ScotPHN report

Scottish Public Health Network (ScotPHN)

Report of the Scottish Public Health Obesity Special Interest Group: Expert Group on the Development of the Child Healthy Weight Programme in Scotland

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1 Preface

It is a privilege to present, on behalf of our Expert Group, this report on the Development of the Child Healthy Weight Programme in Scotland.

Child healthy weight has become a focus for NHS action in Scotland in recent years. Following the publication of the fourth Hall report in 2005, specific programmes were developed by some NHS Boards to reduce childhood obesity. In 2008 evidence-based guidance and ring-fenced funding was issued to NHS Boards defining the potential components of a child healthy weight programme; it left individual NHS Boards to determine specific parts of their programme whilst also clearly identifying what successful delivery would look like. In support of this guidance, the Scottish Government included the first target to improve child healthy weight as part of its Health, Efficiency, Activity and Treatment (HEAT) performance framework.

Following evaluation of the programme in 2010 the Scottish Government updated its guidance and required NHS Boards to focus their child healthy weight HEAT programmes within a 3 tiered integrated systems approach to child overweight and obesity prevention and management. The interventions were to be drawn from those identified within clinical guidance published by SIGN 115 (2010) and NICE (2006). At the same time the opportunity was taken to revise the HEAT target and this focused on ensuring the delivery of tier 2 child healthy weight interventions. Since this guidance was issued in 2011, NHS Boards have continued to provide services to deliver the child healthy weight programmes, which were subject to evaluation in 2013.

This year the Scottish Government asked the Scottish Public Health Obesity Special Interest Group (SPHOSIG), established by the Scottish Directors of Public Health, to make recommendations on the future of the child healthy weight programme in light of the findings of the 2013 evaluation, as well as the local experience of those involved in delivering the programme, current evidence and expert views. SPHOSIG established an Expert Group on Child Healthy Weight to develop recommendations for Government.

The report produced by the Group has involved intensive and extensive consultation and engagement with the leading experts in Scotland on childhood obesity, including its treatment and prevention. Inevitably, on a topic which is so complex and where the internationally-published evidence base is patchy and at times contradictory, the consultation has elicited a wide range of views on every aspect of the Programme. The Expert Group has had to synthesise that evidence and these views, and I am grateful to each and every one of the members for contributing their expertise so willingly, but I am particularly grateful to Phil Mackie, Alison McCann and Ann Conacher of the Scottish Public Health Network (ScotPHN) for capturing that synthesis so well in the report.

We are in the midst of an epidemic of obesity affecting children and adults. At a population-wide level the epidemic has slowed down in recent years, but it continues at an alarming rate in our more deprived populations. Obesity, and lack of action in addressing the underlying factors – often referred to as the obesogenic environment – is consequently adding further to the growing gap in positive health experience between rich and poor in Scotland. This runs counter to natural justice and of course to the Scottish Government's stated intent. While the problem of obesity is receiving increasing coverage politically and in the media, the clear view gained by the Expert Group is that insufficient action and insufficient resource is being directed towards its prevention and treatment, and that this applies to childhood and adult obesity.

Almost every day new evidence is published which underlines the toxic impact on health of obesity now and into the future. Although some of its impact is already taking a major toll on the health and wellbeing of Scotland, there is still time to tackle the epidemic. If there is the public, professional and political will to achieve that the return on any investment will be incalculable. It is no exaggeration to say that the future vibrancy of Scotland's economy will, to some extent, depend on how successfully we tackle that epidemic. But greatly increased action needs to start now, and part of that will be achieved through implementation of the recommendations contained in this report. The Expert Group is grateful for the opportunity to present it to the Scottish Government, and we look forward to playing a full part in delivering its ambitions.

Drew Walker
Director of Public Health, NHS Tayside
Chair of the Scottish Public Health Obesity Special Interest Group(SPHOSIG) /
Chair of SPHOSIG Expert Group on Child Healthy Weight

2 Summary of Recommendations to the Minister for Public Health

Recommendation I

The Scottish Government should refresh its strategic approach to healthy weight management and obesity reduction. Drawing on the work of the Scottish Public Health Obesity Special Interest Group (SPHOSIG), this refresh must start with a review of "Preventing Overweight and Obesity in Scotland: A Route Map towards Healthy Weight" to ensure the necessary cross-departmental involvement to effect change in the environmental factors that promote healthy weight.

Recommendation II

(a) NHS Health Boards and their Community Planning Partners should be required to develop existing Child Healthy Weight programmes into comprehensive services across the full range of settings. Services should include:

- a tiered approach to population prevention, intervention and treatment;
- clear pathways to appropriate behavioural interventions and clinical treatment;
- support for parental involvement and family participation, including social marketing and incentivised approaches;
- support for the emotional wellbeing of children and families;
- training of staff in health behaviour change or motivational interviewing techniques; and
- support those at greatest risk of increasing health inequality associated with childhood obesity.

(b) Updated national guidance should be developed to aid development of these services. This should draw on experience from existing programmes and research-based guidelines.

Recommendation III

(a) Development and delivery of new child healthy weight services should be agreed by NHS Boards and Local Authorities' Children and Family and Education services, within the context of local Community Planning Partnerships, and co-produced with children, their families and local communities.

(b) NHS Board Local Delivery Plans and local Community Planning Partnership Single Outcome Agreements should be in place to identify additional, local funding and resources to augment and develop the existing treatment and prevention programmes to create the comprehensive service.

(c) As a minimum the existing ring-fenced funding from the Scottish Government should be maintained. However, this funding should only be confirmed when local

plans for the development and delivery of Child Healthy Weight Services are agreed.

Recommendation IV

Child healthy weight should be seen as a priority for action in ***all*** areas of children's policy in Scotland, including:

- the planning, design and delivery of services for children and young people under the terms of the Children and Young People (Scotland) Act 2014;
- meeting the requirements of GIRFEC and monitored as part of SHANARRI; and
- delivering Curriculum for Excellence and the aspirations of Beyond the School Gate; and
- delivering on the Equally Well Review 2013 to tackle health inequalities.

Recommendation V

NHS Health Scotland should extend its current support for CHW programmes by developing approaches to:

- reduce the inequalities that give rise to obesity across the life-course;
- increase public understanding of obesity and child healthy weight;
- identify and mobilise community assets to reduce obesity; and
- integrate overweight and obesity impact within health and health inequality impact assessment tools.

Recommendation VI

(a) Scottish Government should provide new funding to develop longitudinal, population-wide surveillance of the obesity epidemic and outcomes of CHW services.

(b) To support this, the frequency of height and weight (BMI) measurement for children should continue to be measured around primary school entry and a secondary school entry measurement be introduced.

(c) Outcome monitoring will require the development of new cross-sectoral indicators, drawing on previous HEAT targets and EY Framework indicators. These should be co-produced with Scottish Government and families within local communities. NHS Boards, Local Authorities and all Community Planning Partnerships should be subject to performance management of their CHW services, using these indicators.

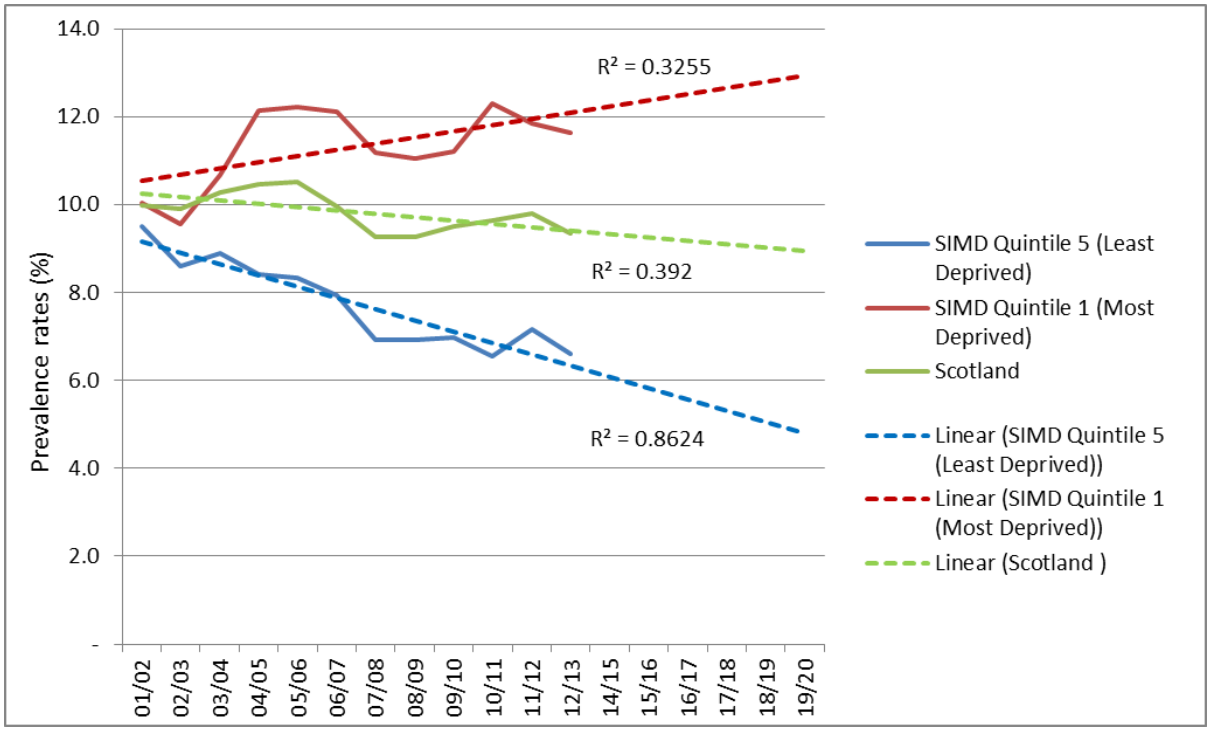
3 The Obesity Epidemic

In 2010 the Scottish Government's *Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight*(1) opened with a stark assertion:

"In common with most of the developed world, Scotland is experiencing the obesity epidemic…. As overweight has become the norm, we have developed a distorted view of normal body shape and just how many people in Scotland are overweight and obese." (ORM 2010)

Since then, the obesity epidemic in Scotland has continued and recent data, summarised in Appendix 2 – shows that for children, the problem remains to be addressed. The analysis suggests, on the basis of obesity projections relating to English children(2) that the gap in childhood obesity levels currently observed between the least deprived and the most deprived school-children at Primary 1 can be predicted to continue and may also become more pronounced. Figure 1 shows that, whilst for Scotland as a whole, being at risk of obesity may be gently declining, the rate of reduction is much more pronounced for those children in the more affluent areas of Scotland. For those children in the most deprived areas, a marked increase is projected.

Figure 1: The Projected Prevalence of Obesity in Primary 1 Children in Scotland for Scottish Index of Multiple Deprivation Quintiles 1 & 5 compared to Scotland as a whole: school years 2001/02 to 2019/20



Clearly these projections must be interpreted with extreme care. However, it can be assumed that if we continue with our current approach, we can expect to see:

- further reductions in obesity risk in children from more affluent areas;
- little or no effect on reducing obesity risk in children from more deprived areas;
- the rate of reduction in national obesity risk remaining slow; and
- an ever-widening inequality gap in childhood obesity.

The overall analysis highlights that:

- despite undertaking a range of actions in recent years, Scotland is still experiencing the obesity epidemic across its whole population;
- those actions undertaken so far have – at best – caused the previous rises in overweight and obese people in Scotland to be checked;
- those actions taken to address child healthy weight may have had the effect of reducing slightly the overall prevalence of childhood obesity and overweight risk across Scotland as a whole; *but*
- this masks the large inequalities observed in childhood obesity and overweight risk associated with gender, age and multiple deprivation; and
- although the evidence is limited, such inequalities will increase if specific actions are not taken to address these inequalities, in addition to reducing the overall burden of obesity.

It is the view of the Expert Group that the analysis undertaken to support this report shows that, to date, Scotland has not done enough to see significant and sustained reductions in the proportion of its child population that is overweight or obese.

Furthermore, what has been done has increased rather than decreased the inequality gap in obesity risk between the most affluent and the most deprived amongst Scottish children.

In addressing this, it is important to consider how to take action at the population level to deal with an epidemic. Public Health intervention to manage any epidemic focusses on:

- the immediate treatment of those individual cases that are specifically affected with the disease or illness;
- managing those who may have been exposed or are at increased risk of developing the disease or illness; and
- understanding the causes of the epidemic and ensuring that they are removed or managed to such a way as to minimise the potential they have to sustain an existing epidemic or renew it at some point in the future.

In the context of the current obesity epidemic in Scotland, this translates into actions which:

1. provide clinical treatment of those who are currently obese or morbidly obese;
2. provide interventions which promote healthy weight and prevent the transition from being overweight into obesity; and
3. address the underlying social, economic and cultural causes of obesity and reduce the contributions from those factors which the Foresight report "*Tackling obesities: future choices"*(3) characterised as the obesogenic environment in which the Scottish population lives.

Whilst the work of the Expert Group is focussed on the Child Healthy Weight programme in Scotland, it is clear that such a programme cannot effectively function in isolation from a wider, more concerted approach to tackling the obesity epidemic across the whole population.

