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CHECKING THE WEIGHT OF CHILDREN IN GENERAL PRACTICE

THESIS SUBMITTED BY

BRENDAN O’SHEA

FOR THE DEGREE OF MD AT
THE UNIVERSITY OF DUBLIN

2015
DECLARATION

This thesis is submitted for the degree of MD. It has not been submitted as an exercise for a degree at any other university.

The thesis is entirely my own work. Consent to participate in the study was sought from all parents invited, and the assent was sought of all children involved.

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Signed: Brendan O'Shea

Date: 11.9.15
SUMMARY

Childhood overweight is a serious health concern. Checking the weight of the child can be done in the primary care setting, where GPs have the opportunity to check the weight of children attending for routine care.

It is hypothesised GPs are unwilling to check the weight of children, concerned about upsetting children and parents. It is further hypothesised children and parents are not upset when the weight of the child is checked.

A postal survey on a 20% sample of Irish GPs was conducted, ascertaining GPs' level of concern, and describing their practice in this area of care. Secondly, the weight of a sample of 457 children (5-12 yrs) attending for unrelated care to 11 GPs was checked, and a post consultation telephone survey of parents conducted, ascertaining the acceptability of weighing the child.

Results of the GP survey (response rate 80.9%, n = 393) indicate GPs are not consistently weighing children, especially where the child is overweight. Results further indicate that though GPs view childhood overweight as a medical problem, GPs believe that parents of overweight children do not view it as such. GPs do not consistently use age and gender adjusted BMI centiles in their determination of childhood overweight. When consulting with overweight children and their parents, GPs are clearly concerned and affected by, and anticipate negative parental response, should they raise the issue of childhood overweight in the consultation. GPs are interested in further guidance in this area of care.

Results of the second part of the study include data from 434 of 457 parents whose children were weighed when attending for routine, unrelated care. Following weighing of the child, most parents (98.6%) indicated it was useful to check the weight of the child in this manner. Most children were reported to have experienced weighing with positive or neutral reaction. Just over 1 in 4 obese children (n=46) were felt by parents to have been rendered angry, anxious or upset by weighing. Children aged 5-6 yrs were least likely to respond negatively.

These results validate GP concerns, and GPs remain inconsistent in their approach. Nonetheless, results are enabling of a more systematic approach by GPs in checking the weight of children, supported by an educational module of learning in consultation skills to reduce the reported level of upset.

Parental approval for weighing (despite small reported level of upset), together with known harms relating to overweight, favour GPs managing the issue of childhood
overweight in a systematic manner. Results support screening children for overweight at 5-6 years of age.

Further, a qualitative study on the concerns and experience of obese children is indicated.
ACKNOWLEDGEMENTS

Many have contributed time, insight, and energy, for which I am deeply grateful.

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LIST OF ABBREVIATIONS

BMI  Body Mass Index
CDC  Centers for Disease Control
CHOBH  Childhood Overweight and Obesity
DISC  Dietary Intervention Study in Children
GP   General Practitioner
HOVYS  Health of Young Victorians Study (Australia)
HSE  Health Service Executive
ICGP   Irish College of General Practitioners
IOTF  International Obesity Taskforce
iPCRN  Irish Primary Care Research network
KOALA   Kinder Overweight Activity Lifestyle Actions
MCWA   Malaria Control in War Areas
MEND  Mind Exercise Nutrition and Diet
NHANES  National Health and Nutrition Examination Surveys
NHS   National Health Service (UK)
NICE  National Institute of Clinical Excellence
LEAP  Live Eat And Play
LI    Lead Investigator
OECD  Organisation for Economic Cooperation and Development
PCRS  Primary Care Reimbursement Scheme
QOF   Quality Outcomes Framework
RA     Research Assistant
RCGP  Royal College of General Practitioners
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CHAPTER 1  INTRODUCTION

Childhood overweight is an important public health issue. It is of concern to parents, children and GPs. Early opportunities for the objective identification of overweight in the child are important, including the timing, accuracy, acceptability and context where this is conducted. Overweight can be reliably identified in children\(^{(1-3)}\), given the manner in which our society now approaches the care of children\(^{(4)}\). This study is focused on the point in time where parent and child encounter a health care professional, the latter able to observe if the child is overweight, and if so, to begin to formulate and agree a plan to address the issue of overweight.

Childhood overweight has been extensively studied\(^{(1, 5)}\). Research describes epidemiology and interventions available. Interventional studies reported are conducted for short periods of time. Little research examines either the acceptability of screening for overweight, or the acceptability of the interventions\(^{(6)}\).

This thesis examines the acceptability of checking the weight of the child. It does so with reference to parents, children and GPs. It is based in primary care, where most clinical care of children is delivered\(^{(7)}\). The importance of acceptability, and of causing anxiety to an unknown proportion of children and parents, when checking the weight of the child, are central to the thesis.

General practice is a feature of many healthcare systems. It is characterised by delivery of long term personal medical care over many years, often over generations,
frequently delivered to people and to families, by individual General Practitioners (GPs) (8).

In checking the weight of the child in the consultation, it is important that this is conducted in a manner acceptable to the child, to parents, and to the General Practitioner. This is especially so for children who are overweight.

1.1 Emergence of childhood overweight

1.1.1 Epidemiology

As data become available on the prevalence of childhood overweight, it becomes apparent first in developed and then in developing populations. While it is now accepted childhood overweight is a problem among the poor in rich societies, and among the rich in poor societies, it is evident to some extent among all subgroups of all societies (WHO 2012 Factsheet) (9).

Data from the United States (US) are relevant, where childhood overweight is first clearly described in detail as a public health issue. It is useful to consider epidemiology of childhood overweight in global terms. Finally, given that fieldwork for this thesis is conducted in Ireland, Irish data are relevant.

1.1.1.1 The United States

US data demonstrate progressive increases in the proportion of all children who were overweight (American Heart Association 2012) (50) from the fourth quarter of the twentieth century. Data include results from National Health and Nutrition Examination Surveys (NHANES) (1971-2008) (figure 1).
In the second half of the twentieth century, US society was the dominant model globally, which many societies aspired to, and the yardstick by which other political systems and cultures measured themselves. Inherent in this was the promise of plenty, and freedom from want \(^{11}\).

At the present time \(^{12,13}\), overweight is the most prevalent nutritional disorder among children and adolescents in the United States, with 21-24% of American children and adolescents overweight, and 16-18% obese. In evolutionary terms, this has happened on a very short timescale.
1.1.1.2 Global data

A global overview of the epidemiology of overweight in adult and child populations is provided by The World Health Organisation (WHO) (‘Obesity and Overweight’ Factsheet 311, 2012)\(^{(14)}\).

‘In 2008, more than 1.4 billion adults, 20 and older, were overweight. Obesity has more than doubled between 1980 and 2008, by which time 65% of the world’s population were estimated to live in countries where overweight and obesity kills more people than underweight. More than 40 million children under the age of five were overweight in 2010. Close to 35 million overweight children are living in developing countries and 8 million in developed countries; 65% of the world’s population live in countries where overweight and obesity kill more people than underweight.’

Overweight children grow into overweight and obese adults. Children who become overweight and obese at a younger age are more likely to remain overweight, and experience a higher level of morbidity and a range of poor health outcomes relative to individuals who become overweight later in life\(^{(15-18)}\).

1.1.1.3 Irish data

Reliable data are available from The Growing Up in Ireland Study, a longitudinal study of two cohorts of Irish children, commissioned in 2006, including 11,000 infants and 8,570 nine year old children. Data were first reported in 2009 (GUI 2009). These data include results from 15% of all 9 year olds in Ireland, and are thus representative of the population of 9 year olds\(^{(19)}\). Sampling was carried out so as to
ensure good variation, geographically, demographically, and socioeconomically, and was conducted through primary schools, (sampling in 910 out of 3200 primary schools in Ireland).

In 2009, 74% of nine year olds had Body Mass Indices (BMIs) in the normal range, based on International Obesity Task Force cut off measurements \(^{(20)}\) (Cole 2000); 19% were overweight and 7% were obese. Thus 1 in 4 Irish nine year olds are overweight or obese. This is consistent with impressions from clinical practice, and with our own, previous studies conducted in the general practice setting \(^{(21, 22)}\).

In one of these (White 2012), a sample of 101 serially presenting 4 – 14 year olds and their parents, was studied. BMI was checked both for parent and child using the United States Centres' for Disease Control’s BMI-for-age references. It was found that 14.9% of the children, and 51.6% of the parents, were overweight or obese. Only 1 of 14 overweight children had a weight previously recorded in their general practice medical record. In a second, similar practice based study, a smaller sample of 13 month olds were checked (n = 39), of which 9/39 (26%) or 1 in 4 were overweight, and 4/39 (10%) were obese, using UK-WHO 0-4 year old centile charts, with cut offs of 91% and 98% for overweight and obesity \(^{(21)}\). Data demonstrate high prevalence of overweight and obesity among Irish children, which data form part of the rationale for this thesis.
1.1.2 Definitions

Body Mass Index (BMI)

BMI is a calculated value, defined as weight of the individual in kilograms divided by the square of the height of the individual in meters \(^{(23)}\). BMI was described by a Belgian statistician (Adolphe Quetelet b 1796 – d 1874), initially for the consideration of overweight in adults. It is known that increases in BMI among adults correlate with increasing morbidity and premature mortality \(^{(24)}\).

Correlation between BMI and morbidity and mortality for children is less well established, but emerging evidence increasingly supports the concept that higher BMI in children is also associated with excess morbidity and mortality \(^{(12, 24, 25)}\). BMI is recognised by the International Taskforce on Obesity (IOTF) as the measure to be used in determining if weight is within a normal range \(^{(26)}\), and it is now used in the context of gender and age related centiles for children for most research and clinical purposes. Objective measurement of height, weight and calculation of BMI are important. Several studies \(^{(27, 28)}\) demonstrate neither patients nor health care professionals are accurate in their subjective estimations of the child’s weight, with both parents and GPs systematically underestimating the weight of the child.

Overweight

Overweight in adults is determined on the convention whereby individuals with BMI of greater than 25 are considered overweight, those with a BMI of greater than 30 are obese, and those with BMI of greater than 35 are considered morbidly obese (WHO Factsheet 2012) \(^{(9)}\). Use of BMI among children and adolescents must still be
undertaken with some caution\(^{(29)}\), bearing in mind BMI is not as closely correlated with morbidity and mortality in children, nor is it a direct measure of adiposity\(^{(30,31)}\). Nonetheless, overweight in children is determined on the basis of BMI, expressed as gender based percentile, in clinical work, and in much research. Thus in practice and in research simple measurement of BMI in children is refined by expressing a BMI centile with relation to a reference population of male and female children respectively, enabling account to be taken of ethnic variations.

**Adiposity**

Adiposity is the presence of an excessive percentage body fat in the child or adult. Though felt more closely to reflect risk than BMI, it is more complex and costly to measure reliably\(^{(26)}\). Measurement techniques for adiposity include hydrostatic weighing, electrical impedance, measurements of skin fold thickness at different points, limb and abdominal circumferences (the latter subject to marked inter observer variability) and X Ray absorptiometry, which is regarded as the gold standard\(^{(32)}\). BMI is more simply calculated on the basis of height and weight, is easier to measure reliably, and is subject to less inter observer variability. Pathological outcomes are thought to relate more closely to adiposity, and less reliably to BMI, but it is BMI which is now recommended and used predominantly for clinical evaluation and mainly used in clinical research. Use of BMI or adiposity is the focus of ongoing debate\(^{(32)}\). Scientific researchers and epidemiologists favour adiposity on the basis of its clearer correlation with risk, but pragmatic researchers and clinicians favour BMI, based on ease of calculation and greater reliability of measurement in the contexts of clinical care, and of observing populations\(^{(33)}\).
Defining overweight in children

In clinical practice, overweight in children is determined using BMI. Use of BMI in children is further developed using gender and age based percentiles or z scores, calculated with reference to a standard population. This is clearly described by Cole, Flegal, Ogden and O Dea. This approach is further refined by taking statistical cut off points (for example the 85th and 95th centiles respectively) for determining overweight and obesity respectively. Most recent refinements for the use of BMI among younger populations now includes the use of puberty phase specific centiles which take account of physiological development of the adolescent when calculating BMI centile, recognising the variations between physiological development and the chronological age of individual adolescents.

In checking the weight of children, current practice is to make a determination of child weight, based on BMI percentile values for a particular population and gender. Individual children in a reference population may be determined as being within normal weight range if their BMI is greater than the 7th centile and less than the 85th centile for all children of the same gender and age within that population. A relevant example of a specific population would be that of 192,727 children from Brazil, Great Britain, Hong Kong, The Netherlands, the United States and Singapore, as originally described by Belizzi and Cole in 2000.

Reliable, rapid and accurate measurement of both height and weight for children is viewed as practical and feasible by clinicians. Thus it is possible to have the presence or absence of overweight in a child objectively and quickly confirmed by
Doctors and Nurses during routine consulting, using reliable measuring techniques, by calculating BMI, and referring to cut off points or centiles with respect to an appropriate reference. Variation is still evident internationally in the cut off points favoured by different agencies, and on the reference population used. Researchers, policy makers and clinicians still take different points of view on the cut off points in determining childhood overweight, but the impression on viewing the literature is that clearer consensus on this issue increasingly identifies BMI, expressed as a centile, with reference to an appropriate reference population of children/adolescents of the same gender and age, as the accepted common approach in determining if the weight of an individual child is underweight, normal, overweight or obese. Communicating on the issue of overweight to parents and to overweight children however is more complex.

When a child is found to be overweight, communicating this to the child and parents is difficult, because of feared social and psychological consequences for the child and parents (39). A body of literature exists which describes doctor 'antifat bias,' which partly reflects these concerns (40, 41), but the difficulties in this communication are clearly greater than physician 'antifat bias,' and relate to added uncertainties and complexity in consulting with children and parents as opposed to adults. If their child is determined to be overweight, parents may be surprised at this, and may feel judged unfavourably in relation to their parenting skills. They may also feel defensive and protective regarding their child. Further, in the many instances where parents themselves are overweight, they may feel personally criticised, guilty or angry.
Child and Adolescent

Variation is evident in definitions of the terms child, childhood, adolescent, and teenager. 'Childhood' includes several overlapping subgroups including infants, preschool children, toddlers, primary school children, pre-teen children, and secondary school children. Definitions can be based on stages of psychological or anthropological development, or on age. The National Institute of Clinical Excellence (NICE) Guideline on Childhood Overweight simply defines children as individuals younger than 18 years\(^{30}\). A detailed comparison of these definitions would not be useful here. Infants will be taken to mean children under 1 year of age, preschool children those aged between 1 and up to five years of age. Older children will be considered as primary school children (approximating to 5 to 12 years), or as adolescents or secondary school children (13 to 18 years).

Primary Care

Primary care is ‘essential health care, based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self reliance and self-determination.’ This definition is taken from the Alma-Ata declaration of 1978\(^{42}\), the first international declaration recognising and describing primary care. Good primary care is now taken to mean a range of services, delivered through a spectrum of disciplines, in the community, where the patient lives. Historically, it has been delivered by Primary Care Physicians.
General Practitioner

The World Organisation of National Colleges and Academies of General Practice (WONCA), a global organisation of Primary Care Physicians, General Practitioners and Family Physicians, defines General Practitioners as specialist physicians, trained in the discipline of general practice and primary care, the characteristics of which include commitment to open access to all patients for the initial and ongoing management of all medical problems in a cost effective manner, being available over time, to individuals and families, and demonstrating an effective interest in addressing health issues known to be especially relevant to the population where their service is delivered. The updated 2002 WONCA definition of general practice runs to several pages\(^{(43)}\).

A contemporary overview of General Practice is elaborated by Howe, (2010 William Pickles Lecture 2010)\(^{(44)}\). She explores the tension between the desirability and impracticality of providing continual personalised care by a single GP. She recognises the increasing diversity in the manner in which households and families are now constituted, but observes that ‘continuity of care can be held by a team, a well-used set of records, an expectation, and an emotional bond.’
1.2 Influences

1.2.1 Family and environment

A family is a group of individuals linked with each other through consanguineous relationships, social affinity (by marriage or cohabitation) and or shared accommodation or consumption. For the purpose of this study, the term is used narrowly, relating to parents and children, living together.

The importance of family to the growing child is overarching. There is a spectrum of outcomes for any child, influenced by the extent to which positive parental influences and nurturing can be brought to bear in realising the potential of the child. A balance exists between the extent parents can select influences which affect the child, and the extent to which external influences impact on the child. Profound changes in family and environment, during the last several generations, have resulted in influences operating on the child, beyond parental control, several of which impact on the probability of the child becoming overweight.

Two concepts relevant to childhood overweight include the obesogenic family and the obesogenic environment (44-46), which concepts have become increasingly prominent in the research literature from the during the last twenty years (47). The obesogenic family is characterised by family members being overweight, living in a disadvantaged area (48), closer proximity to fast food outlets (49), lower levels of parental (particularly maternal) education, and poverty in the socioeconomic sense (50,51), where living in deprived areas with poor social amenity increases the
likelihood of overweight. Parental mental health problems also impact negatively on
the BMI of children \(^{(52)}\).

The obesogenic environment \(^{(44, 53)}\) is characterised by less opportunity and fewer
facilities for exercise activities, lightly regulated codes of practice in food production
and advertising, passive cultural acceptance of sedentary activities, and acceptance
of overweight and obesity as normal. In evolutionary terms the obesogenic
environment is a very recent and profoundly important factor in human health \(^{(54)}\).

Availability of work outside the family can alter the probability of childhood
overweight. There may be no readily available work, resulting in a number of
secondary unfavourable consequences, including reduced parental physical activity,
economic disadvantage restricting parental ability to maintain good quality diet in
the family, and limited opportunity to engage in physical activities requiring money
(for example purchasing access, training and equipment for participation in sport).

Alternatively, work may be available, but it may impact negatively on parenting. If
work is poorly paid, involves long hours, prolonged commuting, antisocial shifts, and
is sedentary and monotonous in nature, these features will be impoverishing, and
increase the probability of overweight. Parental time and energy is taken out of the
household, financial constraints still operate, and likelihood of child overweight
increases.
1.2.2 Behaviour

Behaviour is the response of an organism to stimuli arising from its environment. When behaviours are carried out consistently by individuals, they become habits. Behaviours and habits, of children, adults and health care professionals, are important as determinants of weight. It is helpful to consider the behaviours of individuals and of health care professionals, particularly in the context of the manner in which the commercialised food industry operates in most societies.

Individuals who consume moderate amounts of varied diet in a sociable manner, in the context of an active lifestyle, are more likely to maintain normal weight. Conversely, individuals consuming excessive amounts of energy dense foods, in the context of sedentary lifestyle, are more likely to become overweight.

Commercialised production of food, undertaken in an industrialised manner, in a capitalised society, affects the weight of individuals. Production of food, conducted primarily as a monetised and ‘for profit’ activity, in a ‘light touch’ regulated society, impacts negatively on the ability and the probability of individuals in that society maintaining a healthy weight.

‘Light regulation’ of the food industry results in targeted marketing of, and provision of energy dense foods, in a manner most convenient to consumers, especially children. ‘Marketing’ may ostensibly be concerned with communicating about a product, but in this context, it must be also viewed as the acquisition of profit through modifying the behaviour of individuals, who themselves are labelled in the
process as ‘consumers.’ The process operates through modifying the manner in which food is acquired, actively promoting the provision and selection of energy dense foods, available and consumable, with minimal expenditure of energy, on the part of those consuming.

Lightly regulated marketing is especially directed at children, and conducted through mainstream media. It includes targeted advertising of energy dense foods during peak viewing times for children (a ubiquitous feature of mainstream television). This process is recently and accurately described in Ireland by O’Gorman in a descriptive study on the content and volume of advertising on television during children’s peak viewing time (56) where it is noted that in 82.5 hours of programming, 1155 cues for foods and beverages were broadcast, the authors concluding this data provides ‘further evidence of the prominence of unhealthy foods in children’s programming.’

Similar concerns relate to messaging in print media, more traditional bill board advertising, with signage and highly visible presence of fast food restaurants in shopping malls and most communities, proximity to which is now recognised and known to be a ‘risk factor’ for childhood obesity (49).

A fatalistic perspective on the impact of the commercialised food industry is presented by House (2013) (57), noting that ‘manufacturers and advertisers prefer to continue grooming us into lone choosers bent on competitive hedonism.’ This vision, subjective as it is, does reflect the scenario of any child, passively watching television on their own, snacking on energy dense, heavily salted and sugared snacks, in an impoverished suburban environment, their open mind passively presented to
sophisticated visual and auditory messaging\(^{(55)}\), devised by focused teams of marketing psychologists, nutritionists, graphic designers and media experts, purposefully employed by strictly for profit companies, operating largely unfettered.

Behaviours of health care professionals are important. GPs do not routinely check the weight of children, and are deeply uncomfortable about doing so. The spokesperson for the Irish College of General Practitioners, commenting in 2011, observed that ‘When I see an 11 year old who is 11 stone, I’m tearing my hair out, but telling them they are overweight is difficult. Vulnerable people who are overweight may feel judged if their GP brings it up. I know GPs who have been forthright in their dietary advice, but their patients have been emotionally traumatised by it\(^{(58)}\).’ Evidence indicates routine weighing by GPs is not commonly a behaviour or habit of GPs in the consultation in many healthcare systems\(^{(59-66)}\).

Denmark is one of the countries reporting stabilisation and reduction in levels of childhood overweight\(^{(67)}\). It is of interest that in the Danish system, GPs do check the weight and height of children systematically, as part of the Primary Care Health Check, normally conducted on 5 year old school children\(^{(68)}\). Systematic weighing of children by GPs does mean that GPs and parents will understand earlier if the child is becoming overweight, and as such, it creates an opportunity for collaboration and earlier intervention.

1.2.3 Food

Food has changed from that which was laboriously hunted, gathered, grown and prepared within families, composed of lower fat content foods with low glycaemic
index, to that which is produced by a highly industrialised process, which is higher in fat content and with high glycaemic index, actively marketed to and passively consumed by individuals. It has become more likely that individuals will consume excessive amounts of energy dense foods, high in fat, salt and refined carbohydrate, and doing so in such a manner as will expend far less energy acquiring food than previous generations. Further, their overall physical activity levels will be lower than those for which their physiology is evolved.

1.3 The importance for children of being overweight

The overweight child within the obesogenic family poses an ethical dilemma for society, parents and for health care professionals, as research incrementally elucidates the extent to which childhood overweight is harmful.

On one hand, there is the perspective that evidence associating overweight with harm is not persuasive; findings and observations from HOVYS (Health of Young Victorians Study, Australia) reflect this viewpoint\(^{(69)}\). The non interventional perspective would include the idea that it is a matter for the family as to how they may wish to view childhood overweight. It would emphasise that pathological outcomes attributable to overweight are overstated, that fitness is of greater importance than fatness, that overweight members of society are not sufficiently concerned about being overweight, and that unless they are, intervention is bound to fail, no matter how ardent the interventionists\(^{(57)}\). The non interventional perspective would maintain that cost benefit analysis of interventions do not justify
the expenditure of resources, the final reports from LEAP 2 being a good example of
the latter \(^{(70)}\). On the other hand, there are the known outcomes for overweight
children.

1.3.1 Known medical outcomes for overweight children

There are early physiological differences between normal and overweight children,
including differences in metabolic markers, insulin levels and cytokine metabolism
\(^{(71)}\). In the longer term, less good health outcomes are increasingly evident. A
convincing body of evidence exists \(^{(12, 15, 24, 72, 73)}\) describing a wide range of less good
health outcomes for overweight and obese children.

Several medical conditions are clearly associated with overweight in the child and
adolescent. These include metabolic conditions (Type 2 diabetes mellitus,
dyslipidemias and the metabolic syndrome), cardiovascular conditions (left
ventricular hypertrophy, hypertension and atherosclerosis), respiratory conditions
(asthma and obstructive sleep apnoea), and orthopaedic conditions (slipped capital
epiphyseal, Blount’s disease, accelerated osteoarthritis in overweight adults).
Childhood overweight is associated with non alcoholic fatty liver disease, the long
term importance of which is uncertain, but likely to be negative. Psychological
outcomes are less good for overweight children. Data from The Growing up in
Ireland Study demonstrate being bullied is more likely among overweight children. In
the longer term, chronic obesity among adolescents is clearly associated with
increased psychiatric morbidity \(^{(74)}\). Hospital admissions of obese children and
adolescents have increased fourfold during the last decade \(^{(75)}\), relating to Type II Diabetes, Sleep Apnoea Syndrome, Asthma and higher rates of complications during pregnancy among young overweight pregnant women.

