



Research Policy Forum

Management of overweight and obesity in children and adolescents: can we achieve an agreed model of care?

REPORT

**University of Sydney
July 12th, 2007**

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1. Introduction

The NSW Centre for Overweight and Obesity convened this research policy forum to present and discuss findings from its research on current practice in relation to the management of overweight and obesity in children. We proposed that the concept of 'model of care' be used as a basis for discussion of the policy implications of the research. While any model of care would need to encompass all levels of health service, and all jurisdictions and organisations, the forum's focus was on a model suitable for primary care management of overweight and obese children. This was based on the premise that primary care is where the majority of children are seen, and the majority of children will be managed, or they will not be managed at all.

The forum brought together research and policy stakeholders, including representatives from the Australian Government, from the NSW State Government, from NSW Area Health Services, from professional organisations, including GP and Practice Nurse organisations, and from non-government organisations including the National Heart Foundation, as well as many individual health care providers from all levels of the health system.

2. Program of the Research Policy Forum

The forum was chaired by Professor Louise Baur, and the program comprised:

- Summary of qualitative research findings on GPs' perceptions about overweight and obesity from The Weight of Opinion Study; and findings from an audit of Australian tertiary childhood obesity management services [Ms Lesley King]
- Introduction to the BEACH program as a data source of GP practices [Associate Professor Helena Britt]
- General Practice management of overweight and obesity in children (BEACH study) [Dr Michelle Cretikos]
- Panel commentary and discussion, with:
 - Dr Richard Mathews, Deputy Director-General, Strategic Development Division, NSW Health
 - Dr Bronwen Harvey, Medical Adviser, The Department of Health and Ageing
 - Dr Greg Stewart, Director of Population Health, Planning and Performance, Sydney South West Area Health Service
 - Dr Simon Young, GP and representing The Royal Australian College of General Practitioners.

A list of presenters, panel members and participants are provided in the Attachment. The specific panel discussion topics are described later in this report.

This report presents information related to the management of overweight and obesity in children, including research presented at the forum, an account of key themes from the discussion involving panel members and participants, and a set of policy implications and proposals arising from the forum.

3. Background on childhood obesity

3.1 Childhood obesity prevention and management is core health business

- Childhood obesity is the ONLY specific paediatric health problem, and one of less than a handful of health problems of any sort, mentioned in the 2006 NSW State Plan.
- Childhood obesity is highlighted in many parts of the 2007 NSW Health Plan.

3.2 Overweight and obesity in children and adolescents is very common, especially in health care settings

- Overweight and obesity are increasingly prevalent in children and adolescents. In the 2004 NSW Schools Physical Activity and Nutrition Survey¹, one in four school children in NSW were found to be overweight or obese, making this one of the most common chronic health conditions in this age group.
- A very recent Australia-wide study on over 42,000 GP encounters in children aged 2 – 17 years between 2002 and 2006 found that an overall 30% of these children were overweight or obese (18.3% overweight and 11.4% obese)².
- At the Children's Hospital at Westmead in 2001, statistics on children aged more than 2 years indicated that 18% of inpatients and 22% of outpatients were overweight, with an additional 4% of inpatients and 10% of outpatients being obese³.
- Information on severe obesity in children is very limited. A recent study conducted in Melbourne showed that 4% of all children attending general practice, for whatever reason, were severely obese (a level of obesity usually requiring specialist or tertiary level care)⁴.

3.3 Child and adolescent obesity is associated with a range of health problems

- Overweight and obese children and adolescents are at risk of a range of health problems and have an increased risk of premature death in adulthood. There are both immediate complications and long term consequences of child and adolescent obesity.
- Psychosocial problems are common in overweight and obese children; however, orthopaedic and gastrointestinal problems, obstructive sleep apnoea, metabolic abnormalities and cardiovascular risk factors are also complications which may be associated with obesity in this age group.
- The prevalence of abnormal physical findings and biomarkers is high in overweight and obese children and adolescents. For example, approximately one in three overweight or obese 15 year old boys have raised blood pressure, while 70% of obese 15 year old boys and 30% of overweight boys have high insulin levels, and 40% of obese boys and 20% of overweight boys have raised liver enzymes. The prevalence of abnormal biomarkers in obese girls is less than for boys, although higher than for healthy weight peers⁵.
- In the 2001 Children's Hospital at Westmead audit of inpatients, overweight and obese status was associated with a longer length of hospital stay and an increased cost of admission, whatever the primary reason for hospitalisation^{6,7}.