Recommendation I

The Scottish Government should refresh its strategic approach to healthy weight management and obesity reduction. Drawing on the work of the Scottish Public Health Obesity Special Interest Group (SPHOSIG), this refresh must start with a review of "Preventing Overweight and Obesity in Scotland: A Route Map towards Healthy Weight" to ensure the necessary cross-departmental involvement to effect change in the environmental factors that promote healthy weight.

It is also clear that the need to promote the maintenance of a healthy weight for Scotland's children, and for intervention to address the problem of childhood overweight and obesity in Scotland, remains. This is considered further in the next section.

4 The Child Healthy Weight Programmes in Scotland

4.1 Health for all Children – Hall 4: 2005-2007

Routine monitoring of children's weight in the UK was initiated with the introduction of formal pre-school, child health surveillance programmes in the 1990s following the adoption of the *Health for all Children (The Hall Report)*(4). In the most recent version of *Health for all Children 4th Edition*(5), pre-school monitoring of weight is recommended, though not formal obesity screening. In 2005 the Scottish Government issued guidance which included weight monitoring as part of the core pre-school programme. All existing local weight and/or BMI monitoring at school was replaced with routine recording of each child's BMI at school entry (Primary 1)[a]. The guidance emphasised the importance of promoting healthy choices in regard of physical activity and healthy eating as important in any child health programme, but did not identify any specific interventions or actions which were recommended.(6)

4.2 Delivering the HEAT Target H3: 2008-2011

4.2.1 The 2008 Guidance

In 2007 the Scottish Government introduced a national performance framework which set as an objective that they and their partners would: *"Reduce the rate of increase in the proportion of children with their Body Mass Index out with a healthy range by 2018."*(7) In support of this a specific NHS performance target was put in place to monitor the delivery by NHS Boards of "approved" child healthy weight interventions within the Health, Efficiency, Activity and Treatment (HEAT) performance framework. Formal, evidence-based guidance was issued to NHS Boards on this in 2008 defining what the components of an "approved child health weight programme" were, and what successful delivery of such programmes would look like.(8)

The components were:

- multiple referral points to access the child healthy weight programme;
- clinical referral and treatment of overweight and obese children with complex needs or co-morbidity;
- an interventional programme including:
  - lifestyle and co-morbidity assessment;
  - willingness to change assessment and child and family-focussed relationship and behavioural change support;
  - diet modification support; and
  - physical activity support.

[a] A recording of BMI Primary 7 on a three yearly cycle for public health monitoring purposes was recommended, but not adopted by all Health Boards.(6)

The guidance was explicit in:

- identifying BMI thresholds for referral to clinical treatment or the interventional programme;
- identifying the need for family-centred approaches as being more effective;
- allowing both individual and group-based interventions, singly or in combination;
- allowing the use of both clinical and non-clinical settings for intervention delivery;
- seeking to reduce the stigma that may be associated with programme participation; and
- recognising the need for long term follow-up.

However, the guidance made clear that it was for individual NHS Boards to determine the specifics elements of their programme.

4.2.2 Evaluation of the H3 target: 2008-2011

The guidance set out an approach to national monitoring and evaluation of the H3 target based on NHS Board data of service uptake. Impact was not considered within the target. Also of note was the fact that local targets were negotiated individually with each NHS Board.

A process evaluation of the HEAT 3 Child Healthy Weight Programme was undertaken in 2010(9). Key learning which emerged from the evaluation is summarised in Box 1. However, it was clear that many NHS Board areas had reservations around the programme and its monitoring.

Box 1: Key Learning from the Evaluation of the Child Healthy Weight Programme

- The need for a more sensitive target, which took into account the realities of programme delivery and its impacts, was noted. Developing, over a longer period, alternatives to number driven targets was seen as desirable, though number driven targets were considered valuable in achieving population change.
- Developing greater links to other strategies (Curriculum for Excellence or maternal and infant nutrition initiatives, for example) could help overcome problems in delivering an NHS target across a multi-sector environment.
- NHS Boards collected valuable learning and information about engagement strategies that should have been recognised and the learning shared.
- Wider support of inequalities-based work was recognised. While some NHS Boards were working with more deprived groups, many were not able to assess the nature of this work.
- Local initiatives need to be supported by national work. A national social marketing campaign would have been welcome and could have been useful in challenging the “normalisation” of being overweight.

Source: After Hoy & Lacey NHS Health Scotland 2010(9)

4.3 Delivering the HEAT Target H3: 2011-14:

4.3.1 The 2011 Guidance

In 2011 the Scottish Government updated its national outcomes framework as the Scotland Performs initiative[b]. A child healthy weight indicator was also included in this revised framework. This sought simply to: *"Increase the proportion of healthy weight children"*. At the same time a revised H3 target was developed and new guidance was issued to NHS Boards in Scotland.(8) This guidance presented an "Integrated Systems Approach to Child Overweight and Obesity Prevention and Management" (See Box 1).

To meet the revised H3 target, NHS Boards were required to focus their child healthy weight programmes within Tier 2 of the three-tiered, integrated systems approach.

Box 1: Integrated systems approach to child overweight and obesity prevention and management – After the 2011 HEAT Target Guidance

Tier 1: Prevention

- Obesity prevention and health improvement/intervention work to tackle wider influencers and structural determinants of child unhealthy weight;
- Reaching the whole child population;
- Indirectly supports raising the issue and stimulates contemplation of behaviour change amongst overweight/obese children and their families.

Tier 2: Treatment

- Overweight and obesity management interventions for children/ young people ≥91st centile;
- Offered to individuals or groups, in school or community-based settings;
- Delivered by appropriately trained, child healthy weight specialists from a range of professional backgrounds;
- May be delivered to children <91st centile at same time (e.g. as part of a class group).

Tier 3: Specialist Assessment & Care

- Services for children/young people ≥99.6th centile with obesity-related morbidity or suspected underlying medical cause of obesity;
- Following assessment / treatment clients may then be suitable for referral to Tier2 services.

Source: SG CHWP Guidance 2011(8)

As with the 2008 guidance, the guidance issued in 2011 included criteria against which the Tier 2 services would be assessed to be considered as "approved interventions".

[b] See: http://www.scotland.gov.uk/About/Performance/scotPerforms

Drawing on SIGN 115(10), the characteristics of these interventions were that they:

- offer behavioural change interventions;
- focus on dietary change and physical activity / inactivity;
- be based within the family;
- be offered to children aged 2 to 15 years; and
- be offered on a minimum 8 hour over 8 week basis.

It was acknowledged that these interventions should – where appropriate – be targeted on children and young people living in areas within the two most deprived SIMD quintiles.

Children and young people who were co-morbidly obese (BMI ≥99.6th centile) were to be referred for specialist assessment/care, using a care pathway if locally relevant, and only included in Tier 2 service following specialist care.

4.3.1 Evaluation of the H3 target: 2011-2014

The updated guidance also included specific instruction to Health Boards on the need to measure BMI at entry and completion of the intervention, what the outcomes of the intervention might be, what constituted a completed intervention, and the arrangements for mandatory data collection for monitoring purposes.

Whilst controversial the introduction of 2 points of measurement and its recording through the Child Health Surveillance Programme Schools' programme did put in place a national system for monitoring. In analysing the data the evaluators(11) noted that the small positive changes seen were comparable with the published studies, but that it was not possible to say whether they might have occurred by chance. Although the targets for uptake and taking measurements were exceeded, the vast majority of children came through the schools based programme with only 1% taking part in each of the group and 1-2-1 interventions.

The report concluded that if the aim was to provide children with knowledge then the schools based programme would be sufficient, if however the aim is to reduce childhood overweight and obesity then both a higher number of 1-2-1 and group interventions are required and that the effectiveness of these should be maximised using the learning to date. The report also noted that, however well implemented a programme is, it would be constrained by the wider obesogenic environment. As in the first evaluation, the normalisation of overweight and the consequent need to increase awareness of healthy weight and the risks of overweight were apparent.

Other points raised in the report included:

- Engagement in the 1-2-1 and group interventions was challenging, with parental preference,[c] type of invitation, local media, and social marketing all having significant influences;
- The majority (97%) of children coming through any of the interventions were of primary school age. Parental involvement in school based interventions was limited, and the programmes were often difficult to distinguish from other school work. Parental involvement in 1-2-1 and group work was beneficial with reports of impact on parental and family health behaviours. Wider impact on child social skills and confidence were also noted;
- Programme content was broadly similar. A key factor was actually doing the intervention activity during the session, as opposed to learning about the benefits. The length of a programme and the frequency (weekly) of sessions were also important, with a clear desire from participants to be able to drop in or go back after the initial course was completed; and
- Delivery was by a broad range of staff. The type of person rather than their formal qualifications was reported to make a difference and contribute to the enjoyment of participants.

Whilst the intention behind the 2011 guidance was clearly to provide a specific focus on the Tier 2 behavioural change interventions in a flexible manner without losing a necessary rigour around monitoring impact, the Expert Group considers that this had the unintended consequence at the local level in creating a focus on Tier 2 developments to the exclusion of Tier 1 preventative approaches and Tier 3 specialist treatment in many areas. The guidance also created an environment where the content and approach to intervention delivery became more focussed on data collection and monitoring than was intended.

4.2 Child Healthy Weight Programmes in Scotland: Local Learning

4.2.1 Capturing the Learning Experiences of NHS Boards

The 2011 Guidance was explicit in the requirement for those involved in the child healthy weight programmes to learn from NHS Board experiences. In order to achieve the greatest input and learning from all the NHS Board level Tier 2 interventions which took place under the Child Healthy Weight banner, the Expert

[c] Parent were found to prefer an approach which invited an “opt in” to the programme and not a presumed participation with an “opt out” . This approach is problematic as it can bias uptake and increase inequalities.

Group collected and collated qualitative data from NHS Board programmes and their staff.

These data were collected using pro-forma returns which considered local practice and learning in relation to:

- the local strategic context;
- the interventions developed:
  - school-based;
  - one to one; and
  - group work.

In Appendix Three, the key learning in these areas is summarised. A more specific collation and interpretation of these data are available from the ScotPHN website (http://www.scotphn.net/projects/current_projects/scottish_public_health_obesity_special_interest_group_sphosig).(12)

4.2.2 The Local Strategic Context

All NHS Boards provided qualitative feedback on the local strategic context in which the child healthy weight programme currently exists.

At the request of local programmes and NHS Boards, the guidance did not set out a single, common strategic approach under which child health weigh sits. In a number of NHS Boards there are specific child healthy weight, healthy weight, or obesity strategies where it features (n=6 Boards). In some NHS Boards it is included in more general child health strategies or healthy eating / active living, lifestyle risk factor modification strategies (n=6 Boards). Other specifically mentioned strategies / delivery plans noted were: Early Years Strategies (n=4 boards); (Integrated) Children's/Young People's Service Plans (n=3 Boards); Maternal/Infant Feeding Strategy (n=2 Boards); Curriculum for Excellence (n= 2 Boards); Getting It Right for Every Child (n=2 Boards); and the Joint Health Improvement Strategy/Plan (n= 1 Board).

Most child healthy weight programmes have a steering group and various reporting arrangements within NHS Boards and within NHS/Local Authority partnerships. It is clear that the governance landscape for child healthy weight programmes is complex, though responsibility for delivery of the H3 target is very clearly seen as an NHS Board responsibility.

NHS Boards were relatively consistent in the areas which they felt could have been handled differently. Population prevention through actions to change the obesogenic environment was seen as a major omission in existing programmes. NHS Boards were felt to have not done enough to seek to influence changes in the structures and issues linked to the determinants of obesity at population level, as well as taking specific preventative interventions to identify children at risk of being above a healthy weight from an earlier age. Ensuring that programmes engaged and supported

parents more effectively was another key change. Developing family and community-based follow-on support were specifically noted. Allowing more time to plan interventions appropriately and allocating more time to the lead-in period for the service was a key change in planning delivery as building stronger partnerships with key mainstream services was for delivering interventions within programmes. Specific mention here was made of: dietetics; paediatrics; and child and adolescent mental health services. Creating more robust governance structures, with more regular meetings of key managers of partner services was also identified as a necessary change. Finally, the child healthy weight programmes noted that a more robust monitoring, planned from outset, with central support of database development for local use, would have been helpful.

The child healthy weight programmes were also asked what they would want to do in the future. There was a high degree of consistency between NHS Boards in highlighting that without effective whole population approaches to changing the obesogenic environment then whatever you do with child healthy weight programmes can only have minimal impact. There was a desire to develop broader programmes adopting a life-course approach to healthy weight.

In planning future programmes, the need to take a more co-productive approach, with children, parents, professionals, schools etc. seeking their input into improving / modifying the programme, was an identified need. Actions to strengthen social capital and the development of the asset and capacity-base in communities was noted.

Finally, all NHS Board child healthy weight programmes wanted to ensure that priority is given to all obesity prevention and management, not just child healthy weight. A robust funding base is needed, at a level commensurate to the scale of the issue. They see this as requiring national and local investment so that unsustainable pressure will not be put on the existing funding currently ring-fenced for child healthy weight programmes.

4.2.3 Key Learning Points from Interventions

Summarising the great wealth of learning which was shared by all the NHS Board child healthy weight programmes is not an exact science and a high degree of its "richness" can be lost in the process. However, the following key learning points regarding the NHS Board programmes seem to be being presented in consistent and clear fashion.