1.3.2 Known behavioural outcomes of overweight children

Being overweight during childhood reduces probability of the child engaging in activities known to be important in maintaining a weight within normal range \(^{(76)}\), thus compounding the problems of an increasingly sedentary lifestyle adding to the problems of overweight. The incidence and prevalence of overweight in children subjected to non accidental injury is higher. Children subjected to non accidental injury are more likely to become overweight adults \(^{(77, 78)}\), with a higher risk of early onset cardiovascular events \(^{(79)}\). A relationship exists between bullying and childhood overweight \(^{(80)}\), features of which include the fact that overweight children are more likely to be victimised by being bullied at school than children who were not overweight.

1.3.3 Known social outcomes for overweight children

The overweight children experience difficulties in effectively participating in a range of social activities \(^{(81)}\), and are less likely to be effective at engaging in team based activities, or in the successful acquisition of skills necessary for engagement in sports. The overweight child, as previously stated, is also more likely to be the
subject of bullying\textsuperscript{(80)}. Overweight children are more likely to grow into overweight adults, for whom there is a wide variety of well documented less good social outcomes as well as less good medical outcomes.

1.3.4 Stigma

Stigma is a mark of disgrace associated with a particular circumstance, quality, or person, deriving from the greek, meaning to brand or prick with a pointed stick. Stigmatisation is usually described as being carried out by a majority, on an individual or a minority. Deprivation, loss and social ostracisation are consequences of stigmatisation. Ostracisation, also derived from the greek, relates to where villagers marked the name of an individual on a broken shard of pottery (ostrakoi), leaving these in a pile in the marketplace, indicating their preference for the named individual to leave the village.

A further aspect of stigmatisation relates to health care professionals. A body of literature exists supporting the idea that Doctors are perceived by overweight patients as having an 'antifat' bias\textsuperscript{(41, 82)}, and have been perceived as colluding in the stigmatisation of overweight patients\textsuperscript{(40, 83-86)}.

GP\textsuperscript{s} are known to be sensitive to this, to an extent which arguably inhibits them from checking the weight of children\textsuperscript{(61, 63, 87)}.

Failure to address stigmatisation, or inadvertently to increase it, are both likely to result in damage to the therapeutic alliance between the health care professional and the family, delaying effective engagement by parents and professionals in
supporting the child, and addressing weight management. Parental concerns include fear of being blamed for the child being overweight, concern regarding the child's mental health, doubts regarding the competence of the professional, and the time available to the professional to deal with the issue. Collectively, this evidence lends weight to the importance of evaluating acceptability when checking the weight of children.

1.3.5 Behaviours associated with normal weight in children

Parental behaviours are important in maintaining a healthy weight in the child. Parental behaviours known to be important include the extent to which parents make provision in the prenatal and antenatal period, in the immediate post partum period, and throughout childhood and adolescence.

Parental exercise and eating habits, and the intention to breast feed are known to be important. Maternal weight gain during pregnancy is predictive of overweight in the child. Active parental interest in the purchase of food, food preparation, cooking, taking steps to ensure communal meals at home, and parental interest in encouraging physical activity are known to be important. It is known that educational advantage (particularly maternal educational attainment) is of importance, and impacts on the weight of the child.

Child behaviours are known to be important in maintaining a healthy weight. Where children have opportunity to, and are encouraged to engage in physical activity, where there is regard to limit their engagement in sedentary activities (particularly
watching television), where they are systematically facilitated with healthy food choices, and exposed to good eating habits, the sum effect of their own behaviours is more likely to result in a healthy weight. Conversely, if home environment and parenting do not actively support these values, behaviours of parents and children are more likely to result in overweight. Behaviours known to lead towards becoming overweight include snacking on energy dense foods, greater engagement in sedentary activities (television watching) and avoidance of physical activity\(^5,88,89\).

### 1.4 Health Policy

'Policy' is defined (Oxford dictionary) as 'a course or principle of action, adopted by an organisation or individual.' It derives from the Greek 'polis' indicating city. Policy means the stated purpose or objective of a group of individuals, originally citizens of a city or state for example, but latterly including any group of organised individuals (eg health care professionals, concerned patients, political parties, or state agencies). Intention to act is implicit in policy, with a view to solving complex problems at a societal level. Policy includes initial observation and recognition of need, definition of a problem, conduct of experimental research to solve the problem, thence to confirmation of steps to be taken to resolve it.

The number of policy documents relating to childhood obesity is large, and originates from supranational, national and regional government, and from professional organisations and collaborations\(^90\). In considering policy on childhood overweight, we examine international policy, and then policy from Ireland.
1.4.1 International policy on childhood overweight

National policies from the United Kingdom (UK) and Denmark are of interest. There are clear similarities between Ireland and the UK (geographical proximity, similarities in health care and education, social and cultural similarities). In Denmark, rise in the prevalence of childhood overweight appears to have been stabilised (67), and aspects of Danish policy are considered on that basis. Consideration is also given regarding policy in The United States.

The United Kingdom: NICE Guideline 2006 on Obesity in Adults and Children

The NICE (National Institute for Clinical Excellence) Guideline on Obesity (Guideline No 43) \(^{(30)}\) was issued in 2006 (NICE 2006), and includes an 84 page guideline, as well as separate summary 'Quick Guides,' for the public, childcare facilities, schools, workplaces, and other health care professionals and administrators. A full range of interventions is considered in detail, ranging from identification of childhood overweight to bariatric surgery. It is asserted that professionals who advise individuals on overweight require to be trained to do so. It is advised that ancillary staff in general practice can be trained to provide systematic advice and guidance to overweight individuals. GPs are encouraged to view their service as being influential, beyond their clinical work. NICE Guidelines challenge GPs to act to an extent going beyond the consultation and the care of individuals and families. GPs are encouraged to develop partnerships with the community, enabling a broader approach to the challenges of the obesogenic environment, assisting sub groups of patients known to be disadvantaged, including those from deprived backgrounds,
and those from specific ethnic backgrounds, where risks posed by overweight are higher (eg families of Asian origin). Health care professionals are encouraged to engage with local authorities, schools, and even supermarkets, restaurants and cafes, ensuring a full range of activities and choices for individuals and families in the community.

Attention is given to the challenges in addressing childhood overweight, including concerns regarding confidentiality, stigmatisation, and respect for the self esteem of children. There is recognition of the challenges in evaluating and assessing the level of autonomy in the relationships between parents and children. It is pragmatically stated that addressing overweight is a long term process, involving the individual and a trained health care professional. Continuity should be supported through the use of good quality medical records.

Of particular interest is the assertion that it is up to the discretion of the individual clinician as to whether or not to check the weight of the patient. Systematic screening is not recommended. It is suggested that weight and height might be checked upon registration at a new practice, on the diagnosis of a condition where overweight is known to be relevant (Diabetes for example), or at the request of the individual patient.

This discretionary approach to checking weight is remarkable given the poor ability of both patients and health care professionals to identify if the individual is overweight \(^{22, 27, 28}\). Further, children do not usually ask to have their own weight
checked, and if they are a member of an obesogenic family, it is known that their parents are also unlikely to ask either. Arguably the GP, acting in the interest of the child, could be considered to have a greater onus to act in this context.

NICE identifies the age range of 2 to 5 years as being important in terms of positively influencing the child’s eating habits and behaviours. BMI adjusted for gender and age is recommended as the criterion for determining the presence of overweight, with reference to the 91st and 98th centiles in the UK 1990 BMI charts, for the purpose of defining overweight and obesity respectively. These are pragmatic rather than evidence based criteria.

Denmark

Danish policy has included use of taxation as a policy tool to reduce overweight, and use of planned consultations between GPs, parents and children (Preventive Child Health Examinations). Denmark utilised its presidency (2002) of the EU to highlight childhood overweight, organising a European conference on obesity as an emerging public health concern (91).

In 2011, a tax was levied on foods with high levels of saturated fats as part of Danish policy. Introduction of the tax caused strong public reaction. Reaction included a shift in shopping patterns, where Danish citizens travelled to Germany for food shopping. Reaction was felt to be especially upsetting given the importance of agriculture and the food industry in Denmark, and the extent to which farming and food is part of Danish national culture. The tax was controversial, and discontinued in 2013.
Preventive Child Health Examinations (PCHEs)\(^{68,92}\) are a feature of Danish General Practice since the 1990’s, and they are attended by a majority of children and parents, with attendance rates ranging from 77% to 94%. Predictors of non attendance include work and educational status of mothers, and number of siblings (more siblings are associated with lower attendance). Socioeconomic status of the family was inversely correlated with attendance, as was single parent as opposed to two parent households. Examinations include checking of weight, and are scheduled at 5 weeks, 5 months, and at 4 and at 5 years.

Results from a large study (n = 33,245 Danish schoolchildren)\(^{67}\) demonstrate stabilisation in prevalence rates of overweight in successive cohorts of schoolchildren aged 5-8 years, during the years 2002-2007. Prevalence of overweight (including obesity) in young girls decreased from 17.8 to 15.9%, and in boys, from 14.0 to 11.6%.

These aspects of Danish policy indicate strong willingness at a national level practically to address childhood overweight. It is reassuring to observe evidence of stabilising prevalence of childhood overweight. In the context of this study, it is interesting that rising prevalence of childhood overweight appears to be halted in Danish society, where a programme of systematic health checks, is carried out which includes GPs checking weight and height of children. It is not possible reasonably to conclude that PCHE's have been responsible for stabilising prevalence of childhood overweight. Perhaps it may be that a natural end point in the rise in prevalence of
childhood obesity has occurred, independent of any intervention, or that other factors separately or in conjunction with the PCHEs have effected the stabilisation.

But it is known that in Denmark, GPs routinely check the weight of most children in a systematic manner.

Policy in the US.

US policy is expressed by several agencies, including The Centers for Disease Control, The Office of the Surgeon General, and The American Academy of Paediatrics.

The Centers for Disease Control (CDC) is an agency funded by the Federal US Government, established in 1964. It has a widening brief in health promotion, disease prevention and ‘preparedness.’ Funded by the Federal US Government, it is influential on a global scale. It traces its origins to the 1940s, to the wartime agency MCWA (Malaria Control in War Areas), the original purpose of which was ‘fighting malaria by killing mosquitoes.’ This penchant for military metaphors has survived to the present day. The CDC refers to childhood overweight as one of its ‘Winnable Battles.’

CDC policy mostly relates to schools, physical activity, and healthy nutrition. It does enjoin adults to ‘talk to your doctor to see whether you are at an increased risk and whether you should lose weight. Your doctor will evaluate your BMI, waist measurement, and other risk factors for heart disease.’ This advice must be considered in the context of US healthcare, where even in 2014, access to a Doctor for a substantial proportion of the population remains difficult. Under legislation (effective October 2013), this may change, but the extent to which these policy
recommendations can be acted upon by American citizens remains uncertain, particularly economically marginalised citizens at greatest risk of becoming overweight. CDC policy does not recommend systematic weighing of children by health care professionals; the implication is that it is up to individual families and individuals to drive this issue, which appears an unlikely premise.

The Office of the Surgeon General

The Office of The Surgeon General directly provides American citizens with the best scientific information available on how to improve their health and reduce the risk of illness and injury (93). As such, it may not be strictly considered a source of policy, but given that it purports to advise Americans, and does so in considerable detail, and the Surgeon General is a political appointee of the President, it is included here on the basis that the advice given is reflective of US policy.

Emphasis is placed on encouraging healthy lifestyle, in the workplace and in schools. The '2010 Obesity Vision' (94) has several recommendations on the role of clinicians regarding childhood overweight. These include clinicians having appropriate resources in clinics to assist individuals maintain healthy weights, and the willingness and ability of clinicians to refer patients appropriately to registered dieticians, health educators, counsellors, psychologists, and fitness professionals. It is simply stated that Clinicians 'should' measure the BMIs of adults and children, but universal screening for childhood overweight is neither described in detail, nor clearly recommended.
The International Obesity Taskforce

The International Obesity Taskforce (IOTF) was convened in 1995. It is influential, particularly at the World Health Organisation (WHO), where the early work of the IOTF was adopted in 2000 as the WHO TRS 894 Report ‘Obesity – Preventing and Managing the Global Epidemic.’ This has been endorsed by other relevant global organisations, including the International Paediatric Association, and The Federation of International Societies for Paediatric Gastroenterology, Hepatology and Nutrition. Policy elaborated by the IOTF is therefore important, given the broad and international nature of expertise evident among the 11 sub committees of the IOTF, and the inputs solicited by the IOTF from a range of international experts.

In 2004, the IOTF recognised the particular importance of childhood overweight through the publication of findings of its Childhood Obesity Sub Group in Obesity Reviews (73). This report describes difficulties evident in both affluent and impoverished societies. Recommendations on screening in the primary care setting are of especial interest.

Screening in schools and in clinics is the subject of qualified recommendations. It is noted both environments may be suitable, contingent on availability of trained individuals, and on reliable and standardised approaches to weighing. With respect to systematic checking of weight in practice, no clear recommendation is made, but reasons are presented for and against systematic screening with reference to the incomplete but evolving evidence base. Need for further research is stressed, with the caveat that screening children for overweight remains ‘controversial.’
The World Health Organisation

WHO policy emphasises encouraging physical activity among children, adolescents and adults. There is no direct recommendation on systematic screening of children.

By comparison, current policy from WHO-Europe clearly advocates close surveillance and screening for overweight among children. WHO-Europe strongly calls for systematic screening of children aged 5-7 years for purposes relating to service planning, public health and evaluation (WHO Europe Factsheet No 5 2013). A more recent elaboration of this is described in ‘Population based approaches to prevention of Childhood Obesity (WHO Europe 2012) which calls specifically for ‘opportunistic screening and case-finding programmes for diabetes, hypertension and overweight.’

This stated objective of screening in the European context may reflect the point of view that such screening is more feasible in European societies, which overall have well developed health care services. This objective reflects Danish experience with the 5 yr Primary Care Health Check. WHO Europe advocates such screening in order to ‘tackle and monitor the obesity epidemic in children.’

1.4.2 Irish Policy on childhood overweight

It is clearly understood that large costs arising from overweight and obesity will be incurred in Ireland in the intermediate term. A recent estimate quantifies these as being in the order of €2.55 billion per year (2012). Childhood overweight was first
substantially reflected in Irish national policy in The Report of the National Taskforce on Obesity in 2005 (91).

The Report was the outcome of 5 years of reflection by The National Taskforce on Obesity, established by the Irish Government to devise national policy in response to increasing prevalence of overweight in Ireland, with reference to international literature, and with reference to submissions invited from interested organisations and individual citizens. While driven by State agencies (The Department of Health and Children (DoHaC) and The Health Service Executive (HSE)), the Taskforce was successful in drawing in the experiences of a wide range of diverse interests within Irish society, including The Irish College of General Practitioners (ICGP) (Submission of the ICGP to the National Taskforce on Obesity 2004) (98).

The Report looks back to previous relevant Irish policy, including The Nutrition Health Promotion Framework for Action (1991), Recommendations for a Food and Nutrition Policy for Ireland (1995), The Twelve Year National Healthy Eating Campaign, The Cardiovascular Strategy ('Building Healthier Hearts') (1999), The National Physical Activity Campaign, The National Play Policy for Children, and The National Obesity Campaign (2004). In considering these policies, it is clear there is progression from an earlier focus on adequate nutrition for children, towards concern regarding the rising weight of both children and adults. The Executive Summary of The Taskforce Report delivers recommendations on a sectoral basis, including the Health Sector, which is subject to 24 recommendations. The first of these includes a decision to effect a formal shift in emphasis from the placement of
personal responsibility on the individual towards the creation of environments which support healthy food choices and physical activity.

Specific recommendations are directed at health care professionals working in primary care with children and parents. These include broad recommendations that measurement of height, weight, waist circumference and calculation of BMI should be part of routine healthcare practice in both hospital and in primary care practice (p 91). Further, that the capacity of individuals in choosing to manage their health and well-being are strengthened by knowing their height, weight, waist circumference and BMI. ‘This can be achieved in partnership with their GP and health care providers in the primary care team.’ Screening for childhood overweight is not actually recommended however.

Further recommendations outline steps to be routinely taken by health care professionals in the course of antenatal care, infancy, immunisations, early childhood through to adulthood, during which periods it is recommended and expected that serial measurements of height and weight are taken. In particular, checking the weight of the child is recommended from the post partum check.

It is further recommended that ‘assessments’ should be carried out in the school setting at 4-5 years, at 9-11 years and at 14-16 years, although the content of such assessments is not detailed, and they are to be carried out by ‘School Health Services,’ engaging with relevant health care professionals. The extent to which ‘School Health Services’ actually exist and operate in Ireland is unknown.
A particularly pertinent recommendation (No 4, p 93) of the report is that formative research requires to be carried out to ensure that programmes are tailored to meet the needs of the target population.

Current Irish policies on childhood overweight in Irish Healthcare

The Department of Health, through the agency of The HSE, has acted on the policy elaborated by The National Obesity Taskforce in devising a guideline with The Irish College of General Practitioners. This draws on the NICE 2006 Guideline from the United Kingdom. It is published and maintained on the website of The Irish College of General Practitioners (ICGP HSE Weight Management Treatment Algorithm for Children 2012) (99). It appears as a brief but clear guideline, referring to several health care professionals, is therefore multidisciplinary in its approach, and encompasses several settings, including primary care, school and hospital services. Further, it acknowledges and simply addresses the difficulties and the relevant strategies in raising the issue of childhood overweight in discussions with children and parents. The guideline is accompanied by the UK 2-18 year age gender centile charts, recommended as the reference standard for the determination of childhood overweight.

A weakness of this algorithm is that it is descriptive only, clear on tasks to be carried out, but without stipulating the extent to which overweight is to be systematically screened for. The approach is conceptual rather than based on managed care, with limited identification of clear cut screening targets, recalls, reviews and clear definitions of target groups for such screening. There is clear direction on the
identification of very overweight children, those who are obese, with direction to refer these from primary care to specialist secondary care services. Such children are still a small minority; there is little in the current guideline regarding the larger minority of children who are overweight but not yet obese.

Further, the start point for much activity relates to Public Health Nurses and School Nurses. It is questionable that all schools have nurses. It is questionable that Public Health Nurses or School Nurses have time to carry out systematic screening for childhood overweight in the manner implied (but not defined) in this algorithm. It is arguable whether the school environment is best to screen for childhood overweight, which, if selected as the locus of screening, will occur in the absence of parents. A significant omission is the absence of three clear screening points, such as those originally identified in the recommendations in Report of the National Taskforce on Obesity for example. What is described is largely process, as opposed to a plan based on target populations and screening intervals.

1.5 Interventions

Consideration of interventions is important. Unless the identification of overweight leads to interventions which are effective in reducing harms associated with overweight, screening children for overweight would be both unethical and futile. Interventions are considered with reference to systematic reviews on interventions on childhood overweight, and with selected reference to individual clinical studies and trials.
1.5.1 Systematic Reviews

There are several systematic reviews of interventions for childhood overweight. The Cochrane Collaboration includes a review of interventions, drafted in 2005 and revised in 2011. This is an important review because it is recently revised, and the methodology in conducting the review is robust, transparent and standardised. Elsewhere, other systematic reviews have been conducted. A detailed analysis of these is beyond the scope of this thesis, partly because of the very large number of interventions studied, and because the focus of this study is not primarily on the efficacy of intervention, but on acceptability to parents, children and GPs, of GPs checking the weight of children.

The Cochrane Review focused on interventions for prevention of obesity in Children, and included 55 studies of 27,946 children, most involving school children, with a controlled study design, and running for 12 weeks or more. In the Cochrane Review (2011), it is noted that only 8/55 studies referred to adverse effects, confirming a key value relating to this thesis, and underlining the lack of importance ascribed to parent and child acceptability when considering interventions with overweight children.

There is a clear progression between the 2005 and 2011 Cochrane reviews. The later review is more positive regarding the beneficial impact of child obesity prevention programmes on BMI. This relates however to studies largely conducted in the school setting, particularly those targeting changes in school curricula resulting in more physical activities, the development of activity related skills programmes,
improvements in nutritional quality of food available in schools, and studies targeting parents with support in home based activities encouraging better nutrition, increased activity and reduction in sedentary pursuits. The 2011 review is clear in concluding that there are a range of interventions which have convincingly demonstrated modest beneficial effects on BMI and on reported activities, including increased physical activity and some improvements in dietary intake.

Other reviews conducted on childhood overweight and interventions in childhood overweight include the following.

Daniels 2006 (15) Selective but comprehensive review reporting on links between childhood overweight and specific pathologies; extensively referenced.

Lindsay 2006 (100) Harvard review of interventions targeting parents, concluding that parental involvement is highly important.

Doak 2006 (101) Review of 25 school based interventions, based on anthropometric outcomes, examining efficacy in weight reduction; 17/25 were effective, particularly those targeting reducing TV watching and increasing activity.

Little observation on acceptability or on role of general practice.

Fayter 2007 (102) Review of 51 studies on growth monitoring of school children; UK based review; no controlled trials identified. Growth
monitoring is feasible, for both obesity and short stature, but absence of effective intervention for obesity precludes recommending screening for overweight at this point.

McGovern 2008 \(^{(103)}\) Review of 76 trials; monitoring BMI alone was ineffective, small effect with studies focused on physical activity, demonstrating small reduction in BMI.

Whitlock 2010 \(^{(104)}\) Review of 15 trials, comparing behavioural approaches with medication based interventions. Best outcomes with ‘moderate intensity’ behavioural approach, these having fewer reported harms than medication based approaches.

Pocock 2010 \(^{(105)}\) Review of 21 qualitative studies of parental perceptions of early life strategies for primary prevention of overweight in young children. Many themes related to barriers, but consensus among parents included earliest interventions are desirable. Further, where possible, intergenerational influences should be considered; interventions might involve more than just parents where possible.

Schwarz 2011 \(^{(12)}\) Non systematic review; clinical review focused on therapeutics. Family based / school based behavioural approaches are effective and work best.

Gortmaker 2011 \(^{(90)}\) Non systematic review, focused on cost efficacy of approaches, emphasising rankings from Australian Accessing
Cost Effective (ACE) strategies for obesity approach, which in turn rates GP mediated family based programmes as a mid range efficacy strategy.

NICE 2006/11 (30) ‘Many studies of interventions to prevent and manage obesity were of short duration, with little or no follow-up, were conducted outside the UK and poorly reported. There is an urgent need for randomised controlled trials (or other appropriately designed studies, in line, for example, with the ‘TRENDS statement’), with at least 12 months’ post intervention follow-up.’

Skouteris 2011 (106) Parental influence and obesity prevention in pre-schoolers: a systematic review of interventions. Studies to date are unsatisfactory, and research in this important area is ‘in its infancy.’ Obesity Reviews 2011; 12:315-328.

Evans 2012 (107) Review of 27 school based interventions on increasing fruit and vegetable intake; outcomes better for fruit but not vegetables.

Weng 2012 (18) Review of 30 studies examining for identifiable risk factors for overweight during infancy. Strong associations for high birth weight and rapid weight gain during first year of life, and weaker association with bottle as opposed to breast feeding.
Bhattarai 2013 (3) Review of 10 trials (12, 414 participants) examining impact of primary care interventions promoting healthy diet, higher in fruit and vegetables, low in fat, of greater than 1 year duration, and limited to over 16 year olds. Trials yielded small changes. Outcomes were self reported dietary change and serum cholesterol levels.

1.5.2 Clinical Interventions

There are many single studies reporting on clinical interventions, some of which are selectively referred to below.

Routine questioning is relevant to this thesis because it relates to ability of GPs to ask and enquire beyond the issues which the patient presents with. Routine questioning can be taken to mean asking about and measuring the weight of children, even when they are attending for an unrelated matter.

An early study by Barrie (1997) (108) with Australian GPs, found GPs could ask and obtain answers to routine questions in the consultation, but that this was less so in single handed practices than in group practices. Bradley (2002) (109) explored the acceptability of GPs questioning women on the sensitive issue of their own history of personal exposure to violence. This study observed a high prevalence of such experience among a sample of women studied. It also found GPs clearly had reservations asking about it, but that when women were surveyed, they indicated they favoured their Doctor asking about it.
Moving to interventions on overweight in children, an early paper from The LEAP (Live Eat and Play) Study in Australia includes data from a descriptive study by McCallum (2005)\(^{(38)}\), confirming that it is feasible for GPs successfully to engage in systematic checking of height, weight and BMI of children in practice. In a general practice based interventional Australian study (KOALA – Kinder Overweight Activity Lifestyle Actions)\(^{(110)}\), it was noted outcomes were disappointing, given GPs recruited to the study were most reluctant to refer overweight children for the intervention\(^{(63)}\).

Sacher\(^{(111)}\) reports on a pilot study on MEND (Mind Exercise Nutrition and Diet). The outcomes included reductions in waist circumference and BMI z scores among a small sample of obese 7-11 year olds, with BMI z scores between 85\(^{th}\) to 95\(^{th}\) centile. The study was conducted in community based paediatric clinics. The intervention included motivational interviewing, with participants randomised into control, minimal (Physician) and intensive (Physician + Dietician) intervention. At 6 months, reductions were evident in all three groups, and were greatest in those receiving intensive intervention; however, among those in the intensive intervention group, the dropout rate was 50%. Though somewhat promising, the high dropout rate raises concern regarding acceptability. The short follow up period is a further limitation of this study.

