and social work sectors due to the degree of direct contact these personnel have with the target population.

What do we mean by overweight and obesity?

Overweight and obesity are defined as ''abnormal or excessive fat accumulation that presents a risk to health''.[6] Body Mass Index (BMI) is considered to be the best available population marker for monitoring trends in overweight and obesity. BMI is calculated from the formula, weight in kg/height in m^2. In adult populations, overweight and obesity are defined at the cut-off points of 25 kg/m^2 and 30 kg/m^2 respectively. However, the cut-off points for children and adolescents are different and vary according to age and sex. This is because as they grow, the bodies of children and adolescents undergo a number of physiological changes during which body fat content changes with significant differences between boys and girls.

For children less than two years of age growth measurement consists of measuring length and weight and plotting both on the UK-WHO centile charts which are available on https://www.hse.ie/eng/health/child/growthmonitoring/. It should be noted that these UK-WHO centile charts are for ages 0 to 4 years and are valid for plotting up to four years of age if required. BMI should not be measured until the child is over two years of age.

For children over two years, age-specific and sex-specific growth reference percentile charts (UK-WHO) are used from which their BMI can be categorised into either healthy weight, overweight or obese using internationally agreed thresholds for the child's age. These growth charts use the Body Mass Index z-scores (also called BMI standard deviation (S.D.) scores) which are measures of relative weight adjusted for child age and sex.[7] Growth measurement information is available on the HSE website and charts may be downloaded from https://www.hse.ie/eng/health/child/growthmonitoring/. Guidelines for the measurement of children over two years of age in primary care in Ireland have been produced by the HSE/Irish College of General Practitioners (ICGP).[8]

International data on overweight and obesity

Obesity is an international problem with the worldwide prevalence nearly tripling between 1975 and 2016 with increases seen in all age groups (Box 1).

Box 1: *Facts about overweight and obesity (WHO Fact sheet, reviewed Feb. 2018)*[6]

In 2016:

- more than 1.9 billion adults aged 18 years and older were overweight, of these, over 650 million were obese
- 39% of adults aged 18 years and over (39% of men and 40% of women) were overweight while about 13% of the world's adult population (11% of men and 15% of women) were obese
- an estimated 41 million children under the age of five years, out of 667 million, were overweight or obese
- over 340 million children and adolescents aged 5-19 were overweight or obese, a dramatic rise in prevalence from 4% in 1975 to just over 18%, the rise has occurred similarly among both boys and girls
- some 124 million children and adolescents (6% of girls and 8% of boys) were obese compared to just less than 1% of children and adolescents aged 5-19 in 1975

What we know about weights of children aged 0-6 years and expectant mothers in Ireland

The available information on the weight of young children, including newborns, and pregnant women in Ireland comes from a range of sources (see Appendix 3) and includes data collected nationally at population level, nationally representative surveys and selected recent Irish maternity unit-based research projects.

Overweight and obesity in children in Ireland

All of the available data indicate that a high proportion of children in Ireland are overweight or obese and the main findings from the *Growing up in Ireland Study*[4] include:

- at age three years, 19% of children were overweight and a further 5% were obese which, if extrapolated to the full population, indicates that 16,338 three-year-olds were overweight or obese
- at age five years, 15% were overweight and a further 5% were obese which, if extrapolated to the full population, indicates that 14,481 five-year-olds were overweight or obese
- at age five years, gender differences are apparent with 23% of girls overweight or obese compared to 18% of boys
- at age seven years, the prevalence of being overweight remained at 20% and there is evidence of a social gradient with 17% of highest income quintile children being overweight or obese compared to 24% in the lowest quintile

This research also found that among seven-year-olds:

- boys were more likely than girls to participate in higher levels of unstructured physical play (44% compared to 32%)
- boys were more likely to attend a sports club or group at least twice a month (55% compared to 46%)
- children from less advantaged homes generally participated more in unstructured physical play than those more advantaged, while the opposite was true of attendance at sports clubs or groups on a regular basis
- an inverse relationship was apparent between social class and length of time children spent in front of a screen - more time in front of a screen was clearly associated with higher calorie intake, poorer eating habits and higher levels of overweight and obesity
- children from lower income groups consumed 23% more calories per day than those in the higher income groups

In Ireland, prevalence of overweight and obesity is 6%-7% higher in schools in disadvantaged areas and as children grow older this discrepancy increases.[9]

A systematic review of prevalence of overweight and obesity in children was published in 2014[10] and recently updated.[5] Findings from analysis of trends in prevalence of overweight and obesity among school going children between 2002 and 2014 include:

- a decrease in the prevalence of overweight and obesity for the total population of boys and girls, falling from 26% in 2002 to 23% in 2014
- a statistically significant decrease among five-year-olds in the prevalence of overweight or obesity from 25% to 22%
- no significant changes in prevalence rates among 12-year-olds
- no change overall in prevalence of overweight among children aged 4 to 13 years but there has been a slight decrease in the prevalence of obesity

Birth weights of live born infants in Ireland

The birth weight of all 65,869 live births in Ireland in 2015 is reported by the *National Perinatal Reporting System* (NPRS):[11]

- 6% of live births were of low birth weight (less than 2,500 grams)
- 2% of live births were high birth weight (4,500 grams or more)

Profile of expectant mothers in Ireland

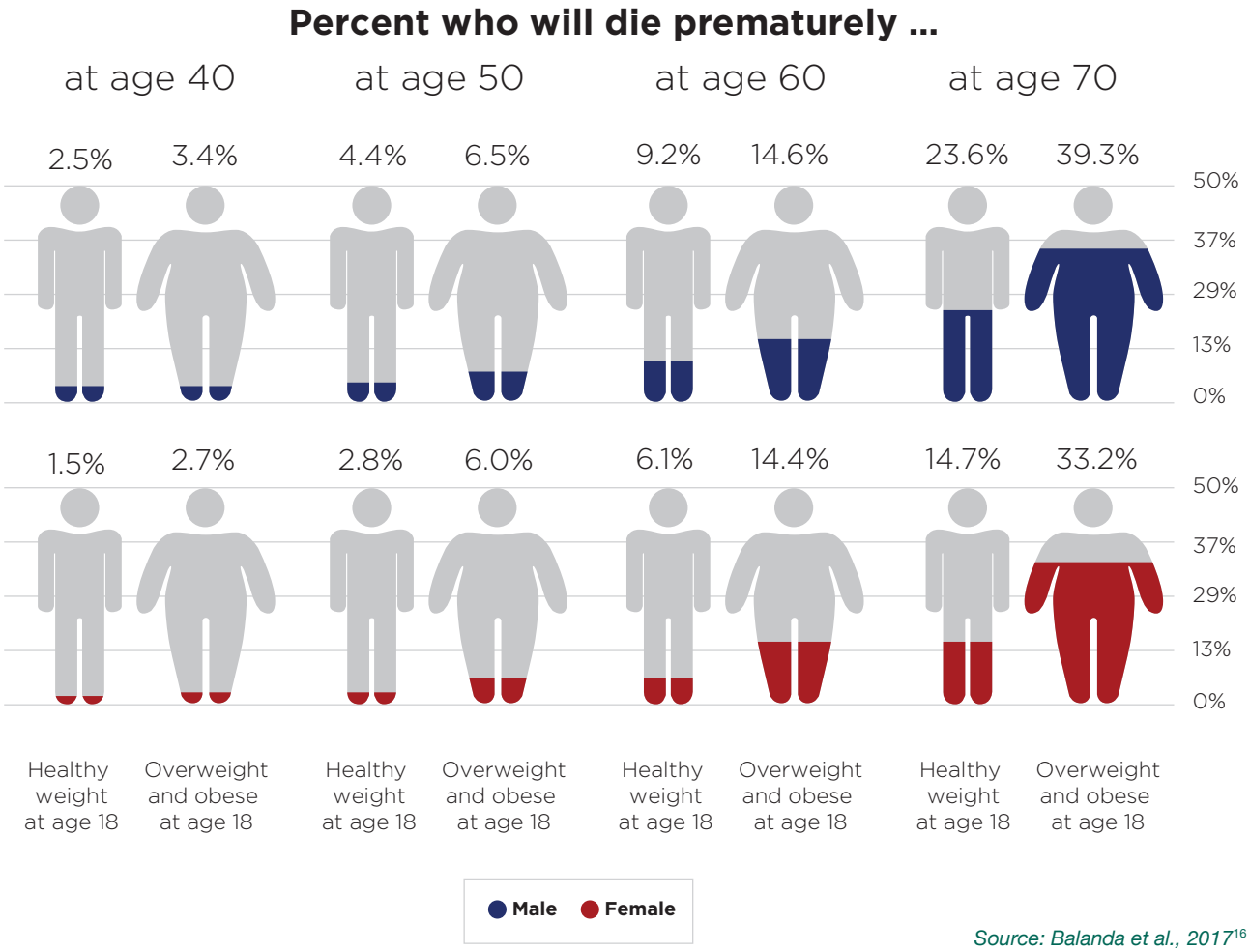
In Ireland, it was estimated that at one large maternity unit, 43% of pregnant women were overweight or obese at the booking visit in 2001-2003.[12] Obesity rates in the first trimester and first visit at two different units were reported as 19%[13] and 25% respectively.[14] More recently, a review of trends over the five year period from 2009 to 2013 among antenatal women in early pregnancy at a Dublin maternity unit found that although the overall obesity rate remained stable (overall proportion with rate of obesity 16.8%), the number of cases of severe obesity (BMI≥ than 40.0 kg/m^2) increased over the study period by 48.5% (n=103 in 2009 to n=153 in 2013).[15]

It is important to have timely national population data in order to understand the nature and extent of the problem, to provide context for interventions and to monitor and evaluate them. This is covered in more detail in Chapter 4 under Monitoring and Evaluation.

Importance of healthy weight for children

Healthy weight for young children is important because overweight and obesity have implications for quality and length of life both in childhood and adulthood. Heredity, developmental and environmental influences all play a part and all have potential to be modified through a prevention approach.[2] Adverse consequences can affect the physical, behavioural, psychosocial and economic welfare of children and their families, both in the immediate and in the longer term. Being overweight or obese is a major risk for non-communicable diseases. These include cardiovascular disease, type 2 diabetes, certain cancers, fatty liver disease, respiratory and orthopaedic problems all of which can lead to both premature mortality (Figure 1) and long-term morbidity. Obesity is also associated with higher prevalence of dental caries. In addition, quality of life may be adversely impacted through linked psychosocial factors such as susceptibility to being bullied, low self-esteem, depressive disorders, behavioural problems and an increased risk of eating disorders. Obesity is also associated with diminished school attendance and performance, reduced workplace participation and productivity.[5]

Stigmatisation of those who are overweight 'threatens health, generates health disparities, and interferes with effective obesity intervention efforts'.[17]



Source: Balanda et al., 2017[16]

Figure 1: *Premature mortality projections by weight status at age 18 presented as percentages at ages 40, 50, 60 and 70 years, by sex*

Economic cost of childhood obesity

The current annual direct healthcare costs amongst children attributable to childhood overweight and obesity in the Republic of Ireland are sizeable and are estimated at €1.7 million.[5] The lifetime cost of childhood obesity, which includes direct healthcare costs and societal costs, is estimated as €4.6 billion. Direct healthcare costs, hospital inpatient, outpatient, general practitioner (GP) and drug costs make up one fifth of total costs, while 79% of total lifetime costs were due to absenteeism, premature mortality and lifetime income losses.

The current national cost estimates do not factor in the percentage of people who are a healthy weight as children but who will become overweight or obese as adults. Statistical modelling from the US[18] suggests that 57% of their current child population will be overweight or obese as adults at age 35.

The impact of investment in early childhood

Irish research[5], which was commissioned and funded by *safe*food, estimated that a 1% reduction in BMI would generate savings of €270 million in lifetime costs attributable to childhood weight and obesity.

Figure 2 presents the estimated impact of a 5% mean reduction in childhood BMI which has been calculated to save over €1.1 billion.

Republic of Ireland

Current impacts & costs of childhood obesity/overweight (2015)		Savings if mean childhood BMI reduced by 5%
Number of premature deaths	55,056	9,269 ↓
Years lost due to premature mortality (YLL)	46,737.3	7,180 ↓
Lifetime income loss	€256.1m	€61.4m ↓
Direct healthcare cost	€944.7m	€245.7m ↓
Productivity loss due to premature mortality	€2,795.4m	€671.0m ↓
Productivity loss due to absenteeism	€521.9m	€149.0m ↓
Total costs	€4,518.1m	€1,127.1m ↓

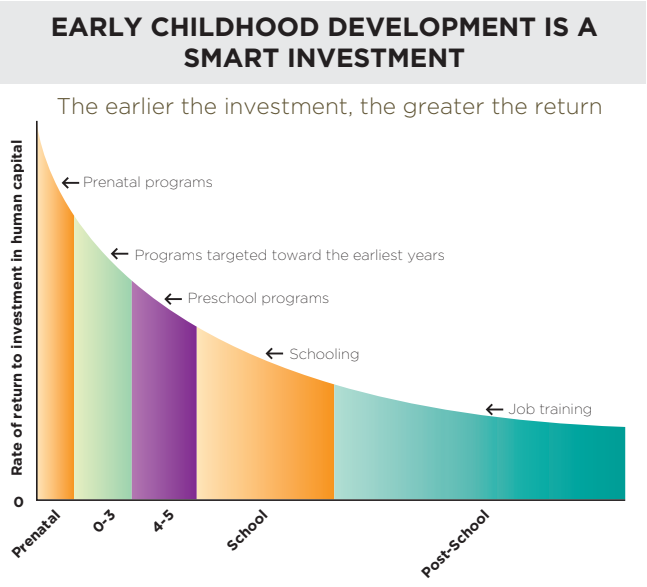
Source: Reproduced from Balanda et al., 2017[16]

Figure 2: *The estimated impact of a 5% mean reduction in childhood BMI*

International evidence indicates that the highest rate of economic return comes from the earliest investments in children (see Fig 3). The economic benefits of investing early and building skill upon skill will provide greater success to more children, result in greater productivity and reduce social spending.

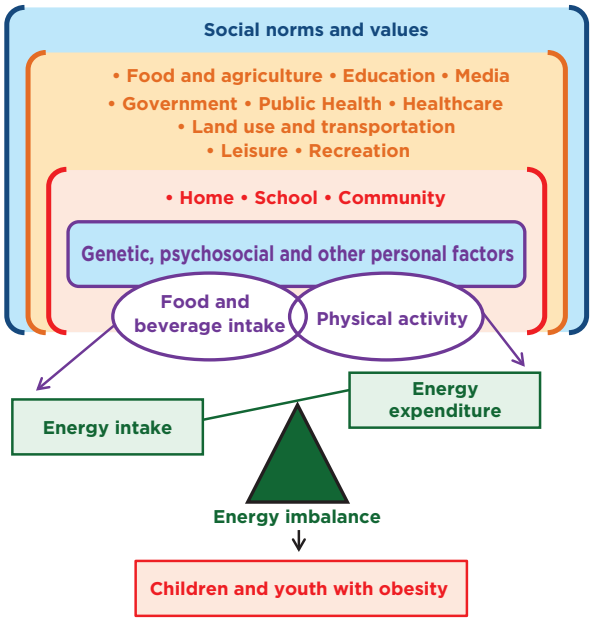
Multidimensional aspects of obesity

The problem of overweight and obesity has arisen as a result of changes in our environment and the manner in which people eat and exercise. There have been changes in the type and volume of food consumed and in eating behaviours, as well as the availability, affordability and marketing of food. There has also been a decline in physical activity and an increase in sedentary behaviour. Sleep is also an important factor as it is now recognised that the amount and quality of sleep that children get impacts on their weight.



Source: https://heckmanequation.org/resource/the-heckman-curve/

Figure 3: *Early childhood development is a smart investment*



Source: Adapted from Koplan et al, "Preventing Childhood Obesity" [19]

Figure 4: *The determinants of obesity*

Traditional prevention policy has focused on individual responsibility; however, the behaviours related to the chronic disease phenomenon are complex and embedded. As a result, it is recognised that a successful prevention approach requires a focus that is broad and inclusive of all factors contributing to the obesogenic environment. Energy balance is the basis of maintaining a healthy weight. For young children, their energy intake and expenditure is strongly influenced by decisions made by their families, carers and communities in which they live. Furthermore they are influenced by government policies, by the food industry and by social norms and values (Figure 4). Intervention at root cause level incorporating all the relationships and influences involved is essential to facilitate and support change.

The importance of multisectoral action

The advantages of multisectoral involvement are many. In particular, involvement of various actors can ensure better implementation, greater and easier reach and greater acceptance. It can also help to maximise return for resources invested. Some of the key sectors involved are illustrated in Figure 5, although many other government departments and sectors may also play a role. Capacity to work in partnership at national, regional and local level with key actors needs to be developed.

Examples of key multisectoral fora include the:

- *Local Community Development Committees (LCDCs)* whose functions include preparing, implementing and reviewing the community elements of the six year Local Economic and Community Plan (LECP)
- Children and Young People's Services Committees (CYPSC) which have been established across the country and are a key structure to plan and coordinate services for children and young people in every county in Ireland
- *Healthy Ireland Network* which was established by the *Healthy Ireland Council* in 2017 to get all types of organisations across the country to sign-up to combine efforts to improve health and wellbeing
- *All-Island Obesity Action Forum*

Source: Adapted from "A Healthy Weight for Ireland" [1]

Figure 5: *Sectors with leadership roles in the prevention of childhood obesity*

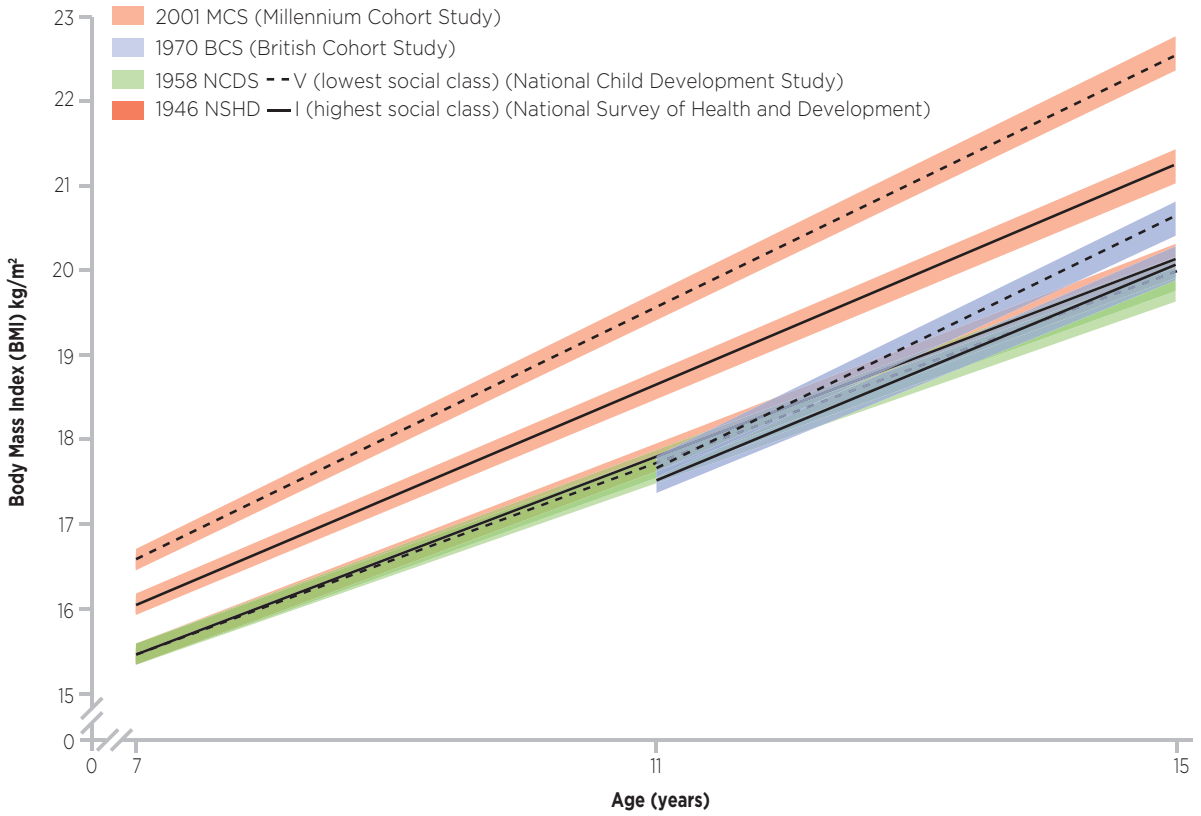
Inequalities and childhood obesity

Rates of childhood overweight and obesity are socio-economically patterned, with those in lower socio-economic groups more likely to be overweight or obese.[20] [21] Obesity in women during pregnancy increases the risk to their children and extends the resulting health inequity across generations.[22]

A mother's preconception weight and her weight gain during pregnancy are two of the most important prenatal determinants of childhood obesity.[23] Healthcare professionals responsible for the provision of primary and prenatal care should offer families counselling and support on diet and physical activity that is tailored to their specific circumstances, with special attention given to low socio-economic groups.[24] Proper nutrition and healthcare are essential for a child's healthy growth, learning and neurodevelopment.