1. The local child healthy weight programmes were delivered in a variety of ways in order to achieve the broadest possible reach. Interventions were delivered in schools (working in partnership with schools and Local Authorities), in the community, as group interventions, and on a one-to-one basis to specific families. Many programmes felt that structural and process limitations affected programme delivery;

2. Parental awareness and engagement is essential and more work to promote this needed. It will be greatly facilitated if this happens in concert with national work to improve public (and to an extent staff) understanding of healthy child weight, child obesity and the risks to health it poses;

3. Longer running interventions, tailored to the ability of the child to benefit, with continuing parental support would be beneficial. Addressing interventions for adult healthy weight in tandem with this approach is needed;

4. Frequency of intervention is important too. Ideally, they should be weekly and, if this is not possible, no longer then every fortnight;

5. There needs to be broader "buy-in" at all levels of community partnerships from NHS and Local Authority senior management, to teachers and health professionals, to community workers and health champions;

6. Many NHS Board programmes suggested structural and process factors which need to be addressed: longer-term contracts in order to retain motivated staff; wider training for non-NHS staff; and developing community assets to support delivery;

7. There needs to be revised approach to monitoring programme delivery, with focus on health-based outcome indicators rather than weight and programme numbers. A national obesity surveillance programme is needed to maintain an effective overview of the obesity epidemic and assess programme outcomes at the population level; and

8. All child healthy weight programmes need to exist within the broader context of a refreshed national obesity strategy which addresses the social and cultural determinants of obesity and seeks to change the obesogenic environment which normalises obesity.

It is the view of the Expert Group that these experiences, linked to the previous discussion on the impact of national guidance, highlight a realistic opportunity to strengthen and further develop child healthy weight programmes.

The Expert Group also considered that such developments needed to be made within the context of wider community planning arrangements, with secure, revenue funding streams, and robust accountability structures.

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(b) NHS Board Local Delivery Plans and local Community Planning Partnership Single Outcome Agreements should be in place to identify additional, local funding and resources to augment and develop the existing treatment and prevention programmes to create the comprehensive service.

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Child healthy weight should be seen as a priority for action in ***all*** areas of children's policy in Scotland, including:
- the planning, design and delivery of services for children and young people under the terms of the Children and Young People (Scotland) Act 2014;
- meeting the requirements of GIRFEC and monitored as part of SHANARRI;
- delivering Curriculum for Excellence and the aspirations of Beyond the School Gate; and
- delivering on the Equally Well Review 2013 to tackle health inequalities.

5 Translating Knowledge into Action

In the light of the extensive work which had informed the development of SIGN 115 and the various sets of NICE guidance(13,14), the Expert Group did not consider that a major review of the evidence around child healthy weight was necessary. However, a rapid literature review to ensure that any more recent literature was included in their assessment was agreed as being helpful. The key learning points from the rapid review are presented in Appendix 4.

5.1 Promoting Child Healthy Weight

Promoting healthy weight in children equates to the Tier 1 within the integrated service approach outline in the 2011 Guidance(15). The most recent WHO guidance highlights the importance of the obesogenic environment. The factors that create and sustain adult overweight and obesity, such as the social, cultural and economic determinants and the impacts of global food production, also impact on children.(16)

The literature review highlighted importance of addressing three specific areas to help create / sustain effective action in promoting child healthy weight. These are:

- the wider environment supporting healthy weight;
- the importance of ensuring families are involved with, and understand the need for, child healthy weight; and
- how an individual's healthy behaviours are created and sustained.(3)(17)(18)

In all cases the creation of an environment in which these factors create both internal and external support for the programme is critical to successful weight loss.

5.2 Child Overweight & Obese Interventions

The current child health weight programmes are based primarily on the SIGN guidance. As such they sought to:

- incorporate behaviour change components;
- be family based;
- involve at least one parent/carer; and
- aim to change the whole family's lifestyle. Programmes should target decreasing overall dietary energy intake, increasing levels of physical activity and decreasing time spent in sedentary behaviours (screen time).(10)

This approach remains appropriate in the basis of the rapid literature review. The most recent Cochrane review on childhood obesity prevention(19) highlighted that most child healthy weight / obesity interventions that have shown signs of efficacy have focussed on children in the 6-12 age group. There is now clearer evidence that impacts on BMI require that interventions be over 12 weeks or longer.(19)

The rapid literature review also highlighted a number of factors which need to be taken into account in developing interventions. These focus on:

- the age appropriateness of interventions;(16,20)(21)
- family involvement in the development of their child's healthy eating/living behaviours;(22)(23)(24)
- demonstrating behaviour change;(25)(26)(27)(11)
- using motivated staff / trainers to facilitate participation;(26)(28)
- allowing time for behaviour change to be implemented;(29)
- interventions that are "unforced" with the choice to opt in or not are preferred by children,(11) though this may have the potential to increase inequality due to bias in those choosing to "opt –in";
- behavioural counselling for weight loss was more effective when a family member accompanied the child;(30)
- the appropriateness of schools-based delivery;(11)(31)
- parental concern regarding a child's self-esteem and weight;(32)(33) and
- the logistics of intervention – not least amongst parents. (28)

5.3 Community Intervention

Any delivery in the community must be sensitive to the social and cultural elements of those in the community and buy-in from community stakeholders is of great importance.(16) The Child Healthy Weight Evaluation notes that some stakeholders and health professionals had doubts about some elements of the Child Healthy Weight programme and this may have been a factor in delivery of the programme.(11) It has been stressed elsewhere(25) that engagement of trainers / teachers is a strong factor in engaging children in weight management / treatment programmes.

It must also be noted that behavioural intervention in any setting cannot operate in isolation from the context of an obesogenic environment.(3) Working with community stakeholders to make physical activity or fresh fruit and vegetables more accessible is a part of what works.(34) For example, one board in the CHW programme gave children free passes to leisure centres which removed a barrier for parents on low incomes. Local Authorities should consider licensing and food planning closer to schools.(11)(34)

An example of a comprehensive community approach is the EPODE promoted in Northern France.(35,36) The programme, which initially ran in two intervention towns and in further comparison towns, found that interventions only taking place in schools were not sufficient to effect changes. A community-wide intervention, with stakeholders at all levels involved from health professionals, to catering structures to elected representatives, and using top-down leadership to animate grass roots support, was effective in decreasing the overall prevalence of overweight in children: 8.8% in the intervention towns compared with 17.8% in the two comparison towns. It is important to note that whilst it took some eight years of intervention until the

decline became apparent, the programme was effective across all socio-economic levels.

In Scotland, a comparable initiative was set up through the Healthy Weight Community programme. Eight local areas in Scotland were set up to pilot an approach to demonstrate ways in which communities could be better engaged with healthy eating, physical activity and healthy weight activities as part of a single coherent programme. The evaluation of this programme found that, although the pilots had only been running for a short period of time, there was emerging evidence to suggest a localised approach was effective. The combination of a small area approach, the local restatement of a national priority to promote ownership and involvement, inclusive partnerships of relevant services, leadership from energetic and effective coordination produced change. However, these changes were on a small scale and would need to be scaled up significantly to achieve an impact on national scale. The evaluators concluded that: *"the model provides an approach which CPPs (and the Scottish Government) may wish to adopt in responding to issues which require community based responses and more effective and joined up deployment of staff and resources on the ground"*(37) (Rocket Science 2011 see: http://www.scotland.gov.uk/Resource/Doc/355409/0120032.pdf)

5.4 Specialist Obesity Assessment and Care

Both SIGN(10) and NICE(14) provide guidance on the clinical assessment and care of obese children. This equates to Tier 3 of the 2011 Guidance.

The main purpose for providing specialist (secondary) care is to ensure that children and young people who are obese should be assessed for possible medical causes of their obesity and any co-morbidities. Where these exist, weight loss is indicated, and specialist onward referral for management may be appropriate.

SIGN recommends that the following groups should be referred to hospital or specialist paediatric services before healthy weight intervention is considered:

- children who may have serious obesity-related morbidity that requires weight loss (e.g. benign intracranial hypertension, sleep apnoea; obesity hypoventilation syndrome, orthopaedic problems and psychological morbidity); and
- children with a suspected underlying medical *(e.g. endocrine)* cause of obesity, including all children under 24 months of age who are severely obese (BMI ≥99.6*th* centile).(10)

Where there is no underlying medical cause of obesity, patients and children should be referred back to Tier 2 services, though in some circumstances the child healthy weight interventions may need to be progressed under the supervision of the specialist clinical service.

In highly exceptional circumstances pharmacological treatment may be indicated. This can only take place against existing prescribing criteria and under specialist supervision. In a similar way, bariatric surgery may be considered appropriate for young people (post-puberty). This should only be undertaken by a highly specialised surgical team within the framework of a multidisciplinary team.

The Expert Group consider that the key learning points from the rapid literature review are consistent with the reports from the NHS Board child health weight programmes in the content and contexts in which interventions are likely to be successful

EPODE, Healthy Weight Communities, and other studies highlight that in order to make community-wide intervention work, they need to involve: political commitment; resources (financial and assets; support services; using evidenced based interventions that are sustained over time). They also consider that such characteristics are highly likely to apply in school-based, group and one-to-one interventions.

The evidence from paediatric colleagues inputting to the Expert Group suggested that the development and delivery of such services at NHS Board level has been highly variable and many children are unable to access such services in a routine manner.

6 Supporting Actions

During the course of the evidence gathering undertaken by the Expert Group, a number of specific, supporting actions were identified. These are described below.

6.1 Child Weight Surveillance and Performance Monitoring

It was noted by many commentators that the current approach to child weight surveillance was not sufficient to undertake effective public health surveillance of the child obesity epidemic, nor appropriate for monitoring the effectiveness of child healthy weight programmes (as opposed to interventions).

Although BMI is still seen as a quick, easy and effective measuring tool, provided that quintiles and referencing to standard weight for age is applied,(19) there remains no gold standard measure across the literature and the thresholds used are subject to debate. The existing dual approach of epidemiological and clinical thresholds adopted by NHS National Service Scotland's Public Health and Intelligence Division and used at the P1 BMI collection remains a valid approach in Scotland.(38)

Those involved in child healthy weight programmes have identified the limitations of the current data collection approaches for H3 target monitoring (see above). That is not to say there is no appetite for developing a new HEAT target, reflecting more meaningful outcomes for Tier 2 and Tier 3 child health weight services. These may need to evolve over time as acceptance of the need for height and weight measurement is developed amongst parents and children and wider actions reduce the stigma associated with weight measurement.

On balance, the Expert Group considered that the current reliance on a single recording of BMI at P1 school-entry is insufficient for the public health surveillance and monitoring programme effectiveness and a new, robust approach to population child weight surveillance is needed for Scotland. This must include a BMI recording at or about secondary school-entry.

A more co-productive approach to setting performance indicators and meaningful outcomes for Tier 2 and Tier 3 child healthy weight service is also needed. These need to be reflected in the governance structures established for services.

6.2 Healthy Weight Impact and Inequality Assessment

The need to set child healthy weight programmes within the context of wider actions to address the obesogenic environment and the adult obesity epidemic has been clearly articulated. The evidence – both research and experiential - shows that

weight is a factor in developing and sustaining health inequalities over the whole life-course. Such inequalities start in childhood.

One consequence of this is a need to be better able to assess – at the level of policy / strategy – the potential contribution any wider activities may have in promoting or reducing obesity. Existing policies across the NHS and public sector recognise the need for various forms of formal impact assessments, with the aim of preferentially selecting actions that promote desired outcomes and militate against undesirable ones. Such an approach should be adopted in the context of obesity, with mandatory impact assessment being enhanced to include healthy weight impacts within health impact and inequality assessments.

Clearly such an approach would require formal development and successful piloting before a national rollout is contemplated. However, unless action is taken to understand the potential for all policies and strategies to inadvertently maintain – or deepen – the current obesity epidemic many actions and interventions taken at the local level may be undermined and scarce public resources used with more limited success than necessary.

The Expert Group considers that there is already indirect evidence that those factors which promote obesity are being maintained as a consequence of inadvertently obesogenic policies and strategies across the life-course. The development of obesity impact and inequality assessment to embed within existing impact assessment processes will help highlight these risks more effectively and help support prudent use of public resources in addressing the child and adult obesity epidemics.

6.3 Building the Asset-Base for Child Healthy Weight

The experiences of the NHS Board child healthy weight programmes suggest that not only is there a low level of public understanding regarding the need for healthy weight in children, but also a low asset base within communities from which to develop community initiatives and strengthen social capital.

Clearly these are not problems which are specific to child healthy weight and there is a growing recognition for the development of asset-based approaches to co-producing health and wellbeing in individuals, families and communities. These approaches are increasingly at the heart of work within the context of the Early Years Collaboratives and in the development of children's services in line with the recent legislation.

The Expert Group considers that activities associated with the development of asset-based approaches, creating and enhancing social capital to address health inequalities, and promoting public understanding of health and

wellbeing should be harnessed to deliver co-produced approaches to promoting healthy weight and reducing child overweight and obesity.

Taking all these supporting actions together, the Expert Group recommends:

Recommendation V

NHS Health Scotland should extend its current support for CHW programmes by developing approaches to:

- reduce the inequalities that give rise to obesity across the life-course;
- increase public understanding of obesity and child healthy weight;
- develop social capital and mobilise community assets to reduce obesity; and
- integrate overweight and obesity impact within health and health inequality impact assessment tools.