Golley\(^{(112)}\) reports positively on efficacy of the Triple P Programme, an intensive parent/family approach to managing childhood overweight, originally outlined by Sanders (1999)\(^{(113)}\). This was a randomised assessor blinded trial involving 111
families with overweight 6-9 year olds. Outcomes included improvement in reported activity levels and reductions in BMI z scores at 12 months. This approach is now being piloted in Ireland, partly based on GP case finding in the community, and referral of obese children and their parents to a regional Triple P Programme. Attractive features of Triple P is that it addresses the issue of childhood overweight in the context of the obesogenic family, it is strongly focused on relevant parenting skills rather than on the weight of an individual child, and it is run as a community rather than a hospital based activity. A limitation of Triple P is that it is relatively resource intensive, in terms of costs per family recruited, and in terms of the input required of each participating family.

A later report on LEAP by Wake (2009) (70) concluded the intervention (four standard consultations over 12 weeks targeting change in nutrition, physical activity, and sedentary behaviour, supported by educational materials) was not effective in reducing BMI at 6 and 12 months, and further, would be too expensive to implement. This conclusion is at odds with an earlier report by Moodiea (2008) (114), concluding with some reservations that the intervention actually was cost effective.

Interventions based in school have been described. Grimett (2008) (115) reports a study conducted in London, among primary school children and parents (n = 287), examining school based screening, and communicating outcomes to parents. Over half of parents invited opted not to participate. Among the minority who did, 50% of those whose children were overweight reported positive change in health related behaviours (eating habits and exercise); no long term data were presented in
relation to changes in BMI. The poor level of uptake among those eligible to participate again raises concern regarding acceptability.

Madsen (2011) reports outcomes of a primary school based intervention (n = 6,967), where school based BMI z score screening results were communicated to parents, and it was assessed whether notifying parents of their child's BMI in a given year predicted changes in BMI z score at 2 years. Only 73% of those eligible to participate did so, and among the overweight, notification of overweight to parents had no impact on BMI at 2 years in this group. School based interventions have been identified as being potentially important in addressing childhood overweight, but the outcomes from this study clearly indicate relatively poor uptake and engagement by parents, and no change in the key outcome, ie changes in BMI, at 2 years.

Taveras (2011) reported on the impact of High Five, a two year controlled intervention involving multiple contacts with overweight children (2-6 yr olds) in a Community Paediatric Clinic setting. Intervention comprised motivational interviewing by self selected clinicians, with educational modules on television viewing, fast food and sugar sweetened beverage intake. Results at 1 year were modest; intervention was effective in reducing television viewing, but not BMI. This study involving self selected Community Paediatricians included a moderately intense intervention, but outcomes were modest, and with no impact on BMI at 1 year.
Wen (2012)\(^{118}\) reports on a randomised controlled trial (‘Healthy Beginnings,’ – a high intensity intervention in deprived urban Australian setting) on effectiveness of home based early intervention, by home based Community Nurses on children’s BMI at age 2, including first time mothers and toddlers (n = 667); intervention (8 home based visits by community nurses over 2 years) was effective in reducing BMI. Of 667 included, only 487 (75%) completed the study. Mean BMI in the intervention group (16.53) was significantly lower than that in the control group (16.82), a difference of 0.29 (95% confidence interval –0.55 to –0.02; P=0.04). While this reduction in BMI was statistically significant at 2 years, a longer study period with sustained intervention may demonstrate greater changes in BMI over time.

Resnicow (2012)\(^{119}\) reports on the design for a study examining motivational interviewing among overweight (BMI 85-97\textsuperscript{th} centile) 2 to 8 year olds (The BM12 Trial). This US study with community paediatric clinics reports outcomes which will include child’s BMI percentile at 2-year follow-up and parent report of the child’s screen time, physical activity, intake of fruits and vegetables, and sugar-sweetened beverages. The intervention includes Physicians and Dieticians engaging in Motivational Interviewing techniques with parents of overweight children.

Fox (2011)\(^{120}\) reports on Smart Steps, based on multidisciplinary training of clinic staff to engage on diet and activity modification with parents of children aged 8-12 who were overweight but not obese. Good outcomes were evident at 6 months, with marked improvement in BMI z scores.
In addition to these single intervention studies there are several examples of well elaborated conceptual approaches described, including the Common Sense Model (Breland 2012 / Phillips 2012)\(^{121,122}\), and the Brief Intervention Model. The use of these approaches has been described in relation to problems where changing the behaviours of patients has been considered important in the context of prevention, including smoking cessation, use of alcohol and overweight.

The Common Sense Model is based on the presentation of information to parents with a view to ensuring they are aware of the issue or threat (in this instance confirming the child is overweight), that they can usefully understand the causes of the problem (in this instance inactivity and overeating), that they understand the consequences of the threat (in this instance the complications and long term risks of childhood overweight), and that they understand what strategies are available and useful to them. The Common Sense Model also involves ensuring that parents understand the timelines involved in addressing the threat. Overall this is a comprehensive approach, and in many respects implies a longer time frame in dealing with the problem than is apparent in the interventional studies described above in childhood overweight. It is of particular interest here that the first step relates to ensuring that the patients are clearly aware of the issue or threat, which in the context of this study relates to checking the weight of the child.

The Brief Motivational Interviewing model has been used in a wide range of contexts, and increasingly is known to fit well with clinical practice. Its use in addressing overweight in younger patients is well described (Berg-Smith 1999)\(^{123}\) in
the DISC (Dietary Intervention Study in Children) Study from the US, involving 8-13 year olds (n = 334), run over 3 years, using a family based approach, the outcomes being acceptability to those delivering and receiving the intervention, and positive changes in LDL Cholesterol. Motivational interviewing integrates several intervention models, including stages of change, interviewing theory, brief negotiation and behavioural self-management.

Summarising, on reviewing the international literature, there is a wide variety of actions described, ranging from national policy, planning (the ‘built environment’), advertising, regulation of the food industry, of the school environment, and a broad range of single interventions in secondary care, in schools and in primary care, none of which interventions are singly highly effective, but which cumulatively give grounds for optimism. On reviewing the evidence for intervention, there are several aspects of studies reported which are of concern, and which may partly explain limited progress to date in prevention and management of childhood overweight. These are the short duration of most studies, and difficulties with non participation and acceptability. From the perspective of general practice and primary care, the design of studies has frequently been determined by disciplines other than General Practice. Finally a concern exists where high intensity interventions may be too expensive to make available to the substantial proportion of overweight children.

1.6 The role of general practice

Individuals using primary care view it as personal care, with the expectation that those providing care (‘their’ GP, or Practice Nurse) will know them as individuals, and
be familiar with their personal circumstances. Efficacy of service is important, and the extent to which GPs and practice teams can systematically and usefully engage in screening for childhood overweight is debatable. This is especially relevant in addressing an issue known to be a sensitive topic for parents and for children. 

It is clear from evidence considered in the previous section that there is a growing and wide range of interventions which can be delivered in general practice, and which are likely to contribute in individual cases of childhood overweight. In cases of obesity, the role of general practice may be to identify and refer on to secondary care, using a rule based approach, and guided by referral on the basis of BMI z score cut offs, as per the HSE ICGP algorithm. In the far more prevalent problem of overweight children, the role of general practice may be to identify such children, in a reliable and systematic manner, and to support them and their families by providing a managed care process, characterised by invitations to review, provision of appropriate information, direction towards family based support and education within the practice or made available in the community, and to subject the process to coding in the electronic medical record, clinical audit and systematic patient feedback on acceptability and outcome.

Before these issues are properly considered, it is desirable to ascertain the extent to which it is acceptable to parents and children for the GP to ask about the weight of the child. This is the start point for the process of subjecting the primary and secondary prevention of childhood overweight in general practice to a managed care
model, the scope of which will need to extend to a longer time frame than is usual in most of the interventional studies reported to date.

Ireland is among the lowest ranked of OECD countries in terms of number of GPs per 1000 of population (0.5 per 1000, compared with OECD average of 0.8 per 1000 in 2009)\(^{125}\). This deficiency is of greater concern given the capacity of GP training, and supply of GPs to the workforce \(^{126}\).

At the level of the child and parent, it is in attending their GP that they will encounter the earliest opportunity for reliably checking the weight of the child. However, it is not known if it is acceptable to parents, children and to GPs, for the GP to routinely check the weight of children. Given the proposed involvement of GPs in assisting with the management of childhood overweight, the insights, concerns and experience of Irish GPs regarding their own practice in checking the weight of children, and in managing childhood overweight, are also important, but are not known.

**1.7 Study rationale and study aim**

Childhood overweight remains an important health concern, associated with increased probabilities of long term increases in morbidity and mortality. Interventions to date show limited but growing levels of efficacy. Some population based evidence exists demonstrating stabilisation in rising prevalence of childhood overweight in some countries.
Duration of studies reported, together with participation rates in interventional studies, and doubts regarding acceptability of checking the weight of children among children, parents and GPs all appear as limiting factors in studies conducted to date. Acceptability is particularly evident in the concept of antifat bias attributed to healthcare professionals, including GPs, previously described.

There is therefore a need to conduct a study which particularly explores the issue of acceptability to children and parents of the GP checking the weight of the child, given that this is the first step in putting in place any other additional measures relevant to managing childhood overweight in clinical practice.

Conducting a study on acceptability directly addresses an important recommendation of the National Taskforce on Obesity (2005)\(^1\), where it is stated there is a need for formative research on service development in the management of childhood overweight.

The aim of this study is to ascertain if it is acceptable to parents, children, and GPs, for the GP to systematically check the weight of children, where parents and children are attending the GP for unrelated routine care.

### 1.7.1 Study hypotheses and objectives

**Study hypotheses**

It is hypothesised that GPs are unwilling to check the weight of children, primarily due to their own concerns regarding upsetting and distressing parents and children,
but that when the weight of the child is checked, parents and children are not upset or distressed.

Objectives

The objectives of this study are as follows:

First, to conduct a survey of a representative sample of Irish GPs, ascertaining their insights, concerns and experience in checking the weight of children, and their experiences in assisting parents and overweight children in managing childhood overweight.

Secondly, to conduct a general practice based study where the weight of a representative sample of children attending their GP is checked. Following this, parents will be surveyed, seeking their observations on how checking the weight of the child impacted on them as parents, and on how they believed checking the weight of the child may have impacted on the child.

1.7.2 Study process map

There are two parts to this study:

1. Survey of GPs
2. Practice based study on parents and children.

1. Survey of GPs

Survey of a 20% sample, randomly selected from a national listing of Irish GPs, focusing on:

• their insights, concerns and expectations regarding management of overweight children,
• their practice in this area of care,

• their beliefs regarding how their management might be improved in the future.

• Postal survey, sent in 3 mailings with a separately returned response card.

• Survey instrument based on that previously used by Dettori (63), modified and piloted.

• Ethical approval received from the Irish College of General Practitioners.

2. Practice based study on parents and children

Study on parents and their children attending the GP for unrelated care:

• Conducted in 10 purposively selected General Practices, involving 11 GPs.

• Checking the weight of a sample of 500 children aged 5 to 12 years, attending for routine care.

• Pilot methodology.

• Ethical approval received from Irish College of General Practitioners.

Telephone survey of parents at 1-2 weeks post consultation to ascertain their views on checking the weight of the child.

Sub group analyses of parental and child responses to being weighed, based on

• Distribution of weight categories among the children.

• Socioeconomic status of children, determined by medical card eligibility.

• Age of children
CHAPTER 2 METHODS

2.1 General considerations regarding methods

The study method reflects the intention to address the hypotheses from the perspectives of GPs, parents and children. The hypotheses are that General Practitioners are unwilling to check the weight of children due to their fear of upsetting children and parents, but that children and parents are not affected when the weight of the child is checked.

In order to answer the research question effectively, test the study hypotheses, and allow the communication of conclusions relevant to clinical care, the method selected would require to be such as to ensure high levels of recruitment and participation among appropriately defined samples of GPs, parents and children, identified for the purpose of the proposed study.

2.2 Summary of method

A summary description of the method is given here, for the purpose of clarity and ease of comprehension.

<table>
<thead>
<tr>
<th>Target Populations</th>
<th>Method Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1 GPs</td>
<td>Postal questionnaire survey of a 20% sample of Irish GPs (n = 527)</td>
</tr>
<tr>
<td>Part 2 Parents and Children</td>
<td>Practice based observational study, carried out by 11 GPs in 10 practices checking the weight of a sample of children (n = 500). Subsequent post consultation telephone survey of parents, conducted by a Research Assistant, external to the practice.</td>
</tr>
</tbody>
</table>
2.3 Selection of method

Selection of methodology is considered in two parts, relating to the first and the second part of the study. The first part includes selection of methodology suitable to study the insights, concerns and expectations of General Practitioners. The second part includes selection of a methodology suitable to study the impact and acceptability of checking the weight of children by GPs, among a representative sample of parents and children.

Part 1 - Selection of Methodology for study on General Practitioners

In selecting a methodology suitable to ascertain the insights, concerns and experience of GPs in this area of care (ie the current practice of GPs in their management of childhood overweight), and to test that part of the study hypothesis relating to GPs, several different approaches were considered.

These included the following:

**Qualitative Approach**
- Focus groups
- Semi Structured interview techniques
- Delphi Analysis

**Quantitative Approach**
- Questionnaire survey
- Practice based observational study
- Randomised controlled trial
Qualitative research methods (usually based on open ended questions) are particularly relevant in observing personal attitudes, which may not always be easily or fully expressed or captured in response to quantitative research methods (usually based on closed survey questions or objective measurements). The Delphi method is considered as a tool for the achievement of consensus within a group, and thus might be more appropriate were the study objectives to devise a clinical guideline among a group of experts, as opposed to ascertaining a cross sectional view of the insights, concerns, and expectations of a representative sample of individuals.

The aim, objectives and study rationale of the study require a study of General Practitioners, descriptive of the practice of all General Practitioners in this area of care. Further, the study hypothesis which especially relates to this part of the study (ie that General Practitioners are influenced by parents in their practice regarding childhood overweight and obesity) seeks to ascertain the extent to which all GPs might be influenced in their practice, as a result of fear of negative reaction to routine weighing from parents and children.

Given the importance of fear of negative reaction among GPs, it was felt overall that a quantitative methodology, applied to a substantial and representative sample of General Practitioners was most appropriate to the aims and objectives of this part of the proposed study. Quantitative approaches, using a tightly defined set of responses or outcomes, enable the capture of data which may be more limited, but which are more easily analysed and interpreted. Quantitative approaches increase the possibility of including a greater number of standardised observations. For this
study, a quantitative approach would enable the inclusion of a larger number of GPs, rendering the results and conclusions more representative and more broadly applicable to the GP population. Given that this part of the study is directed at ascertaining the insights, concerns and experiences of GPs, who are regarded as autonomous and enfranchised individuals, with a professional education extending to fourth level in most instances, it was determined to be acceptable and appropriate to enquire directly, using a questionnaire instrument, for this part of the study. It was felt that even if the subject matter of the study was complex, detailed and emotive, the levels of expected literacy and the educational background of the respondents would nonetheless ensure a good level of response. Consideration was given to responder bias, and this was addressed through the use of an explanatory letter of invitation to participate, where it was made clear the survey was confidential. Selection of methodology for this part of the study was conducted with reference to the relevant research literature, and on the basis of serial discussions with the Department of Public Health and Primary Care at Trinity College Dublin, The National Children’s Research Centre, and clinical colleagues from two GP networks (TCD HSE GP Training Scheme / The Kildare Faculty of The ICGP).

Review of the research literature for this part of the study was based on a search of the Journal of The Royal College of General Practitioners / British Journal of General Practice from the year 2000 onwards, together with online searches of Google Scholar and Pubmed using the search terms childhood overweight, General Practice and primary care. This approach, which clearly places emphasis on literature from the UK, was undertaken given the similarities known to exist between practice
population in Ireland and the United Kingdom, and the relevance of UK based
general practice research to Irish General Practice.

Nonwithstanding the assertion of Brown, in the Mackenzie Lecture to the RCGP in
2006 refers to that there was a paucity of primary care research in this area of care,
several studies were identified from the research literature which examined the
insights, concerns and experiences of GPs, and where relevant methodologies were
explored, described, and commented upon, including the following.

An early study by Cade (1991) reports an early study examining GPs' knowledge, attitudes and current
practice in overweight and obesity management was reported in the BJGP. The
methodology used here was that of a postal questionnaire survey administered to a
sample of 400 GPs randomly selected (use of random number tables) from family
practitioner committee lists from two areas in the UK (Norwich and East Anglia). The
survey instrument was mailed, a reminder was sent at three weeks to non
responders, and telephone reminder was also carried out at 8 weeks. This study
reported a 75% response rate (n=299). While this response rate is impressive, the
study was conducted at a time when survey fatigue among General Practitioners
may have been rather less than it is now. High participation/response rates in this
study may have related to a more practical though limited approach to data
collection (simple questionnaire), restricted to closed questions, examining GPs' attitudes to overweight/obesity, their self-reported level of competence in dealing
with overweight and obesity in practice, and their approach to this issue in their
current practice.
Campbell et al (2000)\textsuperscript{(128)} reporting on Australian GPs attitudes and practices in the management of obesity utilised a cross sectional study method. This study also employed a questionnaire which was based on an original, which in turn had been previously used by the same study team to survey Dieticians (Campbell 2000)\textsuperscript{(59)}. In describing the questionnaire design, the authors observed they recognised the need for a survey instrument which could be completed quickly (in under 10 minutes). Their questionnaire design included sections on profile of GP respondents, GP views on weight management, GP beliefs regarding successful management in this area of care, GP views on the use of pharmacotheraphy, strategies GPs currently employed in this area of care, and what GPs regarded as problems in this area of care. The original questionnaire was shortened, subjected to pilot (n=24), and administered to a sample of Australian GPs. The sample was obtained by taking 6.25% of GPs, selected randomly from a membership listing of Members of the Royal Australian College of General Practitioners. This sampling frame did include Trainees and retired GPs. The sample included 1,500 GPs. The survey was mailed, with non respondents receiving one further mailing at 3 weeks. The response rate reported was only 51%, which does call into question the value of the data collected, and the extent to which it can be considered representative.

Boquier (2005)\textsuperscript{(61)} studied a sample of French GPs on their clinical approach to obesity and overweight. The method in this study employed a telephone survey, administered to a sample of 600 GPs in southern France. The survey comprised 4
parts, and took approximately 30 minutes to administer. It was administered to a sample taken from a listing of 5,435 private GPs in Provence, with the sample selected on the basis of a random selection of a stratified sample (based on gender, age, practice size), which generated a list of 1,200 GPs. Invitation to participate resulted in only 600 GPs agreeing to participate. This study examined GP management of overweight, as opposed to childhood overweight. In considering the results, it was felt that the time taken to participate in the survey by individual GPs may have been a factor in the poor response rate. From the perspective of acquiring representative and therefore more generalisable data, it was felt that higher participation rates were essential. It was also felt that using the method outlined by Boquier et al would be costly to conduct, to record, and to analyse, given the volume of data from a large number of telephone surveys, given that the content from each survey was large, with each survey comprising 4 sections, each with multiple individual items, and the whole generating data which were likely to be heterogeneous and therefore challenging to analyse.

Walker (2007) conducted a UK based study on the views of General Practitioners and Practice Nurses on childhood obesity, using a qualitative methodology. This study included data from 12 GPs and 6 Practice Nurses. The approach taken was that of face to face semi structured interviews. Interview content did reflect aspects of the Quality Outcomes Framework (QOF), given that ascertaining the opinions of GPs and Practice Nurses regarding the inclusion of specific service items under the QOF was one of the objectives of the study. It is evident from data that those participating in the study provided thoughtful and considered observations for
analysis. However, invitation to participate was extended to 39 practices from a single Primary Care Trust, from which only 18 participants from 11 of the practices responded. While the results presented do include valuable insights into the management of Childhood Overweight in the Primary Care setting, data from such a study as this must be interpreted in the context of the relatively high level of non participation among those eligible to be included. The list of questions selected by Walker et al was felt to be relevant to the study however, and was helpful in determining the content of the survey instrument for the current study.

King et al (2007)\(^{(62)}\) reported a study on the perceptions of Australian GPs on their management of childhood overweight. The approach taken here was also that of a qualitative study, including 26 GPs in 4 focus groups. Participants for the focus groups were recruited through the local division of general practice in each of 4 areas within New South Wales, selected to provide geographical and demographic variation. It is not clearly reported how many GPs were invited, and hence the extent to which data from this study can be considered broadly applicable is uncertain. However, the list of questions put to the focus groups was of interest and of relevance, and was also helpful in devising the survey instrument for the current study.

Dettori (2009)\(^{(63)}\) conducted a modest study on Australian GPs who had participated in the KOALA Study (Kinder Overweight Activity Lifestyle Actions). The study was entitled ‘Barriers to the management of obesity in children – a cross sectional study of GPs.’ These GPs, originally participating in the KOALA study, had only recruited 14
children over an 18 month period to the KOALA study, despite the provision of additional resources to assist and encourage them in their management of childhood overweight. This poor level of engagement with the KOALA study thus prompted in turn the study by Dettori. Dettori developed a self administered questionnaire with 22 questions, requiring a simple dichotomous ‘yes’ or ‘no’ response. Questions addressed factors which had been identified from discussions with the GPs, who themselves had been previously engaged with the study team through the KOALA Study. Questions were identified on the basis of literature review on potential barriers to GP management of childhood overweight.

These factors included the difficulties in recognition of overweight children as overweight, the challenge of routine measurement of height and weight in clinical practice, and the systematic use of height and weight data to identify at risk children. Knowledge of national guidelines, including use of BMI for age percentile charts was also included, as were GP perceptions of child obesity as a medical problem, GPs' self reported confidence in dealing with the problem of childhood obesity, and GPs' confidence in broaching the issue of child overweight/obesity with parents.

The question topics, originating as they did from recent direct contacts with GPs, and with reference to recent current research literature, appeared particularly relevant in the context of the current study. Further, in their discussion, the authors noted that ‘a number of GPs had reported that parents were upset when their child’s overweight was discussed, a concern supported by other research.’ The latter clearly touches on the issue of acceptability of raising childhood overweight in the
consultation to parents and children. Given that acceptability is integral to the research question of the current study, the survey instrument devised by Dettori was felt to be of particular interest.

Dettori et al faxed the survey instrument, and non responders were sent a further fax at 3 weeks. Remaining non responders were subsequently reminded again by telephone contact from their KOALA Study GP Liaison Officers. Thus three formal invitations/contacts to participate were undertaken, in order to encourage those eligible to participate. Although Dettori only surveyed a modest number of GPs, a good response rate was obtained (67% or 33 out of 40 surveyed). Dettori’s survey instrument was particularly influential in designing the survey instrument which was used in this study.

Based on a broader literature review, with a closer consideration of the studies above, a questionnaire was drafted, based on a modified version of that used by Dettori (Appendix 1). Several iterations of the questionnaire were refined in the course of study team meetings (September 2010 to February 2011). It was decided to use a postal questionnaire survey methodology for this part of the study, closely following the Tailored Design Method (129), and used previously within the Department of Public Health and Primary Care at Trinity College, Dublin, on surveys previously conducted (130) among Irish General Practitioners, and which was known to be effective, particularly in obtaining good response rates.
Serial discussions within the Department of Public Health and Primary Care at Trinity College were conducted during 2010-2011, including formal participation in Departmental Research Meetings, as well as informal discussions with researchers from the disciplines of General Practice, Public Health and Biostatistics, reflecting on serial iterations of the draft questionnaire.

2.4 Pilot studies on method

Pilot work was conducted on both the survey of general practitioners and on the study of the responses of parents and children on the acceptability of having the weight of the child checked in the practice.

2.4.1 Pilot work on survey of general practitioners

Two versions of the penultimate version of the questionnaire were piloted for response rates, ease of use and acceptability (n = 24), and a final version was agreed on this basis. The principal difference between the two piloted versions was that of the use of simple dichotomous ('Yes/No' or 'Agree / Disagree') response options as opposed to use of 4 point Likert Scale response options.

The pilot study was administered by post to a selected sample of colleagues in the Kildare Faculty of the ICGP, with 22 out of 24 surveys returned completed.

Colleagues were advised that this was a pilot study, to test and refine the survey instrument, and they were requested to return any observations they had on completing the survey.
Data from the pilot study indicated that the more complex option (Likert scale) was equally acceptable (response rates / solicited comments) to the simpler option (Dichotomous 'Yes / No response options) to the respondents, and this was subsequently used for the study proper.