In addition, some other vulnerable groups, such as people with disabilities or chronic diseases and some ethnic minorities, have higher risk of being overweight or obese than the general population.[2] In Ireland, prevalence of overweight and obesity is 6%-7% higher in schools in disadvantaged areas and as children grow older this discrepancy increases.[9] This pattern is also evident in a recent review of trends in socio-economic inequalities in childhood in Britain[25] (Figure 6) which examined four cohorts of children born between 1949 and 2001 with measurements taken at ages 7, 11 and 15 years. Inequalities in BMI and weight were wider in the 2001 cohort than in the previous three groups. Findings in 2015 show that this trend has accelerated over the years, with significant widening of BMI and weight inequalities occurring between childhood and adolescence.

This research demonstrates the need for new policies and initiatives which address the effects of the obesogenic environment on children through legislative change and societal factors rather than over-reliance on individual and family agency.



Lines are estimated BMI and widths of the shaded area are 95% CIs at each age among women, estimated with multilevel general linear regression models.

Source: Bann et al., 2018 [25]

Figure 6: *BMI across childhood to adolescence by social class (characterised by father's occupation) in four British birth cohort studies*

Sources of evidence for the prevention of childhood obesity used in this report

Overall there is a paucity of research and evidence in relation to prevention of childhood obesity, particularly for children up to six years of age, and also a lack of data on effective programmes for children with disabilities, learning difficulties and other special needs.[26 27] Recent systematic reviews have mainly included children aged six to twelve years of age.[28 29] However, the findings would appear consistent with the expert thinking of what works in the earlier years.

The factors that enable individuals to adopt healthier behaviours and also to maintain them so that there is longer term behavioural change need to be investigated further. The National Institute for Health and Care Excellence (NICE) points to a lack of the type of long-term follow-up, and also research on motivation, that would give us this information.[27] Even where programmes show some initial success there is a lack of evidence to show sustainability over time. Taveras[30] argues that a life-course approach is required with obesity intervention and childhood development intertwined and a menu of interventions available in order to support sustainability of effect.

Evidence for this framework has been drawn from

- the relevant recent policy documents of the Department of Health (DoH)[1], European Union (EU)[24] and WHO[2]
- the Royal College of Physicians of Ireland (RCPI) policy document[12]
- the UK framework for tackling obesity through the *Healthy Childhood Programme*[31]
- a recent literature review included in the cost of obesity report[5]

- review of the relevant literature, including systematic reviews, peer review publications and the grey literature
- consultation with the experts on the Healthy *Weight for Children Group* (Appendix 1)
- input from relevant stakeholders

The importance of prevention

Prevention of obesity in very young children is essential. This is key because so many young children are overweight at such a young age and because of the potential lifelong and even intergenerational effects. Action at this time helps children to have the best start in life and promote and support the development of healthy behaviours from an early age. The WHO[2] has identified prevention as the essential thrust of efforts to combat obesity and this is also the primary focus of policy in Ireland.

CHAPTER 2

Policy and Governance

International policy on childhood obesity

The WHO set out the international policy on childhood obesity in the *Report of the Commission on Ending Childhood Obesity* in 2016.[2] In the following year, the WHO published an implementation plan to guide this work.[32] The aim of the WHO policy is to reduce the risk of morbidity and mortality due to non-communicable disease, to lessen the negative psychosocial effects of obesity and to reduce the risk of the next generation developing obesity. Allied to this is the WHO *Health in all Policies* framework.[33] It refers to an integrated and coherent approach to policy development across sectors involving collaboration between policy makers (national and local) from health and non-health sectors. This approach is necessary in order to tackle the wider determinants of health which influence the risk of childhood obesity in the population. A comprehensive response for tackling childhood obesity is consistent with the universal acceptance of the rights of the child to a healthy life as well as the obligations assumed by State Parties to the Convention on the Rights of the Child.

Policy in Ireland on obesity

Policy in Ireland on obesity is outlined in ***A Healthy Weight for Ireland Obesity Policy and Action Plan 2016-2025***.[1] It governs the direction of work across all sectors to prevent and manage overweight and obesity in Ireland. It is led by the Department of Health. It sets out ten steps forward from 2016-2025, that are cognisant of and congruent with the recommendations of the WHO *Commission on Ending Childhood Obesity*.[2] This policy sets a target to achieve a reduction of 0.5% per annum in rates of overweight and obesity in both children and adults. A number of key strategies, frameworks, statements and plans are aligned to this policy:

- ***The Healthy Ireland Framework***[3] is a cross-government policy that commits to increasing health and wellbeing across the population by 2025.
- ***Better Outcomes, Brighter Futures: the national policy framework for children and young people 2014-2020***[34] sets out the Government's agenda and priorities in relation to children and young people from birth up to the age of 24. The five outcomes are that children and young people will be active and healthy; achieve in all areas of learning and development; be safe and protected from harm; experience economic security and opportunity; and be connected, respected and contributing to their world. These outcomes are interconnected and reinforcing, and all are relevant to healthy weight for children.
- ***First 5: A Whole-of-Government Strategy for Babies, Young Children and their Families 2019-2028*** which seeks to ensure that babies and young children have a strong and equal start through the delivery of: a broader range of options for parents to balance working and caring; a new model of parenting support; new developments in child health, including a dedicated child health workforce; reform of the Early Learning and Care (ELC) system, including a new funding model and a package of measures to tackle early childhood poverty. (https://www.dcya.gov.ie/documents/earlyyears/19112018_4966_DCYA_EarlyYears_Booklet_A4_v22_WEB.pdf)

- ***The race we don't want to win: Tackling Ireland's obesity epidemic***[12] in which the RCPI presents obesity as both a medical and a general health issue and takes cognisance of the major role that health professionals have in addressing the impact of obesity. This document also emphasises the role of family, educators, community and those responsible for public policy.
- ***Creating a better future together: National Maternity Strategy 2016-2026***[35] adopts a health and wellbeing approach to ensure that babies get the best start in life while mothers and families are supported and empowered to improve their own health and wellbeing.
- ***Get Ireland Active: National Physical Activity Plan for Ireland***[36] focuses on the role of physical activity in achieving optimal health and wellbeing and promotes healthy growth and development in children and young people.
- ***Healthy Eating Active Living Programme National Implementation Plan 2017-2020***[37] aims to mobilise the health services to improve health and wellbeing by increasing levels of physical activity, healthy eating and healthier weight across service users, staff and the population as a whole, with a focus on children and families.
- ***Framework for the National Healthy Childhood Programme 2017***[38] outlines the evidence base and sets out the revised schedule for the *National Healthy Childhood Programme*.
- ***Breastfeeding in a Healthy Ireland: the HSE Breastfeeding Action Plan 2016 - 2021***[39] aims to improve breastfeeding supports, to enable more mothers in Ireland to breastfeed and to improve health outcomes for mothers and children in Ireland.

From the above it is clear that interventions on childhood obesity in Ireland should focus on:

- prevention of obesity and the preservation of healthy weight throughout the life-course with particular emphasis on preconception, pregnancy and the early childhood years
- the need to tailor approaches so as to lessen inequalities in health in the population
- providing for treatment for those who do become overweight or obese

The Healthy Weight for Ireland Obesity Policy and Action Plan's[1] ten areas for action (Table 1) guided the development of this framework for the population of children aged 0-6 years.

Table 1: *The 10 steps forward*

1	Embed multisectoral actions on obesity prevention with the support of government departments and public sector agencies.
2	Regulate for a healthier environment.
3	Secure appropriate support from the commercial sector to play its part in obesity prevention.
4	Implement a strategic and sustained communications strategy that empowers individuals, communities and service providers to become obesity aware and equipped to change, with a particular focus on families with children in the early years.
5	The Department of Health, through *Healthy Ireland*, will provide leadership, engage and coordinate multisectoral action and implement best practice in the governance of the *Obesity Policy and Action Plan*.
6	Mobilise the health services to better prevent and address overweight and obesity through effective community-based health promotion programmes, training and skills development and through enhanced systems for detection and referrals at primary care level of patients who are overweight and obese.
7	Develop a service model for specialist care for children and adults.
8	Acknowledge the key role of physical activity in the prevention of overweight and obesity.
9	Allocate resources according to need, in particular to those population groups most in need of support in the prevention and management of obesity, with particular emphasis on families and children during the first 1,000 days of life.
10	Develop a multi-annual research programme that is closely allied to policy actions, invest in surveillance and evaluate progress on an annual basis.

Source: "A Healthy Weight for Ireland Obesity Policy and Action Plan 2016-2025"[1]

Governance for interventions aimed at facilitating healthy weight for children (HWfC) aged 0-6 years in Ireland

Robust national and local governance structures are necessary for the effective implementation of the wide range of measures to facilitate healthy weight for children (HWfC) aged 0-6 years in Ireland. In this context, governance refers to the framework of rules, practices and policies by which an organisation can ensure accountability, fairness and transparency in its relationship with its stakeholders.[40]

The Healthy Ireland Framework[3] emphasises the importance of good governance arrangements as crucial for the effective implementation of multisectoral policies. Figure 5 outlines the main sectors involved with leadership roles and evidence-based actions for improved health and wellbeing. It specifies that actions designed to strengthen governance will improve accountability, transparency and participation.

The policy document *A Healthy Weight for Ireland*[1], presents the governance arrangements for implementation of the *Obesity Policy and Action Plan* (p26) and these include the:

- **Cabinet Committee on Social Policy and Public Sector Reform**, supported by the Senior Officials Group, providing oversight
- **high level cross-sectoral group**, including representatives at assistant secretary level from government departments and a number of key agencies, providing strategic direction and monitoring progress
- a number of **interdepartmental and cross-sectoral working groups** providing opportunities to improve collaboration on a number of key areas
- **Healthy Ireland Council** connecting and mobilising communities, families and individuals into a national movement with the aim of supporting the successful engagement of a wide range of stakeholders and the building of innovative partnerships and approaches
- multisectoral **Children and Young People Service Development Committees** (CYPSCs) established by the Department of Children and Youth Affairs to improve services and health outcomes for children, under its commitment for *Better Future Brighter Outcomes*[34]
- **Obesity Policy Implementation Oversight Group (OPIOG)** established in October 2017 under the Chair of the Department of Health. OPIOG includes representatives from the Department of Agriculture, Food and the Marine; Department of Children and Youth Affairs; Department of Employment Affairs and Social Protection; Department of Education and Skills; Department of Housing, Planning and Local Government; University College Cork; the Food Safety Authority of Ireland; the Health Service Executive (HSE), the National Clinical Lead for Obesity and *safe*food.

The work on this framework will be delivered within the *Healthy Weight for Ireland*[1] governance arrangements and will involve influencing most, if not all, of the broader determinants of health, necessitating significant cross-sectoral and multidisciplinary collaboration. Therefore good governance arrangements are necessary to facilitate a coherent and coordinated process among the various key sectors, especially among those involved in the critical periods for pregnant women and young children, as outlined in the next chapter, which covers preconception, pregnancy, infancy and early childhood years up to school entry.

The precise structures for the effective implementation and management of the policy actions for the national population of children aged 0-6 years will need to be further developed. The process will be under the governance of the OPIOG and will follow the guiding principles for implementation as set out in *The Healthy Ireland Framework*[3] which are as follows:

- Better Governance and Leadership
- Better use of People and Resources
- Better Partnerships
- Better Systems for Healthcare
- Better use of Evidence
- Better Measurement and Evaluation
- Better Programme Management

Planning for resource allocation and additional funding

From the outset, adequate resources and funding must be available to implement, manage, support and evaluate interventions in the prevention of obesity in young children. Additionally there is need to support research and actions that focus on the translation of knowledge into the prevention of childhood obesity at population level.[41] An important component of implementation plans in the various sectors will be an analysis of how existing resources may be best utilised in the prevention of obesity with quantification of the additional required resources.

The economic evidence indicates that prevention of obesity in young children is an investment rather than an additional cost to society and that the highest rate of economic returns comes from the earliest investments in children.[16]

CHAPTER 3

The life-course of children aged 0-6 years of age: opportunities and evidence for prevention

Rationale for focus on 0-6 year-olds

Latest international and national policies on the prevention of obesity[1 2 12] recommend that the life-course perspective be used, with particular emphasis on prevention at the stages of preconception, pregnancy and throughout infancy and early childhood.

The reasons for the focus on prevention in the 0-6 year-old group include:

1. Prevention of overweight and obesity from 0-6 years is crucial because heredity, developmental and environmental influences all play a part and all have potential to be modified through a prevention approach.[2]
2. Many of the origins of obesity and the lifestyle choices, behaviours and patterns that contribute to it are established in early childhood. This may date from even before conception and can track through to adulthood.[42] Recent advances in epigenetics have shown that obesity in adulthood may be influenced by interventions in the perinatal period, such as changes in diet and the in-utero environment.[43] The risk of obesity rises for babies who are either overweight or underweight at birth.[44]
3. Infant feeding practices are also very important. Responsive feeding is important to protect a baby's instincts for satiation.[31] Responsive feeding (RF) refers to a reciprocal relationship between an infant or child and their caregiver that is characterised by the child communicating feelings of hunger and satiety through verbal or nonverbal cues, followed by an immediate response from the caregiver.[45]
4. Breastfeeding is known to be protective against obesity in children[20 46] and the protective effects of breastmilk extend into adulthood with reduced risk for a number of chronic diseases, including diabetes.[47] Correct weaning practices are also important as the introduction of solid food before four months of age is associated with an increased risk of a child being overweight or obese.[48] Exclusive breastfeeding of infants is recommended for the first 6 months, after which it can be continued, in combination with suitable complementary foods, until the child is two years of age or older.[39 49 50]
5. Childhood obesity is a strong predictor of adult obesity. Some 55% of young children with obesity will remain obese into adolescence and for 80% of adolescents with obesity, the obesity will persist into adulthood.[51] Perry et al[5], point out that children who become normal weight by adulthood reduce the risk of related adverse outcomes to similar levels as those in children who have never been obese. However, obesity develops over time and once established it is difficult to treat.[52]

6. Integration of prevention, early intervention and treatment is appropriate at early ages; the goal is for children to halt weight gain rather than focus on loss of excess weight.[12 53]
7. The roots of lifestyle choices, behaviours and patterns are established in the early years and affect later food preferences, activity levels and leisure activities. The environment of very young children is influenced by parents, families, caregivers and professionals. Parenting styles and consistency also impact on the developing child, and children themselves are more receptive to developing good habits before they develop autonomy.[31]
8. This is a key timeframe for healthcare and education professionals to make a difference - several opportunities for prevention and intervention present from preconception to school entry including antenatal care and postnatal care, health contacts, childcare services, preschools, schools and parenting programmes.
9. The rising prevalence of overweight and obesity creates an unsustainable demand on future health service resources.[5] (See Chapter 1: Economic consequences of obesity)

The critical periods in the life-course of children under 6 years

Intrauterine, infant, and preschool periods have all been identified as crucial times in the development of obesity.[2] Policies and strategies need to be directed towards these pivotal time periods to halt and reverse the rise in childhood obesity. These critical time periods are therefore the focus of this framework. Investing in the early years, starting from preconception, provides the best outcomes for children, providing the foundations for health over their lifetime.

Box 2 presents the WHO[2] time periods that are critical in the prevention of obesity for the 0-6 year age group. Within these, 'transition periods' have been identified that present opportunities for intervention. Services should target support at these transition periods in order to ensure that all children are provided with every opportunity to avoid the risks of childhood obesity.

All interventions must acknowledge the important role that parents, guardians and extended family members can play in supporting healthy behaviours among young children. In addition, the personnel working in healthcare, early years services and in education who are involved in the life-course of children have important roles in promoting and supporting healthy behaviours.

Box 2: *Critical periods and transition points in the life-course of children aged 0-6 years*

Preconception and pregnancy

- Preconception.
- Antenatal care.

Infancy

- Care at birth, whether hospital or home.
- The infant coming home for the first time.
- Baby feeding practices (breastfeeding or bottle feeding).
- Weaning (age at introduction to solids and type of food given).

Early childhood

- When the primary caregiver returns to work (type of childcare utilised).
- Attending preschool.
- Commencing primary school.

Opportunities for intervention

During these critical periods children and parents in Ireland have several contacts with professionals and services that can provide support and advice. This is primarily through the healthcare, early years and the education sectors. Within the healthcare sector community-based services involved include public health nursing, general practice (GPs and practice nurses) and community medical officers. Services provided in

both community and hospitals include gynaecology, midwifery, paediatric services (both general and specialised), dental services, dietetics and physiotherapy. Allied services include those involved with families where children have special needs, occupational therapy, speech therapy, psychology, social work and family support work. In addition, various personnel working within Tusla, the Child and Family Agency, have contacts with families with young children, as is the case in a number of NGOs and voluntary agencies in receipt of public funding.

The early years sector includes both formal and informal childcare. The former refers to centre-based services such as crèche and preschools, while the latter usually refers to care provided by relatives and friends. The education sector involves primary schools, with a focus on junior and senior infants. It also includes schools, and services within schools, for children with special needs.

In Ireland the HSE's *National Healthy Childhood Programme* (a policy priority programme) is a key enabler to support policies and interventions in the prevention of obesity in children. This universally delivered programme provides a robust structure in which to deliver health services on a population-wide basis to all children at national, regional and local level (www.mychild.ie). It comprises the Maternity and Infant Scheme, the free GP care Scheme for Children under six years and the Child Health Immunisation, Screening and Surveillance Service. The *National Healthy Childhood Programme* provides services to pregnant women, newborns and children up to 14 years of age. The schedule provides for 26 contacts with healthcare professionals by a child's third birthday with a further three contacts by five years of age and a further six by 14 years of age. Based on a recent review, the timing of some of the contact points in the first three years will change slightly in 2019 (Appendix 4). *The National Healthy Childhood Programme* is delivering a child health model based on progressive universalism and is ideally placed to mobilise and embed a focus on prevention across child health services as outlined in step 6 of *Healthy Weight for Ireland*[1] which specifies the '*mobilisation of the health services with a focus on prevention*'.