Recommendation VI

(a) Scottish Government should provide new funding to develop longitudinal, population-wide surveillance of the obesity epidemic and outcomes of CHW services.

(b) To support this, the frequency of height and weight (BMI) measurement for children should continue to be measured around primary school entry and a secondary school entry measurement be introduced.

(c) Outcome monitoring will require the development of new cross-sectoral indicators, drawing on previous HEAT targets and EY Framework indicators. These should be co-produced with Scottish Government and families within local communities. NHS Boards, Local Authorities and all Community Planning Partnerships should be subject to performance management of their CHW services, using these indicators.

References

(1) Scottish Government. Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight 2010.

(2) Stamatakis E, Zaninotto P, Falaschetti E, Mindell J, Head J. Time trends in childhood and adolescent obesity in England from 1995 to 2007 and projections of prevalence to 2015. Journal Epidemiol Community Health 2010;64(2):167e174.

(3) Government Office for Science. Foresight:Tackling obesities: future choices. Project Report (2nd Edition). 2007(2nd ed.).

(4) Hall D. Health for all Children: A programme for child health surveillance: the report of the Joint Working Party on Child Health Surveillance (1st edition). 1989.

(5) Hall D, Elliman D(. Health for all Children (4th Edition). 2003.

(6) Scottish Government. Health for all children 4: 2005: Guidance on implementation in Scotland. 2005; Available at: http://www.scotland.gov.uk/Publications/2005/04/15161325/13443. Accessed 08/08, 2014.

(7) Scottish Government. Scotland Performs: National Outcomes for Children, Young People and Families. 2007; Available at: http://www.scotland.gov.uk/About/Performance/scotPerforms/outcome/childfamilies. Accessed 08/08, 2014.

(8) Scottish Government. Child Healthy Weight. 2008; 2011; Available at: http://www.scotland.gov.uk/Topics/Health/Healthy-Living/Healthy-Eating/Child-Healthy-Weight. Accessed 02/05, 2014.

(9) Hoy C, Lacey M. Evaluation of HEAT 3: The Child Healthy Weight Programme. 2010.

(10) Scottish Intercollegiate Guidelines Network. SIGN 115 Management of Obesity. 2010; Available at: http://www.sign.ac.uk/pdf/sign115.pdf, 2014.

(11) McConville S, Marcinkiewicz A, Bradshaw P, Calcutt E, Hussey D, Ormston R, et al. Evaluation of the Child Healthy Weight Programme: Final Report October 2013. 2013.

(12) McCann A. Scottish Public Health Network (ScotPHN): Child Healthy Weight: Local learning 2014. 2014.

(13) National Institute for Health and Clinical Excellence. NICE Public Health Guidance 47:Managing overweight and obesity among children and young people: lifestyle weight management services. 2013.

(14) National Institute for Health and Clinical Excellence. Obesity : guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children (NICE Clinical Guideline 43). 2010;2014.

(15) Scottish Government. Guidance for delivery of HEAT Target: Child Healthy Weight Interventions: 2011-2014. 2011.

(16) WHO. Population-based approaches to childhood obesity prevention. 2012; Available at: http://www.who.int/dietphysicalactivity/childhood/approaches/en/. Accessed 08/08, 2014.

(17) Waters E, de Silva-Sanigorski A, Burford Belinda J, Brown T, Campbell Karen J, Gao Y, et al. Interventions for preventing obesity in children. 2011(12).

(18) Craig L, McNeill G, Macdiarmid JI, Masson LF, Holmes BA. Dietary patterns of school-age children in Scotland: association with socio-economic indicators, physical activity and obesity. Br J Nutr 2010 02/14;103(3):319-334.

(19) Waters E, Silva Sanigorski A, Hall B, Brown T, Campbell K, Gao Y, et al. Interventions for preventing obesity in children (review). Cochrane Database of Systematic Reviews 2011;12:1-212.

(20) Murdoch M, Payne N, Samani-Radia D, Rosen-Webb J, Walker L, Howe M, et al. Family-based behavioural management of childhood obesity: service evaluation of a group programme run in a community setting in the United Kingdom. Eur J Clin Nutr 2011 Jun;65(6):764-767.

(21) Shrewsbury VA, Steinbeck KS, Torvaldsen S, Baur LA. The role of parents in pre-adolescent and adolescent overweight and obesity treatment: a systematic review of clinical recommendations. Obesity Reviews 2011 Oct;12(10):759-769.

(22) Summerbell CD, Moore HJ, Vogele C, Kreichauf S, Wildgruber A, Manios Y, et al. Evidence-based recommendations for the development of obesity prevention programs targeted at preschool children. Obesity Reviews 2012 Mar;13(Suppl 1):129-132.

(23) Sacher PM, Kolotourou M, Chadwick PM, Cole TJ, Lawson MS, Lucas A, et al. Randomized Controlled Trial of the MENDProgram: A Family-based Community Intervention for Childhood Obesity. Obesity 2010;18 Supplement:S62–S68.

(24) Skouteris H, McCabe M, Swinburn B, Newgreen V, Sacher P, Chadwick P. Parental influence and obesity prevention in pre-schoolers: a systematic review of interventions. Obesity Reviews 2011;12(5):315-328.

(25) Rudolf M. Tackling obesity through the healthy child programme: a framework for action. 2009.

(26) Gerards SM, Dagnelie PC, Jansen MW, De Vries NK, Kremers SP. Barriers to successful recruitment of parents of overweight children for an obesity prevention

intervention: a qualitative study among youth health care professionals. BMC Family Practice 2012;13:37.

(27) Kipping RR, Jago R, Lawlor DA. Diet outcomes of a pilot school-based randomised controlled obesity prevention study with 9-10 year olds in England. Prev Med 2010 Jul;51(1):56-62.

(28) Kipping RR, Jago R, Lawlor DA. Developing parent involvement in a school-based child obesity prevention intervention: a qualitative study and process evaluation. Journal of Public Health 2012 Jun;34(2):236-244.

(29) Rudolf M, Christie D, McElhone S, Sahota P, Dixey R, Walker J, et al. WATCH IT: a community based programme for obese children and adolescents. Arch Dis Child 2006 Sep;91(9):736-739.

(30) American Dietetic Association (ADA). Position of the American Dietetic Association: individual-, family-, school-, and community-based interventions for pediatric overweight. J Am Diet Assoc 2006 Jun;106(6):925-945.

(31) Jopling M, Whitmarsh J. Evaluation of Education Walsall's commission to reduce obesity in schools: Final report. 2008.

(32) Twiddy M, Wilson I, Bryant M, Rudolf M. Lessons learned from a family-focused weight management intervention for obese and overweight children. Public Health Nutr 2012 Jul;15(7):1310-1317.

(33) Backett-Milburn K, Wills WJ, Gregory S, Lawton J. Making sense of eating, weight and risk in the early teenage years: views and concerns of parents in poorer socio-economic circumstances. Soc Sci Med 2006 08;63(3):624-635.

(34) Jennings A, Welch A, Jones AP, Harrison F, Bentham G, van Sluijs EM, et al. Local food outlets, weight status, and dietary intake: associations in children aged 9-10 years. Am J Prev Med 2011 Apr;40(4):405-410.

(35) Borys J, Le Bodo Y, Jebb SA, Seidell JC, Summerbell C, Richard D, et al. EPODE approach for childhood obesity prevention: methods, progress and international development. Obes Rev 2012 04;13(4):299-315.

(36) Van Koperen TM, Jebb SA, Summerbell CD, Visscher TL, Romon M, Borys JM, et al. Characterizing the EPODE logic model: unravelling the past and informing the future. Obesity Reviews 2013 Feb;14(2):162-170.

(37) Rocket Science UK Ltd. Healthy Weight Communities: Programme Evaluation. 2011.

(38) ISD Scotland (2014). Child Healthy Weight Interventions 2013/14. 2014; Available at: https://isdscotland.scot.nhs.uk/Health-Topics/Child-Health/Publications/2014-07-29/2014-07-29-ChildHealthyWeight-Report.pdf?95541018248, 2014.

(39) Scottish Government (2009). Scottish Health Survey 2008 - Volume 1 Main Report. Available at: http://www.scotland.gov.uk/Publications/2009/09/28102003/0. Accessed 08/08, 2014.

(40) Scottish Government (2013). Scottish Health Survey 2012 - Volume 1 Main report. Available at: http://www.scotland.gov.uk/Publications/2013/09/3684. Accessed 08/08, 2014.

(41) Scottish Executive (2003). A Curriculum for Excellence - The Curriculum Review Group. Available at: http://www.scotland.gov.uk/Publications/2004/11/20178/45863. Accessed 08/08, 2014.

(42) Reilly JJ. Physical activity, sedentary behaviour and energy balance in the preschool child: opportunities for early obesity prevention. Proc Nutr Soc 2008 Aug;67(3):317-325.

(43) Galvez MP, Pearl M, Yen IH. Childhood obesity and the built environment. Curr Opin Pediatr 2010 Apr;22(2):202-207.

(44) Kipping RR, Jago R, Lawlor DA. Developing parent involvement in a school-based child obesity prevention intervention: a qualitative study and process evaluation. Journal of Public Health 2012 Jun;34(2):236-244.

(45) Khambalia AZ, Dickinson S, Hardy LL, Gill T, Baur LA. A synthesis of existing systematic reviews and meta-analyses of school-based behavioural interventions for controlling and preventing obesity. Obes Rev 2012 Mar;13(3):214-233.

(46) British Medical Association (Scotland). BMA Scotland briefing note: Childhood Obesity. 2012; Available at: https://www.google.co.uk/url?q=http://bma.org.uk/-/media/files/pdfs/working%2520for%2520change/obesitychildhoodscotland.pdf&sa=U&ei=syVqU8uJEemO7Aa0k4HACA&ved=0CFEQFjAI&usg=AFQjCNERdR9CTOSsObQXYY8ms0n5p9KStw, 2012.

(47) Green DJ, Cable T, Reilly JJ, Paton JY, McColl JH, Williamson A. Physical activity to prevent obesity in young children: BMI in the BMJ... Reilly JJ, Kelly L, Montgomery C, Williamson A, Fisher A, McColl JH, et al. Physical activity to prevent obesity in young children: cluster randomised controlled trial. BMJ 2006; 333:1041-3 (18 November). BMJ 2006 12/02;333(7579):1171-1172.

(48) McMinn D, Rowe DA, Murtagh S, Nelson NM. The effect of a school-based active commuting intervention on children's commuting physical activity and daily physical activity. Prev Med 2012 May;54(5):316-318.

(49) Epstein L, Raja S, Daniel T, Paluch R, Wilfley D, Saelens B, et al. The built environment moderates effects of family-based childhood obesity treatment over 2 years. Ann Behav Med 2012;10(44(2)):248-258.

(50) Williams AJ, Wyatt KM, Hurst AJ, Williams CA. A systematic review of associations between the primary school built environment and childhood overweight and obesity. Health Place 2012 May;18(3):504-514.

(51) Nixon CA, Moore HJ, Douthwaite W, Gibson EL, Vogele C, Kreichauf S, et al. Identifying effective behavioural models and behaviour change strategies underpinning preschool- and school-based obesity prevention interventions aimed at 4-6-year-olds: a systematic review. Obesity Reviews 2012 Mar;13(Suppl 1):106-117.

(52) Khambalia AZ, Dickinson S, Hardy LL, Gill T, Baur LA. A synthesis of existing systematic reviews and meta-analyses of school-based behavioural interventions for controlling and preventing obesity. Obes Rev 2012 Mar;13(3):214-233.

(53) Scottish Public Health Observatory. Obesity: Children's Data. 2014; Available at: http://www.scotpho.org.uk/clinical-risk-factors/obesity/data/children. Accessed 05/08, 2014.

(54) Rietmeijer-Mentink M, Paulis WD, van Middelkoop M, Bindels PJ, van der Wouden JC. Difference between parental perception and actual weight status of children: a systematic review. Matern Child Nutr 2013 Jan;9(1):3-22.

(55) Carnell S, Edwards C, Croker H, Boniface D, Wardle J. Parental perceptions of overweight in 3-5 y olds. Int J Obes 2005 Apr;29(4):353-355.

(56) Douglas F, Clark J, Craig L, Gilmartin A, Comerford C, McNeill G. A qualitative study exploring parents' views and perceptions of overweight and obesity in pre-school children in Scotland. Annals of Nutrition and Metabolism 2013 2013;63:597.

(57) Mikhailovich K, Morrison P. Discussing childhood overweight and obesity with parents: a health communication dilemma. Journal of Child Health Care 2007 Dec;11(4):311-322.

(58) Bryant M, Farrin A, Christie D, Jebb SA, Cooper AR, Rudolf M. Results of a feasibility randomised controlled trial (RCT) for WATCH IT: a programme for obese children and adolescents. Clinical Trials 2011 Dec;8(6):755-764.

(59) Golan M, Kaufman V, Shahar DR. Childhood obesity treatment: targeting parents exclusively v. parents and children. Br J Nutr 2006 May;95(5):1008-1015.

(60) Parkes, A., Sweeting, H.,Wight, D. Growing up in Scotland: Overweight, obesity and activity. 2012.