2.4.2 Pilot work on study with parents and children

Two pilot studies were conducted on this aspect of the research. In the first pilot study, 101 children aged 4-14 years, together with their parents, serially presenting to a 4 GP practice, were invited to participate in the study, the scope and purpose of which was verbally explained to parents at the outset of the consultation. In particular, parents were advised the study would include checking the height and weight of the child, and checking these against a standard (in this instance United States Centers for Disease Control gender and age adjusted BMI centiles) in order to calculate a gender / age adjusted BMI centile. Parents of children who were overweight were provided with information sheets on good eating habits / healthy eating, and were also provided with an invitation to return and discuss the matter of their child's weight at a subsequent consultation.

This study was conducted in a single practice. Among the sample of children who were weighed, 15 out of 101 were overweight / obese. A file review was conducted for these 15 children, in order to ascertain the extent to which there was any evidence that height, weight or BMI were previously recorded. The outcome was
that in only 1 of the 15 cases had this been previously documented in the medical record of the child. Obesogenic families were invisible on the medical record. In this pilot study, emphasis was on feasibility of systematically checking height and weight in the course of routine consulting. Informal feedback from GPs participating was positive, and given the provision of gender/age adjusted BMI centile charts, and patient information sheets, the GPs reported positively on both feasibility of systematically checking height and weight, and addressing the task in the course of routine consulting. There were no reported difficulties or upset reported among parents and children, although these were not formally or systematically solicited.

In the second pilot study, conducted in the author’s own practice (2 GPs), the approach taken was refined further, and with emphasis on testing the proposed post consultation telephone interview by an external Research Assistant (RA). The target population included all children aged 5-12 years (closely corresponding to the age of primary school going children in Ireland), serially presenting for routine clinical care.

For the purposes of this pilot, it was deemed sufficient to include 20 children and parents. Exclusion criteria included children/parents presenting where the weight of the child formed part of the presentation, or where the child was deemed acutely unwell/clinically unstable by the attending GP. Additional attention was given to obtaining consent of parents and assent of children. Parents were informed and advised of the scope and purpose of the study through the use of an information sheet presented at the outset of the consultation (Appendix 2). Parents were also advised verbally by the attending GP regarding the scope and purpose of the study, at the outset of their child’s consultation. Where agreeable, parents were then
requested to give written informed consent. Informal feedback from GPs indicated
good levels of acceptability during the pilot study.

2.5 Sampling for survey of General Practitioners

The sampling frame for this part of study included a listing of Irish GPs, available
from the Department of Public Health and Primary Care at Trinity College, Dublin.
This listing had been recently reviewed (2010). The listing was compiled by
amalgamating all GPs on lists obtained from The Primary Care Re-Imbursement
Scheme, The Mother and Child Antenatal Scheme and the National Cervical
Screening programme national GP listings. A sample equivalent to 20% of the total
was obtained using a random numbers generator, providing the sample (n=527).
Given that the size of the sample equated to a large proportion of all practicing GPs,
it was felt unnecessary to stratify the sample, the correctness of which decision
could be ascertained with respect to the profile of respondents subsequently.
Statistical overview of the proposed method was conducted (BOS/AK), the key
conclusion being that a response rate of 65% or greater from the sample would
ensure the study was adequately powered and representative.

It was determined to send the survey in three mailings (September 2011 to January
2012), closely following the tailored design method. The survey pack included an
anonymous questionnaire with a stamped addressed return envelope, a separately
returned numbered response card, together with a cover letter, outlining the
purpose of the study (Appendix). Questionnaires were thus to be returned
anonymously. Numbered response cards were returned separately, enabling respondents to be removed from successive reminder mailings. Where response cards were returned indicating the GP addressee was retired, deceased, on leave or on maternity leave, or not known at the address, these GPs were separately listed as being non-eligible for inclusion. The listed total was subtracted from the denominator in calculating the final response rate.

2.6 Sampling and method for study with parents and children

In considering the detail for sampling for the study to ascertain the responses of parents and children to weighing the child, several approaches to sampling were considered, and the overall method was considered and further refined with reference to previously conducted studies.

The following considerations were felt to be important:

- Select a method appropriate to the study aims and objectives
- Address the risk of causing significant upset to parents and children in collecting data
- Address the need to protect and respect confidentiality of parents and especially of children
- Select a method which would be acceptable / feasible in clinical practice
- Clearly define the target population, and ensure a systematic approach to sampling
In selecting and defining the method, the literature search previously referred to was considered, proposals were presented (BOS) and reflected upon at serial Departmental Meetings within the Department of Public Health and Primary Care, and also within the National Children’s Research Centre at Our Lady’s Hospital Crumlin, Dublin, which in turn included reflection and input from a wider range of disciplines, including Paediatrics and Child Psychology.

The literature review conducted failed to identify studies which primarily addressed the issue of acceptability. This does call into question the reliability of the search strategy. It also may reflect the paucity of research carried out directly and primarily evaluating patient’s experiences and perceptions in this area of care.

There is a large body of research published in the area of childhood overweight. Many studies are only indirectly relevant to the proposed study, in so far as they relate to specialised interventions, frequently involving disciplines other than General Practice, and where the emphasis in most studies has been on the efficacy of the intervention, as opposed to its acceptability. A recent example illustrating this includes The High Five for Kids Study \(^{117}\), where parents and children were recruited and subjected to an intensive 2 year programme, based in a paediatric outpatient setting. Reported outcomes exclusively relate to changes in BMI and activity levels, and make no reference to acceptability to children or parents.

A number of studies were identified where aspects of methodology were felt to be relevant to the proposed study, and / or which did address acceptability to parents and / or children to some extent. Furthermore, studies which were felt to be
relevant included those which explored the action of checking the weight and height of children in practice.

These studies included the following:

A study by Banks (2011) focused on obese children (BMI > 98th centile) in the general practice setting. The methodological approach taken was to search practice databases (12 practices in Bristol, in the UK) to identify obese children (only 285 identified), following which a written invitation was sent out, asking parents and children to attend their GP, to consult, plan and agree an approach to the child's overweight. It must be inferred that the practice databases were not effective or reliable in terms of identifying all the obese children in the target population. Further, from 285 invitations sent, only 134 consultations ensued, and of these, only 42 were noted to have formally discussed the weight of the child in detail. No clear conclusions regarding acceptability can be reliably made from this study, beyond the inference that parents of obese children were not responsive to the initial invitation to engage. A methodology based on this approach (ie invitation to attend) was thought to be unlikely to be effective.

A study was reported by Gage et al (2012), part of which examined GPs' and parents' beliefs regarding the causes, consequences and management of childhood overweight/obesity, in the UK (Primary Care Trust). The method consisted of a mailed questionnaire survey to two samples (GPs and parents), with questions to GPs and parents regarding their views on childhood overweight, together with a second element which included a series of images of children, regarding which
respondents were asked questions about the degree of overweight evident in children of varying degrees of weight, based on the respondents' visual estimate. Comparisons were then made between the responses of parents and GPs.

Difficulties evident with this study included a low overall response rate of 33%. Given that the proposed study is particularly examining acceptability, high participation rates were considered essential, and the overall methodological approach taken in this study reported by Gage et al was considered unsuitable for a study examining acceptability.

Given the paucity of studies examining for acceptability of interventions in childhood overweight, a broader approach was taken, and methodologies from several other studies were considered which examined acceptability in conditions other than childhood overweight.

Buscewicz (2006) reported a study based in General Practice, examining the perceptions of adult patients with psychological symptoms presenting to their GPs, particularly with respect to the acceptability of the consultation skills of the GPs to the patients. The methodology used included tape assisted recall (TAR), in a small, qualitative study. Twenty patients from 9 general practices (only 12 out of 30 invited GPs participated) were recruited. All patients presenting were invited, informed and considered for inclusion. Inclusion was determined on the basis of the psychological content of the consultation. Data were collected (recording of the consultation, analysis of content, and if deemed to include significant psychological content, the patient was subsequently invited to participate in the study, with a post consultation
interview at 1 week). The interview included reminding the patient about the consultation with their GP by replaying the audio recording of the consultation. Following this, in the next part of the study, the patient was interviewed using a series of questions, regarding what aspects of the consultation the patient felt to be most helpful and least helpful. Overall this can be considered as a qualitative study, using TAR to inform a semi structured interview technique.

The method appeared appropriate in terms of the area of care being studied, involved a novel approach, and appeared appropriate in terms of evaluating acceptability, particularly in an area of care which is sensitive, and where patients are known to feel vulnerable. Thus there are clear similarities between this study of sensitive psychological issues in the consultation, and in raising a sensitive issue in the consultation such as childhood overweight. However, the technique of TAR as used in this study is essentially qualitative, and the study is therefore subject to the limitations of such. TAR is expensive in terms of both patient and researcher time, the technical requirements necessary to use it as part of the methodology would clearly place it beyond the scope of routine consulting, and these requirements do render it more likely that numbers studied would necessarily be modest. Further, it was also felt that the extent to which busy parents of children declining to participate would be large, given the process of data collection on one hand and the limited ability of parents to participate with the process on the other. As previously indicated, high levels of participation are adjudged to be important in a study
purporting to evaluate acceptability, and on this basis it was determined not to utilise TAR.

In the course of determining an appropriate methodology for this part of the study, it was considered to check the weight of a sample of children presenting for routine care, and directly ask their parents about the extent to which this was acceptable to them and to their children. Thus the approach selected was that of a pragmatic, practice based study involving GPs, children and their parents, engaged in routine consulting, in the community. This approach was developed and subjected to two successive pilot studies, in the general practice setting as described above.

With respect to children, the principle of assent\(^{132}\) was adhered to, through the provision of an age appropriate information sheet at the outset of the consultation (Appendix). On this basis, parents and children agreeable to participating were included in the pilot study. No parents declined in the pilot, reflecting clear process, and the high level of trust inherent in general practice consulting between individuals and doctors well know to them. The consultation proceeded, the presenting problems were addressed in the usual manner, at the end of which the weight and height of the child were checked, using standard measuring techniques and equipment (Seca 760 flat scales, and Leicester measuring sticks). Gender age adjusted BMI centiles were calculated with reference to the 2007 WHO centile charts. Children were considered to be within normal range, overweight or obese based on their BMI being less than the 85\(^{th}\) centile, between the 85\(^{th}\) and 98\(^{th}\) centile, or above the 98\(^{th}\) centile respectively, adjusted for gender and age.
For those found to be overweight, the matter was discussed in the consultation, in the presence of the child. Parents were provided with information sheets on healthy eating, and invited to return to discuss the matter at a subsequent visit. Where children were found to be obese, offer of referral to a Dietician was also made to the parents. Contact information (confirmation of most appropriate telephone numbers to call parents) was obtained and noted.

A summary page of relevant data was communicated by secure fax to the RA at the Study Centre (Department of Public Health and Primary Care, TCD), including the date of the consultation, the name and contact information of the parent, and the gender, age and weight category of the child's BMI (Normal, Overweight or Obese).

Following the consultation, all parents were subjected to a telephone survey, administered by a Research Assistant (EL), external to the Practice. The purpose of the telephone survey was to ascertain the extent to which the process of having the weight of the child checked in an unexpected manner while attending for routine care was felt to have impacted on the parent (ascertained directly), and to the child (ascertained indirectly, based on the parent’s perception). A secondary purpose of this part of the pilot was to assess the acceptability and feasibility of the telephone survey.

The telephone survey was administered at 1-2 weeks following the consultation. It was decided that it was appropriate to allow a period of time for the parent to reflect on the process of having the child weighed in this unexpected and unsolicited
manner. It was thought that leaving such a period to elapse would allow for any reactive feelings to moderate somewhat in both parent and child, and would enable a more thoughtful evaluation on the part of the parent in their response to the telephone survey. Further, from a practical point of view, it was both pragmatic and convenient to define a reasonable window of time within which the telephone survey could be delivered. Given the level of resourcing available, a tightly defined timeframe here (eg 'on day 4 post consultation') would not have been feasible, given the numbers of participants involved, and the input of only one RA.

The main outcome from this second pilot was that the methodology was felt to be practical, acceptable and feasible in the context of routine consulting. Further, by the end of the Pilot, it was felt that it was not necessary to consider further modification of this part of the proposed method.

2.6.1 Sampling for study on parents and children

In defining the target population for the proposed study, all parents and children attending their GP for routine care were initially considered. Given that the rationale for the study closely related to parents and children attending for routine, unrelated clinical care, it was decided to exclude parents and children attending where weight of the child formed part of the presenting reason for the consultation. In practical terms, it is understood that the extent to which parents attend requesting the weight of the child to be checked is normally very low indeed. For ethical reasons, it was also decided to exclude instances where the child was felt to be acutely unwell,
to an extent determined by the attending GP, which was likely to add to the distress of the child or increase the medical risk.

For the purposes of the study, it was felt appropriate and necessary to define what individuals could be considered as children for the purpose of the study. Several reasons were considered for limiting the study to those children who were most likely to be primary school children. It was felt that primary school children, defined as children aged 5 to 12 years of age, would be able to cooperate well with the process of having their weight checked. Further, it was also felt the issue of assent could be addressed with children aged 5 or older, whereas with younger children, effectively explaining the purpose of the study and securing their assent would be subject to greater uncertainty.

The upper age limit was considered given the increasing probability of adolescents attending in consultation alone and without their parents, thus raising the problem of inclusion without parental consent or knowledge. Further, it was felt that addressing this issue with adolescents was clearly beyond the scope of the research question and the study hypotheses.

2.6.2 Selection of participating General Practitioners for study on parents and children

Selection of participating General Practitioners was made with respect to the need to obtain a representative sample of GPs, in order to enable the development of general conclusions and to address the issue of cluster centre bias. Cluster centre
bias means the systematic inclusion or exclusion of sub groups of eligible participants for reasons relating to characteristics of the General Practitioners or their practices as opposed to characteristics of the participants.

In practical terms, it was deemed necessary to ensure a good level of variation in terms of the demographic profile of the GPs, size of participating practices (number of GPs and practice list size), socioeconomic mix of practice population, and practice location. Set against the need for appropriate variation in selection of participating GPs was the limitation arising from finite resources to conduct the study, together with the understanding that there was an optimal number of GPs and Practices beyond which further increase in the number of participating GPs would not substantially improve variation or further reduce cluster centre bias.

Advice was sought within the Department of Public Health and Primary Care at Trinity College (Prof Alan Kelly, Biostatistician) regarding the appropriate number of GPs and Practices to include.

The initial proposal (BO'S) was to consider requesting 5 GPs to each recruit 100 parents and children (dyads). On reflection (AK, BO'S, TO'D), it was felt more appropriate to identify at least 10 GPs, from 10 practices, each recruiting 50 dyads, with the objective of achieving a sample of 500 dyads. This approach was deemed adequate and sufficient to achieve adequate variability in terms of GPs, of practices, of parents and of children.
Two regional networks of GPs within the Leinster area were the considered, including The Kildare Faculty of the ICGP and The Trainers Workshop at the TCD HSE GP Training Scheme. The former includes 122 GPs located in Kildare and West Wicklow, including GPs with practices situated in rural, and town locations. The latter included 34 GPs with practices predominantly located in urban settings. Both networks included practices in locations with good variation in terms of affluent and deprived communities, and in terms of practice size (varying from single handed up to a seven partnered practice. GPs from each network were invited, through delivering a short presentation at a plenary clinical meeting, and by written invitation. Expressions of interest were obtained from 32 GPs, from which 11 were purposively selected (BO'S/TO'D/EL), with the following characteristics (see box):
Profile of participating GPs and Practices

<table>
<thead>
<tr>
<th>GP/Gender</th>
<th>Practice</th>
<th>Training status</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Male</td>
<td>Full time, single handed</td>
<td>Yes</td>
<td>Inner city / Deprived</td>
</tr>
<tr>
<td>2 Male</td>
<td>Full time, 4 partners</td>
<td>Yes</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>3 Female</td>
<td>Part time, 2 partners</td>
<td>No</td>
<td>Town / Affluent</td>
</tr>
<tr>
<td>4 Male</td>
<td>Part time, 2 partners</td>
<td>No</td>
<td>Town / Affluent</td>
</tr>
<tr>
<td>5 Male</td>
<td>Full time, 3 partners</td>
<td>Yes</td>
<td>Town / Affluent</td>
</tr>
<tr>
<td>6 Male</td>
<td>Full time, 3 partners</td>
<td>Yes</td>
<td>City / Affluent</td>
</tr>
<tr>
<td>7 Female</td>
<td>Full time, single handed</td>
<td>No</td>
<td>Rural / Mixed</td>
</tr>
<tr>
<td>8 Female</td>
<td>Part time, 2 partners</td>
<td>Yes</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>9 Female</td>
<td>Full time, 4 partners</td>
<td>Yes</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>10 Female</td>
<td>Part time, 2 partners</td>
<td>Yes</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>11 Female</td>
<td>Full time, single handed</td>
<td>No</td>
<td>Town / Affluent</td>
</tr>
</tbody>
</table>

(Number of partners includes the participating GP)

Comment

Eleven GPs from 10 practices were selected. Good variability is evident in terms of GP gender, practice size (number of partners), geographic location and socioeconomic profile of proactive population. Training Practices are somewhat over represented. This was not felt to be important, given the nature of the study and the target population of parents and children.
2.6.3 Recruitment of participating general practitioners

Selected GPs were subjected to an initial practice visit (Dr Brendan O'Shea, Lead Investigator (LI), and Emma Ladewig, Research Assistant (RA)). The purpose of this visit was to describe, explain and instruct the participating GPs and their Practice Staff in the study aims, objectives, rationale and protocol. The practice visit enabled Practice Teams to question and clarify aspects of the study which were unclear to them, and it also enabled the Study Team better to understand the practice environment in each instance. Anecdotally, it was evident at this point that none of the selected General Practitioners were routinely or systematically checking the weight of children before the commencement of the study.

This initial practice visit was also used to deliver a Practice Manual to each practice, which included the study protocol, contact information for the study team, laminated copies of the 2007 WHO BMI centile charts, information sheets for parents and children, recording pro formas for each case, and practice waiting room notices. Each Practice Manual included study sheets to enable the recruitment of 55 dyads. It was felt prudent to make available an additional 5 study sheets in order to enable each GP to conduct an initial brief pilot phase of the study in their own practice, at their own discretion.

The initial practice visit included the provision of standard equipment for checking height and weight (Seca 760 Flat Scales and Leicester Measuring Sticks), together with instruction in their correct use, including weighing in stockinged feet and following micturition. The visit also enabled good contact to be made between the
Study Team, the General Practitioner, and the Practice Team. In particular, a formal link was established with another named individual within the Practice Team (usually the Practice Manager) in order to enable follow up practice visits to be arranged, and administrative matters to be more efficiently addressed. Administration included periodic checking by the RA of data acquisition (ie the number of dyads recruited at checking points during the study, usually conducted at 4-5 weekly intervals, and ascertained by telephone), together with the scheduling (at 1-2 days notice) of spot check visits to each practice to review the practice appointments system for the purpose of ensuring that all eligible children and parents were being systematically invited and recruited, and to identify if any protocol violations were evident in terms of failure to include all eligible children. Initial visits were conducted during March – April 2012. Data collection commenced May 2012. Based on work conducted on the pilot study, it was initially estimated that data collection would take in the order of 3-4 months. Following completion of data collection, a payment of €500 was paid to each participating practice, recognising administrative and time costs incurred.

2.6.4 Recruitment of parents and children

Each General practitioner was requested to invite 50 children aged 5 to 12 years and their parents, presenting to them serially in consultation, for routine clinical care, to participate in the study. Exclusions are previously noted, to which were now added children who were already included in the study and were presenting on a second or subsequent occasion within the study period. In instances where several children were presenting in one consultation, for reasons of both practicality and the need to
further ensure good variability, only one child (defined as the youngest child with the presenting complaint) was included from each family.

In the course of the study, good contact was maintained with the participating practices and General Practitioners. This included regular direct emails to the participating General Practitioners, providing each with an update on the number of dyads recruited by all the participating practices, together with a sharing of any additional queries or relevant observations originating from among the participating GPs. Contact was also maintained by means of unscheduled practice visits (EL) to spot check the electronic appointments system, examining to ensure all eligible children and their parents were invited to participate. Data capture was closely observed, and in instances where the rate of data capture appeared to be slow in any given practice, informal contact (EL/BO'S) was made, in order to ascertain the reason for this, and to ensure the study protocol was being adhered to.

As data collection progressed, the method was felt to be both appropriate and practical, and supported participating General Practitioners, children and parents in the collection of data.

2.7 Ethical approval

Ethical approval for both parts of the study was separately sought and obtained through formal application to the Ethics Committee at The Irish College of General Practitioners.
No material conditions were required with respect to the protocol for the study on General Practitioners. Ethical approval for the practice based study involving parents and children was conditional on improving protection of confidentiality of the child. In the proposal initially submitted, it was proposed to return the child’s gender, date of birth and name to the Study Team by confidential fax. The Ethics Committee at the ICGP requested and advised that only the child’s age in years and months would be sufficient for the purpose of the study, that it was unnecessary to communicate data on gender and on date of birth for the purpose of the study. These conditions avoided the unnecessary communication of personal data outside of the General Practice. This requirement was confirmed and implemented in the course of the study.

2.8 Conclusion

This chapter describes the selection of, and detail for methods for two parts of the study, informed with reference to the relevant research literature, and on reflection with Colleagues from a variety of disciplines at The Department of Public Health and Primary Care at Trinity College, Dublin, The Kildare faculty of the ICGP, The Trainers Workshop at the TCD HSE GP Training Scheme, and finally with reference to pilot studies conducted to assess feasibility, ease of use, and to solicit feedback from GPs and parents. The methods were tested and refined on the basis of pilot studies, and were approved by The Ethics Committee of The Irish College of General Practitioners.
CHAPTER 3 RESULTS

3.1 Introduction

This chapter includes results from the two studies.

The first study includes a questionnaire survey of a 20% sample of Irish GPs.

The second study is an observational study where a sample of children (n= 463, aged 5-12 years), attending 11 GPs had their weight checked during routine care. A telephone survey of parents was then conducted, ascertaining the extent to which having the weight of the child checked in this manner was acceptable to children and parents.

All data are reported in this chapter, at the end of which a summary of key findings is presented. For the purpose of clarity, the research question and study hypotheses are restated as follows:

• Is it acceptable to parents and children to have the weight of the child checked when attending their GP for routine clinical care?

• It is hypothesised that General Practitioners are unwilling to check the weight of children due to their concerns about upsetting parents and children, but that parents and children are not upset when their GP checks the weight of the child.
3.2 Results from a survey of GPs on their practice in childhood overweight

3.2.1 Acquisition, presentation and analysis of GP survey data

Data for this part of the study were returned by GPs responding to a postal questionnaire survey. Data from returned questionnaires were extracted. Double data entry was used in transferring responses noted on paper questionnaires to an Excel spreadsheet, which in turn was transferred to SPSS (V 18.0). Data were subjected to simple analysis. Detail on the response rate is initially presented, given the importance of response rate in determining the extent to which the data are representative, and therefore the reliability with which conclusions can be drawn from the data, applicable to the population of General Practitioners as a whole. Data are organised, presented and analysed in order to ensure clarity and ease of comprehension. Analysis of data from the GP survey includes simple frequency distribution of responses. Responses are grouped under five main headings.

I. GPs' beliefs regarding childhood overweight

II. GPs' self reported practices in the consultation

III. GPs' self reported practices when consulting with overweight children

IV. GPs' beliefs regarding future care of overweight children.

V. Sub-group analysis of respondents

3.2.2 Response rate

The survey was presented to 527 GPs. Responses (completed questionnaires) were obtained from 393 GPs. Based on data obtained from separately returned response
cards, 37 GPs were no longer in practice, no longer at the given address, were
deceased, or were on maternity leave. This number was subtracted from the
original denominator of 527. A final response rate of 80.2% was calculated.

3.2.3 Practice profile and demographic data (section A of Questionnaire)

Table 1. Profile of respondents of survey of GPs (n = 393).