Progressive universalism refers to the fact that this service is available to all, that those with the highest level of need receive the most support, and, as far as possible, that parents with different levels of need can self-select the support they require. Services for children, parents and families are provided through collaborative working with a range of child health service providers. Healthcare professionals which include GPs, practice nurses, public health nurses and school health nurses all have the potential to influence large numbers of parents, children and young people during routine contacts of the programme.

- Mothers are entitled to free antenatal care that is delivered by GPs and hospitals, as part of the Maternity and Infant Scheme. There are at least 12 antenatal visits shared between the GP and antenatal clinic.
- The birth contact usually occurs at the hospital as part of the Maternity and Infant Scheme.
- Two postnatal visits with the GP, for mother and infant at 2 and 6 weeks, are also offered as part of the Maternity and Infant Scheme.
- There are four contacts with the public health nurse (PHN). These currently occur at 72 hours after discharge from hospital, at 3 months, at 7-9 months and 18-24 months. In the new schedule (Appendix 4) the latter two contacts will occur at 9-11 months and 21-24 months.
- There are five contacts with the GP and practice nurse at 2, 4, 6, 12 and 13 months when the infant receives their Primary Childhood Immunisations.
- Growth monitoring (height and weight) is undertaken at an additional contact with the GP and practice nurse at 2 and 5 years of age, under the GP Under 6's contract, providing a valuable opportunity to monitor the BMI of young children at population level.[54]

A key component of the *National Healthy Childhood Programme* is to develop and update training programmes for healthcare professionals to underpin the effective delivery of the models of care. This is supported by *The Nurture Programme Infant Health and Wellbeing.* Established in 2015, this quality improvement initiative is designed to improve the information and professional supports provided to parents during pregnancy and the first three years of their child's life.

The HSE's commitment to '*Make Every Contact Count*', encourages all health professionals to 'empower and support people to make healthier choices to achieve positive health outcomes to support chronic

disease prevention and management'.[55] Many opportunities arise from the health contacts within the *National Healthy Childhood Programme* and the *Maternity and Infant Scheme* as outlined above. This involves the promotion of healthy behaviours with parents, and with children as soon as they are able to get involved, and also growth measurement of the children. This contact is also an opportunity to advise and support parents regarding their own behaviours. It is recommended that weight management is adopted as standard practice as per the HSE/ICGP Weight Management Algorithm.[8]

Preconception

Optimising weight prior to pregnancy for both the woman and her partner is recommended by all the relevant policy documents and is reflected in professional guidance.[56] The importance of the preconceptual period had been emphasised as a key window during which maternal and paternal health can lead to increased risk of chronic disease in children. This creates need for a new emphasis on preparing for pregnancy for both parents.[57]

A growing body of research suggests obesity in the next generation originates prior to conception. There is emerging evidence for the influence of both mother and father, at the preconception stage, on their children's body weight.[58] Women who are overweight or obese are at increased risk of a variety of health problems including difficulty in conceiving, poor health during pregnancy, increased medical complications and higher rates of obstetric intervention.[59] Women who are overweight or obese are more likely to have children who are large for gestational age at birth and who are more likely to develop obesity during childhood or adolescence and in adulthood.[60] Researchers have identified epigenetic changes connected to altered metabolism in offspring resulting from variations in the father's diet, indicating that paternal behaviours may put future children at risk of obesity and obesity-related outcomes.[61] Smoking during pregnancy is also a risk factor for childhood obesity.[60] Avoiding smoking and reducing pre-pregnancy overweight and obesity could contribute to preventing obesity in future generations and will also help to address other potential adverse outcomes for women who are overweight or obese in the childbearing years.[2]

The challenge of intervening before conception is complicated because of the varied perspectives of potential parents - women with high levels of pre-pregnancy planning who readily adopt interventions, women who plan but have less awareness of preconception actions and women for whom preconception has little meaning.[62]

Interventions during older childhood and adolescence are essential because the health behaviours affecting diet, exercise and obesity, as well as smoking and drinking, become established well before pregnancy. There is a need to improve health status across the life-course particularly among women in their childbearing years and their partners while also focusing on those who are contemplating pregnancy.[62] Opportunities in primary care could be taken to include pre-pregnancy lifestyle related health checks for women and their partners planning a pregnancy. System wide change is required placing a focus on preconception healthcare through establishing the importance of the health of the next generation and emphasising societal responsibility. This change needs to be emotionally engaging and appeal to positive emotions rather than focusing on personal responsibility or fear.[63]

Antenatal care

The importance of intervention at the antenatal stage is emphasised by the higher risk of obesity in children of mothers who gain excessive weight or who have elevated blood sugar levels during pregnancy. Abnormalities in intrauterine growth are known to be associated with the risk of subsequent childhood obesity and infants who are overweight at birth are more vulnerable to excess weight gain in later childhood.[64] Interventions to reduce or prevent obesity in pregnant women, including both dietary and physical activity interventions during pregnancy, are effective at reducing maternal weight gain in pregnancy; those mainly based on diet are effective at reducing the risk of gestational diabetes, while they do not increase the risk of small for gestational age or low birth weight babies.[65]

As maternal obesity is known to also increase the risk of negative pregnancy outcomes[66] it is recommended that lifestyle factors (diet and physical activity) are addressed with all mothers in the antenatal period. Dietary and physical activity interventions should be provided to support the achievement of healthy weight

to all women who are overweight during pregnancy. This is acknowledged in the *National Maternity Strategy Implementation Plan*[67] in which Action 10 specifies that 'a dietetic service is available in each maternity network, so that the needs of women with type 1, type 2 and gestational diabetes, as well as those with other nutritional issues, are addressed'.

Antenatal care is available universally through the *Maternity and Infant Scheme in Ireland* and is delivered by both GPs and maternity services. This scheme provides an opportunity to identify and manage pregnant women with excessive weight, hypertension, hyperglycaemia or other risk factors. It is recommended that weight management is adopted as standard practice as per the HSE/RCPI *Weight Management Algorithm*.[8] It is essential therefore that weight is measured at the first antenatal visit and regularly thereafter.[68]

In addition to interventions during antenatal clinic visits, antenatal classes for expectant parents provide a further important opportunity for interventions to facilitate positive and healthy choices behaviours both during pregnancy and for after the baby is born.[69] In Ireland, all 19 maternity units currently provide antenatal classes and of these, 15 provide specific breastfeeding antenatal classes. In the community, just under half of all Public Health Nursing Directorate areas provide antenatal classes, some of which are run in partnership with local maternity units. In addition, there are other providers including independent practitioners and NGOs such as Cuidiú. *The Nurture Programme - Infant Health and Wellbeing* recently carried out a review of HSE provided antenatal education[69], which involved consultation with current providers, and the findings support the need for the development of national standards in this area. *The Nurture Programme - Infant Health and Wellbeing* has also carried out parental focus group consultations and this has found that the common information requirements for parents included maternal nutrition and physical activity in pregnancy.[70]

Birth

Most births in Ireland occur in hospital and currently there are 19 maternity units nationally. Homebirths account for 0.5% of births nationally. Time of birth provides an opportunity to the attending healthcare personnel to promote healthy behaviours for both mother and newborn. Of particular importance at this point is support and advice in relation to child nutrition, especially breastfeeding and, for those who bottle-feed, the techniques of responsive feeding.[31 45] The Women and Infant's programme is developing a revised model for the Baby Friendly Initiative[71] which is important for providing a hospital environment that is supportive of breastfeeding.

Infancy

Both national and international research findings report that breastfed infants are less likely to become overweight or obese.[46 72] Longer periods of breastfeeding are associated with a 13% reduction in the odds of overweight or obesity in later childhood.[73] However, Ireland's breastfeeding rates continue to be among the lowest in the world[47] with 58% of mothers breastfeeding on discharge from maternity hospital. Of these, 48% were breastfeeding exclusively.[11] Breastfeeding rates strongly correlate to maternal education and social class. *The Growing up in Ireland* study found that mothers with a third-level degree were more likely to breastfeed than those who left school at Junior Certificate level (79% compared to 29%).[74] Therefore certain groups will require additional initial support to start breastfeeding and ongoing support to continue breastfeeding.

Monitoring of child health and growth (with appropriate referral) continues after discharge from hospital with the home visit by the public health nurse within 72 hours after discharge. This is followed by frequent subsequent health checks (Appendix 4). In addition, the GP provides health checks for newborns at two weeks and at six weeks of age. GPs, practice nurses and public health nurses can avail of these opportunities to give advice and support to parents in relation to infant feeding. In addition there are other community-based services, such as mother and toddler groups, and services from certain NGOs (Cuidiú, La Leche League, Friends of Breastfeeding) which also provide a range of opportunities for new parents to avail of support. In parental focus group consultation, tips for nutrition and physical activity for babies and toddlers were among the most common topics about which parents wished to have more information.[70]

It has been reported that programmes delivered from pregnancy right through infancy can improve parental feeding practices, including infant diet and parental responses to infant cues.[75] A recent Health Research

Board review of interventions to improve breastfeeding rates concluded that there is substantial and consistent evidence to recommend the provision of education, counselling and support for mothers to initiate, establish and continue breastfeeding and these should be from the antenatal period right through to the extended postnatal period.[76] These interventions are most effective if provided 'face-to-face and on an ongoing and scheduled basis'.[76 77] Effective interventions include those focused on individual or family level behaviour through counselling either at home visits, in clinical or community settings, or using a combination of home and group sessions.[78] There is consensus that interventions that shape parenting behaviours to promote routines, healthy sleep patterns and appropriate and responsive feeding practices may hold promise but there is a substantial gap in knowledge with regard to underlying mechanisms.[79]

Early childhood up to school entry age

The early childhood period includes important transition periods such as changes in day care arrangements when primary carers return to work, the child's attendance at preschool services and the commencement of primary school education, which for most children in Ireland is at five years of age. The type of childcare available for infants and young children includes services within the formal childcare setting, such as at centre-based childcare facilities, within the informal care setting, such as provided by relatives or friends, or provision of a mixture of both formal and informal care. Provision of a health promoting environment in early childhood education and care services is widely recognised as being very important for the prevention of obesity in children.[80]

Profile of types of care settings for children

Research from the *Growing Up in Ireland* cohort studies has reported that at nine months of age 39% of children were in non-parental care, mostly informal care provided by relatives.[81] By three years of age, half of all children were receiving non-parental care and at this age care was mostly in the formal setting at centre-based care. Among these, 37% received over 30 hours of childcare services per week.[81] Most children in receipt of childcare services were cared for by paid childcare providers, with 7% of children in unpaid childcare, mostly provided by relatives.[82] The Irish government currently funds free early childhood care to all children from age three to five and a half years of age, for three hours per day, five days per week.[83] At age five, 96% of children had participated in this scheme.[81] Commencement of primary school education is compulsory from age six years but enrolment can be from four years. Currently nearly 40% of four-year-olds and virtually all five-year-olds are attending primary school.[84]

Research base

While the research base is limited, there is support for the theory that parents are receptive to interventions and health workers are willing to work on them.[31 85] A recent systematic review concluded that the risk of childhood obesity was higher if the child attended centre-based childcare instead of parental care. However, the risk of obesity was higher again if the child was cared for informally by relatives or non-relatives.[86] Another recent review, which included seven studies from Europe including one from Ireland, also found that informal care was associated with an increased risk of unhealthy weight.[87] This was particularly consistent with use of informal care before the age of three, particularly by a relative, and in children of high socio-economic status (SES). There was also some evidence that hours spent in childcare and age at initiation of care had an effect with higher risk for those where care started at less than one year of age. Importantly, even low intensity of informal care before the age of three years was associated with higher risk. Explanations for this include less regulation within informal care and the possibility that relatives may be more permissive of foods high in fat, salt and sugar (HFSS). There is also an association of early introduction to solid foods and reduced breastfeeding duration with informal care. Even in centre-based care for children less than three years old, there was an increased risk of overweight/obesity compared to parental care.

For children aged three to five years, the results are more mixed with some evidence that centre-based care may confer protective factors. This was primarily in low SES children attending *Head Start*, a structured centre-based childcare programme for disadvantaged families in the USA. In contrast to the studies examining the effects of regular preschool centre care, the studies examining *Head Start* demonstrated significant reductions in objectively measured overweight/obesity suggesting that structured centre-based programmes targeted at disadvantaged populations hold promise. However, a review by Costa et al[88] (11

studies, mostly from North America, remainder from Europe including one study in Ireland) found no protective effect of centre-based care. There are considerable difficulties studying the impact of type of childcare due to the inherent heterogeneity both among and within the various types of childcare that is provided.

Research on programmes in the prevention of obesity in young children is reported to be of higher quality in the preschool setting compared to home-based programmes.[85] This has been attributed to the more structured centre-based environment being more amenable to research than the more informal, less structured home environments. Non-reporting of the theories underpinning the strategies created difficulties with concluding which theoretical frameworks were more likely to lead to successful intervention. A systematic review concluded that interventions with evidence of success were those designed to impact not only on knowledge but also on skills and competencies, which suggested a social behavioural theory under-pinning[85]. Many of the included preschool studies failed to show positive effects and the authors attributed this to lack of parental components in the programmes as well as insufficient sample sizes, as did a more recent review.[85 89] This latter review[89] included an Irish project (*safe*food/HSE), *Healthy Incentive for Preschools* (HIP) which involved intervention training of managers and staff in 37 preschools. The project found that training of pre-school managers resulted in sustained improvements in nutrition and physical activity health-promoting practices in the pre-schools at 18 months after intervention training.[90 91]

A systematic review and meta-analysis of school-based interventions concluded that physical activity programmes are successful in bringing about a statistically significant reduction in children's body mass index which is maintained for at least six years.[92] Wang et al[26], also in a systematic review, concluded at least moderately strong evidence supports the effectiveness of school-based interventions for preventing childhood obesity. In primary schools, the provision of healthy food, the availability of fresh drinking water and the promotion of physical activity across the school day are all recognised as important in reducing the risk of obesity in children.[93] The *Nutrition Standards for School Meals*[94] recognise that a well-nourished child is a child that is healthier and better equipped to learn and develop at school. They also recognise that the early years in life – mostly spent at school – are essential for setting of healthy eating habits.

Policy and practice

A number of policies and practices in early childhood education services have been reported to prevent excessive weight gain by improving child nutritional intake, movement skill proficiency and time spent in moderate to vigorous physical activity. However, universal and consistent implementation of best practices is problematic.[95] A review of the international literature suggests that there is considerable scope to improve the nutritional quality of food provided to children and the time children spend in physical activity while attending childcare services.[96]

In Ireland, *Aistear*[97] and *Síolta*[98] are the national curriculum and national quality frameworks which cover the education and learning for children from birth to six years. These frameworks cover best practice within early childhood care and education settings and are inclusive of full and part-time day care, child minding, sessional services and infant classes in primary schools. Universal implementation of these frameworks is important as they have wide reach and have high potential to achieve a significant impact at population level.

Recommendations and resources

Recommendations for the school setting are included in *A Healthy Weight for Ireland* under Step 1 and include the development and implementation of a *Whole School Healthy Lifestyle* programme incorporating knowledge and skills and greater understanding of the environmental factors that influence children.[5] (p.36). The *Schools for Health Framework*, published in 2013[99] is aligned with Step 1 and puts a focus on a 'whole-school' approach to healthy eating, physical activity and wellbeing. Supporting this approach a number of programmes, such as the Department of Education and Skills' *Active School Flag* and HSE's *Health Promoting Schools*, support schools to implement a whole-school approach. A recent report from the Joint Committee on Education and Skills provides a number of recommendations for the education sector including the need for physical education facilities, healthy eating initiatives and availability of fresh drinking water in schools.[93] The *Nutrition Standards for School Meals*[94] aim to ensure that children and young people in schools participating in the *School Meals (Local Projects) Scheme*[100] are provided with healthy balanced meals that follow the *Healthy Eating Guidelines*.[101]

A wide range of resources have been developed for use in the preschool and the primary school settings. For preschools, *Little Bites*,[102] resulting from collaboration between *safe*food and Early Childhood Ireland provides information on food safety, food allergens and healthy eating advice for all early childcare providers. Included are resources on food and nutrition guidelines, healthy eating policies, serving size guidance and suggestions for healthy snacks and treats for special occasions. The national *Healthy Ireland Smart Start* programme for preschools focuses on overall child development and includes promotion of healthy living and includes components for primary carers (Box 3).

Box 3: *Healthy Ireland Smart Start*

> An Irish programme, *Healthy Ireland Smart Start* (https://www.ncn.ie/index.php/healthy-ireland-smart-start) has initiated a national rollout in recent years and it involves a quality assessment process. It features modules on health promotion, emotional wellbeing, physical activity, nutrition, oral health and health and safety. There is a strong focus on parental engagement in the programme. Evaluation of this programme is awaited.

For the school setting, further resources are available and these include the *safefood*/HSE *Healthy Lunchbox* leaflet, *safe*food *Tastebuds* and *MediaWise* classroom resources, Irish Heart Foundation *Bizzy Breaks* resources, Department of Agriculture *Food Dudes*, HSE *Playground Markings*, *Get your School Walking* and the Irish Heart Foundation *Action for Life* PE physical education resource.

In recognition of the need for national leadership and coordination in this area, the HSE has appointed a National Education Lead to coordinate partnership work with the Department of Education and Skills (DES) and Department of Children and Youth Affairs (DCYA) to ensure the integration of the promotion of healthy behaviours across the early years and education sector.

The role of parents, professionals and other personnel involved in the life-course of children aged 0-6

Parents, guardians and families

Parents, guardians and families should be facilitated and supported in providing environments which are conducive to their children being a healthy weight and having healthy behaviours. Facilitation can be achieved using a multicomponent approach with interventions delivered at various levels, ranging from national policy and legislation, right down to local interventions for individual families.

An important component for success is a focus on the importance of the 'parent as role model for healthy lifestyle behaviour' and a 'whole family approach'[31] in which healthy eating, physical activity, good sleep habits are encouraged and excessive screen time is discouraged. Education of parents regarding normal growth in young children is key, as studies in Ireland have indicated that parents of children who are overweight have systematically underestimated their children's weight.[103 104]

A large cohort study in the US[105] has demonstrated that children had less risk of obesity when their mothers adhered to healthy behaviours and the findings highlighted the potential benefits of implementing family-based or parental-based interventions to curb the risk of childhood obesity. It has been reported that targeted interventions aimed primarily at parents are effective in mediating the impact of the prevailing obesogenic environment on their children and family environment.[106]

Training for parents, guardians and families should incorporate the latest evidence in relation to behaviours that can influence healthy weight in young children. These include an understanding of the factors that influence appetite and the need for responsive feeding practices for infants to prevent overconsumption of food.[107] Delaying gratification is also important as children with the inability to delay gratification are more likely to be overweight or obese.[108] Also, use of alternatives to food should be encouraged when rewarding good behaviour or achievement in young children and when providing comfort at times of physical or

emotional distress. This is recommended as, in these circumstances, the reward or comfort foods gain a special value and their desirability is increased.[31]

In addition to provision of education and support to parents at the various contact points with personnel working in the healthcare, childcare and early years education sectors, there is also an important role for parenting programmes to support parents as positive role models and in enabling positive parenting.