(61) McMinn D, Rowe DA, Murtagh S, Nelson NM. The effect of a school-based active commuting intervention on children's commuting physical activity and daily physical activity. Prev Med 2012 May;54(5):316-318.

(62) Must A, Anderson SE. Body mass index in children and adolescents: considerations for population-based applications. Int J Obes 0000 print;30(4):590-594.

(63) Croker H, Viner RM, Nicholls D, Haroun D, Chadwick P, Edwards C, et al. Family-based behavioural treatment of childhood obesity in a UK National Health Service setting: randomized controlled trial. Int J Obes 2012 Jan;36(1):16-26.

(64) British Medical Association (Scotland).
BMA Scotland briefing note: Childhood Obesity. 2012; Available at: https://www.google.co.uk/url?q=http://bma.org.uk/-/media/files/pdfs/working%2520for%2520change/obesitychildhoodscotland.pdf&sa=U&ei=syVqU8uJEemO7Aa0k4HACA&ved=0CFEQFjAI&usg=AFQjCNERdR9CTOSsObQXYY8ms0n5p9KStw, 2012.

(65) Nixon CA, Moore HJ, Douthwaite W, Gibson EL, Vogele C, Kreichauf S, et al. Identifying effective behavioural models and behaviour change strategies underpinning preschool- and school-based obesity prevention interventions aimed at 4-6-year-olds: a systematic review. Obesity Reviews 2012 Mar;13(Suppl 1):106-117.

(66) Golley RK, Magarey AM, Baur LA, Steinbeck KS, Daniels LA. Twelve-month effectiveness of a parent-led, family-focused weight-management program for prepubertal children: a randomized, controlled trial. Pediatrics 2007 Mar;119(3):517-525.

Appendices

Appendix 1: Members of the Expert Sub-Group

Chair: Drew Walker, Director of Public Health, NHS Tayside / Chair of Scottish Public Health Obesity Special Interest Group (SPHOSIG)

Discipline	Representative	Organisation
Nutrition	Laura Stewart Tayside Weight Management Pathway Manager	NHS Tayside
Physical Activity/Academia	John Reilly Professor of Physical Activity and Public Health Science Physical Activity for Health Group	School of Psychological Sciences and Health University of Strathclyde
Health Promotion Managers	Moyra Burns Health Promotion Manager	NHS Lothian
Child Healthy Weight Leads	Tom Houston, Lead Officer / Dan Jenkins, Health Promotion Specialist	NHS Forth Valley/ NHS Highland
Consultants in Public Health Medicine	Graham MacKenzie Consultant in Public Health Medicine	NHS Lothian
Local authority	Cath King Health Improvement Policy Manager	Highland Council
NHS Health Scotland CHW Leads Group	Ann Kerr Team Head Programme Design and Delivery	NHS Health Scotland
Association of Directors of Education in Scotland	Gillian Brydson Head of Strategic Support Education Services	Dumfries and Galloway Council
RCPCH	Charlotte Wright Professor of Community Child Health	University of Glasgow / NHS Greater Glasgow & Clyde
Scottish Government	Kate McKay Senior Medical Officer	Scottish Government
ScotPHN	Ann Conacher, Manager / Phil Mackie, Lead Consultant / Alison McCann, Researcher	Scottish Public Health Network

Appendix 2: The Obesity Epidemic in Scotland

In 2010 the Scottish Government's *Preventing Overweight and Obesity in Scotland: A Route Map Towards Healthy Weight*(1) opened with a stark assertion:

"In common with most of the developed world, Scotland is experiencing the obesity epidemic…. As overweight has become the norm, we have developed a distorted view of normal body shape and just how many people in Scotland are overweight and obese." (ORM, 2010) (1)

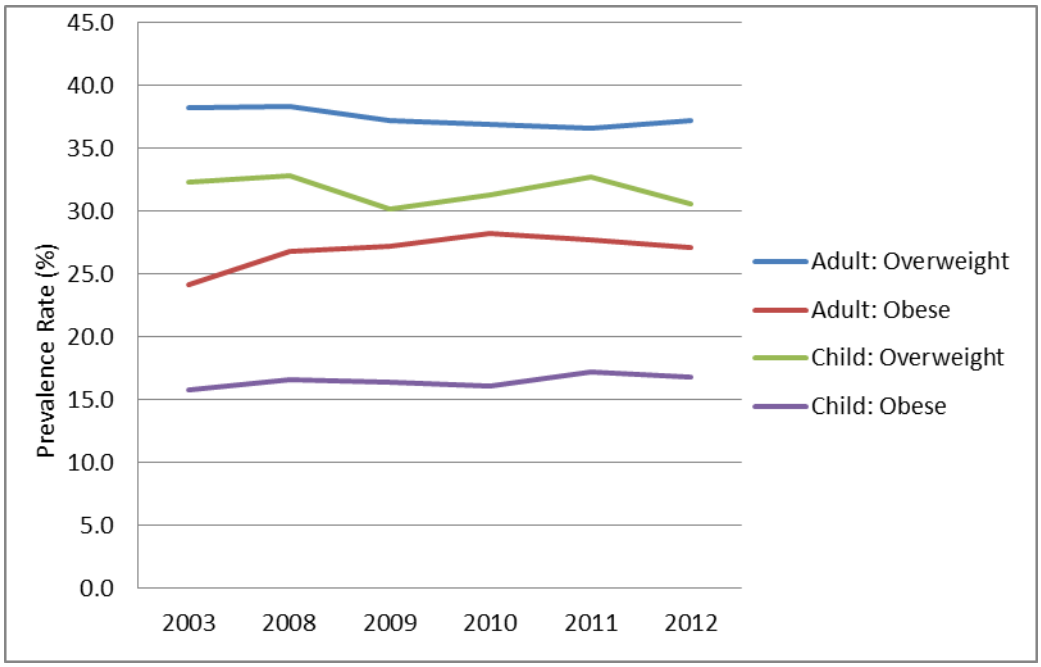
This document – the Obesity Route Map – drew on Scottish Health Survey data from 2008 to illustrate the point with 26.8% of adults (aged over 16 years) in Scotland obese and 38.3% overweight(39)[d]. For the most recent Scottish Health Survey(40), the rate of adult obesity and overweight has remained largely static, with 27.1% of the adult population obese and 37.2% overweight. A similar picture emerges for children. In 2008 the rates amongst children aged from 2 to 15 years were 16.6% obese and 32.8% overweight(40)[e]. For 2012 the corresponding rates were 16.8% obese and 30.6% overweight(40). As Figure A2.1 shows, these rates have remained largely static since 2003. The headline rates for obesity and overweight in children masks the fact that they vary dues to age and gender.

The 2012 Scottish Health Survey (40) found that 19.7% of boys and 13.7% of girls were at risk of obesity. The prevalence for being overweight were 27.4% for girls and 33.6% for boys. As might be expected obesity was found to increase with age for both boys and girls, whilst healthy weight and being overweight reduced. Overall, girls are less overweight or obese than boys (see Figure A2.2).

[d] Obesity and overweight are measured using the Body Mass in Index (BMI). Adult prevalence rates are quoted independently rather than cumulatively. This is to allow comparison with the BMI categories for children The weight of children in Scotland is also measured using the BMI. Details of how the BMI is used to define healthy weight, overweight and obesity in children, taking into account that the height of a child will increase over time, can be found in ISD P1 BMI Stats 2014(38).

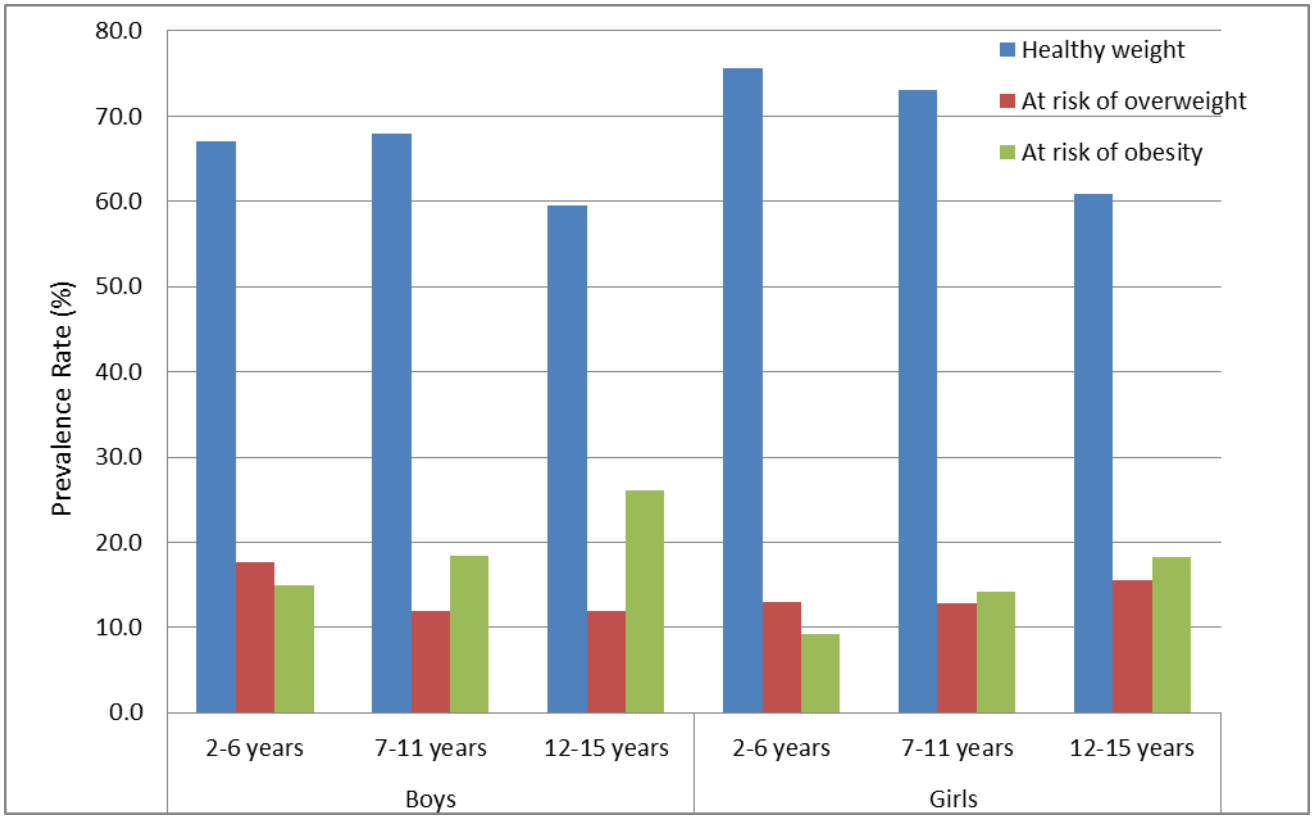
[e] These 2008 rates of obesity and overweight in children are drawn from the SHeS (2012)(40) which uses a revised rate calculation. These figures therefore differ from those published in the ORM (2010)(1).

Figure A2.1: The Prevalence of Obesity and Overweight in Scottish Adults (16y+) and Children (2-15y): 2003–2012.



(Source: SHeS2012(40))

Figure A2.2: The Prevalence of Healthy Weight, Overweight and Obesity in Scottish Children: Gender and Age-Group 2012

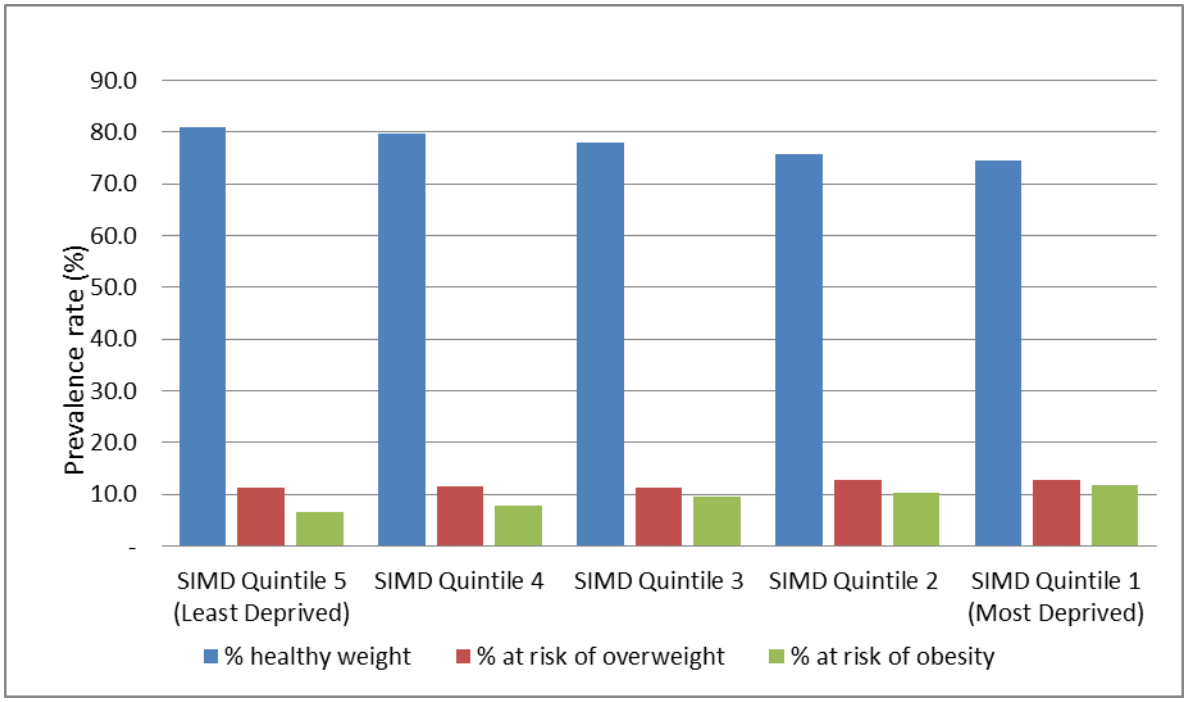


(Source: SHeS2012(40))

Data from the 2012/2013 Child Health Programme to School-aged Children in Scotland(38) shows similar, general patterns with prevalence rates for healthy weight, overweight and obese[f] children in Primary 1[g] remaining broadly static since 2001/02 until 2012/13. Levels of obesity, overweight and healthy weight by gender are also comparable with those reported in the Scottish Health Survey. This data set, however, provides the only Scottish prevalence rates for childhood obesity, overweight and healthy weight by Health Board, Local Authority and Community Health Partnership at school entry.[h]

The data have also been analysed by Scottish Index of Multiple Deprivation (SIMD) quintile across Scotland. As Figure A2.3 shows, even by the age of school entry a gradient exists with healthy weight being more prevalent with increasing affluence and obesity more prevent in more deprived areas.