<table>
<thead>
<tr>
<th>Respondent characteristics</th>
<th>Percentage of respondents</th>
<th>95% Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>64.6%</td>
<td>58.2 – 67.7%</td>
</tr>
<tr>
<td>Female</td>
<td>35.4%</td>
<td>30.1 – 39.4%</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 30</td>
<td>0.0%</td>
<td>N/A</td>
</tr>
<tr>
<td>31-40</td>
<td>17.5%</td>
<td>14.0 – 21.6%</td>
</tr>
<tr>
<td>41-50</td>
<td>29.2%</td>
<td>24.9 – 34.0%</td>
</tr>
<tr>
<td>51-60</td>
<td>32.6%</td>
<td>28.1 – 37.5%</td>
</tr>
<tr>
<td>Over 60</td>
<td>20.6%</td>
<td>16.9 – 25.0%</td>
</tr>
<tr>
<td>Practice Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>20.6%</td>
<td>16.8 – 24.9%</td>
</tr>
<tr>
<td>Suburban</td>
<td>21.4%</td>
<td>17.5 – 25.8%</td>
</tr>
<tr>
<td>Town</td>
<td>35.1%</td>
<td>30.5 – 40.0%</td>
</tr>
<tr>
<td>Rural</td>
<td>23.0%</td>
<td>19.0 – 27.5%</td>
</tr>
<tr>
<td>Practice Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Handed</td>
<td>31.5%</td>
<td>27.1 – 36.3%</td>
</tr>
<tr>
<td>Two plus Doctors</td>
<td>68.5%</td>
<td>63.7 – 72.9%</td>
</tr>
<tr>
<td>Volume of Paediatric Patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>14.5%</td>
<td>11.3 – 18.4%</td>
</tr>
<tr>
<td>Average</td>
<td>67.4%</td>
<td>62.5 – 71.9%</td>
</tr>
<tr>
<td>Large</td>
<td>18.2%</td>
<td>14.6 – 22.4%</td>
</tr>
</tbody>
</table>
A majority of respondents were older male GPs. This may reflect the list of GPs from which the sample was drawn. It was compiled by cross referencing GPs listed as providing services under the Primary Care Reimbursement Scheme, The National Antenatal Care Scheme, the National Cervical Screening Programme, and The Irish Medical Directory. It is probable that younger assistant GPs may be under represented on this list, as they are less likely to hold contracts with the State Schemes, and further, it is possible that a majority of such younger assistant GPs are female. A minority (23%) of respondents describe themselves as rural, which is as expected, and a majority of respondents report themselves as being in practice with one or more Doctors.

Mean percentages of GPs’ practice populations, self reported by respondents, with reference to their patients eligibility was as follows: 56.4% (SD = 23.5%) eligible under the Medical Card Scheme, with 43.6% (SD = 23.5%) fee paying (‘private’) ie ineligible under the Medical Card Scheme.

3.2.4 Data from survey of General Practitioners

Responses are presented under five main headings:

Section 1  GPs’ beliefs regarding childhood overweight (Table 2)
Section 2  GPs’ self reported practices in the consultation (Table 3)
Section 3  GPs’ self reported practices when consulting with overweight children (Table 4)
Section 4  GPs’ beliefs regarding future care of childhood overweight (Table 5)
Section 5  Sub-group analysis of responses
3.2.4.1 Section 1 - GPs' beliefs regarding childhood overweight

Please note that in Tables 2 - 5, for purposes of presenting the results in a meaningful way, the questions may not appear in the same order as in the Questionnaire (Appendix 1). However, the question numbers remain the same.

Table 2. GPs' beliefs regarding childhood overweight (n = 393).

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly disagree</th>
<th>2</th>
<th>3</th>
<th>Strongly agree</th>
<th>4</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q 1 Childhood overweight is a medical problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>4.07</td>
<td>16.28</td>
<td>37.4</td>
<td>42.24</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Q 2 Childhood obesity is a medical problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>2.29</td>
<td>6.62</td>
<td>24.43</td>
<td>66.41</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Q 3 GPs have a role in childhood overweight management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>1.78</td>
<td>11.45</td>
<td>41.48</td>
<td>44.78</td>
<td>0.51</td>
<td></td>
</tr>
<tr>
<td>Q 4 GPs have a role in childhood obesity management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>1.27</td>
<td>6.36</td>
<td>35.37</td>
<td>55.98</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td>Q 9 I am now more confident managing childhood overweight and obesity than I was 5 years ago</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>18.83</td>
<td>35.62</td>
<td>33.59</td>
<td>11.45</td>
<td>0.51</td>
<td></td>
</tr>
<tr>
<td>Q 5 Parents view childhood overweight as a medical problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>24.78</td>
<td>53.42</td>
<td>12.98</td>
<td>6.63</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>Q 6 Parents view childhood obesity as a medical problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>12.98</td>
<td>43.51</td>
<td>34.10</td>
<td>8.40</td>
<td>1.02</td>
<td></td>
</tr>
</tbody>
</table>
GPs view childhood overweight and obesity as medical problems, and view themselves as having a definite role in managing it. They believe parents do not view childhood overweight as a medical problem. GPs report no increase in their confidence in managing childhood overweight from 5 years ago.

3.2.4.2 Section 2 - GPs' self reported practices in the consultation

Table 3. GPs' self reported practices in the consultation (n = 393).

<table>
<thead>
<tr>
<th>Response</th>
<th>Never (1)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Always</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q10</td>
<td>Do you follow any guidelines or standards in routine consulting in this area of practice?</td>
<td>38.82</td>
<td>38.17</td>
<td>20.87</td>
<td>5.09</td>
<td>3.05</td>
</tr>
<tr>
<td>Q11</td>
<td>Are you routinely measuring children's height and weight?</td>
<td>9.92</td>
<td>58.02</td>
<td>27.48</td>
<td>3.56</td>
<td>1.02</td>
</tr>
<tr>
<td>Q12</td>
<td>Do you use age adjusted BMI charts in your identification of overweight children?</td>
<td>27.74</td>
<td>27.48</td>
<td>27.74</td>
<td>16.28</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Only 1 in 20 GPs consistently indicate they always use guidelines / standards in this area of care, and less than 1 in 25 GPs indicate they routinely check weight and height of children. Fewer than 1 in 5 GPs use age adjusted BMI charts in their identification of overweight children.

Reported practice among the sample of GPs surveyed is not consistent with policy, or with recommended best practice in this area of care, both of which recommend
that GPs should routinely check the weight of children attending them for routine care.

3.2.4.3 Section 3 - GPs' self reported practices when consulting with overweight children

Table 4. GPs' self reported practices when consulting with overweight children (n = 393).

<table>
<thead>
<tr>
<th>Response</th>
<th>Never</th>
<th>2</th>
<th>3</th>
<th>Always</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q24 When an overweight child presents in consultation, how often do you raise the issue of their overweight in the consultation?</td>
<td>1.53</td>
<td>36.13</td>
<td>39.95</td>
<td>8.14</td>
<td>14.25</td>
</tr>
<tr>
<td>Q15 Do you find it difficult broaching the subject of childhood overweight with parents?</td>
<td>9.41</td>
<td>29.52</td>
<td>51.15</td>
<td>9.16</td>
<td>0.76</td>
</tr>
<tr>
<td>Q13 Does your view of likely parental response affect the likelihood of your raising the matter in consultation with parents of overweight children?</td>
<td>8.40</td>
<td>20.1</td>
<td>51.65</td>
<td>18.83</td>
<td>1.02</td>
</tr>
<tr>
<td>Q16 Does the possibility of a negative response from parents stop you from discussing the child’s weight?</td>
<td>16.28</td>
<td>35.37</td>
<td>40.71</td>
<td>6.62</td>
<td>1.02</td>
</tr>
<tr>
<td>Q17 Are parents interested if you discuss their child’s overweight / obesity with them?</td>
<td>2.54</td>
<td>32.32</td>
<td>56.74</td>
<td>7.63</td>
<td>0.76</td>
</tr>
<tr>
<td>Q18 Do you ask overweight children / guardians to return for review of BMI / weight?</td>
<td>7.63</td>
<td>33.08</td>
<td>42.27</td>
<td>14.25</td>
<td>0.76</td>
</tr>
<tr>
<td>Q 19</td>
<td>How often do overweight children/ parents return for review when asked to do so?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response (%)</td>
<td>10.43</td>
<td>56.74</td>
<td>22.39</td>
<td>2.04</td>
<td>8.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q 20</th>
<th>Do you refer overweight children to a Dietician?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response (%)</td>
<td>18.32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q 21</th>
<th>Do you refer obese children to a Dietician?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response (%)</td>
<td>11.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q 22</th>
<th>Do you find Dietician referrals are followed up by parents?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response (%)</td>
<td>2.54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q 23</th>
<th>Have you found Dietician referrals to have been useful?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response (%)</td>
<td>2.8</td>
</tr>
</tbody>
</table>

When consulting with an overweight child, fewer than 1 in 10 GPs raise the issue of overweight in the consultation. The number of non-responding GPs to this question (Q 11) is high (14.25%), which is indicative of uncertainty. Fewer than 1 in 10 GPs indicate they never find it difficult broaching the subject of childhood overweight with parents. Almost 1 in 5 GPs indicate that fear of parental response affects the likelihood of their raising the matter in the consultation. Fear of negative response from parents does appear to be a factor in these consultations. Most GPs indicate that parents of overweight children are not consistently interested when the issue of the child’s weight is discussed. Fewer than 1 in 7 GPs indicate they always ask overweight children and their parents to return for review, their experience suggesting that parents and children are inconsistent in returning when they are
invited to do so (Q 17). Fewer than 1 in 10 GPs consistently refer overweight children to a dietician, and just over 1 in 4 GPs consistently refer obese children to the Dietician. GPs indicate that parents are inconsistent in their follow up with dietician referrals, and fewer than 1 in 10 GPs have found such referrals to have been useful.

Section 4 GPs' beliefs regarding future care of childhood overweight

Table 5 GPs' beliefs regarding future care of childhood overweight (n = 393).

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly disagree</th>
<th></th>
<th>Strongly agree</th>
<th></th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Q 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A national guideline would be useful in the area of childhood overweight/obesity</td>
<td>1.78</td>
<td>5.34</td>
<td>25.45</td>
<td>67.18</td>
<td>0.25</td>
</tr>
<tr>
<td>Q 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modest targeted payments would be effective in the management of obese children</td>
<td>10.94</td>
<td>21.47</td>
<td>36.64</td>
<td>28.24</td>
<td>2.8</td>
</tr>
<tr>
<td>Q 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age adjusted BMI charts embedded in an electronic drop down menu would be useful</td>
<td>1.78</td>
<td>3.05</td>
<td>29.94</td>
<td>59.8</td>
<td>10.43</td>
</tr>
</tbody>
</table>

General Practitioners remain strongly interested in the availability of clear guidance in this area of care. They express a good level of interest in the idea of modest targeted payments for the management of obese children, and are strongly
interested in the availability of age adjusted BMI charts in drop down menus in their electronic medical records.

### 3.2.4.5 Section 5 - Sub group analysis of responses

Sub group analyses were conducted on responses from several discrete groups of respondents.

Influence of respondent demographics on their practices and their attitudes:
Female GPs were more likely than male GPs to ask overweight children and their guardians to return for review ($\chi^2 = 18.74, \text{df}=3, \ p<0.001$), and were more likely to refer obese children to a dietician ($\chi^2 = 18.84, \text{df}=3, \ p<0.001$). However, female GPs were more likely than male GPs to find it difficult to raise the subject of overweight with parents ($\chi^2 = 11.88, \text{df}=3, \ p=0.008$), and male GPs were more likely than female GPs to believe that parents are interested in discussing their child’s overweight or obesity ($\chi^2 = 8.65, \text{df}=3, \ p=0.034$). Female GPs were also more likely than male GPs to agree that a national guideline in the area of overweight / obesity would be useful ($\chi^2 = 10.13, \text{df}=3, \ p=0.18$).

While these results are of interest, it is unlikely that they are important.

### 3.2.5 Summary of main findings from GP survey

GPs do not manage childhood overweight in a consistent manner, nor do they consistently utilise the generally agreed tools in practice to do so (systematic checking of children’s BMI, use of BMI centile charts, planned review, and selected use of referral). It is not usual for GPs to routinely check height and weight of children attending for routine care.
GPs are concerned. They clearly view childhood overweight and childhood obesity as medical problems. GPs believe that parents of overweight and obese children do not view childhood overweight as a medical problem. GPs perceive possible negative responses of parents of overweight children as an important concern in raising this matter in the consultation. Negativity around these issues clearly impacts on the GPs' ability to raise the problem consistently in the consultation, when overweight children present for routine care.

Concern in this area is compounded by clinical practice which does not include the use of standardised measurements and calculation of gender and age adjusted body mass index centiles, or consistent use of guidelines. While the survey did not specifically ask respondents regarding their use of coding for childhood overweight in the electronic medical record, it is inferred that the majority of GPs do not code for childhood overweight, nor do they maintain a practice register for childhood overweight in their practice in the same manner as many are known to do\(^{(130)}\) for diabetes or cardiovascular disease, for example.

It is clear from data presented that GPs have further uncertainties about the referral of overweight children to Dieticians. They are uncertain that parents of overweight children follow through with these referrals, and GPs do not view such referrals as useful.

GPs remain strongly interested in a national guideline in this area of care. They are interested to a lesser extent in modest targeted payments in their management of
obese children. They do regard childhood overweight as an important part of practice, but steps need to be taken in order to enable their care to be made more effective, and to address their own concerns regarding the responses of parents and children should GPs become more systematic in their approach to this problem. These steps clearly include maintaining clear and rational guidelines, and the embedding of electronic menus and BMI z score calculators in the electronic medical record.

3.3 Results from study with parents and children on the acceptability of checking the weight of the child

In this section, results are presented from a general practice based observational study, on the acceptability to parents and children, of checking the weight of children when attending their GP for routine clinical care.

3.3.1 Acquisition and presentation of data

Data for this part of the study were collected by 11 GPs working in 10 General Practices. Parents and children were recruited, including all children aged 5 to 12 years of age, serially attending the GP for routine clinical care. Having recruited the parent and child (dyad), clinical issues relating to the attendance of the child were addressed. The child was then weighed, their height was measured, and a gender age adjusted BMI was calculated.
Children were assigned to one of three categories of BMI by the GP, i.e. normal BMI, overweight BMI or obese BMI. A study sheet for each dyad was completed, including a minimal dataset (Appendix). The study sheet was forwarded by secure fax to the RA by the practice, from which data were then extracted. The RA was thus able to understand that each practice was collecting data as expected, and to conduct a telephone survey with each parent at 1-2 weeks post consultation. Data from the faxed study sheet and outcome from the telephone survey are thus the primary sources of data for this part of the study.

The rate of acquisition of data was observed during the phase of data collection (May – September 2012). Care was taken to ensure the rate of data acquisition was as expected. In the course of data collection, positive (and very occasionally negative) feedback was provided by the Research Assistant and the Lead Investigator, both formally and informally, to the participating GPs and practices. This feedback was delivered in order to ensure that an appropriate and steady rate of progress was made in terms of recruitment of dyads to the study.

Participating GPs and practices received both individual and group emails throughout the process of data acquisition, advising them of the numbers of dyads recruited from their own practice, and the total number for the study as data collection proceeded. In instances where returns from an individual GP appeared to be delayed, they were contacted quickly. This allowed the Research Assistant to advise them, and to ascertain the reason why there was a delay in returns, and to confirm that the reason for any such delay was understood, and that any additional
measures to ensure reliable data collection were in place as necessary, and in a timely manner. The key outcome from this focus was a directed, supportive and responsive process, giving good engagement with the participating practices, which encouraged the return of data in an efficient manner. There were periods from certain GPs / practices where rate of acquisition of data slowed. These instances were immediately apparent to the study team, given that the RA checked data return several times weekly, reporting it to the Lead Investigator.

The following table indicates numbers of parents and children recruited by each practice. The table includes information on the socioeconomic background of each practice. From the table, it is evident that there is good variability in terms of children recruited from affluent and deprived backgrounds.

Table 6. Numbers of children and parents recruited from each participating practice.

<table>
<thead>
<tr>
<th>Practice (GP)</th>
<th>Number of children weighed</th>
<th>Children with full survey completed</th>
<th>Geographic and socioeconomic setting of practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. TH</td>
<td>55</td>
<td>54</td>
<td>Inner City / Deprived</td>
</tr>
<tr>
<td>2. SM</td>
<td>31</td>
<td>30</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>3. YC &amp; DS</td>
<td>47</td>
<td>38</td>
<td>Town / Affluent</td>
</tr>
<tr>
<td>4. MK</td>
<td>50</td>
<td>50</td>
<td>Town / Mixed</td>
</tr>
<tr>
<td>5. BM</td>
<td>52</td>
<td>49</td>
<td>City / Affluent</td>
</tr>
<tr>
<td>6. MK</td>
<td>53</td>
<td>50</td>
<td>Rural / Mixed</td>
</tr>
<tr>
<td>7. AW</td>
<td>56</td>
<td>54</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>8. COR</td>
<td>40</td>
<td>38</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>9. MW</td>
<td>35</td>
<td>34</td>
<td>Urban / Deprived</td>
</tr>
<tr>
<td>10 CNIIB</td>
<td>38</td>
<td>37</td>
<td>Town / Affluent</td>
</tr>
<tr>
<td>Totals</td>
<td>457</td>
<td>434 (94.96%)</td>
<td></td>
</tr>
</tbody>
</table>
Some (5 out of 10) of the participating practices (those with higher volumes of paediatric practice) returned data for more than the required 50 dyads. Some of the practices (5 out of 10) recruited less than the required 50 dyads. In certain instances there were clear reasons for shortfalls from certain practices. Such reasons included GPs being on extended holidays. Practice no. 2 moved premises in the middle of the study period, which move was at the discretion of the Health Service Executive. The move had been anticipated for the previous 2 years, but unhelpfully transpired at short notice during the study period, causing a high level of disruption to the practice for a period of approximately 6 weeks.

Additional reasons for such individual variations in the rate of data acquisition included the practice manager on leave, where the return of data was delayed (i.e., completed return sheets were slightly delayed (e.g., by a week) until the administrator returned from holidays).

In practice No. 9, it became apparent that the participating GP, who was also a GP Trainer, tended to consult systematically with more complex and predominantly adult cases, with the shorter cases (including a relative excess of acute paediatric cases) attending the Trainee. This was previously not apparent or appreciated within the practice, and was remarked upon. It was clearly of additional benefit to the practice to understand this, and steps were taken to address the issue, but nonetheless, it resulted in reducing the level of recruitment from this practice.
All of these issues were identified in the course of the study, their impact on data collection was reflected upon, and minimised where possible, and in general terms, can be reasonably considered as part of the challenge when conducting research in the somewhat (uneven) field of clinical practice.

Based on our understanding of the rate of consultation of children aged 5-12 years in practice, and also on the time taken to complete the second pilot study, it was initially estimated that it would take approximately 4-5 months for each practice to return the sample required. This may appear protracted, but it is understood that 5-12 year olds will attend less frequently than younger children. Further, it was also understood that the period identified for data collection at the practices would coincide with summer holidays for the participating GPs.

When planning the study the impact of summer holidays was expected to be beneficial. It was felt the summer period, being less busy for practices, would be more suitable for the purpose of completing the study and that were the GPs to have a break in the middle of conducting their data collection, that this would be beneficial in terms of reducing study fatigue among participating GPs.

Two unscheduled practice visits were carried out at each practice, by the RA, including site visits to the practice at short notice (1-2 days). Appointment systems were checked for the presence of protocol violations, and that all dyads eligible for inclusion were invited to participate. No protocol violations were discovered in the course of the practice visits. Data collection was concluded in October 2012.
Participating GPs were requested to keep a note of declining dyads. In both of the pilot studies, no dyads were noted to decline to participate. This was as expected, given the level of trust which is known to exist between parents, children and the GP whom parents elect to attend as ‘their’ GP.

The level of declining to participate noted among the study GPs in the main part of this study was low, and reported directly to the RA as 2 dyads or less per participating GP. This low level of declining to participate is important, given that acceptability to parents and children is central to the study aims, objectives and rationale.

It is apparent from table 11, that for a small number of dyads recruited, it was not possible to complete the telephone survey. Reasons for this included the following. In 1 instance the RA was unable to contact the parent by phone; in 2 instances, the parents had no recollection of the visit. In 8 instances, the parent could recollect the visit but could not recollect having the child weighed. In 1 instance, the parent could not recollect any feelings about having the child weighed. In 11 instances, the parents declined to complete the telephone survey, with no clear reason given.

The low level of declining to participate among eligible children and parents, and the large extent to which those initially recruited completed the telephone survey, are both relevant, given the importance of acceptability to the study objectives. Overall, of those initially recruited at the participating practices, 94.96% completed the telephone survey. Of those not completing, a proportion of those were understood.
to have opted out for reasons clearly unrelated to acceptability (eg unable to remember the consultation at all).

3.3.2 Profile of parents and children recruited to the study

Total number of children weighed 457
Total giving phone consent to complete survey 445
Total with full telephone survey completed 434

Age distribution of children in the study sample is described in table 7.

Table 7 Age distribution of sample of children (n = 457).

<table>
<thead>
<tr>
<th>Age</th>
<th>Percentage of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>18.2</td>
</tr>
<tr>
<td>6 years</td>
<td>11.6</td>
</tr>
<tr>
<td>7 years</td>
<td>13.6</td>
</tr>
<tr>
<td>8 years</td>
<td>15.5</td>
</tr>
<tr>
<td>9 years</td>
<td>11.6</td>
</tr>
<tr>
<td>10 years</td>
<td>10.5</td>
</tr>
<tr>
<td>11 years</td>
<td>10.5</td>
</tr>
<tr>
<td>12 years</td>
<td>8.5</td>
</tr>
</tbody>
</table>
Age distribution of the sample of children does not correspond with that of the whole population of children. It is however consistent with what is understood regarding children attending the GP, where younger children (eg 5 years) attend more frequently than older children, and where attendance reduces as children approach their adolescence.

3.3.3 BMI categories of children in the study sample

Table 8 BMI categories of children (n = 457), based on gender age adjusted WHO 2007 BMI centiles.

<table>
<thead>
<tr>
<th>BMI category</th>
<th>Percentage</th>
<th>BMI gender age adjusted centiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>A ‘Normal’</td>
<td>74.2%</td>
<td>Gender age adjusted BMI &lt; 85th centile</td>
</tr>
<tr>
<td>B ‘Overweight’</td>
<td>14.9%</td>
<td>Gender age adjusted BMI 85th – 97th centile</td>
</tr>
<tr>
<td>C ‘Obese’</td>
<td>10.9%</td>
<td>Gender age adjusted BMI &gt; 97th centile</td>
</tr>
</tbody>
</table>

From a methodological perspective, it is incorrect to categorise children as ‘Normal Weight,’ ‘Overweight,’ or ‘Obese’ on the basis of BMI. The term ‘Obese’ means an excess of adiposity or body fat, and adiposity or fat is not what is actually measured when checking height and weight.

This categorisation however is in keeping with the approach in practice adopted by clinicians. Given the decision to conduct a pragmatic study based in the context of clinical care, this categorisation is nonetheless used here in presenting results, and
cut offs are taken from the WHO 5-19 years BMI for age centile charts, using the 85th and 97th centiles as cut offs to denote overweight and obesity respectively. Based on this categorisation, the proportions of normal weight, overweight and obese children in the sample are as expected, and broadly consistent with data from the Growing Up in Ireland study, indicating that a sample representative of the population of children was obtained.

3.3.4 Socioeconomic profile of sample of children recruited

Of the 457 children recruited to the study, 50.2% were eligible for the medical card, with 48.8% having full entitlement and 1.4% having entitlement to the 'GP Visit' card only.

Approximately half of the children included in the sample were eligible to have the cost of their healthcare paid for under the primary care reimbursement scheme (PCRS). Such eligibility under the PCRS is a marker of deprivation and poverty. This proportion of children eligible under the PCRS confirms that children from socioeconomically disadvantaged backgrounds are well represented in the sample. It further confirms the sample of children is representative of the whole population of Irish children, based on the proportion of the whole population known to be eligible under the primary care reimbursement scheme at the time the study was conducted (2012).

Full entitlement under the PCRS indicates higher level of socioeconomic deprivation, and means that all primary and secondary care service costs are covered at the point
of delivery of service. Eligibility under 'GP visit card' indicates a lesser level of deprivation, and is taken to mean that the GPs professional fees are covered under the PCRS, but that the patient requires to pay other costs (eg medications / pharmacy) out of pocket. The very small proportion thus covered is included in the larger proportion with full eligibility, which inclusion assists with clarity and ease of presentation of data and analysis. Socioeconomic background and body mass index category of those completing the study, is described in Table 9.

Table 9  Socioeconomic background and body mass index category of those completing the study, excluding GP visit card only (n = 428).

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>Affluent 'Private Patients' (n = 228)</th>
<th>Deprived PCRS Eligible (n= 229)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Normal Weight'</td>
<td>82.4%</td>
<td>67.9%</td>
</tr>
<tr>
<td>'Overweight'</td>
<td>12.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>'Obese'</td>
<td>5.6%</td>
<td>15.1%</td>
</tr>
</tbody>
</table>

It is evident from this table that children from affluent backgrounds are less likely to be overweight or obese.

3.3.5 Attrition in the course of the study

Levels of attrition in the course of the study are detailed in table 10.
Table 10. Levels of attrition of children completing all elements of study (n = 434).