Parenting programmes work through their ability to facilitate parents to improve in their skills and confidence in managing their children's weight-related and general behaviours. For example, parents can learn how to provide children with healthy food choices, how to limit children's sedentary activity, how to increase children's physical activity and how to promote healthy behaviours using positive parenting. In addition, they can also learn how to be consistent with regard to limiting sugary drinks and foods and significantly reduce their use as rewards.[31 109]

Parenting programmes can be delivered at population level right through to targeted, intensive programmes developed for high risk populations. In Ireland, several parenting programmes are available in different parts of the country and include *Triple P Positive Parenting Programme*, *Parents Plus* and *Incredible Years*. The *Triple P Positive Parenting Programme*[72 73] has been implemented at population level in the Irish midlands. Based upon the widespread benefits it demonstrated, a report from the University College London Institute of Education, Centre for Mental Health and UK Economic and Social Research Council recommended that the UK government undertake to pilot and evaluate a whole-population parenting support programme.[110]

The *Triple P Positive Parenting Programme* is an approach which may be applied in relation to parenting for healthy behaviours. Within this programme, the *Hassle Free Mealtimes* intervention (Box 4) helped parents develop skills to deal with difficult mealtime behaviour. Learning from the *Triple P Positive Parenting Programme* demonstrates that a community-wide conversation with parents about healthy behaviours and bodyweight, along with the importance of their positive role in influencing these, is the first step to achieve before major engagement can commence. Establishing a norm for everyone, including health professionals, to discuss healthy behaviours will help to de-stigmatise the issue. Achieving positive outcomes may take some time, but once momentum is achieved, the message can spread. There is also a need to better understand how parents view their roles in relation to overweight and obesity, and how this relates to the perspectives of experts and service providers. This will ensure that interventions are targeted appropriately and that parents and children can be supported to best effect.[111]

Box 4: *Hassle Free Mealtimes*

The *Triple P Postive Parenting Programme* has introduced **Hassle Free Mealtimes**, a brief mealtime parenting intervention for parents of two to five-year-olds with mealtime difficulties. A Randomised Controlled Trial (RCT)[112] found the low intensity intervention improved both child mealtime behaviour and parenting mealtime practice and cognitions. There were also improvements in mealtime and general parenting confidence. For both parents and children, the effects were maintained at six-month follow-up.

Professionals and other personnel involved

Individuals, other than parents, are involved in the life-course of children. These include healthcare professionals, early years carers and educators and primary school teachers. Personnel involved in child and family services, including TUSLA, should be adequately informed in relation to their role in the prevention of childhood obesity. This can be achieved through training and skill development of personnel. Integration of the content of the training with the other prevention interventions is important so that parents, carers and families receive consistent messages from all of the personnel with whom they engage.

The education and training of healthcare and childcare personnel in the primary prevention of obesity are widely recognised as being important.[24 31 113] Approaches that are underpinned by respect for the client have

been shown to be effective and it is acknowledged that behaviour change is best achieved when clients are guided rather than directed. Motivational interviewing has been shown to be a useful technique in both home and healthcare settings.[114] Training programmes that have been used in the healthcare sector include *EMPOWER* (Empowering Mothers to Prevent Obesity at Weaning), *Healthy Lifestyles* and *HENRY* (Health Exercise Nutrition for the Really Young).[115] Training should encompass the importance of empathy and key parenting skills, with a focus on behaviour change. It should be accompanied by materials and resources to support personnel's work with parents.[115]

Examples of existing initiatives which are focused on the training of healthcare, early years care and education personnel to better prevent childhood obesity include:

For healthcare personnel:

- The *Nurture Programme - Infant Health and Wellbeing's* blended learning programmes on allergies and intolerances, growth monitoring, antenatal nutrition, breastfeeding, formula feeding, introducing family foods, toddler feeding and healthy weight for children.
- *Making Every Contact Count* blended learning programme for developing brief intervention skills.
- ICGP e-learning module on childhood obesity.
- ICGP/HSE weight management algorithms.[8]
- HSE/*safe*food *Guide for Health Professionals: Assisting Parents and Guardians in communicating with their children about body weight.*[116]
- FSAI *Best practice for infant feeding in Ireland.*[117]
- Department of Health - *Healthy Ireland Healthy Food for Life Guidelines*.[101]

For personnel working in early years, preschool and primary school sectors:

- Training delivered by TUSLA, the Child and Family Agency, which is responsible for inspecting preschools, playgroups, day nursery, crèches, day care and similar services which cater for children 0-6 years.
- The *Aistear*[97] and *Síolta*[98] frameworks that guide the curriculum, provision of care and standards in the early years sector and integrate healthy eating, physical activity and wellbeing.
- Training provided to teachers by Department of Education and Skills Professional Development, Support and Training (PDST) and HSE on whole school approaches to healthy eating and physical activity.
- The HSE *Framework for Developing a Health Promoting School* (Primary).[99]
- The *Smart Start* programme and awards scheme for preschools (Box 3).
- The HSE appointment of an Education Lead in 2017 to coordinate partnership work with the Department of Education and Skills (DES) and the Department of Children and Youth Affairs (DCYA) to ensure the integration of the promotion of healthy behaviours across the early years and education sector.

It is important to build upon the work achieved to date in the training of the key personnel who can influence parents and families. Currently there is an excellent opportunity to manage all future training work such that it is streamlined and consistent across all the relevant sectors, services and agencies. All training must be supported by national policy and standards and the information provided to families should be consistent with the national communication and social marketing campaigns.

CHAPTER 4

Population approach

Rationale for population approach to preventing childhood obesity

The WHO report *Ending Childhood Obesity*[2] emphasises the necessity for a population approach to prevention. This approach has been endorsed in all recent obesity-related policies in Ireland[1 12] (see Chapter 2 on Policy). The population-based approach involves a multisectoral process to support organisations to enable communities and individuals make sustainable behaviour changes.

"Tackling overweight and obesity requires multi-agency, multilevel and coordinated approaches. Comprehensive and wide ranging actions are needed to support a suite of interventions acting at different levels, engaging all stakeholders and focused on reducing inequalities between different population groups." [1]

A population approach includes consideration of the wider determinants of obesity and recognises that a common agenda between organisations coupled with an enabling, supportive environment, targeting the wider determinants of health, is vital for achieving healthier behaviours. Action is necessary at national, regional and local government level to tackle these broader determinants of health that impact on childhood obesity. Such measures include the implementation of policies, with structures and initiatives to support healthy nutrition, protect children against negative effects of food marketing, improve access to healthy foods and provide opportunities for regular physical activity.

Crucial to prevention is the knowledge that obesity is preventable and that many of the determinants of obesity are modifiable, including biological, behavioural, environmental and commercial factors.

WHO components of a population approach to the prevention of childhood obesity

The WHO[80] has specified the components of a population approach to the prevention of childhood obesity (Table 2) and this encompasses structural, policy and community-based initiatives. These need to be integrated with other efforts to control the major risk factors and improve the lives of children. The approach needs to be both inclusive and equitable, and also facilitate tailoring of interventions to suit local contexts. Surveillance, monitoring and evaluation are critical and should be carefully planned for all interventions. The components are categorised in three sections detailed in Table 2.

Table 2: *WHO components of a population approach to ending childhood obesity*[80]

Section 1: Structures to support policies and interventions	Section 2: Population-wide policies and initiatives	Section 3: Community-based interventions
■ Leadership ■ 'Health in all' policies ■ Dedicated funding for promoting health ■ Monitoring systems for obesity related disease ■ Workforce capacity ■ Networks and partnerships ■ Standards and guidelines	■ Marketing of unhealthy foods and beverages to children ■ Nutrition labelling ■ Food taxes and subsidies ■ Fruit and vegetable initiatives ■ Healthy Lifestyle Policies ■ Social marketing campaigns	■ Multicomponent community-based interventions e.g. healthy eating, physical activity, reduced sedentary activity, behaviour change ■ Early childcare settings – home, crèche, preschool ■ Primary and secondary schools ■ Other community settings

Section 1 of WHO components table: Structures to support policies and interventions

Effective structures, at a number of levels, are required to support the implementation of childhood obesity policies and interventions. There needs to be clear leadership to steer through the complex course of actions that are required. In Ireland, implementation of policy on obesity is being led by the Department of Health. Under *Healthy Ireland*[3] a cross-sectoral *Obesity Policy Implementation Oversight Group* (OPIOG) has been convened and the Department of Children and Youth Affairs has a similar cross-sectoral structure in relation to *Better Outcomes, Brighter Futures*.[34]

Within these structures, a dedicated resource is required to drive collaboration and support consistency in the delivery of interventions for healthy weight for children across all of the relevant sectors. Within the HSE the implementation of the *Healthy Weight for Ireland Obesity Policy and Action Plan*[1] is being led by the *Healthy Eating Active Living Policy Priority Programme*. Key relationships to support implementation include those with the *National Healthy Childhood Programme* and the Clinical Lead for Obesity Management.

Obesity is not just a health issue – it crosses numerous government departments and therefore government needs champions in many departments and to adopt 'Health in all' policies. While funding has tended to be allocated towards acute services, there is a need for dedicated funding for promoting health. Levels of overweight and obesity need to be monitored, for example, through initiatives such as the *Childhood Obesity Surveillance Initiative* (COSI) and *Health Behaviour in School Aged Children* (HBSC). However, monitoring systems for obesity-related disease also need to be put in place – such data are currently not captured in Ireland. Workforce capacity also needs to be assessed, developed and monitored. Professionals involved in the care of children, for example, healthcare professionals, early years staff and teachers, need to be adequately equipped to deal with issues concerning childhood obesity, as do parents and informal caregivers. A whole-systems approach is required. This also involves a multisectoral, concerted approach by all, and therefore networks and partnerships are key. This also applies at regional and local level. The development, implementation and monitoring of standards and guidelines underpins all of these structures.

Section 2 of WHO components table: Population-wide policies and initiatives

Policy and environment

The *Healthy Ireland Framework*[3] states that legislation, regulation and policy direction will be progressed across government departments to facilitate the implementation of multi-stakeholder policies and evidence-based actions for improved health and wellbeing. This is particularly important in relation to the creation of healthier environments.

Policies and environments that support and enable healthy behaviours are essential prerequisites to the

success of initiatives in the prevention of obesity in children. For example, it is known that modern food and soft drink production methods, pricing and marketing have significant implications for population behaviours.[118] [119]

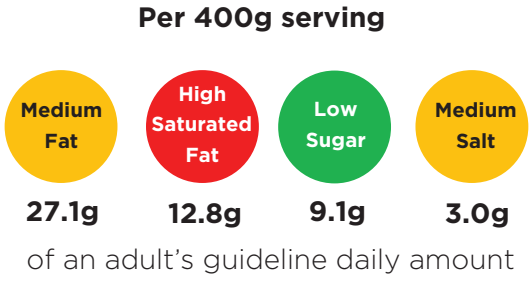
The WHO[2] recommends that attempts to tackle childhood obesity would include a reduction in exposure of children to the marketing of unhealthy food, but notes that this remains a major issue despite the increasing number of voluntary efforts by industry. There is unequivocal evidence that the marketing of unhealthy foods and sugar-sweetened beverages is related to childhood obesity.[2]

In Ireland, findings from a 2016 study commissioned by the Irish Heart Foundation[120] highlighted the sophisticated and complex digital marketing techniques that are currently being used by leading food and beverage brands to appeal to children and young people. This study demonstrated that once parents viewed the advertisements their attitudes shifted, with three quarters being strongly against their children receiving digital marketing for such foods.

At present there is no specific legislation in Ireland to control the marketing of unhealthy foods to children. However, there are a number of voluntary codes in place which include:

- a code to restrict marketing promotion and sponsorship of foods and non-alcoholic beverages high in fat, salts and sugar which was launched in Ireland in February 2018[121]
- the *Children's Commercial Communications Code* (Broadcasting Authority of Ireland, 2013)[122]
- the *WHO International Code of Marketing of Breast-Milk Substitutes HSE Guide*[123]

The introduction of mandatory labelling of the nutritional content of food products was an important step in supporting parents to identity healthier food choices. The next step needs to include a front-of-product colour-coded system. There is concrete evidence from Irish shoppers that such a system would help in making the healthier choice the easier choice.[124] A colour-coded system helps shoppers identify at a glance levels of key nutrients and 4 out of 5 Irish consumers would like colour-coding and the words high, medium and low added to the guideline daily amount (GDA) label on front of pack (see Figure 7 for sample).



Source: Reproduced from "Food Labelling Research November 2010"[124]

Figure 7: *Colour-coded "traffic light" labelling sample*

A US review[125] of 28 studies examining front of package labelling effectiveness found that a Multiple Traffic Light system has most consistently helped consumers identify healthier products.

Other policy initiatives to alter the food and socio-economic environments include the recent implementation of the *Sugar-Sweetened Drinks Tax*, the proposed calorie posting legislation, the provision of healthy school lunches in deprived areas[100] and fruit and vegetable initiatives such as Bord Bia's *Food Dudes*[126] and Agri Aware's *Incredible Edibles*.[127]

The physical and built environment plays a major role in facilitating and encouraging physical activity. The key policy in this area is *Get Ireland Active*[36] and its actions contain recommendations for creating environments that are conducive to physical activity, the provision of which is the responsibility of both national and local government. This includes the planning and development of initiatives to provide infrastructure for and encouragement of physical activity. This encourages things such as safe areas for physical activity including provision of green areas, playgrounds and other community leisure facilities to facilitate physical activity; promotion of active travel, cycle lanes and safe walking options. It also places emphasis on the role of physical activity for those working in developing the built environment. Local planning offices have responsibility for consideration of location of fast food outlets (for example, "no-fry" zones) in accordance with the guidelines for planning authorities.[128]

Communication strategy and social marketing initiatives to promote healthy behaviours and environments for children

In keeping with *Healthy Ireland*[3] successful campaign partnerships with *safe*food have provided population-wide social marketing initiatives in relation to obesity. Social marketing is a systematic application of marketing trying to achieve specific behavioural goals for the benefit of society. In line with step 4 of A *Healthy Weight for Ireland*[1], the most recent partnership was established in 2017 to develop and implement a strategic and sustained communications strategy in relation to obesity. This campaign is being led by the *safe*food-HSE partnership for the period 2017-2025. The first phase has focused on the *safe*food-HSE social marketing campaign (https://www.safefood.eu/Start/Welcome.aspx), branded as START , which encourages parents to start making changes for better health. In addition, the partnership is currently developing further materials and resources which promote consistent messages in relation to the prevention of obesity.

Other social marketing campaigns in Ireland include *Let's take on childhood obesity*[129] (Box 5), *Every breastfeed makes a difference*, *Get Active* (http://www.getirelandactive.ie/) and the advocacy for ceasing digital marketing of unhealthy foods to children campaign, *Stop Targeting Kids Online* (https://irishheart.ie/news/stop-targeting-kids-campaign/).

Box 5: *Social marketing campaign "Let's take on childhood obesity"*[129]

The *Let's take on childhood obesity* campaign was implemented from 2013 to 2016 through partnership with key stakeholders including *safe*food, Healthy Ireland, the Health Service Executive, the Department of Health and Department of Children and Youth Affairs (Republic of Ireland) and the Public Health Agency and Department of Health (Northern Ireland). Results show recognition rates of the campaign among parents of over 80% while 85% of parents suggested the ads '*make me realise what will happen to my children if I don't take steps to change*' and 69% of parents rated the messages as relevant to their own situation.

While policies are important, and they are required to create the enabling environment in which action is more likely to be successful, strategies need to be based on wider elements than policy alone. Individual behavioural change is also essential and this requires further research on motivation for making and maintaining such change. As a precursor to this it is vital that there is realistic general awareness of the risk of childhood overweight and obesity among the entire population and the social, physical and mental benefits of a healthy lifestyle. When conscientiously applied, social marketing principles may be useful to change behaviours and thus lead to better health outcomes.[130]

Section 3 of WHO components table: Community-based interventions (CBIs)

Community-based interventions cover programmes and initiatives focused on improving health in a community setting through the reduction of risks to health and the creation of supportive environments for the maintenance of the behaviour changes.

In terms of influencing eating and physical activity behaviours, policies that have a direct effect in the settings in which people live their lives are important, for example, home, schools, crèches, preschools, workplaces, community and health services.

Components of community-based interventions

Community-based interventions for the prevention of childhood obesity may be single component (e.g. nutrition) (Box 6) or multi component interventions (for example, nutrition + physical activity, or nutrition + physical activity + psychological/behavioural, or physical activity + environmental). They can be delivered on a general population basis or are provided in specific settings such as in the home, childcare facility, education setting, primary care and even extend to whole of community programmes.

A recent systematic review[66] covering 15 European countries, including Ireland, four studies, including *Cook*

it (Box 6), reported difficulty in reaching conclusions about the contribution of community-based interventions to preventing obesity. Although they reach large numbers (700,000 reached by counselling, 300,000 by cooking classes, and 240,000 received free healthy foods), this is still small in relation to the total number of European children (110 million). The target age groups within studies ranged from 0-16.5 years and positive effects on weight were provided by eight of the studies on children aged 6-12 years. The diversity of included interventions and the difficulties of achieving robust research in these settings (lack of control groups and randomisation, small sample sizes) hindered the ability to draw firm conclusions. However, 96% of studies implemented both environmental and individual strategies using actions integrated at local level.

Box 6: *"Cook It" and "Healthy Food Made Easy" programmes*

The *Cook It* project is a practical cookery programme targeted at disadvantaged communities. This is a peer-led course with local people being trained to deliver it in their communities. It is a six-week nutrition education programme which aims to provide practical information on healthy eating and improve skills by showing participants ways to provide healthy, nutritious, low cost meals and snacks for their families. The programme was developed by the Health Promotion Agency for Northern Ireland. (https://www.paulpartnership.ie/abc-start-right/cook-it/)

Healthy Food Made Easy is a six week nutrition education programme developed by community dieticians for use with adult groups to promote healthy eating and to build simple cookery skills. The aim is to improve participants' nutritional knowledge and eating habits which, in turn, can ultimately help reduce diet related chronic conditions such as cardiovascular disease, obesity, diabetes and cancer. The practical sessions focus on healthy eating on a budget and simple family foods. There is group participation in the cookery and participants are encouraged to try recipes out at home. (https://www.hse.ie/eng/health/child/healthyeating/programmes.html)

The main components of community-based interventions cover eating, drinking and feeding behaviour, play, inactivity and sleep.[91] In addition, there is also scope for improving environments in the community, and particularly in the home, to facilitate and support maintenance of the healthy behaviours. Evidence for many of these types of initiatives, and the settings in which they have been applied, are described under the various life-course stages in Chapter 3. The most successful interventions identified in a systematic review[131] (which mainly included studies from the U.S., with one each from U.K., Canada, Australia and Tonga) were multicomponent interventions, particularly where they are integrated across settings, for example, home and childcare; theory-based initiatives and those that included environmental change. Key strategies included use of developmentally appropriate materials, interactive strategies that engage all participants and are relevant to the individual's daily life and experiences, focus on positive behaviours rather than limiting negative ones.

Settings for community-based interventions

The universally delivered *National Healthy Childhood Programme* and the resources created therein are well placed to support community-based interventions. There is a range of different settings in which community-based interventions can be delivered and while they are summarised here, more detail on specific settings is provided in chapter 3.

Home-based

The importance of creating a healthy lifestyle at home, healthy eating, regular age-appropriate physical activity, minimising sedentary activity and ensuring sufficient sleep for children cannot be underestimated. This can be encouraged through home visits by PHNs and/or relevant community workers who are in a position to encourage the creation of healthy home environments and advise parents on nutrition, physical activity and sleep, for example, the HSE's *Community Mothers Programme* (Box 7).

Box 7: *Community Mothers Programme*

The original programme was established in 1983.[132] The term *Community Mothers Programme* was first used to describe an innovative peer-support programme led by a PHN. The model has changed over the years with some working as a community model and others remaining under the governance of family development nurses in the HSE. At first, public health nurses visited and supported families with newborn babies. This evolved to training experienced mothers from the local community to visit families to provide necessary support. They work towards providing empathy and information in a non-directive way to foster parenting skills and parental self-esteem.