Figure A2.3: The Prevalence of Healthy Weight, at risk of Overweight and at risk of Obesity in Primary 1 Children in Scotland by Scottish Index of Multiple Deprivation Quintile: school year 2012/13



(Source: ISD P1 BMI Stats 2014(38))

[f] Two differing thresholds for obesity and overweight are calculated for the Child Health Programme to Schools-aged Children: an epidemiological threshold definition and a clinical threshold definition. Details of how these thresholds are calculated can be found in ISD P1 BMI Stats 2014(38). For ease of comparison, epidemiological threshold definitions are used in this report.

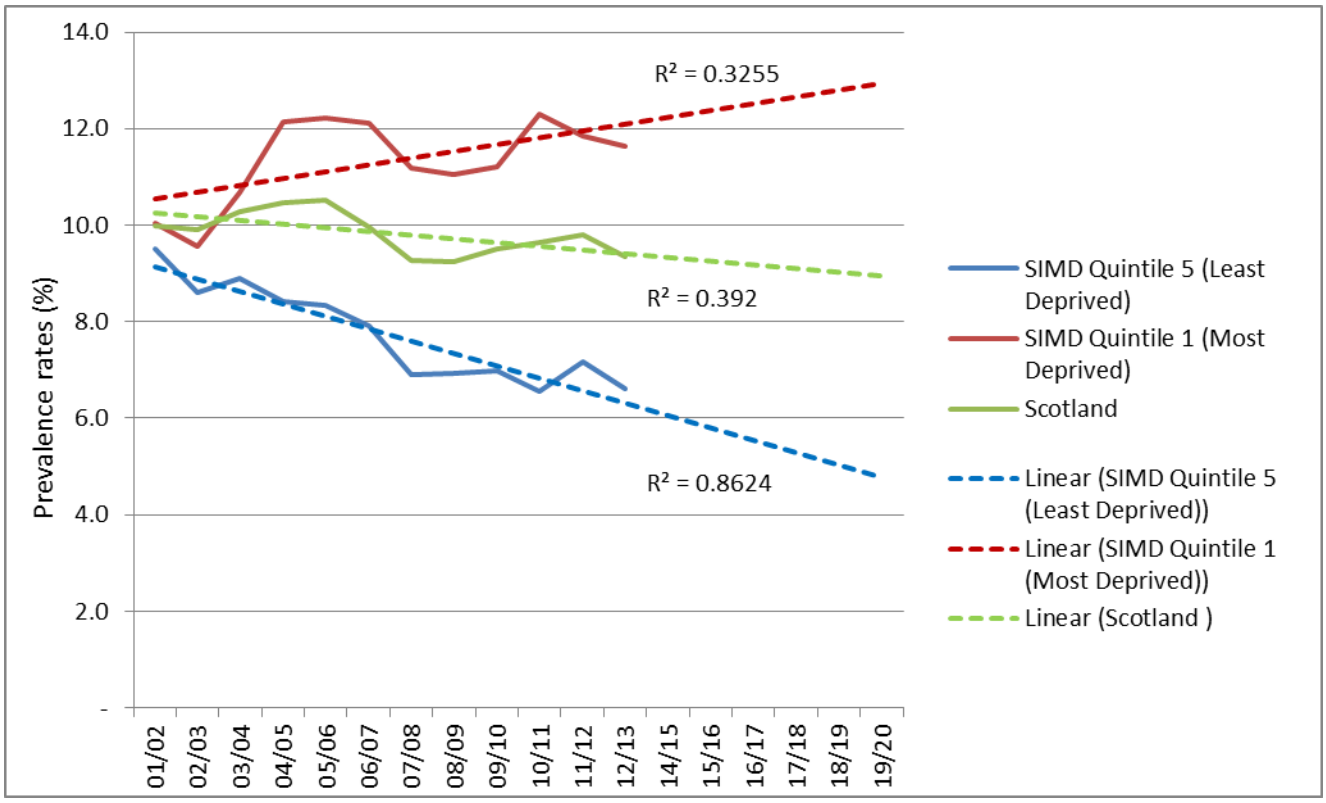
[g] Children in Primary 1 are aged between 4.5 years to 6.25 years. This is a consequence of the cut-offs for children entering specific school years.

[h] These data are available from within the ISD P1 BMI Stats 2014(38)document. (This is available at: https://isdscotland.scot.nhs.uk/Health-Topics/Child-Health/Publications/2014-02-25/2014-02-25-P1-BMI-Statistics-Publication-2012-13-Report.pdf?40177553893 Last accessed 8 July 2014)

The Obesity Route Map included an estimation of the increase in adult obesity in Scotland. This suggested that the prevalence of adult obesity would increase to 43% of the population by 2030. A similar exercise was not carried out for children due to the technical difficulties in making such statistical projections.

Stamatakis *et al* (2010)(2) published obesity projections to 2015, based on obesity trend data from 1995 to 2007 from the Health Survey for England. The research team found that there were marked differences in projected prevalence based on social class with obesity being more pronounced in the manual versus non-manual social classes. On the basis of this, one could predict that the currently observed gap between the least deprived and the most deprived in Scottish obesity amongst Primary 1 school-children may also become more pronounced. Using a similar approach, fitting a linear trend to Primary 1 prevalence data from 2001/02 to 2012/13 school years, such an increasing gap is found. Figure A2.4 shows that, whilst for Scotland as a whole, being at risk of obesity may be gently declining, this seems to be a consequence of the very large reduction in obesity risk in children from the most affluent areas and masks a clear increase in obesity risk in the children from the most deprived areas. This is projected to increase markedly.

Figure A2.4: The Projected Prevalence of Obesity in Primary 1 Children in Scotland for Scottish Index of Multiple Deprivation Quintiles 1 & 5 compared to Scotland as a whole: school years 2001/02 to 2019/20



Clearly these projections must be interpreted with extreme care. However, it can be assumed that if we continue with our current approach, we can expect to see:

- further reductions in obesity risk in children from more affluent areas;
- little or no effect on reducing obesity risk in children from more deprived area;
- the rate of reduction in national obesity risk remaining slow; and
- an ever-widening gap inequality gap in childhood obesity.

The brief analysis above highlights that:

- despite undertaking a range of actions in recent years, Scotland is still experiencing the obesity epidemic across its whole population;
- those actions undertaken so far have – at best – caused the previous rises in overweight and obese people in Scotland to be checked;
- those actions taken to address child healthy weight may have had the effect of reducing slightly the overall prevalence of childhood obesity and overweight risk across Scotland as a whole; but
- this masks the large inequalities observed in childhood obesity and overweight risk associated with gender, age and multiple deprivation; and
- although the evidence is limited, such inequalities may increase if specific actions are not taken to address these inequalities, in addition to reducing the overall burden of obesity.

Appendix 3: Capturing the Learning Experiences of NHS Boards

The 2011 Guidance was explicit in the requirement for those involved in the child healthy weight programmes to learn from NHS Board experiences. In order to achieve the greatest input and learning from all the Board level Tier 2 interventions which took place under the Child Healthy Weight banner, the Expert Group collected and collated qualitative data from NHS Board programmes and their staff.

These data were collected using pro-forma returns (developed by the CHW Leads Group) which considered local practice and learning in relation to:

- the local strategic context;
- the interventions developed:
  - school-based;
  - one to one; and
  - group work.

In this appendix the key learning in these areas is summarised. A more specific collation and interpretation of these data are available from the ScotPHN website. (12).
(http://www.scotphn.net/projects/current_projects/scottish_public_health_obesity_special_interest_group_sphosig)

1 The Local Strategic Context

All NHS Boards provided qualitative feedback on the local strategic context in which the child healthy weight programme currently exists. The data was collected against nine questions, these have been further summarised below.

1.1 What strategies does child healthy weight sit under, or link to, in your area?

At the request of local programmes and NHS Boards, the guidance did not set out a single, common strategic approach under which child health weigh sits. In a number of NHS Boards there are specific child healthy weight, healthy weight, or obesity strategies where it features (n=6 Boards). In some NHS Boards it is included in more general child health strategies or healthy eating / active living, lifestyle risk factor modification strategies (n=6 Boards). Other specifically mentioned strategies / delivery plans noted were: Early Years Strategies (n=4 boards); (Integrated) Children's/Young People's Service Plans (n=3 Boards); Maternal/Infant Feeding Strategy (n=2 Boards); Curriculum for Excellence (n= 2 Boards); Getting Right for Every Child (n=2 Boards); and the Joint Health Improvement Strategy/Plan (n= 1 Board).

1.2 What areas does the strategy cover e.g. Community Planning Partnerships/Local Authorities/ Health board wide?

As might be anticipated, there was no one predominant type of area covered by the differing strategic contexts. Most programmes described NHS Board, Local Authority or Community Planning Partnerships. Third sector involvement was mentioned for some, but not all, areas.

1.3 What are the current local systems for reporting and governance?

Most child healthy weight programmes have a steering group and various reporting arrangements within NHS Boards and within NHS/Local Authority partnerships. It is clear that the governance landscape for child healthy weight programmes is complex, though responsibility for delivery of the H3 target is very clearly seen as an NHS Board responsibility.

1.4 What difference has CHW being a HEAT target made?

Most programmes reported a number of positive aspects. These tended to highlight the use of the ring-fenced budget to facilitate the development of co-ordinated approaches to child healthy weight using interventions created specifically for the purpose; the increased profile of child healthy weight amongst NHS Board senior management and multi-agency, collaborative partnerships; and an ongoing interest in progress due to the stringent performance reporting. Other positives included the development of a trained, competent workforce to sustain delivery and the development of a “community of practice” across NHS Boards in Scotland.

Negative aspects identified tended to highlight that the short-term funding created a high staff turnover due to uncertainty and that this made it difficult to secure longer-term development funding. As NHS Boards were delivering their programmes in their own way, within the context of the broad criteria set out in the guidance, this did have the unintended consequence that many aspects of local child health weight programmes were developed to meet the HEAT target and not necessarily the needs of the local communities being served. This seems to underpin the strongly expressed view that there was a “culture” of chasing numbers, as opposed to nurturing appropriate engagement and support for both participants and delivery staff.

1.5 Key learning about programme delivery
1.6 Structural issues
1.7 Process issues

The child healthy weight programmes recognised that whilst strategic planning / oversight groups are important, as is commitment from senior managers, they are

seldom best placed to deliver direct interventions. Even if working relationships at strategic level were good, it was more challenging to translate these into delivery through front line staff. In some aspects the experience was the reverse, with front-line staff helping create strategic working relationships. It was observed that productive partnership working was essential throughout the life of the programme. This was only established in some areas.

Whilst one NHS Board had a pre-existing infrastructure in place to deliver their child healthy weight programme in its own right, most of the NHS Boards established new or extended services to deliver the requisite interventions. In doing this, the involvement of individuals or services with specialist expertise and knowledge in the development stage quality assured the programme and buy-in, when needed from elsewhere, was initially challenging, though this became less challenging over time. For some NHS Boards, delivery of the child healthy weight programme proved too much of a challenge to simply incorporate the additional service activity into existing mainstream services. Not all NHS Boards choose to deliver the programme via NHS staff. Delivery of these types of interventions can be undertaken by non-clinical professionals; however, healthcare professionals are still needed in the development, quality assurance and ongoing support stages of any programme. The effort needed to embed the gains achieved through local child healthy weight programme in the core approach of schools should not be underestimated. Overall it was noted that it takes time for people to recognise a new service is available and has value. Equally, it was noted that sustaining a service once established was an issue against a background of major organisational change (e.g. integration).

In the light of experience, it was felt that developing meaningful targets and outcomes for child healthy weight programmes requires careful reconsideration. The lead-in time for development and delivery of a child healthy weight programme was found to be both crucial and underestimated by several local teams. The 2011 H3 target was felt to have arrived with an immediate delivery trajectory which resulted in a more rushed approach to strategic partnership building and to programme and staff development. The data recording systems was not felt to reflect in any way what had already been happening on the ground and was seen as inflexible. Some local data collection approaches did not include a routine second data collection for BMI, meaning that the impact of completed interventions was not easily monitored. The striving for numbers was felt to have affected quality and engagement.