<table>
<thead>
<tr>
<th>Total Weighed = 457</th>
<th>Numbers retained at each step</th>
<th>Numbers lost at each step</th>
<th>Numbers cumulatively lost to study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unable to make phone contact</td>
<td></td>
<td></td>
<td>1 (N = 456)</td>
</tr>
<tr>
<td>Phone Consent</td>
<td>Yes</td>
<td>445</td>
<td>11 (N = 445)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td>12 (N = 445)</td>
</tr>
<tr>
<td>Recall Visit?</td>
<td>443</td>
<td>2</td>
<td>14 (N = 443)</td>
</tr>
<tr>
<td>Recall Measurement?</td>
<td>435</td>
<td>8</td>
<td>22 (N = 435)</td>
</tr>
<tr>
<td>Recall Feeling?</td>
<td>434</td>
<td>1</td>
<td>23 (N = 434)</td>
</tr>
<tr>
<td>Total completing telephone survey</td>
<td>434</td>
<td></td>
<td>23</td>
</tr>
</tbody>
</table>

A small proportion of parents and children initially recruited were lost to the study, for the reasons indicated in the table above.

Detail in accounting for numbers failing to complete the study is important given the focus on acceptability as a central part of this research. In 12 instances, parents indicated that they were either unable to recall the visit (2), or to recall having their child weighed (8) or to recall any feelings associated with the visit (1). It may be assumed here that in such cases, acceptability was not a factor in the parent or child declining to participate, since if either parent or child had experienced the child being weighed in a negative or distressing manner, it is probable they would have clearly recollected this in the 1-2 weeks following the consultation. The level of attrition in completing the post consultation survey is low. The importance of the...
level of attrition may relate to negative emotion on the part of some parents, reflected in 11/457 declining to consent. This is a small proportion.

Numbers lost to follow up (1/457) at this point reflect effective process in conducting the telephone survey. Where necessary, repeated efforts to establish telephone contact were made, at times convenient to the parents, ie afternoon and evenings.

3.3.6 Reaction of parents and children to weighing the child.

Parents were contacted by telephone by a Research Assistant external to the practice at 1 to 2 weeks following the consultation where their child was unexpectedly weighed by their GP. Parents were asked in detail regarding the impact of having the weight of the child checked by the GP in an unexpected manner, when attending for routine clinical care.

Responses were noted as specific variables on the seven point scale, and reassigned into three categories (positive response / neutral response / negative response) throughout. Data on the reactions of parents are presented as follows:

1. Results for the whole sample of children and parents.
2. Results for children with normal BMI, overweight BMI and obese BMI.
3. Results for children from affluent and deprived backgrounds.

In each of these three sections, reported reactions include the reactions of the parents themselves, and also the reactions of children, as perceived and reported by parents, to the RA.
3.3.7 Survey results for the whole sample of parents and children

The total number of dyads with completed telephone survey was 434.

Parents were asked if they could recollect the Doctor measuring their child's height and weight and if they remembered how this made them feel. They were asked to choose how they felt, from the options provided by the RA. Results are shown in Table 11.

Table 11 Parent reaction to having the weight of the child checked by the GP.

<table>
<thead>
<tr>
<th>Options provided by RA</th>
<th>Response from telephone survey</th>
<th>Reclassification of responses</th>
<th>Further Reclassification of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Happy</td>
<td>49.1</td>
<td>Positive reaction</td>
<td>68.0</td>
</tr>
<tr>
<td>Pleased</td>
<td>14.3</td>
<td>Neutral</td>
<td>27.9</td>
</tr>
<tr>
<td>Relieved</td>
<td>4.6</td>
<td>Positive and Neutral reactions</td>
<td>95.9</td>
</tr>
<tr>
<td>No real feeling</td>
<td>27.9</td>
<td>Negative reaction</td>
<td>4.1</td>
</tr>
<tr>
<td>Anxious</td>
<td>2.3</td>
<td>Negative reaction</td>
<td>4.1</td>
</tr>
<tr>
<td>Upset</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angry</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do you believe that having their weight checked by the GP had an impact on your child?

| %   | Type of impact | %
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Positive impact</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>Negative impact</td>
<td>33.3</td>
</tr>
<tr>
<td>No</td>
<td>Not applicable</td>
<td>104</td>
</tr>
</tbody>
</table>
Most parents indicate the process of checking weight had no impact on their child.

Of those who did feel checking the weight of the child had an impact (11.1%), over two thirds of parents described the impact as a positive impact.

Reaction of children, as reported by parents, to having their weight checked is described in table 12.

Table 12 Child reaction to having their weight checked as reported by their parent.

<table>
<thead>
<tr>
<th>Options provided by RA</th>
<th>Response from telephone survey</th>
<th>Reclassification of responses</th>
<th>Further Reclassification of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Happy</td>
<td>38.7</td>
<td>Positive reaction</td>
<td>49.3 Pos. and Neutral reactions</td>
</tr>
<tr>
<td>Pleased</td>
<td>8.1</td>
<td>Neutral</td>
<td>45.2 Neutral reactions</td>
</tr>
<tr>
<td>Relieved</td>
<td>2.5</td>
<td></td>
<td>94.5</td>
</tr>
<tr>
<td>No real feeling</td>
<td>45.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxious</td>
<td>3.0</td>
<td>Negative reaction</td>
<td>5.5 Negative reaction</td>
</tr>
<tr>
<td>Upset</td>
<td>2.3</td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>Angry</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Over 9 out of 10 of these parents reported their child responded positively or neutrally to having their weight checked.

Parents were then asked if they felt it would be helpful to have their child’s height and weight checked when visiting their GP.
The majority (98.6%, 95% CI: 97.0 – 99.4%) of all parents surveyed, who had had the weight of their child checked in an unexpected manner, and unasked for, by their GP, believed that it would be helpful to have this done when visiting their GP.

3.3.7.1 Results based on weight category of the child.

Results are now presented based on the weight category of the child. The proportion of children in each weight category (Normal / Overweight / Obese), together with the extent to which their parents completed the survey, are described in Table 13.

Table 13 Completion rates for children with normal, overweight and obese BMI categories

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>Total weighed</th>
<th>Completed Survey N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal BMI</td>
<td>339</td>
<td>334 (98.5)</td>
</tr>
<tr>
<td>Overweight BMI</td>
<td>68</td>
<td>64 (94.1)</td>
</tr>
<tr>
<td>Obese BMI</td>
<td>50</td>
<td>46 (92.0)</td>
</tr>
</tbody>
</table>

Failure to complete the full survey is greater for parents of overweight and obese BMI category than for normal BMI category.
### Table 14 Sub group analysis of parent reaction based on weight category of child.

<table>
<thead>
<tr>
<th>Parent Reaction</th>
<th>Normal (n=324)</th>
<th>Overweight (n=64)</th>
<th>Obese (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Happy</td>
<td>50.9</td>
<td>46.8</td>
<td>43.5</td>
</tr>
<tr>
<td>Pleased</td>
<td>14.5</td>
<td>17.6</td>
<td>10.9</td>
</tr>
<tr>
<td>Relieved</td>
<td>4.3</td>
<td>2.8</td>
<td>2.2</td>
</tr>
<tr>
<td>No real feeling</td>
<td>29.6</td>
<td>26.6</td>
<td>17.4</td>
</tr>
<tr>
<td>Anxious</td>
<td>0.3</td>
<td>3.1</td>
<td>15.2</td>
</tr>
<tr>
<td>Upset</td>
<td>0.3</td>
<td>3.1</td>
<td>8.7</td>
</tr>
<tr>
<td>Angry</td>
<td>0.0</td>
<td>0.0</td>
<td>2.2</td>
</tr>
</tbody>
</table>

**Reclassification of Responses**

<table>
<thead>
<tr>
<th>Positive Reaction (Happy/Pleased/Relieved)</th>
<th>Normal</th>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>69.8</td>
<td>67.2</td>
<td>56.5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neutral Reaction (No real feeling)</th>
<th>Normal</th>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.6</td>
<td>26.6</td>
<td>17.4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Reaction (Anxious/Upset/Angry)</th>
<th>Normal</th>
<th>Overweight</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6</td>
<td>6.3</td>
<td>26.1</td>
<td></td>
</tr>
</tbody>
</table>

The likelihood of negative parental reaction to having the weight of the child checked is greater among parents of overweight and obese children, which finding validates the concerns of GPs.

It is also evident that almost three quarters of parents of obese children did not respond negatively, but responded positively (56.5%) or neutrally (17.4%) to having the weight of the child checked by the GP.
Just over one quarter of parents of obese children indicated they felt angry, anxious or upset on having the weight of their child checked by the GP, which finding also validates the concerns of GPs.

Table 15 Sub group analysis of parent reported child reaction and weight category of child.

<table>
<thead>
<tr>
<th>Child Reaction</th>
<th>Normal (n=324)</th>
<th>Overweight (n=64)</th>
<th>Obese (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Happy</td>
<td>42.9</td>
<td>31.2</td>
<td>19.6</td>
</tr>
<tr>
<td>Pleased</td>
<td>9.9</td>
<td>4.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Relieved</td>
<td>1.5</td>
<td>6.3</td>
<td>4.3</td>
</tr>
<tr>
<td>No real feeling</td>
<td>44.1</td>
<td>48.4</td>
<td>47.8</td>
</tr>
<tr>
<td>Anxious</td>
<td>0.9</td>
<td>4.7</td>
<td>15.3</td>
</tr>
<tr>
<td>Upset</td>
<td>0.6</td>
<td>3.1</td>
<td>13.0</td>
</tr>
<tr>
<td>Angry</td>
<td>0</td>
<td>1.6</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Reclassification of Responses

<table>
<thead>
<tr>
<th>Positive Reaction</th>
<th>Normal (n=324)</th>
<th>Overweight (n=64)</th>
<th>Obese (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Happy/Pleased/Relieved)</td>
<td>54.3</td>
<td>42.2</td>
<td>23.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neutral Reaction</th>
<th>Normal (n=324)</th>
<th>Overweight (n=64)</th>
<th>Obese (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(No real feeling)</td>
<td>44.1</td>
<td>48.4</td>
<td>47.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Reaction</th>
<th>Normal (n=324)</th>
<th>Overweight (n=64)</th>
<th>Obese (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Anxious/Upset/Angry)</td>
<td>1.5</td>
<td>9.4</td>
<td>28.3</td>
</tr>
</tbody>
</table>
The extent to which a negative child reaction is reported among parents of overweight and obese category BMI children is greater than that among parents of normal category BMI children.

Nonetheless, the extent of positive and neutral reaction among all 3 weight categories is greater than negative reaction. Negative reaction is greatest among the obese category, and is reported among 28.3% of parents.

This finding validates concerns of GPs with respect to causing upset among children. This finding also provides a useful baseline level against which future interventions to reduce the reported level of upset can be measured.

3.3.7.2 Results based on socioeconomic background

In presenting data for children from affluent and deprived backgrounds, proportions are determined on the basis of eligibility under the Primary Care Reimbursement Scheme. Those eligible include the greater majority who are fully eligible, and a smaller proportion (1.4%), who qualify for a lesser level of entitlement (on the basis of lower level of deprivation), and who are categorised as ‘GP card only’ medical card patients. Given the very small numbers in the ‘GP card only’ category, it is excluded in the following table for the purpose of clarity, and its questionable significance.

These data are described in tables 16 and 17.
<table>
<thead>
<tr>
<th></th>
<th>Affluent background or 'Private Patients' (n=216)</th>
<th>Deprived background P CRS Eligible or 'Medical Card Patients' (n=212)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Normal BMI</td>
<td>82.4</td>
<td>67.9</td>
</tr>
<tr>
<td>Overweight BMI</td>
<td>12.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Obese BMI</td>
<td>5.6</td>
<td>15.1</td>
</tr>
</tbody>
</table>

**Self reported Parent Reaction**

<table>
<thead>
<tr>
<th></th>
<th>Affluent background or 'Private Patients' (n=216)</th>
<th>Deprived background P CRS Eligible or 'Medical Card Patients' (n=212)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy</td>
<td>49.1</td>
<td>49.1</td>
</tr>
<tr>
<td>Pleased</td>
<td>15.7</td>
<td>12.8</td>
</tr>
<tr>
<td>Relieved</td>
<td>2.3</td>
<td>6.9</td>
</tr>
<tr>
<td>No real feeling</td>
<td>30.6</td>
<td>25.2</td>
</tr>
<tr>
<td>Anxious</td>
<td>1.9</td>
<td>2.8</td>
</tr>
<tr>
<td>Upset</td>
<td>0.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Angry</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Positive Reaction</strong></td>
<td>67.1</td>
<td>68.8</td>
</tr>
<tr>
<td>(Happy/Pleased/Relieved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Neutral Reaction</strong></td>
<td>30.6</td>
<td>25.2</td>
</tr>
<tr>
<td>(No real feeling)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative Reaction</strong></td>
<td>2.3</td>
<td>6.0</td>
</tr>
<tr>
<td>(Anxious/Upset/Angry)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Do you believe checking the weight of your child had an impact on your child?**

<table>
<thead>
<tr>
<th></th>
<th>Affluent background or 'Private Patients' (n=216)</th>
<th>Deprived background P CRS Eligible or 'Medical Card Patients' (n=212)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>89.8</td>
<td>88.1</td>
</tr>
<tr>
<td>Yes</td>
<td>10.2</td>
<td>11.9</td>
</tr>
</tbody>
</table>

**If 'Yes, was this impact ...**

<table>
<thead>
<tr>
<th></th>
<th>Affluent background or 'Private Patients' (n=216)</th>
<th>Deprived background P CRS Eligible or 'Medical Card Patients' (n=212)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>31.8</td>
<td>65.4</td>
</tr>
<tr>
<td>Negative</td>
<td>68.2</td>
<td>34.6</td>
</tr>
</tbody>
</table>
Table 17 Sub group analysis parent reported child reaction and level of affluence (n=428).

<table>
<thead>
<tr>
<th>Child reaction as reported by parent</th>
<th>Affluent background or ‘Private Patients’ (n=216)</th>
<th>Deprived background PCRS Eligible or ‘Medical Card Patients’ (n=212)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy</td>
<td>41.2</td>
<td>35.4</td>
</tr>
<tr>
<td>Pleased</td>
<td>7.9</td>
<td>8.5</td>
</tr>
<tr>
<td>Relieved</td>
<td>1.9</td>
<td>3.3</td>
</tr>
<tr>
<td>No real feeling</td>
<td>45.3</td>
<td>45.3</td>
</tr>
<tr>
<td>Anxious</td>
<td>1.9</td>
<td>4.2</td>
</tr>
<tr>
<td>Upset</td>
<td>1.9</td>
<td>2.8</td>
</tr>
<tr>
<td>Angry</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Positive Reaction</strong></td>
<td><strong>51.0</strong></td>
<td><strong>47.2</strong></td>
</tr>
<tr>
<td>(Happy/Pleased/Relieved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Neutral Reaction</strong></td>
<td><strong>45.3</strong></td>
<td><strong>45.3</strong></td>
</tr>
<tr>
<td>(No real feeling)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative Reaction</strong></td>
<td><strong>3.8</strong></td>
<td><strong>7.5</strong></td>
</tr>
<tr>
<td>(Anxious/Upset/Angry)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Negative impact was more likely among less affluent parents and children.
3.3.7.3 Variation between reported reaction of parents and parent reported child reaction.

There were 15 dyads where the parent had a positive or neutral reaction and the child had a negative reaction, and there were 9 pairs where the parent had a negative reaction but the child had a positive or neutral reaction. In all other instances, reactions reported were the same. These data are of doubtful value.

3.3.7.4 Sub group analysis based on child weight and socioeconomic background

Parents were asked "Do you believe that having their weight checked had any impact on your child?" Sub group analysis of child reaction (as reported by parent) based on weight category and socioeconomic background are given in Table 18.

Table 18 Sub-group analysis based on child weight category and socioeconomic background

<table>
<thead>
<tr>
<th></th>
<th>Normal BMI children (n=324)</th>
<th>Overweight BMI children (n=64)</th>
<th>Obese BMI children (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Impact/no impact as reported by parent</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Impact/no impact as reported by parent</td>
<td>7.3</td>
<td>92.7</td>
<td>15.6</td>
</tr>
<tr>
<td>If YES impact:</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Positive impact</td>
<td>82.6</td>
<td>70</td>
<td>33</td>
</tr>
<tr>
<td>Negative impact</td>
<td>17.4</td>
<td>30</td>
<td>66</td>
</tr>
<tr>
<td>Covered by medical card</td>
<td>44.4</td>
<td>56.3</td>
<td>69.6</td>
</tr>
</tbody>
</table>
This table indicates low levels of parent reported impact on all children, to having the weight of the child checked. This was the case for 67.4% of parents of obese children, 84.4% of parents of overweight children, and 92.5% of parents of normal weight children. One third (32.6%) of parents of obese children indicated that having the weight of the child checked in this manner did have an impact on their child. Of this third, 66% indicated this to be a negative reaction. The extent of negative reported reaction among parents of obese and overweight children is important. The probability of negative impact, and probability of socioeconomic deprivation are both higher for overweight children.

3.3.7.5 Sub group analysis of negative responses by child age category and by socioeconomic background

There is a marked difference in the prevalence of obesity (three fold increase) and overweight (50% higher) among the GMS eligible sub group of children, with a comcomitant increased level of reported negative response. The increased prevalence in overweight/obesity among children from less affluent backgrounds is consistent with findings from The Growing up in Ireland Study.

Sub group analysis of negative response and child age category is shown in Table 19.
Parents were asked "Do you believe that having their weight checked had any impact on your child?" Sub-group analysis of child reaction, as reported by the parent, based on child weight category and socioeconomic background.

Table 19 Sub-group analysis based on child weight category and socioeconomic background

<table>
<thead>
<tr>
<th>Normal BMI children (n=324)</th>
<th>Overweight BMI children (n=64)</th>
<th>Obese BMI children (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YES %</strong></td>
<td><strong>NO %</strong></td>
<td><strong>YES %</strong></td>
</tr>
<tr>
<td>Any impact as reported by parent</td>
<td>7.3 92.7</td>
<td>15.6 84.4</td>
</tr>
<tr>
<td><strong>Positive impact %</strong></td>
<td><strong>Negative impact %</strong></td>
<td><strong>Positive impact %</strong></td>
</tr>
<tr>
<td>82.6 17.4</td>
<td>70.0 30.0</td>
<td>33.0 66.0</td>
</tr>
<tr>
<td>Covered by Medical Card</td>
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<td>44.4</td>
<td>56.3</td>
<td>69.6</td>
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On considering the proportions of the sample from the Medical Card subgroup and the Private Patient subgroup respectively, there is an asymmetric distribution of negative responders, with 61.9% of the negative responders coming from the medical card subgroup, and just over 38.1% of the negative responders coming from the Private Patient subgroup. It is probable this mirrors the asymmetric distribution of overweight among these sub groups.
Parent reported child reaction (using the three level variable) was significantly associated with child weight code, with overweight and obese children more likely to indicate a negative reaction than normal BMI coded children ($\chi^2 = 62.6$, df=4, $p<0.001$). The proportion of child reactions in each child weight category is detailed above.

Child reaction (three level variable) was also significantly associated with child age (used as a categorical variable), with younger children more likely to indicate a positive reaction than older children ($\chi^2 = 32.84$, df=14, $p=0.003$). No significant association was found between child reaction and medical card status or GP practice. The association between child reaction and child weight was examined in logistic regression models that included child age. Using the seven level child reaction categorical variable as an outcome measure in an ordinal regression model, the odds ratio for children reporting a negative reaction was 6.82 ($p<0.001$) for obese BMI children and 1.79 for overweight BMI children ($p=0.029$) when compared to normal BMI children.

In this same model, the odds ratio for five year old children reporting a negative reaction was 0.30 ($p=0.002$) when compared to older children. Using the two level child reaction categorical variable (positive and neutral versus negative) as the outcome variable in a binary regression model, the odds ratio for children reporting a negative reaction was 29.07 ($p<0.001$) for obese BMI children and 5.81 ($p=0.007$) for overweight BMI children when compared to normal BMI children.
The association between child reaction and child age did not remain significant in this model.

The key result here, of practical and of clinical significance, is that children aged 5-6 years of age were found to be most likely to perceive having their weight checked in this manner as a positive experience, and least likely to perceive it as a negative experience.

### 3.3.8 Summary of findings from study of parents and children

Results from the general practice based observational study on the acceptability to parents and children of checking the weight of the child while attending their GP for routine care includes complete survey data from a representative sample of 434 children and parents.

There is good variation in the sample of children and parents recruited, including in both socio economic background, and in the observed distribution of children who are within a normal BMI range, overweight BMI, and obese BMI.

A large majority of parents (98.6%), having had their child weighed in an unexpected manner, and unasked for, indicated that it was useful to do so. This is an important finding.

The extent of negative reaction among parents and children was observed, both in terms of the parent reaction to having the weight of their child checked in this
manner, and also in terms of the parents perceived impression of their child's reaction to having their weight checked in this manner.

It is evident that for most children in the entire sample, this was experienced as a neutral or positive event. Children aged 5-6 years were most likely to experience having their weight checked in this manner in positive terms.

It is evident that a minority of all children perceived this as a negative experience. The extent to which this was evident was greater among children who were from less affluent backgrounds, and among children who were obese. This finding validates the concerns of GPs.

It is also evident that even among children from less affluent backgrounds, and children who were obese, the majority of these important subsections of the whole sample were reported by their parents to have experienced the checking of their weight in either a neutral or positive manner.

It is important to note that just over 1 in 4 obese children were reported by their parents to have been rendered anxious, upset or angry as a result of having had their weight checked, unasked for, and in an unexpected manner, when attending their GP for routine clinical care.

All data collected in the course of this part of the study are reported upon here. No data collected which materially contradicts the study hypothesis has been withheld, particularly that part of it relating to the acceptability to children and parents of the
GP checking the weight of the child when attending for routine, unrelated clinical care.
CHAPTER 4. DISCUSSION

The study addresses two objectives. The first of these was to conduct a survey of a representative sample of Irish GPs, ascertaining their insights, concerns and experience in checking the weight of children, and their experiences in assisting parents and overweight children in managing childhood overweight. The second objective was to conduct a general practice based study where the weight of a representative sample of children attending their GP is checked. Following this, parents were surveyed, seeking their observations on how checking the weight of the child impacted on them as parents, and on how they believed checking the weight of the child may have impacted on the child.

4.1 Did the study achieve its stated objectives?

4.1.1 Survey of general practitioners

The good response rate obtained (80.2%) from a sample equivalent to 20% of Irish GPs indicates that this part of the study did achieve its stated objective. A high percentage of a representative sample of GPs completed and returned surveys. The survey instrument used was a modified form of the questionnaire first used by Dettori to survey Australian GPs regarding their low level of engagement with an Australian interventional study on childhood overweight (KOALA). Many of the questions in Dettori's questionnaire were directly relevant to the aims of this study, and its successful use has been reported previously in the international peer reviewed literature.
Statistical advice confirmed that given a good response rate (ie > 65%), a sample size equivalent to 20% of the population of Irish GPs (n = 2635) would provide representative data (Prof A Kelly). This advice was separately confirmed with reference to Dillman (Table 5.1 p 207)\(^{(129)}\), indicating that given a sample of this size, and given the size of the whole population (n = 2635 Irish GPs), data would provide a level of sampling error of between \(\pm 3\) to \(\pm 5\) percent, which is acceptable. The proposed sample size was further confirmed as adequate, prior to commencing fieldwork, by senior researchers at The National Children’s Research Centre.

4.1.2 Practice based study with parents and children

The second objective related to the practice based observational study, and results obtained from a sample of 500 parents and children aged 5 - 12 years consecutively attending 11 GPs. At the end of the study, 457 parent and child dyads were recruited, with 434 parents completing the post consultation telephone survey. There are several reasons for the shortfall between the original target of 500 and the final figure of 434 completing the full survey (86.8% completion rate). The first reason relates to shortfalls in recruitment which are evident from two practices in particular. In one of these, the practice moved premises during the study period. In a second practice, it was observed that the participating GP, who was a GP Trainer, was encountering a lower number of paediatric cases than expected. The reason for this was that paediatric cases in the practice were preferentially directed towards the GP Registrar, so that the Trainer, who was the participating GP for this study, did
not have an opportunity to recruit to the same extent as participating GPs in other participating practices.

The second reason for the shortfall relates to the attrition and discrepancy between those recruited (457) and those fully completing the survey (434). Thus 23 dyads had the child weighed, but parents were unable / unwilling to complete the post consultation telephone survey. This level of attrition is previously described in detail. It is felt that this part of the study substantially achieved its objective, given that of the planned sample of 500 parents and children, 434 parents completed the post consultation survey, (equivalent to an 86.8% achievement of the target).

Because acceptability is important for this study, we asked participating GPs to note non participation by parents and children. They reported that fewer than 2 parents per practice declined to participate. A high level of participation is in keeping with the experience of the pilot study, and with the informal feedback from participating GPs, who reported no difficulty with parents and children positively responding to the request for their participation, and for the child to be weighed. Further, this high level of participation is in keeping with the broad understanding that a high level of trust is the norm between GPs and patients in the general practice setting, which in turn results in high levels of participation when the GP presents a reasoned request to patients to participate in research, or in elective interventions beyond those on the patient agenda\(^{(135)}\).
For ethical reasons, the experiences of the children were not directly ascertained, but parents were asked how they believed their child responded to being weighed. Analysis of parental versus parentally reported child responses varied very little. Caution is required in interpreting data obtained from parents regarding their perception of how their child viewed being weighing.