Programmes like this can provide a source of support to the family and help in building social networks. All visits take place in the parent's home and the service is free. Parents may use the *Community Mothers Programme* for many reasons; they may find the adjustment to life as a parent difficult or even isolating.

Healthcare facilities

The RCPI recommends adoption of a weight aware ethos in all clinical services and this is particularly important in relation to young children through the *National Healthy Childhood Programme* contacts, the GP contract for care for children under six and the growth monitoring programme. All healthcare facilities need to lead by example, providing healthy options in vending machines and canteens. Active promotion of healthy behaviours through antenatal, primary care, and hospital services needs to be inclusive of the social, environmental and behavioural elements that impact on healthy weight.

Childcare and preschool

Childcare and preschool facilities require obesity prevention initiatives to support healthy behaviours and healthy environments within their services, and all children who attend them should have access to such initiatives. Research shows that the most successful programmes for sustained child behaviour change are multicomponent and include parental components.[2] Many of the initiatives that are appropriate for parents are also appropriate for the informal childcare sector.

Schools

The transition to school is an important one for children and while evidence from interventions is mixed there is sufficient evidence to support effectiveness.[26]

Whole of community

In the wider community there are many opportunities to promote healthy eating and physical activity. Supermarkets, workplaces, restaurants, cafés, other food service settings, sports and leisure facilities and the local physical environment all have potential to impact on childhood obesity. Availability of healthy food choice, quality of food, portion size, within-outlet promotions, and point of choice nutrition information are relevant. Sport and leisure organisations and providers can use their influence in communities to promote physical activity and consumption of healthy foods. Local planning can ensure that the physical environment is conducive to healthy living. In all of these areas, action is possible at both national and local level.

In recent years some excellent results have been shown by 'whole-of-community' programmes, and while they are by their nature not focused solely on the younger age groups they do contribute in a major way to the environment in which these children live. In Europe, the *Epode* network (Box 8) – www.epodeinternationalnetwork.com - and models based on it, also provide evidence of success of coordinated working in whole community settings.[133] In the U.S. and Canada, the *5210* model (Box 9) has been implemented in several states having originated with the *Let's Go* programme in Maine.

Box 8: *EPODE (Together Let's Prevent Childhood Obesity)*[133 134]

The *EPODE* initiative was developed in France in 2004 and focuses on enabling community stakeholders to implement effective and sustainable strategies to prevent childhood obesity. It was inspired by previous community and school-based interventions such as the *Fleurbaix Laventie Ville Santé Study* in France, the *North Karelia Programme* in Finland, the *Kiel Obesity Prevention Study* in Germany and the *Colac Study* in Australia. The *Fleurbaix Laventie Ville Santé Study* [133] was initially implemented as a school-based nutrition intervention in 1992 and expanded to wider community-based interventions in the following 12 years. In 2004, the prevalence of overweight in children had decreased from 11.4% to 8.8% in the intervention towns (P=0.6) while it increased from 12.6% to 17.8% (P≤0.0001) in the comparison towns. It took eight years for the decline in prevalence to become apparent.

Specifically, the *EPODE* initiative provides enablers to the entire community, which includes parents, teachers, school-catering and health professionals, to create a healthy environment to facilitate the required social change. The involvement of multiple stakeholders is promoted at both central and local levels. At a central level, the coordination team uses social marketing and organisational techniques to train and coach local project managers. These are provided with tools to mobilise local stakeholders (public and private sector) through a local steering committee and local networks.

EPODE's critical components (the five pillars) - political commitment, sustainable resources, social marketing, support services and strong scientific input - draw on the evidence-base and evaluation of the programme.

The *EPODE* initiative has been demonstrated to be effective in reducing prevalence of overweight in children across all socio-economic levels. The *EPODE* methodology is currently being used in some 300 programmes worldwide for example, *JOGG* in Netherlands and *Viasano* in Belgium.

Box 9: *5210 Programme in Maine*[135]

The *5210* behaviours are research-based recommendations from groups like the American Academy of Pediatrics, U.S. Department of Health and Human Services, and National Association for Sport and Physical Education. This programme targets childcare and healthcare providers, parents, children, schools and the wider community and focuses on the following main components:

- 5 or more servings of fruits and vegetables
- 2 or fewer hours of screen time
- 1 hour or more of physical activity
- 0 sweetened beverages

An evaluation of the impact of the initiative on 12 communities in Maine found improvements in children's consumption of fruits and vegetables (18% to 26%); children limiting sugary drinks (63% to 69%) and parent awareness of the programme (10% to 47%).[135] The *5210* model and toolkits, complete with the supporting evidence and methodology, are freely accessible at https://5210.psu.edu/toolkits/non-military/. The toolkits provide education and materials for parents (including parents of children with developmental disabilities), childcare, healthcare, and education sectors.

These two community programmes (Box 8 and Box 9) have ensured a coordinated and consistent approach to dealing with childhood obesity in an evidence-based way.

Potential to unite relevant services, programmes and activities to support the population approach

Achieving cohesion and consistency in all messaging to the public in relation to the prevention of childhood obesity is important in order to facilitate cultural change and supportive environments for the maintenance of the necessary behaviour changes. Programmes such as *5210* and *EPODE* are based on social marketing techniques using key messages, building information and education around them and including skill building where required. While they can operate at local community level, they require central coordination through which training, materials and evaluation resources are provided. It is essential that there is a robust implementation methodology.[134 135] These models hold promise as possible community wide interventions in Ireland, particularly if they are nationally coordinated and based on the same core messages as the national media campaign. For example, the *Healthy Ireland Smart Start* programme incorporates the six key *safe*food messages in its delivery, which allows for cohesion between the campaigns and what the children, preschool leaders and parents experience through the programme. Through current (*START*) and previous campaigns and partnerships a wealth of messages and supporting materials have been developed. These could be used to compile a resource which has the potential to support both a wide range of initiatives from individual through various settings and the whole community. It is essential to have clear, evidence-based messages delivered using appropriate communication tools that are appropriate for reaching all target population groups with high frequency.

In Ireland we already have the components of the community wide approach. We need to adopt an implementation structure and process to implement them population wide. Resources are required to aid implementation and also for central organisation and coordination.

Population reach and levels of intensity in prevention and treatment of childhood obesity

For wide reach within a population it is essential to offer interventions at several levels with increasing intensity of support, so parents and families may select from what suits their needs (Figure 8).

Level 1 consists of broad-based messages for healthy behaviours that are available to the whole population. Examples of this in Ireland in relation to childhood obesity are key messages and education in relation to healthy environments, behaviours and parenting provided through the *National Healthy Childhood Programme* and the *safe*food/HSE social marketing campaigns.

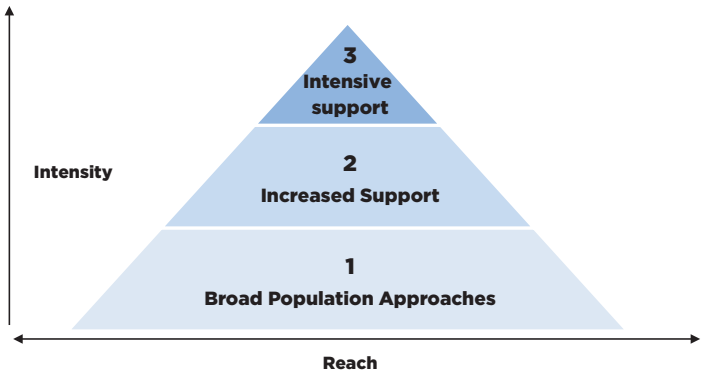


Figure 8: *Population-based intervention levels by reach and intensity.*

Level 2 provides additional support for those who require it through the provision of skill building in addition to education. Examples include programmes which develop cooking, physical activity or parenting skills and programmes that use motivational interviewing or counselling in addition to providing information. Examples of programmes at this level include Community Mothers Programme (Box 7), *Cook it* and *Healthy Meals Made Easy* (Box 6), *Hassle Free Mealtimes* (Box 4).

Level 3 provides intensive support for high risk populations, for example, programmes targeted at lower socio-economic groups, such as *Preparing for Life*. It may also provide clinical intervention either individually or through group programmes for those who seek more intensive help, either because of greater risk, greater need or existing overweight, for example, *W82GO Healthy Lifestyles Programme* (http://w82go.ie/).

The *Preparing for Life* programme (Box 10) also took a life-course approach to child development with the aim of attaining school readiness for children. While *Preparing for Life* is a population-based programme it is a targeted programme aimed at children and families living in disadvantaged areas.

Box 10: *Preparing for Life (2016)*[136]

Preparing for Life is a community-led, population-based prevention and early intervention initiative. It aims to improve the life outcomes of children and families living in a disadvantaged area of North Dublin city. The programme focuses on the overall development of the child and on child health. It commences in pregnancy and follows through up to the time the child is four years of age. The programme has been evaluated in a randomised controlled trial[136] in which a comparison was made between a group of families randomly assigned to receive a high treatment intervention (which included the addition of mentoring, the *Triple P Positive Parenting Programme* and baby massage) to a group of families receiving a low treatment programme. By the time children were 48 months old, those in the high treatment group were significantly less likely to be overweight (23% versus 41%). They were also far more likely to consume the recommended amount of protein in their diet, be involved in a greater variety of activities and watch less TV. In addition to these weight-related effects, the trial also identified a number of treatment effects for parenting behaviours. For instance, parents in the intervention group spent more time interacting with their children and were more likely to use positive parenting methods, with these effects being cumulative and becoming apparent over time.

In Ireland it is known that children from lower socio-economic groups are more likely to be overweight or obese than those in the general population (see page 9). Despite the stabilisation of prevalence rates in recent years in Ireland and other countries, this discrepancy by socio-economic status continues to widen and increase as children grow older.[9,25] Marmot, in his 2010 review of health inequalities in England[137], states that:

'The foundations for virtually every aspect of human development – physical, intellectual and emotional – are laid in early childhood. What happens during these early years (starting in the womb) has lifelong effects on many aspects of health and wellbeing – from obesity, heart disease and mental health to educational achievement and economic status.'

Step 9 of *A Healthy Weight for Ireland* [1] recommends allocation of resources according to need with particular emphasis on families and children during the first 1,000 days. A recent Irish paper on *The Impact of Early Childhood on Future Health* focuses on the important role that health services can play in improving the start that children get in life.[138] A crucial component in addressing health inequalities at population level is the application of the principle of progressive universalism in service delivery whereby interventions aimed at improving the health of the entire population are accompanied with extra input for those in greatest need, such as those in lower socio-economic and other vulnerable groups.

WHO guidance[139] on addressing inequities in overweight and obesity in the European Region recommends a comprehensive approach in reducing inequities in obesity using a combination of policies. The guidance provides key messages (Box 11).

Box 11: *Key messages for addressing inequities in overweight and obesity*

- Few obesity interventions have been evaluated for their effectiveness in low socio-economic groups.
- Do not assume that what works on the population average will work for everyone – investigate the effect of interventions on different socio-economic groups.
- Education campaigns alone are less effective in low socio-economic groups and are likely to make inequities worse.

- People from low-income groups tend not to participate in obesity interventions or they drop out early. Interventions need to take greater account of ethnic and social diversity and should be of appropriate duration.
- Population-based policies, such as restrictions on marketing foods high in fat, sugar and salt and sugar-sweetened beverages to children, are likely to have a greater impact on reducing obesity inequalities than interventions targeted at individuals.

The *Preparing for Life* programme[136] (Box 10) is an example of a level 3 intervention targeted at areas of greatest deprivation. While this programme focused on overall development of the child and had many beneficial outcomes for children, it had a significant effect on the weight status of children; at 48 months, 23% of the intervention group were overweight compared to 41% in the control group. This was achieved with families from lower socio-economic groups where the prevalence of childhood overweight and obesity is much higher than the norm. Another notable programme that has demonstrated success in dealing with inequalities is the *Healthy Amsterdam Weight Programme* (Box 12).

Box 12: *The Amsterdam Healthy Weight Programme*[140]

The *Amsterdam Healthy Weight Programme* has been reported as a model of good practice in the *Chrodis Report*.[141] The purpose of this programme is to facilitate healthy behaviour among children in a healthy environment. It combines both a prevention and treatment approach and is aimed at children in the most deprived neighbourhoods. The programme works at improving the supply and availability of healthy food and drink and increasing participation in active lifestyles. It also focuses on children getting sufficient sleep using a range of methods such as healthy parenting, healthy schools, healthy neighbourhoods, development of a '*moving city*', as well as the care of children who are obese and lobbying of the food industry. The programme's three target areas are to influence:

- individual lifestyle factors through healthcare professionals
- children's immediate social and physical environment
- relevant living and working conditions at general city level

In 2017, childhood overweight and obesity among 2-18 year-olds in this programme had fallen from 21% to 18.5%; the percentage of overweight five-year-olds had fallen from 11.2% to 9.9% while the percentage of five-year-olds who are obese had fallen from 4.3% to 3.1%.

The *Chrodis* report identified that utilisation of high quality data and evidence by this programme contributed to its success and helped secure the necessary buy-in with further improvements in data surveillance and monitoring. Like the *EPODE* programme, there is a reliance on public-private partnerships. Such partnerships have been criticised for potential conflicts of interest and it has been identified that good governance with clear and agreed structures and guidelines are essential for their successful working.

The importance of early intervention and treatment of children who are overweight or obese

This framework focuses on prevention but also highlights the importance of treatment services for childhood obesity. Clearly many of the interventions focused on prevention of obesity are also highly relevant in the treatment of childhood obesity, particularly for very young children.

Early intervention and treatment of children who are overweight or obese is essential to improve their current and future health. *A Healthy Weight for Ireland*[1] includes the recommendation in Step 6 for the setting up of improved systems to detect people who are overweight for referral to appropriate primary care services and the policy's step 7 specifies a model for specialist care for children and adults. In addition there is the RCPI *Expert Report on Obesity*.[142] Children at risk of overweight and obesity can be identified through the growth monitoring programme, through routine contacts in the *National Healthy Childhood*

Programme, and with the health services and early years providers generally. Referral pathways have been mapped and are included in the *HSE/ICGP Weight management algorithms for children*[8] and in *Growth Monitoring Unit 6* of the HSE Training Programme for Public Health Nurses and Doctors.[143]

Evidence for successful treatment of children from 0-6 years of age is equivocal. A systematic review[144] noted that the available studies were too heterogeneous for meta-analysis. Where strategies focused on both diet and physical activity, combined with behavioural interventions, treatment was effective when there was more intensive multidisciplinary involvement. NICE has recommended that parenting skills would form part of interventions for the treatment and management of obesity.[53 125]

There is evidence that many parents in Ireland are reluctant to attend treatment services for children who are overweight and of high attrition rates when they do.[145 146] This may be related to perceptions of overweight in children, to the stigma related to overweight and to parental self-efficacy in relation to healthy behaviours. However, implementation of an evidence-based general parenting programme on a population basis helped to increase acceptability and help-seeking behaviour over time in relation to general parenting. This may also prove true of programmes focused on prevention of overweight.[147]

The importance of monitoring and evaluation: population profiling and intervention review

Monitoring systems for population profiling and obesity related disease

Population profiling

It is essential to have timely national population data in order to understand the nature and extent of the obesity problem, to provide context for interventions and to monitor and evaluate their impact. WHO has provided a framework for member states to monitor and evaluate implementation of the global strategy on diet, physical activity and health which can be used to devise the necessary process and suite of indicators for the population in Ireland.[148] Population profiling for healthy weight should include children's growth and information on children's behaviours in relation to nutrition and physical activity. The need for national population data disaggregated by socio-economic status has been highlighted.[25] Some jurisdictions have population profiling as a key component to guide and monitor their interventions.[140]

In relation to monitoring children's weight, the data should include the child's sex, date of birth, geographical area as well as ethnicity and socio-economic status wherever possible. For national prevalence data, anonymous data suffices for monitoring purposes. Going forward, it would be ideal if all data were included in an electronic health record at population level. For children from 0-6 years old, these data are currently being recorded through the growth monitoring programme but, to date, they are not yet accessible for monitoring and research purposes. The growth monitoring data being recorded at the GP visits at two and five years of age should include the identity of the GP practice. This can act as a proxy measure of geographical location and socio-economic status. Provision also needs to be made for collecting national data across the child's life-course to age 18 years. High participation rates are necessary in order to provide prevalence rates that are representative of the population. In addition, survey data can be very valuable but representation may be limited by participation rates.

Participation rates are higher when systems use opt-out consent rather than seeking explicit consent from parents. The opt-in strategy for consent underestimated the overall population prevalence of overweight/obesity and obesity by -5.4 and -4.5 percentage points respectively ($p < 0.001$ for both).[149] Rates of 90%- 97.5% have been achieved by the UK *National Child Measurement Programme* (NCMP), for example, there was a 95% participation rate in 2015-16; the Arkansas childhood obesity monitoring and screening programme in the U.S.; and the *Australian Early Development Index* (AEDI).[150] Participation rates where opt-in consent is used generally range from about 50% to 65%. In Ireland, the participation rate in the first wave of seven-year-olds in the COSI study was 72%; but in the subsequent waves, this reduced to 65%, 55.6%, and 56.6% respectively.[9]

It has been reported that some parents express reservations in relation to having children weighed due to concerns about the possible risk of adverse effects on children's body image or teasing and bullying from

peers. Research from the programmes mentioned above shows no significant increases in these concerns and the high rates of participation achieved by these programmes, coupled with the fact that they are sustained over time (in Arkansas, children were weighed annually for the first four years), suggests that parents find such measurement acceptable.[150 151] Irish research also found that parents and children are now receptive to having a child's weight measured.[142] Children may also find the measurement process more comfortable as it becomes routine and particularly when participation is high. Protocols should be followed that are sensitive to cultural, body image and privacy issues and results kept confidential. However anonymous amalgamated data should be provided for population monitoring purposes.

In addition, systems need to be in place at population level to monitor behaviours relevant to healthy weight for children from infancy up to six years, such as diet (including infant nutrition) physical activity and screen time.

Intervention review

Monitoring, surveillance and evaluation of interventions is necessary so that feedback on the modifications can be provided to the institutions and services involved. The outcomes of the range of interventions to facilitate healthy weight in children can be monitored and evaluated through the population profiling along with social, environmental and economic outcome measures. Among components for inclusion are the monitoring and evaluation of the impact of policy and legislative initiatives such as sugar sweetened drinks tax, voluntary codes restricting marketing, promotion and sponsorship, as well as the various interventions in the healthcare, early years and educations sectors and the community-based interventions delivered at population level.

Evaluation should be built into all programmes delivered in relation to healthy weight for children. In the context of the health service, key performance indicators (KPIs) need to be developed. The absence of a child health information system is a major block to collating these KPIs.

Evaluation in a population approach

It is reported that no single intervention or type of intervention is likely to be successful on its own as they can often have low reach and impact, require high levels of individual agency and may even unintentionally widen health inequalities.[152] The effectiveness of an intervention is dependent not just on the quality of the programme itself; it also requires high quality implementation and an enabling environment. Policies, organisations, environment, management, staff, and, crucially, readiness of parents[153 154], families and children are necessary to support the initiative. Rutter[155] argues that, on the basis of current understanding, the way forward involves refocusing the question from '*does it work?*' to '*does it contribute?*' and, if it does contribute, '*through what pathways and at what cost?*'. This will require a shift in thinking from linear causal models to examination of the process and outcomes at all points of the system change.