Engagement by children and their families in the child healthy weight programmes was a constant challenge though retention in the programme does improve over time. Any future target-setting should differentiate between new services and more mature ones. Local areas found their own approaches to improvement engagement, though the 9-11 years age group was found to be a very powerful force for change when motivated and supported. The 2014 evaluation notes that 97% of the children coming through any part of the programme were less than 12 years.(11) Arts and culture were considered a very useful tool in family engagement. Parents and most

professionals found discussions regarding healthy weight difficult, especially where it was interpreted as stigmatising of children and parents. Challenging professional barriers relating to raising the issue was also found to be pertinent. The general willingness from services and partner organisations to engage in the area and pull together additional resources where possible to support the participating families was generally noted as encouraging, though there were exceptions noted in relation to the operational side of the Education sector.

Prevention is crucial to dealing with child healthy weight. Although there is a clear need for a weight management intervention for families, an approach that supports broad population prevention aims, focuses on positive engagement, and develops community, family (and self) efficacy is more appropriate than an individually targeted, deficit-based, weight-centred approach. More attention needs to be given to wider issues of community development and local environmental factors that affect behaviours and to influencing wider determinants of child healthy weight.

The reliance on short-term, rolling programme funding creates local instability and leads to problems with staffing retention and recruitment. The approved interventions were relatively cheap compared to others, in part due to delivery through partner organisations (non-NHS staff). However, the existing funding was only focussed on Tier 2 services and this is a limited resource allocation in relation to the scale of the problem. There needs to be a long term, sustained commitment to resourcing this area of work from within the existing NHS budget.

From a NHS Board perspective, the loss of dedicated support at national level was felt throughout the period 2011-2014. Communication timelines were felt to be unhelpful, especially nearing the end periods of both 3 year target periods. This led to service pressures around staffing and meant that partnership discussions were set against a background of service continuation and/or exit strategies.

Finally, it was worth noting that some NHS Boards felt that the need of local adaptation of national approaches was sometimes just a perception. In reality they noted that simply delivering the national approach as set out was what was needed.

1.8 What would you do differently?

NHS Boards were relatively consistent in the areas which they felt could have been handled differently. Population prevention through actions to change the obesogenic environment was seen as a major omission in existing programmes. NHS Boards were felt to have not done enough to seek to influence changes in the structures and issues linked to the determinants of obesity at population level, as well as taking specific preventative interventions to identify children at risk of being above a healthy weight from an earlier age. Ensuring that programmes engaged and supported parents more effectively was another key change. Developing family and community-based follow-on support were specifically noted. Allowing more time to plan

interventions appropriately and allocating more time to the lead-in period for the service was a key change in planning delivery as building stronger partnerships with key mainstream services was for delivering interventions within programmes. Specific mention here was made of: dietetics; paediatrics; and child and adolescent mental health services. Creating more robust governance structures, with more regular meetings of key managers of partner services was also identified as a necessary change. Finally, the child healthy weight programmes noted that a more robust monitoring, planned from outset, with central support of database development for local use, would have been helpful.

1.9 What else would you want to do in the future?

The child healthy weight programmes were also asked what they would want to do in the future. There was a high degree of consistency between NHS Boards in highlighting that without effective whole population approaches to changing the obesogenic environment then whatever you do with child healthy weight programmes can only have minimal impact. There was a desire to develop broader programmes adopting a life-course approach to healthy weight.

In planning future programmes, the need to take a more co-productive approach, with children, parents, professionals, schools etc. seeking their input into improving / modifying the programme, was an identified need. Actions to strengthen social capital and the development of the asset and capacity-base in communities was noted.

Finally, all NHS Board child healthy weight programmes wanted to ensure that priority is given to all obesity prevention and management, not just child healthy weight. A robust funding base is needed, at a level commensurate to the scale of the issue. They see this as requiring national and local investment so that unsustainable pressure will not be put on the existing funding currently ring-fenced for child healthy weight programmes.

2 The Interventions Developed

2.1 School-based Interventions

All but one of the NHS Boards undertook school-based interventions. As a result, this type of intervention has provided the greatest feedback.

All NHS Boards who undertook school interventions stressed the importance of engagement at the highest level of education authorities. They also noted that interventions within schools often depend on the engagement of head teachers and their staff. Engaged teachers or health coaches are extremely important in motivating children. However, not all teachers and head teachers became engaged

with the child healthy weight programmes. Much more needs to be done locally, and through professional bodies, in order for school-based staff to accept the benefit of child healthy weight intervention.

While the 9-11 age group are an important target audience, and feedback was that children found being given knowledge for personal choices empowering, it was difficult for them to continue the sessions if their parents were not motivated or do not see the intervention as a benefit. This was especially so if the intervention mostly took place in school time. Many NHS Boards emphasized that more work needs to be done on communicating about healthy weight to parents and teachers tactfully and effectively by programme staff. This was noted to be difficult when overweight children are seen as normal or the discussion of healthy weight is not normalised in families. Some suggested that national social marketing could be used in order to make the programme more aspirational and creating buy-in from parents and children, though it was noted that it is much harder to engage parents if interventions are mostly in undertaken during school time.

On structural and process issues, there was a demand for more inter-agency working with an emphasis on links to more organisations outside of schools supporting leisure activities. Links with schools meals services and school cooks would also be valuable, although this is seen as beyond the scope of the current child healthy weight programme. The programme planning needs to start well before the school term, in order that teachers and health coaches can get to grips with the material and plan out delivery. It was noted that in some cases local programmes did not accommodate half-term breaks, even though they were known well in advance. Engagement from Directors of Education in local authorities was considered to be crucial. It was suggested that this may be easier if the child healthy weight programme had a link to Curriculum for Excellence(41). Working with local authorities would be stronger strategically, and use could be made of educational colleagues as child healthy weight champions on partnerships where there is no NHS input.

A number of the NHS Boards felt that there was a discrepancy between interventions that focussed on behaviour modification, for which entry was subject to a weight threshold at a given point in time.

Overall, data collection was seen as problematic and a recurrent theme from some child healthy weight programmes was whether it was really necessary to continue to take heights and weights. However, it was acknowledged that monitoring was needed and was helpful and a national monitoring “tool” was seen as desirable.

Ideas for the future were diverse. Many child healthy weight programmes expressed the desire to expand the interventions to longer programmes, covering a wider age-group that included secondary schools, and addressing self-image and acceptance of weight.

Specific changes suggested by the programmes included:

- closer working relationships with local authority education departments and school senior management;
- more teacher training or CPD development for staff;
- moving the focus to health and well-being.

The future should also see more engagement with the family and community/family follow up sessions, particularly for families in difficult circumstances.

2.2 Community Interventions

In relation to child healthy weight community or group interventions, feedback was received from seven NHS Boards, of which six delivered interventions and one fed back on its development process. All of the island-based NHS Boards and the remaining mainland NHS Boards did not run community or group interventions.

Parental engagement was reported to be a difficulty within the community delivered interventions. A lack of public understanding of the scale of the child obesity problem was identified as an issue, as was poor understanding of what is healthy weight. On top of these, it is not widely accepted that child obesity is a risk to health. It was felt that more work needs to be undertaken in these areas because without it, any generic intervention is likely to be highly unsuccessful; with parents believing that obesity or overweight is not a health problem that affects their child, linked to misconceptions about the benefits of intervention or what it will involve. There were some who saw an argument for a wider national awareness raising campaign of the issue, though this is not without its own limitation as it may increase the number of people who become anxious about their weight unnecessarily.

Communication was found to be difficult. Using a letter to contact the parents of children found to be above a healthy weight did not generate many referrals. There were also few referrals that came through from health improvement services, dietetics, GPs, or paediatric services. Low uptake of referrals was felt to have the potential to affect the cost-effectiveness community or group interventions.

Some, but not all, NHS Boards reported good recruitment to community / group interventions from SIMD bands 1& 2. Ensuring the learning from these NHS Board programmes is shared was recognised as important.

Intervention content was a source of difficulty as activities must be specific to age group; this is especially important for older children. It can be also be difficult to find the right balance of child-focussed and adult-focussed activities when bringing families together in physical activities. Some NHS Boards found that parents were often reluctant to participate in physical activity, others that parents were happy to be involved.

As in other child healthy weigh interventions, well-trained and motivated staff, with the “softer” skills needed to engage with the children and families was found to be of the utmost importance. To this end training of staff in health behaviour change or motivational interviewing techniques was essential. However, the use of short-term contracts for staff led to difficulties in staff retention and a difficulty in sustaining well-trained staff capacity.

Working in partnership was found to “add value” and made funding go further. However, some programmes found it was difficult to engage some agency partners in community based work, especially if they saw that their focus was to be on school-based services. Indeed, it was felt by some in community work that they were regarded as the “poor relation” in the child healthy weight programmes.

Finding suitable facilities within the community at a suitable price was found to be challenging. Finding suitable facilities for parents and children often meant competing for venues with after-school provision or during the peak-time for leisure centre classes. Finding suitable community venues for the activities and games used within interventions was an issue for some.

As with other parts of programme, problems with data collection were noted for community interventions. For example, maintaining robust data collection by non-NHS partners was identified as challenging. Most NHS Boards felt that the H3 target was not a good fit for community and group programme interventions, which often emphasized health and well-being. An opportunity to develop more meaningful targets was seen as welcome.

Longer support is needed than the current period of intensive work and it would be helpful to have ongoing support for previous participants. Taster sessions for parents and children may help reduce intervention dropout rates. For a child healthy weight programme to have a lasting impact at a community level it is necessary to:

- adopt a long-term approach focussing on healthy eating and physical activity;
- provide support for parents out with the child healthy weight domain;
- separately focus on adult healthy weight in a more specific way; and
- undertake them in an environment where there is national support to highlight the deal with child and adult overweight and obesity.

2.3 One-to-One Interventions.

The majority of NHS Board child healthy weight programmes provided feedback on their one-to-one interventions, though not all NHS Boards delivered such interventions as part of their programmes.

Key points drawn from this feedback on one-to-one interventions include:

- publicity and promotion are key to involving parents and hence children. There is the potential for greater use of social marketing to engage children and parents;
- reaching 'target' families is challenging. It cannot be over-emphasized that the engagement of parents is crucial;
- a fully developed and widely adopted national, child healthy weight pathway would be more likely to identify families, as would more streamlined referral systems. Early identification is desirable;
- there is potential to work in partnership with other clinical, educational, social and support services in order to draw families in or keep them involved;
- greater use of community venues / facilities could be made in order to remove barriers from disadvantaged families; and
- there is as much a need to make sure staff know that the programme is happening; staff buy-in and enthusiasm is vital.

The majority of structural and process issues identified as learning points for one-to-one interventions were the same as those described above for schools-based and community or group interventions. Overall, this should be a long-term and flexible approach with parental support and a lengthening of time spend engaging with families, the current arrangements do not support such an approach.

For future one-to-one child healthy weight interventions, expanded and streamlined referral and progression pathways would be helpful. Accessing pathways should be based on the whether children are at risk of obesity, potentially measured by the BMI trajectory, rather than waiting until they reach a fixed BMI centile threshold. Improved data collection and evaluation and outcome indicators other than weight would also be needed to monitor children and family progress within such pathways.

3 Key Learning Points

Summarising the great wealth of learning which was shared by all the NHS Board child healthy weight programmes is not an exact science and a high degree of its "richness" can be lost in the process. However, the following key learning points regarding the NHS Board programmes seem to be being presented in consistent and clear fashion.

1. The local child healthy weight programmes were delivered in a variety of ways in order to achieve the broadest possible reach. Interventions were delivered in schools (working in partnership with schools and Local Authorities), in the community, as group interventions, and on a one-to-one basis to specific families. Many programmes felt that structural and process limitations affected programme delivery;

2. Parental awareness and engagement is essential and more work to promote this needed. It will be greatly facilitated if this happens in concert with national work to

improve public (and to an extent staff) understanding of healthy child weigh, child obesity and the risks to health it poses;

3. Longer running interventions, tailored to the ability of the child to benefit, with continuing parental support would be beneficial. Addressing interventions for adult healthy weight in tandem with this approach is needed;

4. Frequency of intervention is important too. Ideally, they should be weekly and, if this is not possible, no longer then every fortnight;

5. There needs to be broader “buy-in” at all levels of community partnerships from NHS and Local Authority senior management, to teachers and health professionals, to community workers and health champions;

6. Many NHS Board programmes suggested structural and process factors which need to be addressed: longer-term contracts in order to retain motivated staff; wider training for non-NHS staff; and developing community assets to support delivery;

7. There needs to be revised approach to monitoring programme delivery, with focus on health-based outcome indicators rather than weight and programme numbers. A national obesity surveillance programme is needed to maintain an effective overview of the obesity epidemic and assess programme outcomes at the population level; and

8. All child healthy weight programmes need to exist within the broader context of a refreshed national obesity strategy which addresses the social and cultural determinants of obesity and seeks to change the obesogenic environment which normalises obesity.

Appendix 4: A Rapid Review of the Recent Literature on Child Healthy Weight

The Expert Group did not consider that a major review of the evidence around child healthy weight was necessary. However, a rapid literature review to ensure that any more recent literature was included in their assessment was agreed as being helpful.