It is clear however that a large majority of children were not unduly distressed by unexpected and unsolicited weighing, based on the assumption that should this have happened in individual instances, parents would more likely report this than not report it.

4.1.3 Generalisability of results

In completing the GP survey, the action of checking the weight of children was considered by a large proportion of a representative sample of GPs responding to the postal survey. It is evident from their responses to this survey that GPs are hesitant and apprehensive regarding childhood overweight in practice. Checking the weight of the child was also considered by a sample of parents and children, where the weight of the child was checked, and a large majority of parents (98.6%) indicated it was useful to have had this done.

While checking children’s weight may be conducted in different contexts (for example GP surgery, public health nurse clinic, paediatric clinic, school nurse clinic), there will remain common features of the task, irrespective of context. While results
here are most relevant to General Practice, they are relevant in any consultation or service where children are weighed.

The high level of consensus among parents regarding the value and desirability of having the weight of their children checked by the GP when attending for routine care is remarkable. This finding is likely to be applicable in other healthcare systems, particularly where the role, function and organisation of primary care includes a well defined general practitioner role, and where there is a societal concern regarding childhood overweight. Results are relevant and important to GPs because GPs may now understand that parents value and view positively the action of checking the weight of the child in this manner, given that 98.6% of parents who had the weight of their child checked indicated it was useful to have had this done by their GP. Even though both parents and GPs have a proper concern regarding upsetting the child, these data demonstrate that when the weighing is conducted by the child's GP, that usefulness and value of reliably knowing the weight of the child outweighs the concerns relating to fear of causing upset. It is probable that the trust and knowledge of the GP that parents and children experience in attending 'their' general practitioner is a key element, and it is appropriate to put this shared trust to good use in sensitively exploring and defining the possibility (of an unwelcome and challenging outcome, that is) that the child may be overweight.

The reassurance and value placed by parents on having the weight of the child checked by the GP may apply to nursing colleagues with whom the family is familiar, be they general practice nurses or public health nurses. It may apply to a lesser
extent to doctors and staff nurses working in the general hospital system, where the
doctor or nurse may be less well known to the parents and children. Given the
baselines established in the second part of this study, these assumptions can now be
tested in further studies among these other health care professionals. It is less
certain that results are generalisable to school nurses, given that when the school
nurse checks the weight of children, it is likely that weighing is not conducted in the
presence of parents. It is likely that in such instances, parents may have a heightened
concern, particularly if they fear that the child is overweight. In this context, concern
may be greater where the parent may not be in attendance during weighing,
particularly should the child become distressed. This is especially so where the child
is overweight, or is anxious about their weight.

If systematic checking of weight of children is to be undertaken in general practice,
there are practical consequences to be considered. It may be useful to communicate
this to parents attending the practice, including the provision of waiting room
information advising an interest in childhood overweight, and on the likelihood of
any child having their weight checked as part of routine care. It may include routine
weighing by practice nurses as well as by GPs. The process may include
communication of the choice to not have the weight of the child checked if this is
preferred by parents and children. The process may include establishing a system of
routinely coding childhood overweight in the electronic medical record, and it may
include a system of recall and review for children and parents where the child is
known to be overweight. Such organised activities are possible, were children to
have their weight systematically checked, and given the extent to which electronic medical records are the norm in General Practice\(^{(130)}\).

### 4.2 Implications of results for parents and children

Given that 98.6\% of parents (\(n = 434\)) indicated it was useful to have had the weight of their child checked in this study, it is reasonable to infer that parents would now be supportive of such an approach in General Practice. Results support the introduction of systematic weighing of children in general practice, and making it part of routine care. If systematic weighing becomes part of routine care, children who are becoming overweight will have this identified more reliably, and at an earlier age than is now the case. Earlier identification and systematic follow up is therefore more likely to form one important part of a whole society response to the issue of childhood overweight. Earlier identification of childhood overweight may reduce the probability of individual children becoming progressively overweight.

Such engagement with systematic weighing of children is necessary if GPs and practice teams are to begin to take a managed care approach with obesogenic\(^{(53, 136)}\) families. This may include the delivery of age appropriate information packs for parents and children to work with, encouraging them to engage with community based parenting programmes, and with additional services delivered in the practice. This approach would enable coding of overweight in the electronic medical record, the use of electronic prompts, encompassing a more sustained, consistent and
integrated approach in assisting obesogenic families to take appropriate steps to address the issue of overweight. Should GPs commence systematic weighing of children, instituting a process of managed care for overweight children in their practices, this may contribute to the prevalence of childhood overweight stabilising and reducing, as a result both of general practice based activities, and of other actions, concurrently undertaken in the community, as part of co-ordinated public health policy.

Should the practice of checking the weight of children become more widespread, the small minority of overweight (1:10) and obese children (1 in 4), thought by their parents in this study to have negatively responded to weighing, will be upset. This risk will be addressed by clearer communication on the option of not having weight checked at the practice level if preferred, and by a focused approach addressing the consultation skills of clinicians who raise the issue in consultation, and who check the weight of children. Moving practice beyond that described in the GP survey in this study to a process of routine care which includes regular checking of weight of children can be enabled by the development of a blended learning consultation skills package, through the ICPG, at a national level. The evidence for such an approach is promising, and although altering behaviours of individuals and families is challenging, even modest changes in behaviours relevant to the highly prevalent pathologies in a society can result in important gains, both at an individual and a societal level (137, 138).
Normalising the process of checking weight, through practising the technique of weighing in the consultation, and the use of a blended learning consultation skills package for general practices are two actions which are likely to reduce the levels of reported upset among parents and children in this study. It is likely these levels can be reduced further. At present, fewer than 1 in 20 of GPs indicate that they always check the weight of children, and fewer than 1 in 5 GPs use BMI centile charts to determine if a child is overweight. Most GPs are clearly troubled in their clinical approach to childhood overweight, and are reluctant to check the weight of children as part of routine consulting. However, parents whose children have had the weight of their child checked, clearly valued the GP doing this.

These findings enable GPs to be reassured regarding their fear of causing upset, and to be more systematic in their approach to childhood overweight in practice, particularly if their approach can be further improved and supported by readily available educational material on weighing technique and on improving consultation skills relevant to reducing anxiety and upset among the small proportion of children and parents reporting upset in this study.

In view of the reported experience of parents and children in the practice based element of this study, GPs can progress confidently to engage systematically in managing childhood overweight, the first step in this being the earlier identification of overweight in individual children, moving on from this towards agreeing the problem and possible solutions with parents of overweight children, and then monitoring the issue over time. These actions make it more likely that acceptable,
appropriate and effective solutions, tailored to the individual circumstances of the family, will be identified, agreed and implemented over time.

4.3 How results can influence policy

The results add weight to the commonly held policy position that GPs (and their practice teams) should be checking the weight of children. They provide reassurance to GPs, and data reported here\(^{(139)}\) allow GPs to understand the value which parents place on checking the weight of the child.

Results from this study add to the increasingly strong case to support both screening for childhood overweight in the general practice/primary care setting, and for the systematic follow up of overweight children and obesogenic families in a planned process, in primary care. Should GPs embark on this level of activity, policy may support the provision of financial incentives. For example, in order to establish the habit of routine weighing, policy might support modest bonus payments on electronically submitted proof of a GP or practice having screened 80% and 95% of their populations of 5-6 year olds respectively.

Shaw, in his preface to The Doctor's Dilemma\(^{(140)}\), observed with characteristic spleen that Doctors are paid for the amount of disease in their practice, when in actual fact they should be paid 'not on the number of people who are ill, and whom he can keep ill, but on the number of people who are well.' Were GPs and Practice Teams to be paid a quality bonus for BMI z score recorded and BMI categorised, on completion of 80 and 95% targets for children of specified age categories, this might
arguably be considered good value, particularly were they also to have demonstrable proof of having communicated to parents of overweight children on the issue of the child's weight, inviting them to attend for follow up, and the provision of an information pack on maintaining a healthy weight.

4.4 Managed care of childhood overweight in general practice

Overweight children and their parents may be afforded the choice systematically to address the issue of the child's weight, during their subsequent attendances at their GP. This choice is not afforded them at present, and parents of overweight children and their GPs do not address the issue unless the child has become overweight, and not always even then. This phenomenon is particularly illustrated by findings from the small pragmatic study reported by White et al, where among a small sample of 16 overweight children, in only one case had there been a weight previously recorded by the GP ('Childhood overweight: parents fail to notice and GPs fail to react,'\textsuperscript{(22)}.

4.5 Results do not enable repeated checking of the child's weight by the GP

The practice based part of this study included weighing a sample of children on one occasion. It is not possible from these results to conclude that it is acceptable to continue to check the weight of children. A possibility exists that parents of overweight children, and their children, may find repeated follow up weighing unacceptable. It is important that all GPs do not embark upon a programme of
weighing and advising, which may further add to the distress of overweight children and their parents, and damage the relationship between the GP and family. This requires further investigation, including a controlled trial of managed care, investigating acceptability and efficacy among a cohort of overweight and obese children.

Given that childhood overweight is not at the present systematically raised in the general practice consultation, it is difficult for sustained engagement or collaboration to develop between parents, children and GPs. However, given that 98.6% of parents from the second part of this study have now indicated that it would be useful to have the weight of the child checked in this manner, this now enables the weight of the overweight child to be checked, and therefore make it possible for important discussions to be opened on the issue of the weight of the child.

Less than 1 in 10 overweight children, and just over 1 in 4 obese children were reported by parents to have been angry, anxious or upset as a result of weighing. It is hypothesised that this level or reported upset can be reduced further by making available a consultation skills training package for GPs, and all other primary care disciplines, with the aim of reducing this low level of reported upset further. Support for this concept is evident in the research literature [33, 141-143].

Thus, if childhood overweight can be systematically identified during routine consulting, this will move GPs and families from where they are at present ('We can't mention this') to a position where longer term management can, at least, be discussed when appropriate. Where the child has been identified as being
overweight, there is a range of options for the family to explore and consider in the general practice setting where the practice team are interested and organised.

Building on such consultations, both in clinical practice, and in the context of an organised controlled trial of managed care conducted over several years will place general practice management of childhood overweight on a sounder footing, and will increase the probability that overweight children and their parents will become more successful in addressing this pressing issue.

4.6 Developing general practice responses to childhood overweight

Results from the practice based part of this study, indicating the value that parents placed on having the weight of their child checked by the GP, can influence current practice in supporting GPs to screen systematically for overweight among children. Results from the survey of general practitioners indicate clearly that GPs do not consistently do so, and that they are particularly inconsistent in their responses when consulting with overweight children.

Practices may identify and provide an appropriate range of patient information leaflets, communicate web based resources, agree care plans characterised by electronic prompts, including recalls in the electronic medical record, serial checking of weight, and the identification of an individual team member within the practice who may take a special interest. This may be a GP within a group practice, or it may be a practice nurse or counsellor within the practice team, or indeed a visiting health care professional (eg dietician) or trained fitness coach. Such an individual would be
well positioned to commence a series of supportive conversations with parents on nutrition, activity levels and on self care for this issue (ie overweight). This approach is in keeping with the principals outlined in the Chronic Care Model, which emphasises patient centred care, delivered on a near patient basis, with tasks delegated to the lowest level of cost and complexity, and with a strong emphasis on enfranchising patients towards effective self care [144].

This in turn leads to the question whether overweight can be regarded as a disease. The evidence previously referred to in the introduction indicates a clear relation between overweight and a wide range of prevalent pathologies on one hand. On the other hand, there are many overweight individuals who are capable of engaging in a full range of activities and who report themselves to be well. It lies beyond the scope of this discussion to make a clear determination on whether overweight should be considered a disease, beyond noting that given the persuasive evidence linking overweight to important pathological outcomes, together with the prevalence of overweight, that individuals who are identified as being overweight should have access to all reasonable measures to enable them to maintain a weight within a healthy range. Given that achieving this will depend on substantial behavioural change relating to eating and exercise, the consistent clinical approach taken in chronic disease management may be appropriate and necessary until such time as the prevalence of overweight and conditions clearly related to overweight are reduced.
Summarising, overweight may or may not be considered as a disease, but it can be addressed as a chronic disease at a general practice level as part of a whole society response to the risks which are now clearly associated with being overweight.

There is a need to scope out each step in managing overweight as a chronic disease with reference to the emerging research base. Where the evidence base is deficient, there is a need to conduct further pragmatic general practice based studies, examining separate steps for acceptability, efficacy, cost benefit and feasibility, and to do so over a reasonable time period.

4.7 Childhood overweight - to screen or not to screen?

There is a value judgement to be made here, regarding whether one should advocate screening for childhood overweight or not. This judgement should be made with reference to Wilson’s criteria. Wilson's criteria include that the condition should be an important health problem; childhood overweight is clearly linked to a range of important health problems, some of which become apparent even in childhood, and many others become increasingly prevalent during the life cycle of the individual. The natural history of overweight and obesity has been well studied, and overweight is clearly related to a range of conditions which themselves result in higher levels of morbidity and mortality, particularly those related to diabetes and cardiovascular disease. There is clearly a recognisable latent phase in this process, where the pathological process (progressive degrees of overweight in the individual) can be identified before
irreversible pathology is evident. There is a test which reliably and easily identifies overweight, and indeed there are striking similarities between screening for overweight and hypertension in an otherwise asymptomatic population. The test for overweight relates to weighing the individual, and determining the extent to which they are overweight with reference to their age, gender, height and with respect to the range of weight with reference to a standard population. Given that techniques for checking weight and measuring height are standardised, and the extent to which data for individuals can be compared with population based standards for calculated body mass index, checking weight and height and the interpretation of these data can now be regarded as an acceptable method, suitable for systematic use in clinical practice. As previously noted, there is a growing body of research which indicates the efficacy of a range of clinical interventions. Separate to this, there is a range of public health measures, together with regulatory measures in food production, marketing, and environmental planning, all of which make it more probable that the prevalence of overweight, and of the conditions known to be associated with it, are reduced.

A wide range of clinical interventions have been the subject of ongoing research, the broad objectives of which are to establish which interventions are effective, at what point should the intervention be undertaken, and this in terms of the age of the individual and the extent to which they are overweight. For example, following the identification of overweight in a pre adolescent child, brief educational intervention with parents on lifestyle and routine clinical follow up at the primary care level may be appropriate, whereas in the morbidly obese young adult with diabetes and
obstructive hypoventilation syndrome, refractory to conservative treatment, bariatric surgery may be the appropriate intervention.

Wilson's criteria state that treatment should be more effective if started early. It is known that earlier onset of overweight and obesity in childhood is clearly associated with more complicated and difficult outcomes subsequently. The examples cited above simply describe how earlier, less intensive interventions are preferable in the context of overweight, rather than later, more invasive interventions in the context of obesity. In order to prove clearly that treatment started earlier is more effective than treatment started later, it would be necessary to conduct a large series of controlled trials running over many years on representative cohorts, and at present, such evidence does not exist.

Wilson's criteria state that there should be policy on who should be treated, and based on examples cited previously in relation to policy in the United States, the United Kingdom, Denmark and Ireland, together with selected reference to supranational policy (eg WHO Europe) it is clear that policy does exist regarding who should be treated, decisions to treat being defined in terms of calculated BMI, expressed as centiles for a relevant reference population. The criteria further state that diagnosis should be cost effective. When checking of height and weight are conducted efficiently by skilled and experienced clinical staff, the costs associated are small. The efficacy of treatment is improving, as indicated in a Cochrane review (2009) on the efficacy of treating overweight and obesity on children and adolescents at 6 to 12 months, which clearly concluded that lifestyle interventions
alone can reduce the level of obesity. Given the multiple treatment options (lifestyle, individual or family based, medication, surgical treatments) and the relatively short duration of studies conducted, clear and unequivocal evidence does not exist regarding the cost efficacy of treatment of childhood overweight, but a large and increasing volume of studies do strongly support the idea that there is increasingly effective treatment for treatment of childhood overweight.

The last of Wilson's criteria is that case finding should be continuous. Given the frequency with which parents and children attend GPs, and the speed with which overweight can be screened for, case finding for what is a common condition (childhood overweight) can be continuously undertaken. Where overweight is identified by the GP, there is an increasing range of interventions which can be carried out, and the evidence for which is previously discussed in this thesis, which evidence is incrementally improving\(^\text{(1)}\).

Given that childhood overweight is a common concern which has clear and serious consequences for the child, it is now important that screening in General Practice for childhood overweight, and managed care for overweight children and parents, should be subjected to trial.

### 4.8 GPs contributing to the solution and becoming part of it

Given the level of avoidance of both GPs and parents engaging with childhood overweight, particularly evident in the responses of GPs surveyed in the first part of this study, it may be argued that GPs and parents are now 'part of the problem.'
Failure of GPs and parents to act systematically may or may not be as much of the problem as the unfettered commercialism of the agrifood industry, or sub optimal planning regulation or lax environmental legislators or indifferent educators. However, in failing to engage effectively and collaborate on this issue, parents and GPs are nonetheless part of the problem. GPs and parents might now reasonably be challenged and encouraged to become ‘part of the solution’ instead. GPs are known to be capable of measuring height and checking weight in a reliable manner, and in Ireland, they are known to regularly discuss eating habits and weight on a daily basis in their consulting (147), both of which are important in supporting the idea that GPs are ‘well placed’ in this context.

It may be helpful for children and parents were doctors to edit their vocabulary in the consultation. In doing this, difficult words such as ‘fat,’ ‘obese,’ and especially ‘morbid obesity’ might be eschewed, in favour of terms such as ‘checking your weight,’ and if finding this to be excessive, restricting the discussion between parents, GPs and children towards ‘finding a better weight’ for the child. Given the closer process of care delivered by GPs, by comparison with paediatricians or any other health care professionals, it still appears correct to assert that, despite their own misgivings, GPs, as physicians of first contact, are best placed to address this issue with families. Colbert (145) eloquently observes that ‘the front lines of the obesity epidemic often lie in the primary care doctor’s office.’
4.9 Selective checking of weight of children by GPs

On considering the key conclusion from this study, that it is acceptable for GPs to check the weight of children attending for routine care, it would now be timely for GPs to engage in systematic screening. Two point screening of all children at 13 to 24 months, and at 5 to 6 years, would allow parents and GPs identify earlier which children were overweight. The first screening point would correspond with the final general practice based immunisation in the Irish primary immunisation schedule. It is known that even at this age, 20% of Irish children are already overweight at 2-4 years of age\textsuperscript{(148)}. A preliminary feasibility pilot study has been conducted among a sample of children aged 12-24 months and parents, and results from this include that the weight of over 1 in 4 ($n = 39$) was above the 91\textsuperscript{st} centile (UK 0-4 Centiles). A second finding from this small pragmatic study was a high level of acceptability among parents to the process of weighing and brief intervention on toddler nutrition and activity delivered to these parents and toddlers in the general practice setting\textsuperscript{(21)}.

A second factor supporting two point screening with children aged 5-6 years based on data from this study, is that highest levels of acceptability and lowest levels of negative response in all children screened (aged 5-12 years) were both evident among the 5-6 year olds. Children of this age group were most likely to respond positively to being weighed by the GP, being most likely to be reported by their parents as being neutral, relieved, pleased or happy on being weighed.
A further reason to consider two point screening at 13 to 24 months and at 5-6 years is that up to the emergence of adolescence, parents are best placed to influence the diet and the activities of children, and parents and GPs are best placed to collaborate effectively during the first decade of the life of the child. When adolescence is established, it is arguable that increased complexities (for example the emergence of oppositional defiance in the adolescent) and the impact of more complex external influences operating directly on the adolescent make the challenge of exerting a meaningful positive influence on diet and activity more difficult. Two point screening at the earlier ages of 13-24 months and at 5-6 years provide the optimal opportunity for constructive collaboration between parents and GP to address overweight in childhood, operating in the domain of primary and secondary prevention of overweight during childhood, rather than in the less certain and more challenging domains of secondary and tertiary prevention of overweight related pathologies during adolescence and adulthood.

As a simple consequence of such two point screening, parents, and children of normal weight could be positively reassured regarding their weight. At present, such positive reinforcement is currently absent from the discussion on childhood overweight. Two point screening would afford GPs the opportunity to complement and to reassure the majority of parents and children, where the child was maintaining a healthy weight.

Two point screening at 13 – 24 months, and at 5-6 years holds out the prospect of identifying the overweight cohort earlier, and to introduce systematically
Interventions during childhood, particularly among toddlers, preschool children, and younger primary school children. Interventions conducted during this period of childhood are more likely to be effective than among pre adolescent or adolescent children. These interventions will include provision of advice and information to parents of overweight children, planned review consultations to recheck the weight of the child, a broad based approach directed at the obesogenic family, and including family based interventions delivered on a near patient basis either in the practice or in the community.

4.10 General practice is well placed to address childhood overweight

One of the features of general practice in many health care systems, including Ireland, is that general practice services are accessible to less affluent families. Childhood overweight is unevenly distributed in the population and is more prevalent among children from less affluent backgrounds \(^{(150)}\). Further, data from the second practice based part of this study confirm that children from less affluent backgrounds (ie whose care was eligible under the primary care reimbursement scheme) were more likely to be overweight than those from more affluent backgrounds. Were the GP and practice team to engage systematically in screening and managing overweight, the added cost is likely to be modest, and the advantage to these parents and children may be valuable should it transpire that screening and systematic management of the overweight sub group are effective.
4.11 How study results can guide further research

Results indicate that checking the weight and height of all children aged 5 to 12 years is most likely to be acceptable to children aged 5 to 6 years, and progressively less acceptable to older children in this range. This finding, of higher levels of acceptability to children aged 5-6 years, bears similarity to the 5 year Primary Care Health Check established in Denmark. Where a child aged 5 to 6 years is identified as being overweight, there is arguably a good window for intervention between 5 – 12 years, before the more complex scenario posed by adolescent psychology and the oppositional defiant dynamic establishes itself between parents and adolescents in the second decade of the life of the individual.

4.12 What remains unresolved?

This section includes consideration of what remains unresolved regarding general practice management of childhood overweight, and recommendations for further research in this area of care.

The efficacy of primary care / general practice management of childhood overweight remains unproven. Studies reported are of relatively short duration (1-2 years) and have been devised outside of the discipline of general practice and even primary care. They have been intensive in terms of resources to an extent which renders them of questionable cost efficacy\(^{114}\). The extent to which such resource intense interventions are transferable from the specialist environment to the general practice environment is important, and adds additional uncertainty regarding the
incomplete body of research relating to interventions for childhood overweight. The extent to which such resource intense interventions are applicable is important, especially in an era of financial contraction in most health care systems, and especially where the problem is unevenly distributed, with a larger proportion of obesogenic families located in more deprived communities and populations.

Wake \(^{60}\) summarises the position, where she notes that 'general practitioners (GPs) are the only universally accessible and funded primary healthcare providers available to all school-aged children. Little is known about how often GPs tackle this issue in children, but, extrapolating from the experiences of obese adults (BMI ≥30 kg/m\(^2\)), we can assume that families of most overweight or obese children are not proactively counselled.' In her review, Wake advocates that 'surely we should just do it,' to which may be added, and in a manner which is at pains to reduce the level of trauma to overweight children and parents.

The chronic care model provides a framework upon which to base this effort. The complex adaptive nature\(^{151}\) of general practice can further inform such an effort, executed through the conduct of a longitudinal controlled trial using two point screening to identify the overweight subgroup of children, and making available to them and their families a range of intervention options, delivered on a near patient basis, in their own community, informed and monitored by general practice which combines knowledge of the child and family and knowledge of in practice and community based resources. At this point, running a controlled trial of screening in general practice, the use of in practice at risk registers, the sustained delivery of a
‘bundle’ of simple, low cost practice based interventions over 3-4 years is well worth exploring, particularly if such a trial can be set up in a sound, rigorous and practical manner.

In the longer term, it is improbable that general practice will, as a discipline, single handedly resolve the problem of childhood overweight. It is likely however, that by taking a more focused, systematic and empathetic approach in daily practice, that GPs and Practice Teams will be able to contribute substantially as an important and obvious part of an effective ‘whole society’ response to this problem. It is appropriate that General Practice will contribute to reducing the risks associated with childhood overweight, and will become increasingly effective over time. The key results from this study may be of some assistance in enabling individual GPs to begin to engage.