The heterogeneous nature of interventions and the measurement of outcomes is an issue for effectiveness comparisons.[89] It is doubtful if there is any overall formula that works and there may be significant benefits to many of the interventions currently in use. Developing some uniformity of evaluation would help enormously in this regard, for example, by using the evaluation guide published by Public Health UK and associated frameworks.[156]

The research evidence on the evaluation of interventions for children under six years of age who are already overweight and/or obese is quite sparse and tends to be focused on small groups of highly selected individuals. Some are reports from the initial implementation stage, which raise questions about possible effect dilution when the interventions are rolled out on a wider basis or scaled up. Others are dependent on delivery by qualified professionals such as dieticians, psychologists, and physiotherapists. Few of these intervention studies included an economic component. Also there is little information on whether the interventions work for all socio-economic groups which is a limitation as it is known that there is potential for some interventions to unintentionally widen inequalities.[152]

CHAPTER 5

The way forward

Overview

This framework presents a national strategic direction for all involved in the prevention of overweight and obesity in all children aged 0-6 years, and this includes the preconception and antenatal period. Prevention of overweight and obesity in this age group is crucial as it is known that the roots of lifestyle choices, behaviours and patterns are established at an early stage. These can all be modified through early intervention. This framework specifies various interventions that are aimed at preventing obesity, including a number used in Ireland, and highlights the structures and processes that are in place through which further work can be progressed.

It is recommended that all future work in this area be carefully coordinated at population level and delivered under the principle of progressive universalism whereby core services are available to all, with additional provision for those in greatest need. The aim is to facilitate change such that breastfeeding is the norm and that feeding practices that protect young children's instincts for satiation are used. Children need:

- limited intake of foods high in fat, salt and sugar
- water and milk as routine drinks
- child-sized portion
- healthier food choices with more vegetables, salad and fruit
- regular physical activity
- limited screen time
- age appropriate sleep time

It is recommended that interventions to achieve these behaviours are planned with a focus on the life-course of the child together with work at various levels in areas of legislation, mass communications including social marketing, community-based interventions and additional targeted supports for those most in need. The main aim of interventions is to modify the various hereditary, developmental and environmental influences that are known to adversely affect healthy weight in children. The current policy area emphasises the importance of using a population-based approach with multisectoral, integrated interventions that address the complexity of factors contributing to the obesogenic environment. To be successful and sustainable, this whole of society approach must have strong political commitment and leadership. Processes must be in place to support the work which will include further research, population-level monitoring of weight and evaluation of the impact of interventions.

Focus on areas for action

The following 10 areas for action have been identified as priorities for a successful and sustainable approach to facilitate healthy weight for all children in Ireland:

1. Leadership, policy, regulation and legislation.
2. Critical points for intervention during the life-course of children (from preconception through to antenatal, infancy, early childhood and school entry age).
3. Communications and social marketing campaigns for healthy behaviours (led by the *safe*food–HSE partnership).
4. Multisectoral actions involving a population-based approach.
5. Community-based interventions for healthy behaviours.
6. Population level monitoring of growth and behaviours.
7. Education, training and support for personnel involved in the life-course of children (up to and including six years of age).
8. Education and support for parents and caregivers.
9. Managing, evaluating and supporting successful implementation.
10. Planning for resource allocation and additional funding.

The design and implementation of these actions should incorporate measures to ensure equity in health in relation to childhood obesity.

Figure 9: *Ten Areas for Action to facilitate healthy weight for children in Ireland*

Action area 1: Leadership, policy, regulation and legislation

At central level in Ireland, there is strong political commitment and leadership for supporting healthy behaviours for children. The Department of Health is leading on delivery of the recommendations of the main policy document in this area. Further development of leadership roles is required for the key sectors that impact most on the behaviours of young children, the main ones of which are in the health, early years and education sectors.

Population-wide interventions to prevent childhood obesity and promote health and wellbeing delivered at central level include:

- measures to restrict marketing and promotion of unhealthy food and behaviours
- fiscal policies that address child and family poverty as well as those that promote healthy choices
- food reformulation by industry
- planning and development measures that address the obesogenic impact of the built environment
- assessing and proofing all legislation and policy in relation to children and families for its impact in terms of health inequalities - research has shown that policies and initiatives which focus on changes in legislation, fiscal policy and societal factors have more impact in improving equity for children than those solely focused on individual agency
- voluntary measures

Recommendations:

- Identify, establish and resource leadership capacity within the key sectors for implementation of the *Healthy Weight for Children* framework.
- Ensure that at the *Obesity Policy Implementation Oversight Group* (OPIOG) level there is input from the health sector in relation to the *National Healthy Childhood Programme*. This programme provides universal access to all children, thus enabling interventions in the prevention of obesity at critical periods in the life-course (see Action Area 2).
- Under the governance of *OPIOG*, establish an expert advisory group to advise on interventions for the prevention of obesity in children (see also Action Area 5).
- Establish a dedicated resource to drive collaboration and support consistency in the delivery of interventions for healthy weight for children across all of the relevant sectors.
- Ensure the *RCPI Policy Group on Obesity* continues to maintain a focus on the importance of the prevention of childhood obesity.
- Regularly review legislation, regulation, voluntary, fiscal and environmental measures for the potential to reduce the impact of the obesogenic environment on health and wellbeing.
- Carry out an obesity impact assessment for new planning developments that impact children and their families.
- Fund the capture of high quality data for surveillance and monitoring (as described in Action Area 9).
- Use findings from population-based growth monitoring, lifestyle behaviour surveys and intervention evaluations to inform policy, legislation and regulation.
- Equality-proof all policies and interventions aimed at preventing childhood obesity and promoting child health and wellbeing.
- Use 'people-first language' in communications, including all policy documents, reports and resources in order to help minimise the stigma associated with unhealthy weight.
- Advocate with all relevant government departments, including the Department of Public Expenditure and Reform, for resources for interventions which promote healthy weight for children that focus on prevention and early intervention.
- Rigorously monitor the voluntary measures that restrict marketing, promotion and sponsorship of foods and non-alcoholic beverages that are high in fat, salt and sugar to establish if there is a need for stronger measures, such as legislation.

Action area 2: Critical points for intervention during the life-course of children

Important interventions to facilitate healthy behaviours in young children are those that are aimed at their parents, caregivers and home environments. Chapter 3 details the critical periods in the life-course of children aged 0-6 years (from the preconception stage through pregnancy, infancy, early childhood and school entry up to six years of age). It also describes the opportunities for intervention during these times through routine contact with services. These opportunities arise mainly within the health sector, principally through the *National Healthy Childhood Programme* which is a key structure as it is available to all expectant mothers and to all children in Ireland. Important opportunities also arise in the non-health sectors of early years childcare and education. Additional supports outside of the universal are outlined under action areas 4 and 5.

Recommendations:

- Strengthen the universal *National Healthy Childhood Programme's* capacity to prevent childhood obesity and promote child health and wellbeing by ensuring sufficient multidisciplinary specialist service capacity is in place to meet needs of children requiring it by investing in:
  - child health development officers in each CHO to provide leadership and coordination for the *National Healthy Childhood Programme*
  - appointment of community nursing staff to allow PHNs to focus on child health and wellbeing work, in line with the Sláintecare recommendations[157]
  - the evaluation and monitoring of programme delivery at the key contact points
- Fully implement the *National Maternity Strategy*.
- Fully implement the *National Breastfeeding Action Plan*.
- Fully implement the *First 5* strategy.

Preconception:

- Encourage system wide focus on preconception health by establishing the importance of societal responsibility for the health of the next generation while emphasising the potential to influence this positively.
- Promote healthy behaviours in routine primary care throughout the life-course, particularly among those of childbearing age in order to encourage a healthy weight for all prior to conception.
- Provide advice to women and partners on healthy weight and behaviours where pregnancy is being planned or contraception being discussed.

Antenatal period:

- Integrate healthy eating, physical activity, healthy weight gain, promotion of breastfeeding and responsive infant feeding information and messaging into the standardised curriculum for antenatal classes and training of all personnel providing antenatal classes and clinics.
- Encourage women to maintain healthy nutrition and healthy levels of physical activity throughout pregnancy.
- Accurately measure all pregnant women's weight and height at their first antenatal visit to calculate their Body Mass Index (BMI) and enter it onto their obstetric records.
- Monitor gestational weight gain and provide appropriate management for those with excessive weight gain - this entails regular weight monitoring from the first visit onwards.
- Provide appropriate intervention to support achievement of healthier weight to all women who are overweight or obese during pregnancy.
- Diagnose and manage gestational hyperglycaemia.
- Consider introducing an antenatal contact focused on the promotion of healthy behaviours and health and wellbeing.
- Provide information to all parents on the range of approved parenting supports available in their community.

Birth:

- Ensure all maternity units provide an environment that supports optimal nutrition for mothers and infants.
- Provide appropriate intervention to support achievement of healthier weight for postnatal mothers who are overweight or obese.
- In maternity units, provide information and support to parents in relation to infant feeding and nutrition, including information on responsive feeding.
- Mothers who breastfeed may require additional supports and these should be available as part of routine care, both within the maternity unit setting and continuing on following hospital discharge, as required.
- Provide parents with information on the available supports in the community in relation to infant feeding and nutrition.

Infancy:

- Promote exclusive breastfeeding of infants for the first six months.
- Provide more intensive services for mothers with lower education levels/from lower socio-economic groups to support them to start and to continue breastfeeding.
- Develop workplace policies that are supportive of women continuing to breastfeed on their return to work.
- Promote and support responsive feeding practices where infants are bottle-fed.
- Promote and support the introduction of suitable complementary foods from six months of age, with acknowledgement of the importance of appropriate weaning advice and support for all involved in the care of infants.
- Ensure that the nationally approved parenting supports and services delivered by community groups and NGOs are fully aligned with the national approach in the promotion of healthy behaviours.
- Continued provision of information by health service personnel to all parents of newborns on the range of approved parenting supports and services that are available in their community for the postnatal period.
- Use the contact points of the *National Healthy Childhood Programme*, delivered by GPs, practice nurses and public health nurses, as an opportunity to promote and support healthy behaviours.
- Ensure that all personnel are equipped with the knowledge and skills to effectively support parents and families to make healthy behaviour choices.

Later infancy, the early years and early childhood

Within the health sector:

- Utilise the scheduled contacts within the universal *National Healthy Childhood Programme* to assess, advise and manage issues in relation to healthy weight for new mothers, babies, infants and children up to and including those at 6 years of age. Support this with resources (see Action Area 3) and training (see Action Area 7) integrated with the existing content of the established programme.
- Ensure sufficient specialist service capacity, including community dieticians and specialist paediatric dieticians in each CHO, is in place to meet the needs of children who have been identified as requiring a specialist service for unhealthy weight.

Within early years childcare and primary education:

- Support all childcare settings, both formal and informal and in the public and private sectors, in providing a health-promoting environment for children, particularly in terms of quality and quantity of food offered and opportunities provided for physical activity and sleep.
- Adhere and promote adherence to recommended limits on screen time.
- Equip all personnel with the knowledge and skills to effectively support parents and families to make healthy behaviour choices.
- Provide support for effective interventions in preschool settings, as they provide a particularly important means of reaching families in Ireland. The majority of children aged 3-5 years now avail of the free early childhood care years.

- Support and incentivise the implementation of 'whole school healthy lifestyle' programmes, as recommended in national policy.
- Continue to use the school setting for effective community-based interventions to promote healthy eating, increased physical activity, provision of fresh drinking water, increased consumption of fresh fruit and vegetable initiatives, many of which have shown at least moderate levels of success.
- Ensure universal implementation of the *Aistear* and *Síolta* frameworks in promoting healthy behaviours.
- Implement the recommendations from the *Joint Committee on Education and Skills* including the need for physical education facilities, healthy eating initiatives and availability of fresh drinking water in schools.
- Ensure consistent messaging to all adults involved in care of young children, including after school services.
- Continue to ensure the integration of the promotion of healthy behaviours across the early years and education sector through the work of the HSE National Education Lead.

For all of the health sector during this life-course period:

- Ensure that the health services at all levels of care in Ireland are fully aligned and consistent in relation to healthy weight for young children. This includes actions such as those in relation to prevention of obesity, weight measurement and management of unhealthy weight.
- Provide sufficient multidisciplinary specialist services for children who are obese to ensure timely intervention.
- Equality-proof all interventions throughout the life-course on the prevention and treatment of obesity in children.

Action area 3: Communications and social marketing campaigns for healthy behaviours

Communication strategies which include social marketing for healthy environments and behaviours have been identified as a key element for tackling childhood obesity in all of the recent policy documents and in the 'whole-of-community' programmes such as *5210* and *EPODE* (described in Chapter 4). It is recommended that communications and messaging should be consistent, clear, regular and timely in order to create awareness at societal level of the need for healthy weight. Information should be provided about the healthy environments and behaviours that are known to prevent overweight and obesity.

START is a national communications and social marketing campaign which is currently being delivered in keeping with a priority action in *A Healthy Weight for Ireland*[1]. This campaign is being led by the *safe*food-HSE partnership for the period 2017-2025. The overall aim is to develop and implement a population-based strategy to promote healthy behaviours and support initiatives and programmes that promote a healthy weight for all children and families. The first phase of the *safe*food-HSE partnership has focused on the *safe*food-HSE social marketing campaign, branded as START, which encourages parents to start making changes for better health to their family behaviours and environments. The partnership is currently developing further materials and resources. These include consistent messages to support communities to foster healthy environments and to engage society in collective responsibility to address the obesogenic environment.

Recommendations:

- Continue to support and develop partnerships that utilise communication strategies, including use of social marketing for the promotion of healthy environments and behaviours, in line with national policy using an integrated and cohesive approach.
- Continue to support and resource *safe*food and HSE to further develop the national campaign to ensure that:
  - a suite of evidence-based resources communicating key messages are available to support parents and carers and integrate the campaign into initiatives across society that endeavour to address childhood obesity
  - the messages delivered through community-based initiatives and other interventions are consistent with the national campaign messages
  - findings from population-based growth monitoring, lifestyle behaviour surveys and intervention evaluations are used to inform campaign strategy and evaluation
  - communications strategies and approaches that reach and engage socially disadvantaged groups are incorporated with a view to addressing health inequalities
  - a range of stakeholders are engaged to build partnerships that use social marketing strategies for promotion of healthy environments and behaviours, in line with national policy (for example, the *All-Island Obesity Action Forum* and the *All-Island Food Poverty Network*)
- Evaluate national communications and social marketing campaigns for their impact.

Action area 4: Multisectoral actions involving a population-based approach

The evidence on effective interventions in the prevention of childhood obesity all points to the necessity of a multisectoral process to enable communities and individuals to make sustainable behavioural changes. This is because there are multiple determinants of unhealthy weight and effective interventions need to address multifactorial factors and be broad-based. All government departments should ensure that the key personnel in their sector are adequately informed, trained and supported in relation to their roles under the national *Healthy Ireland*[3] policy in the prevention of obesity in children.

The health sector can play a key role through engagement with non-health sectors in government, industry, the voluntary sector, civil society and other partners to positively influence the behaviours and immediate environments of parents and children. To support this approach the HSE established in 2016 the *Healthy Eating Active Living Policy Priority Programme* with a remit to 'mobilise the health services to improve health and wellbeing by increasing the levels of physical activity, healthy diet and healthier weight across service users, staff and the population as a whole, with a focus on children and families."

At CHO and local level the health sector engages with non-health sectors through a network of multisectoral structures such as *Local Community Development Committees (LCDC), Children and Young People Services Committees (CYPSC), The National Healthy Cities* and *Counties of Ireland Network, Local Sports Partnerships*.

Recommendations:

- Ensure that all government and society approaches used to promote healthy behaviours of young children are in line with *Healthy Ireland* policy.
- Build capacity within the health sector to positively influence the non-health sectors through the provision of training, materials and supports as well as collaborative working, advocacy and research with personnel such as those working in the early years, primary school and social care sectors as well as with those working in the food industry, town planning, physical education. Included within this area is positive influence on the relevant undergraduate and postgraduate training bodies.
- Develop a comprehensive suite of evidence-based standards and guidelines to facilitate the creation of healthy environments and the adoption of healthy behaviours.
- Build capacity within services involved in urban and rural development and planning, such as local authorities and other agencies, to positively influence the built environment for health and minimise the obesogenic impact through the provision of safe areas, green areas, playgrounds, "no-fry" zones, access to fresh drinking water and other facilities to promote physical activity, active travel and safe walking options.
- Support personnel in all of the key sectors in modelling healthy behaviours by provision of workplace environments and a culture that promotes healthy eating, physical activity and wellbeing.
- Provide healthy food options in all catering facilities, including vending machines, provided in publicly-funded settings across all key sectors with priority for facilities within the health and education sectors.
- Provide multisectoral, integrated interventions which can work within a population-based approach with provision at universal and targeted levels, according to need.
- Utilise existing multisectoral fora such as the *LCDCs*, *CYPSCs*, *Healthy Ireland network*, *National Healthy Cities and Counties of Ireland Network* and *Local Sports Partnerships* to implement sustained local actions in the prevention of obesity.
- Should public-private partnerships be considered, it is imperative that they be managed with good governance systems in place, with clear and agreed structures and guidelines.

Action area 5: Community-based interventions for healthy behaviours

Community-based interventions for the prevention of childhood obesity can be delivered in homes, early childcare settings, schools and other community settings. They should be underpinned by use of best available evidence and modified according to local need. The most successful community-based interventions are those that are multifaceted, integrated and involve a range of stakeholders with special emphasis on parents and primary caregivers. While allowing for some local autonomy, all such interventions must be centrally coordinated and use common approaches and materials. A common evaluation framework would allow for cross-initiative comparison or, at least, assessment of common contributing elements.

Achieving cohesion and consistency in all messaging to the public in relation to the prevention of childhood obesity is important in order to facilitate culture change and supportive environments for sustaining the necessary behaviour changes. Effective examples from the international arena include programmes such as *5210* and *EPODE* which are based on social marketing techniques that use key messages and build information and education around these, including skill building where required. In Ireland the current *START* programme is in keeping with these approaches as it includes a social marketing campaign as well as current development of materials with key messages that can be utilised in community wide interventions. This is a very important process which is being nationally coordinated through the *safe*food-HSE partnership. The content of the materials are based on the same communication messages that are currently being delivered in national media campaigns. Furthermore, the *Healthy Ireland Smart Start* programme incorporates the six key communication messages in its delivery, thus creating cohesion between the messaging and what the children, preschool leaders and parents experience through the programme, building on the impetus and motivation generated through the communication campaign.

For communities in greatest need, there is evidence of success from some community-based interventions focused on lower socio-economic groups such as *Preparing for Life* and *Amsterdam Healthy Weight Programme*. These programmes operate at the highest intensive support level and require significant resources, but the benefits from this investment can be highly significant. There are important roles for a number of services in this work, but especially for TUSLA and the *National Healthy Childhood Programme* with opportunities for collaborative actions, particularly for families in greatest need.

Recommendations:

- Under the governance of *OPIOG*, establish an expert advisory group that has the authority to make recommendations on community-based intervention activities for healthy weight that are equitable, scalable and sustainable and are compliant with national policy.
- Establish a dedicated resource whose remit is to provide leadership, coordination and support for the approved community-based interventions across all relevant sectors, and particularly in the health, education and early years sectors. This resource should be supported by the expert advisory group and have direct links with the relevant regional structures that can operationalise the approved activities at local level.
- Develop a common evaluation framework for community-based interventions in order to facilitate appropriate monitoring and development of existing and new programmes.
- Disseminate and utilise the learning from the implementation of community-based interventions in order to strengthen the effectiveness of existing and future programmes.
- Provide adequate funding and resources at central and local levels to support the planning, coordination, oversight and delivery of community-based interventions.
- Within the planning, delivery and evaluation of approved community-based interventions for healthy weight in children, the following should be included:
  - A suite of evidence-based resources should be compiled and updated for use in supporting the range of community-based interventions at various settings through the whole community.

Included would be the messages and supporting materials that have already been developed through the current *START* campaign as well as resources developed in previous campaigns and partnerships.