The key learning points from the rapid review are presented in this appendix.

1 Method

In identifying such recent literature, a systematic literature search was undertaken using OVID databases including Medline, Embase, CINAHL and Cochrane. The search terms used were a combination of “obesity”, “child”, “Great Britain”, “Scotland”, “England”, “secondary prevention”, “primary preventions”, “evaluation”, “eating disorders”, “treatment” and “parent”. The search focussed on English language articles and used a cut-off point of 2005. In total, the search generated 213 articles, of which 57 were grey literature articles. The abstracts of these were screened and 70 (12 from the grey literature) were included in the review as being pertinent to child healthy weight programmes / services.

2 Promoting Child Healthy Weight

Promoting healthy weight in children equates to the Tier 1 within the integrated service approach outline in the 2011 Guidance.(15) The most recent WHO guidance highlights the importance of the obesogenic environment. The factors that create and sustain adult overweight and obesity, such as the social, cultural and economic determinants and the impacts of global food production, also impact on children.(16)

The literature review highlighted three specific areas for effective action affecting child healthy weight programmes: the wider environment; the family; and an individual behavioural modification.(3)

2.1 The Wider Environment

While much of the child obesity research focuses on interventions and behavioural change there is a real need to look at those factors in the wider environment which impact on behaviour at a population level. (22)(3)(42)

On a community level, primary prevention should involve those environmental factors such as access to green space(43), physical environment of the school(44)

and healthy food available within school and its environs.(34) These are all factors that have been shown to have some impact in primary prevention.(16)

Modifying the school environment so that there is access to healthy food and drink can also be beneficial.(22) There is strong evidence that those activities of the commercial food industry are actively undermining those opportunities to create healthy food environments for children and adults(22)(3), so whilst there may be some benefit in settings-based approaches(45) these will always be hampered and likely have minimum benefit unless there are policies to reduce negative effects of the wider environment.

One of the main barriers to increasing physical activity is the built environment(3) (46) which makes it easier to drive or take public transport rather than use active travel(3). Some studies have shown that using the journey to school as an opportunity for physical activity can show benefits in weight management(31) yet while this is unlikely to work on as a weight management tool on its own(47)(48), it would have other proven benefits of physical activity and could therefore be incorporated into the school curriculum before and after any intervention. Access to green space has been shown to increase physical activity(49) and there is evidence that modifying the school physical environment in making sure that there is access to playgrounds has beneficial effects(50). The physical activity component of an initiative can be an important factor as children's energy balance is still being programmed(42).

2.2 The Family

For child behavioural change it is important that the family should be aware of healthy eating and the benefits of physical activity and be enabled to put this into practice(51). Children are not in control of their environment and most of their food choices, so at a national level there must be consistent and sustained implementation of policies which help families adopt healthier eating and activity habits which will encourage children to make healthy choices at home and outside of school(1)(52).

It is important to note that, most probably due to an increase overall in the prevalence of child overweight/obesity(53) it has been increasingly difficult for many parents who have an overweight or obese child to recognize this as such. In a systematic review of perception of child BMI, Reitmeijer-Metinck *et al* found only 14% of parents (usually mothers) recognized that their child was overweight or obese(54). In much of the research reviewed on this topic it was an increasingly common finding that parents were unable to see this problem(55-57). Unless work is undertaken to counteract this then "buy-in" by parents, an important factor in success(30,58) will be much harder to achieve.

2.3 Individual Behaviour Modification

On a primary preventative level, Golan et al have found benefit in parental behaviour modification(59) and Skouteris *et al*(24) found that parents who ate more fruit and veg were followed suit by their children. Children should be taught about healthy eating and exercise, and behavioural modification techniques.(13,16,17,30) A reduction in television watching or sedentary behaviour has also been shown to have benefits(17,18).

3 Child Overweight & Obese Interventions

3.1 Characteristics of Effective Interventions

The current child health weight programmes are based primarily on the SIGN guidance. As such they sought to:

- incorporate behaviour change components,
- be family based,
- involve at least one parent/carer and
- aim to change the whole family's lifestyle. Programmes should target decreasing overall dietary energy intake, increasing levels of physical activity and decreasing time spent in sedentary behaviours (screen time). (10)

This approach remains appropriate in the basis of the rapid literature review. The most recent Cochrane review on childhood obesity prevention(19)(11) highlighted that most child healthy weight / obesity interventions that have shown signs of efficacy have focussed on children in the 6-12 age group. There is now clearer evidence that impacts on BMI require that interventions be over 12 weeks or longer.(19)

However, the rapid literature review highlighted a number of factors which need to be taken into account in developing interventions.

3.2 Delivery Settings

Because younger children are often not used to having the opportunity to make many of their own decisions regarding behaviour change it is not always appropriate to target them(16). If correctly involved, the influence of schoolteachers or trainers and, most importantly, the family has most impact on the development on their healthy eating/living behaviours(22-24).

Behaviour change or instruction is most efficacious when demonstrated not just taught(11,25-27). The success of school and group intervention has often been

based on the motivation of staff or trainers, which prompts children and parents to "buy-in"(26,28). Interventions can often be a case of "do as I say, not as I do" and children are often not given time to implement behaviour changes.(29)

Interventions with activities that are "unforced" were much more popular with children, particularly those where those with choice to opt-in or not.(11) A non-discriminatory environment is therefore important, though this may have the potential ti increase inequality due to bias in those choosing to "opt–in". However, it was noted in the CHW programme that interventions taking place in school had lower parental awareness, and parents were often not distinguishing between different school activities and this was thought to have impact on children's motivation.(11)

It should be noted that the low parental awareness and low efficacy could be a sign of the non-homogenous nature of many programmes and also the stop/start nature of many interventions which were often not given time to "bed-in". A longer lead-in period to raise awareness, and possibly different settings, might be more successful(23,60).

But Jopling *et al*(31) in the evaluation of the Walsall commissioned obesity intervention reflected on the limited nature of any school-based intervention. While school does provide an opportunity for a captive audience and also allows for a universal application thus reducing the possibility of stigma(11), school-based interventions may only have a limited effect. In an area such as secondary prevention of obesity their effect may be even more limited as they have less experience and their influence is marginal compared to home and the wider environment.(31)

3.3 Family Involvement

Sacher *et al*(23) state that all international recommendations on child obesity/overweight interventions should have core elements involving the whole family, nutrition education, behaviour change and physical activity promotion**.** The whole family can mean not just the primary parent/caregiver but also grandparents who can inadvertently sabotage behaviour modification.(32) It is also important for the whole family to recognise that the child has (or is on the cusp of having) a problem. Mikhailovich and Morrison(57) reported that almost half of the mothers interviewed felt they were hampered by the father's non-recognition of the child's problem. More work is needed before the intervention or with the family to discuss the perception of "normal weight", as this is often skewed for many parents.

In the systematic review(30), studies where behavioural counselling was on offer, where the child was pre-adolescent, and one family member accompanied the child, showed significantly greater reductions in weight loss than studies parents were not involved in this way.

In a qualitative study(27), homework developed and informed by behaviour change activities which involved cooking or physical activity were seen as good methods to involve (most) parents. Jopling *et al*(31) found that a range of interventions addressing both food and exercise with particular focus on cooking and meal preparation were more efficacious.

A theme in the literature is that parents often worried about their child's self-confidence and that the child "would go from one extreme to the other"(32,33), in other words, potentially develop eating disorders. This was a not uncommon fear expressed by parents.(11,32) However, those studies which looked at, or followed up, this line of enquiry found no evidence of an association(19)(61). It should be noted that out of the entire Cochrane review of 55 studies, only 8 studies addressed this issue. More commonly it was found that children who lost weight or maintained but became more active increased their self-confidence(32,62) and that there is a small body of research which shows that responsibly conducted weight management may improve obese children's emotional and mental health.(30)

3.4 Interventions for Adolescents

When dealing with adolescents, parents/primary food providers felt that not only that weight was not the major health concern rather focusing on the possibility of alcohol or drug abuse, but that they had less control over what their child could be made to eat. However, both the Child Healthy Weight Evaluation(11) and others(19) have found that age-specific tailoring is important if any success is to be achieved. A systematic review by Shrewsbury *et al*(21) showed evidence that it might be more efficacious to deliver obesity interventions separately to adolescents and to their parents rather than at the same time.

3.5 Delivery and retention

Delivery of one-to-one and group interventions need to increase(11,63), although this method is not necessarily popular with parents(11) and getting parents to take up the offer can be difficult.(36) This could be down to feeling criticised or method of contact.(11,26)

Both NICE(13) and the others(57) have recommended increased involvement for dietetics professionals at this stage of obesity management. It should also be noted that while lower weight outcome is the desired outcome, gains in health i.e., lower blood pressure, greater fitness etc. are also beneficial and to be welcomed.(10)

It was found in the Child Healthy Weight Evaluation that the initial letter in initiation to attend for parent and child was more of a barrier to, than supporter of

attendance.(11) Once there was buy-in most parents/child attended one-to-one interventions regularly. Several Randomised Control Trials(23,63) which involved a degree of media input before a referral from their GP, found that self-selecting parents and children who were already “help-seeking” were more likely to benefit from interventions.

While the most common factor given for non-attendance to interventions by parents was work, it was also found that unless there was an early acknowledgement of existing knowledge of parents regarding diet and exercise there was a possibility of dropout due to boredom or feeling patronised.(11)(66) In fact, Mikhailovich *et al*(57) in their review found that all of the adult participants had a good understanding of the concepts of obesity but more parents/carers focused more on physiological implications rather than on any health risks.

Twiddy *et al*(32) found that children were more likely to focus on weight loss and how that might help but parents focused on improved confidence. Those who took part in the intervention above where both parent and child had goals aligned had a greater success rate, although it should be noted that this is a qualitative study with a smaller sample size.

4 Delivering during early years

There is evidence of some usefulness/appropriateness of delivery in the early years context. An Australian study has found that addressing and increasing the need for daily active play, to increase daily consumption of water and therefore, it is assumed, reduction of carbonated drinks, and greater consumption of fruit and vegetables had a significant outcome for children in the early years. Another important component for early years was to decrease screen and television time(16,17,22,51).

Both WHO(16) and Waters *et al* stressed the necessity of parental involvement, although Waters *et al* stated that there was some evidence to suggest that for the 0-5 group interventions in the home/family setting could be more successful that school/nursery settings.(19) This is seen to be due to greater parent involvement and because pre-school children will take the majority of their meals at home. There is also evidence to suggest that with this age group the major target of the intervention should be parents and/caregivers rather than focus solely on the children, however, outcomes for evaluation should focus on changes in children’s BMI and changes in physical activity and fruit and vegetable consumption(21,22). In a systematic review on weight intervention for pre-schoolers at least 4 studies which reported beneficial changes in weight status all had the factor of high or moderate parental involvement. Interestingly, Skouteris *et al*(24) noted that change in parent fruit and vegetable consumption was a predicator in change in child fruit and vegetable consumption within the intervention group studied.

5 Delivering in the community

Any delivery in the community must be sensitive to the social and cultural elements of those in the community and buy-in from community stakeholders is of great importance.(16) The Child Healthy Weight Evaluation notes that some stakeholders and health professionals had doubts about some elements of the Child Healthy Weight programme and this may have been a factor in delivery of the programme. (11) It has been stressed elsewhere(25) that engagement of trainers/teachers is a strong factor in engaging children in weight management/treatment programmes.

It must also be noted that behavioural intervention in any setting cannot operate in isolation(19) from the context of an obesogenic environment(3). Working with community stakeholders to make physical activity or fresh fruit and vegetables more accessible is a part of what works.(34) For example, one board in the CHW programme gave children free passes to leisure centres which removed a barrier for parents on low incomes. Local Authorities should consider licensing and food planning closer to schools(11,34).

An example of a comprehensive community approach is the EPODE promoted in Northern France. (35)(36) The programme, which initially ran in two intervention towns and in further comparison towns, found that interventions only taking place in schools were not sufficient to affect changes. A community-wide intervention, with stakeholders at all levels involved from health professionals, to catering structures to elected representatives, and using top-down leadership to animate grass roots support, was effective in decreasing the overall prevalence of overweight in children: 8.8% in the intervention towns compared with 17.8% in the two comparison towns. It is important to note that whilst it took some eight years of intervention until the decline became apparent, the programme was effective across all socio-economic levels.

In Scotland, a comparable initiative was set up through the Healthy Weight Community programme. Eight local areas in Scotland were set up to pilot an approach to demonstrate ways in which communities could be better engaged with healthy eating, physical activity and healthy weight activities as part of a single coherent programme. The evaluation of this programme found that, although the pilots had only been running for a short period of time, there was emerging evidence to suggest a localised approach was effective. The combination of a small area approach, the local restatement of a national priority to promote ownership and involvement, inclusive partnerships of relevant services, leadership from energetic and effective coordination produced change. However, these changes were on a small scale and would need to be scaled up significantly to achieve an impact on national scale. The evaluators concluded that: *“the model provides an approach which CPPs (and the Scottish Government) may wish to adopt in responding to*

issues which require community based responses and more effective and joined up deployment of staff and resources on the ground" (37): http://www.scotland.gov.uk/Resource/Doc/355409/0120032.pdf)

ScotPHN report

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