¹ Booth ML, Okely AD, Denney-Wilson E, Hardy L, Yang B, Dobbins T (2006). NSW Schools Physical Activity and Nutrition Survey (SPANS) 2004: Full report. Sydney: NSW Department of Health.

² Cretikos M, Valenti H, Britt H, Baur LA. General practice management of overweight and obesity in children and adolescents in Australia. Proceedings of the General Practice and Primary Health Care Conference, Sydney, May 2007.

³ O'Connor J, Youde LS, Allen JR, Baur LA. Obesity and under-nutrition in a tertiary paediatric hospital. J Paediatr Ch Health 2004; 40:299-304.

⁴ McCallum Z, Wake M, Gerner B, Baur LA, Gibbons K, Gold L, Gunn J, Harris C, Naughton G, Riess C, Sanci L, Sheehan J, Ukoumunne O, Waters E. Outcome data from the LEAP (Live, Eat And Play) trial: a randomised controlled trial of a primary care intervention for childhood overweight / mild obesity. Int J Obesity 2007; 31: 630-636.

⁵ Booth et al (2006) op.cit.

⁶ O'Connor et al (2004) op.cit.

4. GP and patient perceptions

4.1 GP responses and perceptions

The Weight of Opinion study⁸ conducted by the NSW Centre for Overweight and Obesity found that:

- GPs are keenly aware that childhood overweight and obesity is a problem in the community and has potentially serious medical consequences.
- GPs are aware that social factors are significant causes of overweight.
- Barriers to the measurement of height and weight included
 - a perceived lack of parental concern
 - parent and child sensitivity to the issue.
- There is a consistent view that weight management of both adults and children is complex and difficult, and not generally successful, particularly in the current social context.
- GPs are generally positive and committed to working with parents, adolescents and children on preventing and managing weight problems, despite all the complexities.
- GPs wanted clear pathways for referrals to dietitians and physical activity providers, with simple systems for people to be reimbursed for weight management referrals. They would also like to see their role supported through community education campaigns.

4.2 Patient perceptions

A recent survey of 227 patients from GP waiting rooms in NSW⁹ found that:

- Most patients (78%) felt that GPs had a role in weight management, but only 46% thought that GPs would be able to spend enough time to provide effective weight loss advice.
- Over 80% of patients perceived advice on healthy eating and physical activity to be useful or very useful, and were likely to follow weight-loss recommendations; 78% were in favour of regular review.
- Patients indicated they would be less likely to see a dietitian or to attend information sessions, and unlikely to take weight-loss medication.
- Views of overweight and obese patients were generally similar to those of normal weight patients, but there were significant differences in perceptions of the usefulness of information on weight and weight-related medical conditions, as well as willingness to change lifestyle, possibly reflecting resistance to change among obese or overweight patients.

⁷ O'Connor J, Youde LS, Allen JR, Hanson R, Baur LA. Outcomes of a nutrition audit in a tertiary paediatric hospital: implications for service improvement. *J Paediatr Ch Health* 2004; 40:295-298.

⁸ King L, Loss J, Wilkenfeld R, Pagnini D, Booth M, Booth S. (2007) Australian General Practitioners' perceptions about child and adolescent overweight and obesity: the Weight of Opinion study. *Brit. J General Practice*, 2007 57:124-129.

⁹ Tan D, Zwar NA, Dennis SM, Vagholkar S. Weight management in general practice: what do patients want? *MJA* 2006; 185 (2): 73-75