- The messages delivered in approved community-based interventions should be clear, evidence-based and consistent with the national communications and resources. Appropriate communication tools and techniques should be used to maximise reach among the target population(s).
- Wherever possible, parents, guardians, carers and families should be consulted and involved in the development, implementation and evaluation of interventions.
- Build upon and further develop the support provided to disadvantaged and vulnerable groups by health, social and education services through the development and expansion of evidence-based interventions such as *Preparing for Life* and *Community Mothers Programme*.
- Assess the potential impact of interventions among disadvantaged and vulnerable groups in order to minimise the risk of inadvertently widening inequalities.

Action area 6: Population level monitoring of growth and behaviours

It is essential to have timely national population data in order to understand the nature and extent of the obesity problem, to provide context for interventions and to monitor and evaluate their impact. The WHO has provided a framework for member states to monitor and evaluate implementation of the global strategy on diet, physical activity and health which can be used to devise the necessary processes and suite of indicators for the population in Ireland.

Absence of a national child health information system (*National Immunisation and Childhealth Information System* - NICIS) is hindering data recording on all variables, including contact points, measurements and referral pathways. There is a strong case to recommend extending current growth monitoring from age five years to key time periods across the child's life-course up to age 18 years. To support best practice in this area, protocols are needed to promote awareness of cultural, body image and privacy issues. All child-identifiable results must be kept confidential in line with best practice in relation to data protection. All population level data will only be available in an anonymised format.

For growth monitoring at population level, consideration needs to be given to adopting a national opt-out consent process rather than requiring explicit parental consent. There is evidence that routine measurement of child growth appears to be acceptable to parents and children when it is established as routine practice for all.

Recommendations:

- Use the WHO framework to devise a national process for establishing a systematic monitoring of children's growth and behaviours, such as nutrition and physical activity.
- Building upon existing processes, develop an agreed suite of key indicators on growth, weight and behaviours and a mechanism for collection of these data at specified critical periods in the life-course. Included should be a nationally agreed process for the recording of data on ethnicity and socio-economic status.
- Population monitoring data on healthy weight should be used to inform and support all other action areas at both central and local levels. Information on socio-economic status should be included so as to inform actions focused on reducing health inequalities.
- Provide central leadership and coordination for population-level monitoring data in the office of the *National Healthy Childhood Programme*. To facilitate this, the *National Immunisation and Childhealth Information System (NICIS)* needs to be developed to permit inclusion of growth monitoring data in community services. An appropriate interface should be developed to facilitate the input of data to NICIS from the *National Maternity Clinical Management System (NMCMS)* on data recorded at the specified points in the antenatal and neonatal periods.
- Data monitoring at population level must be anonymised and at a minimum should include the following demographic information: sex, age, geographical area, ethnicity and socio-economic status. If it is not feasible to record socio-economic status, a suitable proxy measure should be used.
- Systems need to be in place for data quality control and for timely data analysis to provide reliable information in an anonymous format at national and local levels. Consideration should be given to providing relevant information to data providers about their populations, including comparison with national or local trends.
- For monitoring of growth in children and adults at specified critical periods during the life-course:
  - Establish training and protocols to facilitate growth monitoring at various points in the life-course (training will be inclusive of other components, as described under Action Area 7).
  - Develop high quality guidelines and protocols in order to ensure that there is a standard process for the weighing and measuring of children and expectant mothers. Included should be the use of correctly calibrated measuring equipment and standardised processes in its use and in the recording of the measurements.
  - Implement a national opt–out consent process for national growth monitoring.

- Training healthcare personnel in the processes for the measurement of growth is important. The manner by which growth is measured must be acceptable to the adults and children involved and needs to be carried out in a professional manner which is culturally appropriate.

- For monitoring of children's behaviours that are relevant to healthy weight
  - A nationally agreed process is required to monitor patterns of nutrition, physical activity and other behaviours that contribute to healthy weight in children such as sleep and screen time and, if possible, these data should include information on the growth of the participating children. The methodology to monitor behaviours requires further consideration but it could include population surveys of representative samples, specific research projects such as cohort studies or detailed data collection at selected sentinel sites such as PHN or GP practice areas.
- Progress population weight monitoring with the introduction of an appropriate national monitoring system for older children and adolescents and for those availing of contraception and preconception services in order to facilitate longer term follow-up and inform further actions, as appropriate.

Action area 7: Education, training and support for personnel involved in the life-course of children

It is essential that all personnel involved in the life-course of children, including in the antenatal period, are adequately educated, trained and supported so as to be equipped with the knowledge and skills to effectively support parents and families to make healthy behaviour choices. Such training clearly extends beyond those working in the healthcare sector and includes personnel working with families with young children in the early years services, primary schools, social services, NGOs and community groups. Training and skill development in this area can be delivered at undergraduate, postgraduate and also within on-the-job training. Building upon what has been achieved to date, there is an opportunity to streamline and standardise this work to enable consistency among the various sectors, services and agencies which is fully aligned with the national communication and social marketing campaigns.

Recommendations:

- Ensure all personnel involved in the life-course of children are adequately educated, trained and supported, in line with national healthy lifestyle guidance, including the *Making Every Contact Count* model, so as to be equipped with the knowledge and skills to effectively support parents and families to make healthy behaviour choices. Included in this should be an emphasis on the importance of the use of person-centred language in all communications.

Within the health services

- Establish a national multidisciplinary healthy weight for children education and training group to:
  - develop resources and training to equip staff with skills to discuss healthy behaviours and body weight with parents and caregivers - this should include training in the use of non-stigmatising language, awareness of cultural, body image and privacy issues
  - develop and disseminate a suite of standards and guidelines for promotion of healthy weight in children
  - among staff, promote incorporation of the *Making Every Contact Count* model as an integral part of the clinical care pathway for children
  - liaise with undergraduate and postgraduate training bodies to incorporate core elements into training curricula
- Ensure education and training, including e-learning modules are accessible to and availed of by relevant staff working in the health sector, specifically:
  - Ensure all staff involved in the growth monitoring of children complete the growth monitoring module on HSELanD to ensure standardised practice for clinical and population monitoring.
  - Ensure all staff involved with children are aware of and have access to the *Make Every Contact Count* training module on HSELanD
  - Train all relevant health personnel to follow nationally agreed guidance in relation to appropriate care pathways for children with problematic weight. This can include *Make Every Contact Count*, brief intervention and ongoing monitoring with an individual care plan for children with unhealthy behaviours or problematic weight (including those referred for specialist input).
  - Include training to support the recording and retrieval of these data for clinical purposes and also for the purpose of national population monitoring.
- Establish growth monitoring as a clinical norm throughout the life-course using established guidelines and protocols.
- Provide training and establish processes to strengthen communication between clinical personnel involved with children in the community and hospital settings.
- Work with other agencies to ensure that appropriate education and training programmes are available to all personnel involved in the life-course of children.

Within Early Years Care, Primary School Education and Child and Family Agency

- Collaborate with the health sector to ensure that appropriate education and training programmes are available to all personnel involved in the life-course of children.
- Develop, in collaboration with the HSE, and disseminate a suite of standards and guidelines for promotion of healthy weight and associated behaviours for children.

Within all other sectors, agencies and groups

- Collaborate with the health sector and other relevant sectors to ensure that appropriate education and training programmes are available to all personnel involved in the life-course of children.

Action area 8: Education and support for parents and caregivers

All involved in the care of children, which includes mothers, fathers, guardians, grandparents and extended family members as well as others involved in formal or informal childcare can have immense influence on the children's environment and lifestyle behaviours. This is because they are the children's role models and they create the home environment through which food and opportunities for physical activity, screen time and sleeping conditions are provided. Through their parenting styles they influence their children's attitudes and behaviours to all of these factors and hence parenting skills and confidence are important mediators of child behaviour. Education and support for healthy behaviours can be provided to parents and caregivers when they are in contact with personnel involved in the life-course of children in the healthcare, childcare and early years education sectors (see Action Area 7).

Parenting programmes are also a key component of known effective community-based interventions in which parents, caregivers and communities are facilitated to provide environments conducive to healthy weight for their children. These programmes aim to help parents and carers adopt an appropriate parenting style which will increase their parenting skills. This results in improved confidence and consistency in relation to managing their children's attitudes and behaviour and shaping the environment of their family's life.

Recommendations:

- Encourage parents, guardians and caregivers to follow healthy lifestyles and to take a 'whole family approach' to healthy living and healthy homes. Opportunities for this are provided through a number of contacts in the preconception, antenatal and early years within the healthcare, early years and primary education sectors.
- Continue to develop materials to support parents and carers in facilitating age-appropriate healthy behaviours for children covering healthy eating guidelines, physical activity, sleep times and the need to limit screen time. These materials can be disseminated through a range of channels and will be aligned to the messaging via national communications and social marketing campaigns.
- Deliver evidence-based parenting programmes on a population basis, to increase acceptability and uptake and minimise sensitivity to perceived stigma of attending such programmes.
- Develop implementation guidelines and supports for roll-out of these evidence-based parenting programmes to maximise reach, fidelity and impact and enable consistency.
- Programmes should:
  - utilise and build on the nationally agreed materials developed to support healthy behaviours for children
  - incorporate skill-building elements to facilitate development of competency and confidence in parents and caregivers
  - encourage parents and caregivers to act as role models by following healthy behaviours themselves
- Use multisectoral structures, such as the established CYPSCs to support the development and delivery of high quality parenting programmes.
- Support approved community–based interventions for high risk populations that include education and support for parents and caregivers.

Action area 9: Managing, evaluating and supporting successful implementation

Evaluation should be built into all programmes delivered in relation to healthy weight for children. In the context of the health service, key performance indicators (KPIs) need to be developed. The absence of the *National Childhealth Information System* (NICIS) is a major block to collating these KPIs.

As described in Chapter 2, implementation of this framework will be delivered primarily within the *Healthy Weight for Ireland* governance arrangements. As this work involves influencing most, if not all, of the broader determinants of health, it will require significant cross-sectoral and multidisciplinary collaboration. Therefore, good governance arrangements are essential in order to facilitate a coherent and coordinated process among the various key sectors and actors. Management systems need to be in place, with central oversight and leadership to ensure accountability and clarity regarding the respective roles and responsibilities among the various stakeholders. This work can be supported through the use of a range of management techniques such as agreed contracts, memorandums of understanding, scheduled reporting and feedback.

An important component of this work is the development and availability of national standards, guidelines and protocols in relation to activities related to the prevention of obesity in children. These activities range from growth monitoring and referral pathways in the healthcare sector right through to food composition in industry or design of public spaces in the environmental sector. Standards and guidelines need to be based on the best available evidence, be clear, consistent and comprehensive and be appropriate to all population groups.

A process is required to translate the learning from monitoring, evaluation and scientific research back into policy and practice. All initiatives should use a data-driven decision making process on an ongoing basis. At central national level, there is an important role to facilitate exchange of information and review by the various stakeholders. This was a key enabler in the success of the *Amsterdam Programme*.

While much implementation work could be carried out using existing financial, material and human resources, additional resources at national and local levels will be required for additional interventions as well as for the necessary central organisation, coordination, monitoring and evaluation of the work.

Recommendations:

- Develop a child health information system to support monitoring of population-based data in order to monitor and evaluate interventions (see Action Area 6).
- Establish a core set of standardised evaluation measures.
- Develop KPIs relating to healthy weight for children for health professionals delivering the *National Healthy Childhood Programme* - NICIS is a key enabler for this.
- Develop agreed management and governance arrangements to facilitate implementation of evidence-informed interventions across the various services and sectors that impact on healthy behaviours for children, with appropriate monitoring and review processes using agreed evaluation measures.
- Ensure programme-fidelity, consistency of implementation and appropriate training to facilitate the sustainability and scaling-up of interventions by establishing:
  - appropriate implementation structure and process arrangements that will provide clear lines of accountability and a fit for purpose monitoring process
  - clear accountability and monitoring processes
  - standardised evaluation measures
  - dissemination of learning from evaluations
- At systems level, develop a process for evaluating the impact of interventions under the following three headings:
  - Families (programme acceptability, relevance and impact).
  - Work Force (capacity, confidence and effectiveness).

- System (visible support, mandates and KPI).

- Develop knowledge management and research capacity across all disciplines and utilise information from population-based growth monitoring, lifestyle behaviours and evaluation of interventions to inform policy development, national priorities and implementation actions.
- Identify key research priorities building on the findings of *POCKETS* (Prevention Of Childhood obesity-Knowledge Exchange and TranSlation), prioritising evaluation of interventions in very young children (given the scarcity of high quality evidence for this age group).

Action area 10: Planning for resource allocation and additional funding

The early years are a critical window of opportunity to influence lifelong behaviours - positive behaviours established in the early years will track into later childhood and adulthood.

Funding for prevention is now more crucial than ever given the high prevalence of overweight and obesity in the population. Funding for prevention is an investment in the future health and wellbeing of our population.

At the outset, provision needs to be made to ensure adequate resources are available to manage, implement, support and evaluate interventions at all levels. In addition, arrangements should be in place to formally support and to assess funding applications for research initiatives and innovative partnerships with academic institutions or other bodies aimed at facilitating healthy weight, and associated behaviours, in young children.

Recommendations:

- Identify adequate resources to ensure the implementation of all recommendations outlined in this framework.
- Under the governance of the *Obesity Policy Implementation Oversight Group (OPIOG)* and its sub-groups, establish a process for review of applications for resources for both new and established interventions, across all sectors, aimed at prevention of obesity in young children. This process should be structured so as to have input from the appropriate government departments and other relevant stakeholders.
- Encourage collaboration with academic institutions and other bodies regarding research opportunities.
- Ensure that, at the planning stages in the implementation of interventions, a comprehensive review of the current resource allocation and opportunities for collaboration is carried out. Based on this analysis, any necessary additional funding should be secured in order to adequately support the planned actions.

Conclusion

The purpose of this framework is to provide a strategic direction for a national and sustainable approach to facilitating healthy weight and the prevention of obesity in children aged 0-6 years in Ireland. This framework follows current international and national policy in the area of obesity prevention and draws on the best available evidence to arrive at a portfolio of recommendations for potential action. The recommendations have been presented under 10 defined areas for action and they were formulated using a pragmatic approach based on how best to further build upon, develop and complement the existing services and resources that are currently in place in Ireland.

As obesity is most often the outcome of multiple determinants operating at the social, environmental, economic and cultural levels, a range of different interventions are required to be delivered at different levels and in many sectors involving a wide range of stakeholders. This work needs to be coordinated across the sectors in order to ensure consistency and coherence in the delivery of interventions and in maximising population reach. This framework has therefore been prepared for a number of different audiences, including policy makers, government departments, organisations (both statutory and non-statutory), partnerships, service managers, service providers, community leaders, parents and caregivers.

Prevention of overweight and obesity among the youngest members of society in Ireland is particularly crucial as it is known that the roots of lifestyle choices, behaviours and patterns are established at an early stage and that these can be modified through early intervention and the provision of environments that are conducive to health.

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Abbreviations and Acronyms

BMI	Body mass index
CBI	Community-Based Intervention
CHO	Community Healthcare Organisation
COSI	Childhood Obesity Surveillance Initiative
CYPSC	Children and Young People Services Committee
DCYA	Department of Children and Youth Affairs
DES	Department of Education and Skills
DECLG	Department of Environment, Community and Local Government
DOH	Department of Health
DSP	Department of Social Protection
DTTAS	Department of Transport, Tourism and Sport
EPODE	Ensemble Prévenons l'Obésité Des Enfants (Together Let's Prevent Childhood Obesity)
ESRI	Economic and Social Research Institute
EU	European Union
FSAI	Food Safety Authority of Ireland
GDA	Guideline Daily Allowance
GP	General Practitioner
GUI	Growing Up in Ireland
HBSC	Health Behaviour in School-aged Children
HEAL	Healthy Eating and Active Living
HFSS foods	Foods high in Fat, Salt and Sugar
HI	Healthy Ireland
HIQA	Health Information and Quality Authority
HRB	Health Research Board
HSE	Health Service Executive
HWfC	Healthy Weight for Children
HWfI	A Healthy Weight for Ireland: Obesity Policy and Action Plan 2016-2025

IBEC	Irish Business and Employers Federation
ICGP	Irish College of General Practitioners
IPH	Institute of Public Health in Ireland
JANPA	Joint Action on Nutrition and Physical Activity
LCDC	Local Community Development Committee
NPRS	National Perinatal Reporting System
NCMP	National Child Measurement Programme UK
NGO	Non-governmental organisation
NHS	National Health Service (UK)
NICE	National Institute for Health and Care Excellence
OPIOG	Obesity Policy Implementation Oversight Group
PDST	Professional Development Support Service for Teachers
PE	Physical education
PFL	Preparing for Life
PHAA	Public Health Association of Australia
RCPI	Royal College of Physicians in Ireland
SES	Socio-economic status
SPHE	Social, personal and health education
UN	United Nations
WHO	World Health Organization

Glossary

Adiposity rebound	The age of adiposity rebound (AR) is defined as the time at which BMI starts to rise after infancy and is thought to be a marker of later obesity.
Algorithm	An algorithm is a procedure for resolution of a problem.
Anthropometric	The scientific measurement of the human body for comparison.
Bariatric	The medical discipline that treats obesity.
Body mass index	A measurement obtained by dividing a person's weight by the square of the person's height, which is used as an indicator of the degree of obesity
Brief intervention	A technique used to initiate change on unhealthy or risk behaviour. Brief interventions involve screening and assessment of health behaviours as well as elements of motivational interviewing.
Calorie posting	Posting of the calorie details of meals on menus alongside the price of items, at the point where the food is ordered in restaurants, takeaways and food service outlets.
Chrodis+	Chrodis Plus is an EU-level response to support member states by stepping up together and sharing best practices to alleviate the burden of chronic diseases. Irish partners include the Health Service Executive (HSE), The Institute of Public Health Ireland (IPH) and Irish members of the European Institute of Women's Health.
Community-based Interventions	Community-based interventions cover programmes and initiatives focused on improving health in a community setting through the reduction of risks to health and the creation of supportive environments for the maintenance of the behaviour changes.
Childhood Obesity Surveillance Initiative	School age children COSI, HBSC the Childhood Obesity Surveillance Initiative (COSI) in the Republic of Ireland which has published findings from 2008, 2010, 2012 and 2015.
Critical Periods	In this context, these are time periods that are critical in the prevention of obesity for the 0-6 age group: within these, 'transition periods' have been identified that present opportunities for intervention.
Determinants of health	The social determinants of health are the circumstances in which people are born, grow, live, work and age, as well as the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces; economics, social policies and politics.