4.13 Summary of research recommendations

a. Blended learning consultation skills package

Devise a blended learning consultation skills package to be made available to GPs and Practice Teams, communicating on the evidence base for checking the weight of children in consultation, and on communicating on the issue of overweight with parents and overweight children. This recommendation has been acted on, and a trial version of the package is available and is likely to launch on a 32 county basis, with support from the ICGP, and the Republic of Ireland and Northern Ireland Faculties of the RCGP in Autumn 2014.
b. Trial of 2 point screening for overweight in general practice

A clinical trial of two point screening for childhood overweight in General Practice is recommended, at 13 to 24 months and at 5 to 6 years, utilising standard weighing technique, the electronic medical record, coding of overweight, together with a ‘bundle’ of interventions which are readily available on a near patient basis, including periodic recall, provision of healthy eating information, coaching by an individual within the practice, referral of families / parents to community based programmes on healthy lifestyle and healthy eating, and selected use of referral to Dietetics and to secondary care. Measurement and detailed analysis of adverse reaction among parents and children must be an integral part of such a trial.

c. Qualitative study with obese children on their experience and preferences in relation to care provided in the general practice setting.

Results from this study do partly validate the concern of GPs regarding causing upset to overweight children. A closer study on the experiences of the overweight, particularly in their interactions with the health services, would now be timely, and is justified on the finding from this study that 1 in 4 obese children (and 1 in 10 overweight children) are reported to have been rendered angry, anxious or upset when the weight of the child was unexpectedly checked by their GP in the course of routine care. It is likely that the experiences of this important sub group of children will be complex, and on this basis a qualitative methodology would be most suited to understanding, interpreting and responding to the experience of these children and their parents.
CHAPTER 5 CONCLUSIONS

Given the extent of childhood overweight, the pathologies associated with it, and
the extent to which children and parents attend their GP for routine care, GPs will
continue to be challenged in their clinical practice with childhood overweight, and
childhood overweight will remain as a concern for children, parents and GPs.

It is important that the engagement of GPs is helpful and acceptable to parents and
children, that it is not harmful, and that the engagement of GPs should be effective
in assisting children, parents and families in their efforts towards better health
outcomes. It is important to consider what can be done to assist GPs become more
effectively involved. The following conclusions can be drawn from the survey of GPs,
and from the observational study in general practice.

5.1 Conclusions based on data from the survey of GPs

Most GPs view childhood overweight and obesity as a medical problem. GPs believe
they do have a role in addressing childhood overweight in the consultation. GPs
believe that parents of overweight children do not see childhood overweight as a
medical problem. They believe that parents of overweight children do not attend for
follow up of childhood overweight. Fewer than 1 in 20 GPs surveyed indicate they
consistently use guidelines in this area of care. Fewer than 1 in 25 GPs surveyed
indicate they consistently check weight and height of children as part of routine care.
Fewer than 1 in 5 GPs surveyed indicate they routinely use age adjusted BMI centile
charts in their identification of overweight in children, which is the accepted
standard in correctly and accurately determining the presence and degree of childhood overweight. Fewer than 1 in 10 of GPs actually consistently raise the issue of overweight when in consultation with an overweight child and parent.

These are all important baselines against which future interventions, studies and the efficacy of improved guidelines can be benchmarked.

Over 9 out of 10 GPs report it difficult to broach the issue of childhood overweight with parents. Fewer than 1 in 5 of GPs indicate that fear of parental response never stops them raising the matter with parents. Fewer than 1 in 10 GPs believe that parents of overweight children are interested in discussing the weight of the child. Fewer than 1 in 6 GPs consistently invite parents of overweight children to return to review the BMI of the overweight child. When they do so, only 1 in 50 of GPs surveyed believe parents consistently do return. More than 2 out of 3 GPs surveyed indicate they do not consistently refer obese children to the Dietician, and most indicate they do not find such referrals to be consistently followed up by parents, or to be of benefit (fewer than 1 in 10 GPs report dietician referrals to be consistently useful). Most GPs surveyed are not confident in their management of childhood overweight.

These findings are in conflict with the current and most recent HSE ICGP Guideline and place GPs outside of what is arguably considered to be the universal policy position on this area of care in developed societies. Most policy clearly identifies primary care and GPs as being important in the identification and management of overweight among children.
GPs participating in the survey remain apprehensive regarding parental responses. Their apprehension inhibits them from addressing the issue systematically in the consultation, as also do their beliefs regarding the behaviours and consistency of parents in their willingness and ability to follow a management plan.

Despite these uncertainties and inconsistencies regarding managed care and conventional guidelines, almost 7 in 10 GPs strongly agree that they would like another guideline, and 6 out of 10 GPs indicate strong interest in an embedded age/gender adjusted centile calculator embedded in their electronic medical record system. In keeping with evidence elsewhere, payment does not appear to be a strong driver among GPs surveyed, with fewer than 1 in 3 GPs in strong agreement regarding the need for ‘modest targeted payments.’

GPs (and by inference other members of the General Practice Team) should consider systematically checking the weight of children. Strong and effective messaging into the public domain should be undertaken in order to communicate the objective of checking the weight of all children, with a view to assisting overweight children achieve a healthier weight over time. GPs should be identified in such public messaging as reliable, trustworthy and appropriate agents who can check the weight of children, and who can advise parents and children appropriately regarding the weight of the child.

GPs should be provided with further appropriate tools to assist them, and General Practice Teams also, including age and gender adjusted BMI centile charts, BMI
calculators, and a system of automatic prompts, all embedded in the electronic medical record system. These will enable GPs and Practice teams systematically to undertake activities which will have childhood overweight reliably identified / objectified in a more timely manner, coded within the electronic medical record, and placed on a ‘managed care’ basis in practice, for those parents and children who are concerned by the weight of the child, and who wish to achieve a healthier weight over time.

5.2 Conclusions based on data from study with parents and children.

A sample of 434 children and parents completed this part of the study, conducted in 10 different practices, involving a purposively selected sample of 11 GPs. Having had their child (aged 5-12 years) unexpectedly weighed, and the gender age adjusted BMI centile calculated when attending their GP for unrelated routine clinical care, an overwhelming majority of parents (98.6% of this sample) indicated it would be useful to have the weight of the child checked in this manner when attending their GP.

Negative response of parents and of children was sought. It was found to be low. Almost 9 out of 10 parents indicated checking the weight of the child in this manner had no impact at all on their child. Just over 1 in 10 parents indicated it did have some impact. Of this small sub group, two thirds indicated the impact was positive in nature.

An important subgroup of 46 obese children were identified in the sample. Just under three quarters of the 46 obese children were reported by their parents to
have experienced having their weight checked as positive or neutral. Just over 1 in 4 of obese children in this sample were reported by their parents to have been rendered anxious, upset or angry as a result of having their weight checked by the GP.

A further sub group analysis of responses, based on child age, indicates that children aged 5-6 years were most likely to be reported by their parents as responding to having their weight checked in a positive manner (ie were reported to be happy, pleased, relieved or neutral by their parents). On this basis, it is recommended children aged 5-6 years be screened nationally for overweight, in general practice, working to a target of 100%, and utilising the known capacity of GPs and Irish General Practice in information technology and active electronic medical record systems.

Additional observations on personal reflections on the program of research conducted

In discussions with parents and children regarding childhood overweight, health care professionals might consider avoiding the term ‘obesity.’ It is unhelpful and even damaging in the personal context, strongly reinforcing the concept and belief among individual children and parents that the problem of the individual’s weight is insoluble. Use of the word obese can also be rejected on the grounds that it is imprecise and stigmatising. The terms ‘good weight,’ ‘better weight,’ ‘overweight’
and where necessary ‘very overweight’ are preferable in the context of paediatric consulting.

The approach underlying the chronic care model is relevant in the management of childhood overweight, based as it is on the concepts of enfranchising individuals, on the lowest cost / least complex effective interventions, delivered on a near patient basis, including appropriate knowledge resources, the dissemination of relevant skills, and commitment to long term follow up guided by sustained and consistent primary care based recalls, reminders and planned reviews.

Based on informal feedback from colleagues, including those who themselves assisted with the observational study on checking the weight of children in general practice, the systematic engagement with children and parents in assisting children maintain healthy weights can be wholeheartedly recommended as being appreciated by an overwhelming majority of parents and children, valued by them, as feasible in practice, and a useful task to be taken up by the General Practice Team. This is especially likely if the teams are properly provided with the equipment, tools and skills to measure accurately and calculate data enabling them systematically to record BMIs for children, and to put in place a supportive, monitored long term plan, with the objective of assisting families to manage the issue of overweight over a period of several years, with the assistance of local resources, chief among them being their General Practice and Primary Care Teams. Given that childhood overweight is particularly prevalent in deprived families and neighbourhoods, it is important that this is practically reflected in allocating resources accordingly.
5.3 Summary of Recommendations

- Develop a blended learning consultation skills package, for dissemination among GPs, General Practice Team Members, and Primary Care Team Members, who should be provided with a high quality blended learning package, focused on specific consultation skills likely to reduce further reduce the low level of upset and negative reaction observed in this study, particularly when confirming the weight of obese children. The blended learning package could be disseminated through the Tutor Network at the ICGP, on a national basis, and it is likely that such an initiative would be relevant to other disciplines (Nursing and Paediatrics) as well as to Primary Care Teams.

- The current ICGP HSE Guideline (99) should be considered for review, to include a recommendation that all children aged 5-6 years should have their weight checked and evaluated by their GP. Outcomes from this recommendation could be evaluated using an Irish Primary Care Research Network (iPCRN) based study. Utilising information technology at the iPCRN would enable the extent to which early adapter practices respond to the initiatives outlined above, and in time to confirm if these measures are effective in reducing the level of childhood overweight in Irish children, and could be extended as standard practice in Irish General Practice.

- Licensed software vendors should be required by GPIT to include paediatric BMI centile charts in clinical software. Encourage childhood overweight management to become a managed care process, with the recommendation that coding, recall and ongoing support of obesogenic families is uniformly available in primary care, on a family basis, taking the long term, generational view.
• Make available modest targeted payments to GPs for checking weight of 1-2 and 5-6 year olds.

• Undertake a feasibility study on systematically screening children attending General Practice, with particular provision for the study and observation of levels of adverse reaction among children and parents.

• If the above steps are deemed useful based on data presented here, consider upgrading ICGP HSE guideline to encompass national screening for overweight in 1-2 year olds and 5-6 year olds.

• Should an active population based approach be undertaken involving parents and children in addressing childhood overweight, it is important that recognition of the higher prevalence of overweight among deprived families is reflected in the manner in which provision of both practice and community supports in assisting parents and children is carried out, and properly reflects the disproportionate level of overweight in deprived communities.
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Appendix 1 Survey of General Practitioners - Questionnaire

A  Practice Profile and Demographic Data

<table>
<thead>
<tr>
<th>Which of the following best describes your practice location? (please circle)</th>
<th>City</th>
<th>Suburban</th>
<th>Town</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which of the following terms best describe your practice? (please circle)</td>
<td>Single handed</td>
<td>Two or more doctors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approximately what percentage of your patients is in the following categories?</td>
<td>Medical Card Eligible %</td>
<td>Private/Fee Paying %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you ............ (please circle)</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In what age range are you? (please circle)</td>
<td>under 30</td>
<td>31-40</td>
<td>over 60</td>
<td></td>
</tr>
<tr>
<td>In your practice, how would you describe the volume of paediatric casehandling? (please circle)</td>
<td>Small volume of paediatrics</td>
<td>Average volume of paediatrics</td>
<td>Large volume of paediatrics</td>
<td></td>
</tr>
</tbody>
</table>

Some key terms: ‘Child’ & ‘Children’ are taken to mean 5-12 year olds
‘Overweight’ is taken to mean age adjusted BMI 25-30
‘Obese’ is taken to mean age adjusted BMI greater than 30
‘Parents’ are taken to include parents and guardians

B  Please consider these statements regarding your involvement in the care of overweight / obese children in practice. Please respond by circling the response which best indicates your answer
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly DISAGREE</th>
<th></th>
<th>Strongly AGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Childhood <strong>overweight</strong> is a medical problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Childhood <strong>obesity</strong> is a medical problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>GPs have a role in childhood <strong>overweight</strong> management</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>GPs have a role in childhood <strong>obesity</strong> management</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Parents view childhood <strong>overweight</strong> as a medical problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Parents view childhood <strong>obesity</strong> as a medical problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>A national guideline would be useful in the area of childhood overweight / obesity</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Modest targeted payments would be effective in the management of obese children</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>I am now more confident managing childhood overweight / obesity than I was 5 years ago</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Do you follow any guidelines or standards in routine consulting in this area of practice?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Are you routinely measuring children's height and weight?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Do you use age adjusted BMI charts in your identification of overweight children?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>Does your view of likely parental response affect the likelihood of your raising the matter in consultation with parents of overweight children?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Age adjusted BMI charts embedded in an electronic drop down menu would be useful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

*NB - If you use a paper based records system, please indicate here ( ) and skip this question*
15 Do you find it difficult broaching the subject of childhood overweight with parents?

16 Does the possibility of a negative response from parents stop you discussing their child’s weight?

17 Are parents interested if you discuss their child’s overweight / obesity with them?

18 Do you ask overweight children / guardians to return for review of their BMI / weight?

19 If or when you do, do they return for follow up with you?

20 Do you refer overweight children to a Dietician?

21 Do you refer obese children to a Dietician?

NB - If answer to Nos. 20 & 21 is ‘never’, skip remaining questions

22 Do you find that such referrals are followed up by Parents?

23 Do you find such referrals to have been useful?

24 When an overweight child presents with an unrelated problem, how frequently do you raise the issue of their overweight in the consultation?

Thank you for taking time to finish this survey, and for returning it.

Your help is greatly appreciated.
Appendix 1 (continued) - Letter to GPs

17.10.11

Dear

We are carrying out a research project on overweight and obesity in childhood in general practice, as it is an emerging problem. We hope to design an intervention that will be conducted in general practice. Before we get that far, we need to assess GPs current beliefs and practices, with respect to children who are overweight; hence this short survey.

We do not know how GPs currently see themselves in this area of child care, and what factors need to be addressed.

We are contacting you as your name was randomly generated from our current list of Irish GPs that we have used in previous surveys. As it is an anonymous study, the survey is accompanied by a post paid card, which we request you to return separately. Returning this card will avoid us troubling you with reminders.

The survey has received ethical approval from the ICGP Ethics Committee, and is funded by The National Children’s Research Centre, at Our Lady’s Children’s Hospital at Crumlin. Results will be notified, with a summary in Forum, and posted in detail on our Departmental Website.

The survey takes 4-6 minutes to complete. It draws on previous surveys, so that results will be comparable with international data.

We appreciate this is a demand on your valuable time, at a busy time of the year. We have had great support from our GP colleagues over the years, and we hope you will be in a position to complete and return the survey.

Please send either of us an email or telephone if you have any queries.

Yours sincerely,

Dr. Brendan O’Shea

drbrendanoshea@gmail.com
Tel 087 2424405
Lead Investigator

Prof. Tom O’Dowd

todowd@tcd.ie
Tel 01 896 1087
Study Supervisor
Dear

We wrote to you recently about a research project on overweight and obesity in childhood in general practice. We do not appear to have had a reply from you to date and this reminder is to ask for your valued help. We have had a great response so far, as it is a topic of interest and importance in general practice.

We hope to design an intervention that will be conducted in general practice. Before we get that far, we need to assess GPs current beliefs and practices, with respect to children who are overweight; hence this short survey.

We do not know how GPs currently see themselves in this area of child care, and what factors need to be addressed.

We are contacting you as your name was randomly generated from our current list of Irish GPs that we have used in previous surveys. As it is an anonymous study, the survey is accompanied by a post paid card, which we request you to return separately. Returning this card will avoid us troubling you with a further reminder during the third and final mailing of the study. If we have inadvertently mailed you previously, and you have already responded, apologies for this.

The survey has received ethical approval from the ICGP Ethics Committee, and is funded by The National Children’s Research Centre, at Our Lady’s Children’s Hospital at Crumlin. Results will be notified, with a summary in Forum, and posted in detail on our Departmental Website.

The survey takes 4-6 minutes to complete. It draws on previous surveys, so that results will be comparable with international data.

We appreciate this is a demand on your valuable time, at a busy time of the year. We have had great support from our GP colleagues over the years, and we hope you will be in a position to complete and return the survey.

Please send either of us an email or telephone if you have any queries.

Yours sincerely,

Dr. Brendan O’Shea

drbrendanoshea@gmail.com

Tel 087 2424405

Lead Investigator

Prof. Tom O’Dowd

todowd@tcd.ie

Tel 01 896 1087

Study Supervisor
Respondent No. [ ] Mailing No. [ ]

( ) I have returned the completed questionnaire

( ) I am not currently in active Practice, and will not be completing the survey

( ) I will not be returning the completed questionnaire, & do not wish to receive a further copy.
Appendix 2 - Study with parents and children on checking the weight of the child - Parental information and consent form

a. Parental information and consent form

<table>
<thead>
<tr>
<th>Parent Information / Consent Sheet</th>
<th>Study No:</th>
</tr>
</thead>
</table>

Your Doctor is participating in a study on the weight of children being run by The Department of Primary Care & Public Health at Trinity College, and funded through The National Children’s Research Centre at Crumlin Hospital. The research project examines an important aspect of the health of schoolchildren. It has been given Ethical Approval by The Irish College of General Practitioners.

The purpose of the study is to see if it is acceptable/‘ok’ to routinely check weight of children attending their GP.

We would be very obliged if you and your child could participate in the project.

If you are agreeable, it is expected it will add approximately 1-2 minutes to your consult duration today, and it will be of assistance in completing our study. After your GP has dealt with your child’s medical problem today, they will check your child’s weight and measure their height.

If you would prefer for you & your child to not participate, there is no difficulty with this & please advise your GP.

If your child is significantly overweight, an information sheet on good eating habits will be available for you to take home and consider. If your child is very significantly overweight, your GP may offer also a Dietician Referral if you wish to consider this. In both instances, it will be open to you to return to discuss the matter further with your GP if you wish. Following your consultation with your GP, your name and phone number, together with a simple indication of your child’s weight (normal weight, overweight, very overweight) will be forwarded to the Study Team at Trinity College by confidential fax.

In order to confirm whether the experience of having your child weighed is acceptable or not, you will then be contacted by phonecall, at 1-2 weeks, by an independent Research Assistant. The phone call will take a further 2-3 minutes of your time, and will include a simple set of questions for you, which enquire about how you (and your child) found the process of having your child’s weight checked.

The outcome of this phone survey will not be communicated to your GP, and the feedback and experience given to the Research Assistant will be regarded as a confidential matter. At the end of the study, no identifiable data will be held on you, or your child. A second phase of this study may be conducted later in 2012, and there is a possibility you may receive an invitation to participate. All
data from this study will be anonymised, and original data sent to the Research Assistant will be destroyed at the conclusion of the study (2017).

It is expected that the overall results from this study will be of use to GPs in improving their ability to assist in the better management of children generally, a high proportion of whom are significantly overweight.

Yes, I am satisfied to enter myself /my child in this study, and I consent for data collected to be forwarded to the Study Team, for the purposes stated above.

Name: Witness: Dated:

Parent Contact Phone Number: Code: A B C

Child's age in years / months = ( ) yrs and ( ) mths FAX to 01 4031211
Hello!

Every child who comes to the doctors today is getting this letter. Your doctor is helping with research on children’s weight, which is why we are asking for every child’s help.

The aim of the research is to see if children mind doctors asking them about their height and weight? Your help is important to the doctors, and to children everywhere.

We won’t use your name, or where you are from.

The research is supported by Crumlin Children’s Hospital, and by Trinity College.

People sometimes feel better when their weight is.....

not too low....or.......  

not too high............ but

..........just about right!

Would you mind if your Doctor checked your weight and height today?

Your doctor will .....  

Measure your height .... and....  

Check your weight

If your weight is not too low, or not too high – that’s GREAT!
If your weight is too little **OR** too much, you, Mum or Dad, and your own Doctor might have a chat about this, to see if you would like to see about finding a better weight for you, as you grow up?

If you would rather **NOT** have your height and weight checked, that’s **OK**!

You don’t have to. Just let Mum or Dad know.

They will tell your Doctor you would prefer not to have your weight & height checked!
Appendix 3 - Practice protocol

Is it acceptable for GPs to routinely and systematically check the weight of children attending for routine care?

1. Invite EVERY dyad with a child aged 5-12, and document the outcome

2. Most will agree

3. Introduce study at the beginning of the consultation

   ‘We are involved in a research project at Trinity College on the weight of children, and to see if it is ok or not to routinely check the weight of children when they attend the practice for routine care. It takes approximately 1-2 minutes, and would you mind if we included yourselves today ?’

   ‘This would be a great help’

   ‘You will get a phonecall from the study over the next week to see how yourself and your child found having their weight checked like this, if thats ok ?’

4. Provide consent and information sheet at that point, at the beginning of the consultation.

5. Field and conclude the consultation as usual

6. Finish the consultation by obtaining consent and measuring the height and weight of the child

7. Provide Healthy Eating Information sheet for children at 85th centile or greater, & offer review.

8. Offer Dietician referral for children at > 97th centile & offer a review

9. Any difficulties, call Brendan (087 2424405) or Emma (089 4380398) anytime, or email drbrendanoshea@gmail.com

   The most important of all of these points is No 1 !

If every child aged 5-12 is not invited to participate, it will strongly infer selection bias on your part, and will mean your data cannot be included. This undermines the integrity of the study for all other Practices involved.

If you ask all dyads, it is possible that a small minority will decline, and it is important to measure the extent to which this occurs, and to make some observations regarding why they might have declined.

If you start well, and commence at No 1 above, the rest of the consultation will run smoothly, and you will complete 50 cases in the quickest and most efficient manner!
## Appendix 4 - GP Recording pro forma

<table>
<thead>
<tr>
<th>Parent Name</th>
<th>Child Age (yrs/mths)</th>
<th>Date</th>
</tr>
</thead>
</table>

Info. Sheets provided? ( ) Yes ( ) No  
Consent obtained ( ) Yes ( ) No  
Study No

### *** CONSENT NOT GIVEN ....

Not happy to proceed with study because....

- ( ) In a hurry
- ( ) Child too unwell
- ( ) Concern regarding upsetting child
- ( ) Other (please specify) [ ]

Is it your impression that the child of the declining dyad was: 1. Underweight 2. Normal weight 3. Overweight

Is it your impression the parent of the declining dyad was: 1. Underweight 2. Normal weight 3. Overweight

### *** CONSENT GIVEN

<table>
<thead>
<tr>
<th>Relationship of attending guardian</th>
<th>( ) Mother</th>
<th>( ) Father</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( ) Childminder</td>
<td>( ) Other (Specify - )</td>
</tr>
</tbody>
</table>

Current phone number of attending Parent / Guardian [ ]

### Child Data

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>No action indicated (for BMI &lt; 85&lt;sup&gt;th&lt;/sup&gt; centile)</td>
</tr>
<tr>
<td>B</td>
<td>Information sheet given / review appt offered (for BMI on or &gt;85-97&lt;sup&gt;th&lt;/sup&gt; centile)</td>
</tr>
<tr>
<td>C</td>
<td>Referral to Dietician also offered (for BMI on or &gt;97&lt;sup&gt;th&lt;/sup&gt; centile)</td>
</tr>
</tbody>
</table>

(Circle one)

Instruction: Retain these sheets in Practice, fax Consent to Dept Public Health & Primary Care at 01 4031211

Initials of GP [ ]  
Fax Sent ( ) Yes
Appendix 5 - WHO BMI Chart - Girls
Appendix 6 - Post consultation telephone survey pro forma

Telephone Questionnaire

Parent Name / No.  Study No:  Code:

1. Introduction of the Research Assistant

‘Thank you for taking this phonecall. My name is XX YY. I am a Research Assistant on a Project run by Trinity College, and I have been given your contact details from Dr Xs Surgery.

I understand that you and your child were seen in Dr X’s surgery during the last 2 weeks. As part of the research project, I would like to ask you a few simple questions regarding your recent visit to Dr X’s surgery.

Would that be alright?  

Yes  No

If ‘no,’ apologise for interruption, advise their data will be deleted, and conclude.

If ‘Yes,’ advise ‘Your responses here will be considered absolutely confidential; in particular, they will not be communicated to your own Doctor; this is a completely separate aspect of the study.’

2. Firstly, can you recall your recent visit to your own GP 1-2 weeks ago?  

Yes  No

3. Can you recollect your Doctor measuring your child’s height and weight?  

Yes  No

4. Do you remember how having this carried out made you feel?  

Yes  No

5. Which of the following best describes how this made you feel?

Did you feel......

Happy
Pleased
Relieved
No real feeling about it
Anxious
Upset
Angry

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6. Do you believe having their weight and height checked had any impact on your child? Yes No

7. Which of the following might best describe your child’s reaction to this part of the consultation.

Did they feel .......... Happy
Pleased
Relieved
No real feeling about it
Anxious
Upset
Angry

8. Do you believe it would be helpful for children to have their height/weight checked like this when visiting their GP? Yes No

9. Was your child’s care at your GP covered under the medical card scheme? Yes No

Thank you for assisting. Your help will add to the value of the study, and many thanks for your time and interest. Would you like to have the results of the study notified to you when available? Yes No

If yes, confirm mobile number to send alert text: ( )

Researcher Signature / Date [ ] [ / / ]