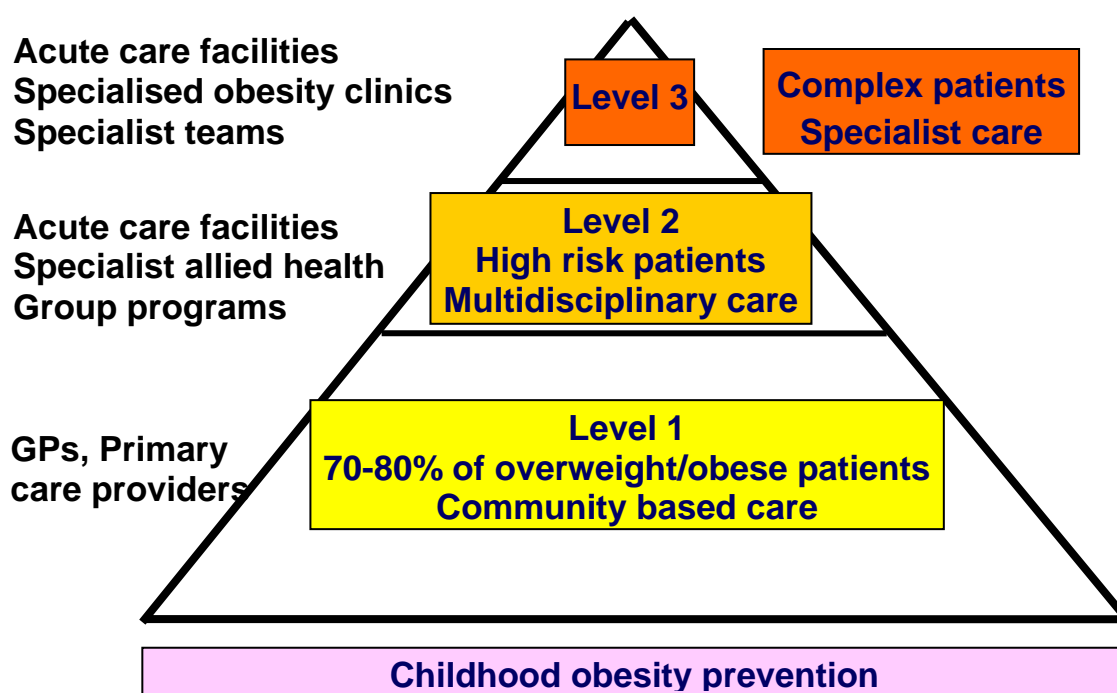
5. Models of care and management approaches

5.1 Models of care

There are no well-established models of care for paediatric weight management. However, one such model, shown in Figure 1, emphasises the need for primary, secondary and tertiary level care services. This 'pyramid of care' model has been used for other chronic diseases and outlines three levels of care:

- Level 1** Community based care catering for the majority (70-80%) of overweight and obese children and their families with the aim of providing education for self-management, setting goals and monitoring progress.
- Level 2:** Multidisciplinary care offered to high-risk patients that have co-morbidities.
- Level 3:** Services for severely obese patients with very complex care needs involving specialist medical advice as well as multidisciplinary input.

Figure 1: Chronic Disease Care model for paediatric overweight and obesity (adapted from the NHS Chronic Disease Management Pyramid of Care)



However, in practice, level 2 and 3 services are extremely limited in terms of availability, both nationally and within NSW.^{10,11} Similarly, there are major training needs for child health professional staff in paediatric obesity assessment and management at all levels of service delivery.

¹⁰ Cretikos M, Valenti H, Britt H, Baur LA. General practice management of overweight and obesity in children and adolescents in Australia. Proceedings of the General Practice and Primary Health Care Conference, Sydney, May 2007.

¹¹ NSW Paediatric Overweight & Obesity Services Advisory Group. Report : Towards a Best Practice Model for Paediatric Overweight and Obesity Treatment Services. Sydney, 2005. Unpublished Report.

5.2 Approaches to clinical management

The Children's Hospital at Westmead has suggested two clinical management approaches for GP management of overweight and obesity in children and adolescents, as follows:

Approach 1:

- 1) Clarification of treatment outcomes
- 2) Family involvement
- 3) Developmentally appropriate approach
 - Pre-adolescent children: focus on parents
 - Adolescents: consider separate sessions for the young person and parent(s)
- 4) Long-term dietary change
 - Energy reduction
 - Food choices that are lower in fat and have a lower glycaemic index
 - Reduction in high-sugar foods and drinks
 - Water as the main beverage
 - Avoidance of severe dietary restriction
 - Appropriate portion sizes
 - Modified eating patterns (regular meals, eat together as a family, avoid eating while watching TV)
- 5) Increase in physical activity
 - Incidental activity
 - Active transport options (eg walking, cycling, using public transport)
 - Lifestyle activities
 - Organised activities
 - Improved access to recreation spaces and play equipment
- 6) Decrease in sedentary behaviour
 - Television, computer, play station and other small-screen use
 - Alternatives to motorised transport

Approach 2: The Big Five

- 1) Limit screen time (TV, DVD, computer, video-games, etc) to less than 2 hours per day
- 2) Eat breakfast each day
- 3) Eat together as a family once a day
- 4) Drink water as the main beverage
- 5) Spend 60 minutes outside each day being active.

6. Access and availability of care

The relatively sudden escalation in prevalence of overweight and obesity has meant that no health service in the world has been able to respond adequately to the problem, both in terms of prevention and provision of clinical services for affected individuals. Children and young people are clearly affected by overweight and obesity, providing a great challenge for the provision of children's health services at all levels.