Evidence-based	When decisions are made based on concrete research findings and widely accepted evidence.
Evidence-informed	When decisions are taken based on the best available evidence.
Exclusive breastfeeding	When no other liquids are given other than breast milk.
Growing up in Ireland	Growing up in Ireland is a longitudinal cohort study which studies the health and wellbeing of children. The findings relating to young children are particularly relevant to this framework; the infant cohort, at time of writing, have been studied at 9 months, 3 years, 5 years and 7 years of age.
Growth reference percentile chart	The UK- WHO (Ireland) growth charts (0-4years) consist of A4 charts (Boy and Girl) covering 32 weeks gestation to 4 years. The growth charts contain a wealth of explanatory information along with clear instructions on measurement, plotting and interpretation.
Health inequalities	A difference in health status or in the distribution of health determinants between different population groups.
Health Promoting and work Schools Initiative	An initiative whereby schools assess health needs towards better health for all who learn and work in a school setting.
Healthy Eating Active Living	This is a National Policy Priority Programme which coordinates and leads activity across the health services to ensure implementation of two policies: A Healthy Weight for Ireland: Obesity Policy and Action Plan 2016 – 2025 and Get Ireland Active! The National Physical Activity Plan for Ireland.
Healthy Ireland	The Healthy Ireland (HI) Framework was adopted by the Irish Government in 2013 and is the overarching framework for action to enhance population health.
Healthy Ireland Council	A multi-stakeholder national forum aiming to provide the platform to connect and mobilise communities, families and individuals to support everyone to enjoy the best possible health and wellbeing in the context of Healthy Ireland.
Healthy Ireland Network	The Healthy Ireland Network was established by the Healthy Ireland Council in 2017 to get all types of organisations across the country to sign-up to combine efforts to improve health and wellbeing.
Knowledge translation	An umbrella term for all of the activities involved in moving research from the laboratory, the research journal, and the academic conference into the hands of people and organisations that can put it to practical use.
Life-course approach	An approach suggesting that the health outcomes of individuals and the community depend on the interaction of multiple protective and risk factors throughout people's lives. This approach provides a comprehensive vision of health and its determinants, which calls for the development of health services centred on the needs of its users in each stage of their lives.
Make Every Contact Count	This programme offers an opportunity to enhance the ability of staff to engage with patients on issues pertaining to lifestyle and risk factors for chronic disease.
Memorandum of understanding (MoU)	A memorandum of understanding (MoU) is a written, formal agreement which organisations often use to establish official partnerships. A MoU is not legally binding but it carries a level of mutual commitment and respect. It expresses the goals and principles of the proposed partnership, its governance and accountability and the ground rules by which it will operate.
Modifiable risk factors	Factors that can be altered or modified to reduce risk. For example, changing a diet for longer life would be a modifiable risk factor, whereas an individual's age could not be modified for longer life.

Motivational Interviewing	Motivational Interviewing is a patient-centred method of counselling that helps clients explore their level of motivation and encourages them to understand and resolve any ambivalence to change.
National Healthy Childhood Programme	This is an important structure to support policies and interventions in the prevention of obesity in children. It is a population-based policy priority programme which provides a robust structure in which to deliver health services on a population wide basis to all children at national regional and local level.
National Immunisation and Childhealth System (NICIS)	Planned national ICT system to support immunisations and child health to support clinical practice, integrated care and measurement of outcomes.
National Perinatal Reporting System	This system presents national statistics on perinatal events in Ireland including data on pregnancy outcomes
National Women and Infants programme	The National Women and Infants Health Programme leads the management, organisation and delivery of maternity, gynaecology and neonatal services. The Programme functions to strengthen the services currently delivered across primary, community and acute care settings.
Non-communicable diseases	Medical condition(s) that cannot be transmitted to others.
Nurture Programme – Infant Health and Wellbeing	Nurture is a philanthropic funded quality improvement programme for the National Healthy Childhood Programme, which focuses on the period from antenatal to the child's third birthday and enhances training through the provision of evidence-based information and resources.
Obesity	A medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. People are considered obese when their body mass index (BMI) exceeds 30 kg/ m^2.
Obesogenic environment	An environment that promotes gaining weight and one that is not conducive to weight loss.
Overweight	A medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health. People are considered overweight when their BMI is in the range of 25–30 kg/m^2.
Population Approach	The population-based approach involves a multisectoral process to support organisations to enable communities and individuals make sustainable behavioural changes. It considers the wider determinants of obesity and recognises that a common agenda between organisations coupled with an enabling, supportive environment, targeting the wider determinants of health, is vital to reducing childhood obesity.
Progressive Universalism	Progressive universalism, in this context, means that the service is available to all, that those with the highest level of need receive the most support, and, as far as possible, that parents with different levels of need can self-select the support they require.
Psychosocial	Referring to the interaction between psychological and social factors.
Responsive feeding	Responsive feeding (RF) refers to a reciprocal relationship between an infant or child and his or her caregiver that is characterised by the child communicating feelings of hunger and satiety through verbal or nonverbal cues, followed by an immediate response from the caregiver
*safe*food	An all-island implementation body set up under the British-Irish Agreement Act 1999 with a general remit to promote awareness and knowledge of food safety and nutrition issues on the island of Ireland.

School Meals Programme	A programme operated by the Department of Social Protection, which provides funding towards provision of food services for disadvantaged school children.
Sedentary behaviour	Any waking activity characterised by an energy expenditure the same or less than 1.5 metabolic equivalents and a sitting or reclining posture.
START campaign	The START campaign is delivered in partnership by *safe*food, HSE and Healthy Ireland. The first phase of the campaign has focused on co-creating the campaign with parents and delivering a research informed campaign strategy with creative assets along with investment in mass media, public relations and activations to build awareness of the key messages. The focus is on encouraging and supporting parents to start making changes for better health. The next phase includes building partnerships with other stakeholders and developing further resources to support communities to foster healthy environments and to engage society in collective responsibility to address the obesogenic environment.
Surveillance	Collection and analysis of health data about overweight and obesity, which is then used to drive decisions about health policy – this applies to surveillance of populations and is distinct from active surveillance, which applies to individuals.
Tusla	The Child and Family Agency was established on the 1st January 2014 and is now the dedicated State agency responsible for improving wellbeing and outcomes for children.
Whole of school approaches	Cohesive, collective and collaborative action in and by a school community that has been strategically constructed to improve student learning, behaviour and wellbeing, and the conditions that support these.

Appendices

Appendix 1: The Healthy Weight for Children Group

Membership

- Dr. Phil Jennings, Director of Public Health/Medical Officer of Health/Lead – National Healthy Childhood Programme (Chair), HSE
- Dr. Fionnuala Cooney, Specialist in Public Health Medicine, HSE
- Ms. Celine Croarkin, Project Management Support, Healthy Eating and Active Living Programme, HSE
- Ms. Cara Cunningham, Senior Community Dietician, HSE
- Dr. Cliodhna Foley-Nolan, Director of Human Health and Nutrition - *safe*food
- Ms. Mary Hegarty, Senior Researcher, Department of Public Health (Midlands), HSE
- Ms. Marita Hennessy, PhD Student and SPHeRE Scholar, School of Psychology, NUI, Galway
- Ms. Eileen Maguire, Training and Development Officer, HSE
- Ms. Anne McAteer, Health Promotion and Improvement, HSE
- Ms. Claire McNamara, Senior Community Development Officer, TUSLA
- Dr. Sinéad Murphy, Consultant Paediatrician with interest in childhood obesity (Temple Street Children's University Hospital)/Director of Paediatric Education, University College Dublin
- Ms. Sarah O'Brien, National Lead, Healthy Eating and Active Living Programme, HSE
- Ms. Margaret O'Neill, Dietetic Lead, HSE
- Dr. Kathleen O'Sullivan, Principal Medical Officer, HSE
- Ms. Laura Smith, Information Officer, Department of Public Health (Midlands), HSE
- Ms. Eilish Whelan, Assistant Director of Public Health Nursing, HSE

Aim

Develop an evidence-based framework for prevention of childhood obesity, initially focusing from preconception up to 6 years of age.

While acknowledging that the causes and prevalence of childhood obesity are not a consequence of the effect of single determinants but the outcome of multiple determinants (social, environmental, economic and cultural) the framework will focus on population health interventions that are within the remit of the health services to deliver or mediate delivery of. In recognition of the need for a life-course approach this work will be part of the broader National Healthy Childhood Programme and the National Healthy Weight for Ireland Obesity Policy and Action Plan and Healthy Eating and Active Living, as pertinent to prevention of childhood obesity will inform the framework. The Nurture Programme-Infant Health & Wellbeing is a key enabler of the National Healthy Childhood Programme in the antenatal period and 0 to 3 years age group.

A Healthy Weight for Ireland Obesity Policy and Action plan outlines the short term (five year) targets for overweight and obesity as:

- a sustained downwards trend (averaging 0.5% per annum as measured by COSI) in level of excess weight in children; and
- a reduction of the gap in obesity levels between the highest and the lowest socio-economic groups by 10%, as measured by the healthy Ireland and COSI surveys.

The Healthy Weight for Children Group aims to help achieve those targets.

Objectives:

1. Review existing national and international community-based prevention programmes
2. Review the evidence base for;
   - Population-based approach
   - Community-based interventions
   - Targeted interventions for high risk groups
3. Develop an action plan, including the prioritisation of actions
4. Develop an implementation plan

Governance/reporting

- The working group is a sub-group of the National Healthy Childhood Programme Steering Group, co-sponsored by Healthy Eating and Active Living Policy Programme
- Project management support will be provided by Healthy Eating & Active Living Programme – Ms. Celine Croarkin.
- Recommendations will go to the National Healthy Eating and Active Living Cross Divisional Implementation Group for consideration, feedback and approval.
- Overall sign-off of final Action Plan and Implementation plan will be by Dr. Stephanie O'Keefe, National Director of Health and Wellbeing.
- Responsibility for implementation of actions will be negotiated and agreed with appropriate operational lines via the Policy Programmes National Implementation Groups. Each Policy Programme (Healthy Childhood / Healthy Eating & Active Living) will take clear responsibility for driving and monitoring delivery of defined actions.
- The Working Group will be chaired by National Lead – Healthy Childhood Policy Priority Programme

In the interest of effective and efficient functioning, the working group will not include representation from the wide range of stakeholders who could contribute to this project. Rather the work-plan for the group will include structured engagement with these stakeholders as appropriate. The list of potential stakeholders includes, but is not restricted to:

- ICGP
- Community Psychology Services
- Community Physiotherapists: link via Irish Society for Chartered Physiotherapists
- Health Promotion and Improvement Physical Activity Coordinators: via the Physical Activity Coordinators (PAC) group
- Practice Nurses: via Nursing & Midwifery Practice Development Units
- Primary Care Teams – via Primary Care Team coordinators
- Community Groups inclusive of statutory, non-statutory and voluntary

Appendix 2: Irish statistics - children

Table 3 *Population of children in Ireland aged 0-6 years of age 2016*

Age	Male	Female	Both sexes	Both sexes cumulative total
Under 1 year	31,876	30,381	62,257	62,257
1 year	32,824	31,205	64,029	126,286
2 years	34,031	32,287	66,318	192,604
3 years	34,785	33,291	68,076	260,680
4 years	36,215	34,620	70,835	331,515
5 years	36,831	35,573	72,404	403,919
6 years	37,033	35,484	72,517	476,436

General demographics

Children aged 0-6 years comprised 10% (n=476,436) of the total population of Ireland.

Of the total population of 4,761,865 people in 2016, 25% (1,190,502) were aged less than 18 years old.

Some 26% of children were preschool age (0-4), 44% were primary school (5-12) and 30% were secondary school age (13-18).

Almost 6% of the child population have a disability.

Appendix 3: Sources of statistics - Ireland

Sources of statistics drawn on in this report include:

Population statistics in Ireland are produced by the Central Statistics Office (CSO) every five years, the latest data relate to 2016. The risk factors in relation to overweight and obesity are collected by various surveys.

The Perinatal Statistics Report 2015 presents national statistics on perinatal events in Ireland. Information on every birth in the Republic of Ireland is submitted to the National Perinatal Reporting System (NPRS). The information collected includes data on pregnancy outcomes including breastfeeding status as well as descriptive social and biological characteristics of mothers giving birth. The information relates from pregnancy to one week after.

There is currently no national **data** on **maternal obesity levels** in Ireland so prevalence rates are dependent on individual studies.

Data on children are being collected at population level through ***The National Healthy Childhood Programme*** and the ***Growth Monitoring Programme*** at nine months, two years and five years of age. The GP records the age, gender, weight and height of the child at aged two and five years, and plots it on a centile chart, provides health promotion advice, brief intervention and support, or referral to specialist services. These data are not currently generally accessible at a population level.

Surveys

The main source of prevalence data on children from 0-6 is *Growing up in Ireland (GUI)*, a longitudinal cohort study which studies the health and wellbeing of children. Two cohorts are studied, the infant cohort and the nine-year-old cohort. The findings relating to young children are particularly relevant to this framework; the infant cohort, at time of writing, has been studied at nine months, three years, five years and seven years of age. Data collection for the Infant Cohort started in 2008 with over 11,000 nine month olds and their families. Follow-up waves were completed when the child was aged three years, five years and seven/eight years (postal). Depending on the particular wave, information has been collected from parents, carers, non-resident parents, teachers and principals. The next visit to this cohort is currently underway at age nine years. For the first three waves, height and weight were objectively measured. However in wave 4, this was changed to parental report. Interviews were carried out in the earlier three waves to obtain the information on health and wellbeing of children; this has also been changed and a postal survey was used for the most recent wave.

Other surveys also produce data on lifestyles and health status of children, particularly The *Childhood Obesity Surveillance Initiative* (COSI) in the Republic of Ireland which has published findings from 2008, 2010, 2012 and 2015 and the HBSC, the *Irish Health Behaviour in School-aged Children Survey*. COSI, part of an international study spearheaded by the WHO, collects data from children in primary schools in the Republic of Ireland. The survey is carried out periodically. Data were first collected from children in 2008 in first class and again in 2010 from first class and third class, in 2012 from first, third and fifth classes and in 2015 from first, fourth and sixth class. Trained researchers collected weight, height and waist circumference measurements. The *Health Behaviour in School aged Children HBSC* (2014) survey is the fifth report with previous surveys conducted in 2010, 2006, 2002 and 1998. HBSC is a cross-sectional research study of young people's health and wellbeing, health behaviours and their social context conducted in collaboration with the World Health Organization (WHO) Regional Office for Europe.

The State of the Nation's Children Report compiles data from many sources. They provide most up-to-date data on the National Set of Child Wellbeing Indicators in one place and aim to chart the wellbeing of children in Ireland, track changes over time, benchmark progress in Ireland relative to other countries and highlight policy issues arising.

Literature reviews: Trends in prevalence have been reviewed by Keane, et al.,(2014), updated by Perry et al., (2017) and also by the Oral Health Services Research Centre from 2002 to 2014.

Appendix 4: The Healthy Childhood Programme Contacts – revised schedule

Contact	Rationale	Provider
1. Antenatal	To introduce the Child Health Programme To promote healthy lifestyles in both parents To promote positive mental health To promote maternal immunisation-Influenza and Pertussis This is a new contact to be developed as part of the Nurture Programme-Infant Health & Wellbeing	HSE Primary Care - Child Health Screening & Surveillance Service
2. Birth	As well as the general care of the mother and baby, before leaving the hospital, the baby receives a general neonatal physical examination, is screened for DDH, vision and hearing. The national bloodspot screening is carried out (either in hospital or at the first PHN visit in the home). BCG vaccination may be given.	HSE Hospital
3. Within 72 hours of discharge from hospital	This contact is generally carried out in the child's home visit i.e. familiar surroundings for the parents which are probably more convenient and acceptable for them. It also provides the HSE with the opportunity to undertake a comprehensive assessment by observing parents in their own environment and to promote a healthy home environment. Through this visit parents are provided with support and information that is tailored to their needs. The BCG vaccination is given at the HSE clinic by community medical doctor if not previously given in hospital.	HSE Primary Care - Child Health Screening & Surveillance Service
4. Within 2 weeks of birth	'This visit enables the GP to check on the mother's health status, to review the hospital care experience and to discuss any difficulties in the management of the baby. It also provides the opportunity of meeting the baby: to establish a programme for monitoring growth and development (percentile measurements); to review screening status.'[1]	GP

5. Six weeks after the birth	'A postnatal examination of the mother should be carried out by the GP during this visit. This visit also enables the GP to review the general health of the baby; to conduct another developmental examination; to review feeding practices and the overall management of the baby and to finalise immunisation plans.' [1]	GP
6. At 2 months	Immunisation Contact for 6 in 1 and PCV	GP
7. At 3 months	This contact is generally provided in a clinic setting. It provides the opportunity for the PHN to undertake developmental surveillance in partnership with parents and to provide anticipatory guidance with respect to changes over the coming months; to conduct a physical examination of the baby; to identify possible maternal or psychosocial issues and to promote maternal-infant attachment.	HSE Primary Care - Child Health Screening & Surveillance Service
8. At 4 months	Immunisation Contact 6 in 1 and MenC	GP
9. At 6 months	Immunisation Contact 6 in 1 and PCV	GP
10. At 9 to 11 months	This contact is generally provided in a clinic setting. It provides the opportunity for the PHN to conduct a physical examination of the baby; to continue developmental surveillance in partnership with parents and to provide anticipatory guidance with respect to changes over the coming months in particular the baby's motor, language and cognitive skills; to identify possible maternal or psychosocial issues. The timing of this contact has been changed from 7-9 to 9 – 11 months	HSE Primary Care - Child Health Screening & Surveillance Service
11. At 12 months	Immunisation Contact MMR and PCV	GP
12. At 13 months	Immunisation Contact MenC and Hib	GP
13. At 21 to 24 months	This contact is generally provided in the clinic setting. This contact is carried out at an important time in the child's development. It will allow developmental surveillance to continue which includes eliciting parental concerns, taking a developmental history, observation of the child and the use of the ASQ-3; it also allows growth monitoring to be undertaken. The baby's motor, language and cognitive skills are assessed and any possible maternal or psychosocial issues identified and appropriate support given. The timing of this contact has been changed from 18-24 months to 21 - 24 months	HSE Primary Care - Child Health Screening & Surveillance Service
14. Age 2 to 3 years	Periodic Assessment 'Periodic Assessments are age based preventive checks focused on health and wellbeing and prevention of disease. The Medical Practitioner shall take an active approach toward promoting health and preventing disease through the provision of Periodic Assessments to Child Patients.'[2]	GP

15. At 46 to 48 months (3.8-to 4 years) Pre-school contact	This contact is generally provided in the clinic setting and is sometimes referred to as the pre-school or school readiness check. Domains of readiness include: ■ Physical well-being and motor development ■ Social and emotional development ■ Child's approach to learning ■ Language development ■ Cognition and general knowledge This contact will allow developmental surveillance to continue which includes eliciting parental concerns, taking a developmental history, observation of the child and it allows growth monitoring to be undertaken. The timing of this contact has been changed from 39-42 months to 46 to 48 months	HSE Primary Care - Child Health Screening & Surveillance Service
16. At 4½ to 5 years School Contact	This contact is generally provided in the school setting. It allows for hearing and vision screening to be carried out; growth monitoring to be undertaken. Parents complete a health questionnaire and have the opportunity to express any concerns. The timing of this contact has been changed from 48-60 months to 54 to 60 months	HSE Primary Care – Schools Screening Service[3]
17. At 4 to 5 years School Contact	Immunisation contact - 4 in 1 and MMR vaccinations given	HSE School Immunisation Service
18. At 5 to 6 years	Periodic Assessment 'Periodic Assessments are age based preventive checks focused on health and wellbeing and prevention of disease. The Medical Practitioner shall take an active approach toward promoting health and preventing disease through the provision of Periodic Assessments to Child Patients.'[2]	GP
19/20 Dental contacts at 2nd Class (8/9 years) and 4th/6th Class (10-12 years)		Rationale to be agreed with Dental Service HSE Dental Service
21/22/23 At 1st Year Second Level school (12/14 years)	Immunisation Contact for Tdap and MenC boosters. First and second doses HPV	HSE School Immunisation Service

1 From Agreement between the Department of Health & Children and the Irish Medical Organisation in respect of a contract between the HSE and GPs for the provision of medical and surgical services to Mothers and Infants under Section 62 and 63 of the Health Act 1970. (copy on file)

2 Registered Medical Practitioners for provision of services to children under 6 years old pursuant to the Health (General Practitioner Service) Act 2014 (Under 6 year olds) Accessed at: http://www.hse.ie/under6contract/

3 GPs in Donegal and Sligo/Leitrim give these immunisations

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