6.1 The BEACH program as a source of data on GP practices

The *Bettering the Evaluation And Care of Health* (BEACH) program is a continuous national study of General Practice activity conducted by the Australian General Practice Statistics and Classification Centre. The BEACH program commenced in April 1998 and, as of July 2007, the BEACH database includes cross-sectional information on approximately 900,000 GP-patient encounters from 9,000 randomly sampled GPs (ie. 1000 GPs per year). The data collected at each encounter includes GP characteristics, patient characteristics and reasons for encounter, problems managed at the consultation, type of management, test and investigations, and supplementary questions as required (<http://www.fmrc.org.au/beach.htm>).

6.2 Overweight and obese children are only rarely offered weight management therapy in clinical settings in Australia

- In the Australia-wide study using BEACH program data of over 42,000 children aged 2 – 17 years attending general practice, only 0.5% of children were managed for overweight or obesity, even though 30% overall were affected¹².
- The level of provision of community, specialist allied health and group weight management services for children is not well understood, but is thought to be low.
- A recently completed audit of tertiary paediatric health care institutions within Australia has shown that only three states have specific tertiary level services for obese paediatric patients, with an average waiting time of 5 months for an appointment¹³. While NSW has the largest number of such services (largely because of the impact of the Children's Hospital at Westmead), it is clear that there is substantial unmet demand in every state (including NSW) for tertiary level obesity services.
- In the 2001 audit at the Children's Hospital at Westmead, no overweight or obese inpatients were offered treatment for their weight problem^{14,15}.

¹² Cretikos M, Valenti H, Britt H, Baur LA. General practice management of overweight and obesity in children and adolescents in Australia. Proceedings of the General Practice and Primary Health Care Conference, Sydney, May 2007.

¹³ Spilchak P, Denney-Wilson E, King L, Baur L. Tertiary paediatric obesity services in Australia. Submitted for publication (June 2007)

¹⁴ O'Connor J, Youde LS, Allen JR, Baur LA. Obesity and under-nutrition in a tertiary paediatric hospital. *J Paediatr Ch Health* 2004; 40:299-304.

¹⁵ O'Connor J, Youde LS, Allen JR, Hanson R, Baur LA. Outcomes of a nutrition audit in a tertiary paediatric hospital: implications for service improvement. *J Paediatr Ch Health* 2004; 40:295-298.

7. Discussion questions

Given the gaps highlighted by the research presented this evening, the rising prevalence of childhood overweight and obesity and the serious long-term consequences, the following questions were discussed:

1. How can we learn from experience with other conditions such as asthma and aged care, and develop and implement an organised system across different levels/types of health services for the management of overweight and obese children and adolescents? Is this a model of care? How can we develop or build capacity for this model?
2. How can we implement such a model for primary care? What does it take to implement a model of care – compare with asthma, aged care? What would the development and roll-out of such a system / framework involve? How can this system be rolled out systematically across a whole Area / across a State / across the country?
3. How would the system work for secondary care? For tertiary care?

8. Summary of discussion themes

Theme 1: Overweight as a chronic disease

There was mixed opinion as to whether overweight and obesity should be classified as chronic disease.

There were a number of angles covered in this discussion:

- o a practical aspect for service delivery in general practice

Unless it's identified as a chronic disease you can't get a complex disease item number and therefore you can't put people into the program ... perhaps you need to change the term to chronic-complex 'condition'. I don't think the management of obesity in primary care is going to be progressed until it's included in that item number and allowed to be used as such.

- o a theoretical aspect

While there is agreement that obesity is a risk factor for a range of [other] chronic diseases, there is some debate about whether it is also a disease or condition in its own right. The International Classification of Diseases produced by the WHO lists obesity as a disease; however, within the current Australian policy context, it is not considered as a chronic disease within Medicare.

- o public perceptions

The one thing that's coming through to us in terms of public education is that [the public] don't know what the impact of being overweight and obese is. When they do start hearing about what the consequences are, particularly for their children, they are really quite taken aback and motivated.

The biggest challenge in doing it is to actually convince the punters that they've got disease.

Theme 2: Balance of effort between prevention and management of childhood obesity

There was mixed opinion as to whether efforts should focus on prevention, or whether there should be a mix of investment in prevention and management; and, if the latter, how and where to invest in services for management.

We need population health interventions to keep going and we have to keep building on that.

The lesson coming out of all this discussion is that it's not one or the other or we can't do this or that ... it's about doing a whole lot of things ... we just need to be careful, the tertiary end of it is just as important even though in a population way it's not going to have the same effect.

We actually need to do both [use both prevention and management approaches], and the reason why we haven't had any success in primary care and community health is because they go 'but isn't that happening in schools and isn't population health doing that?', so [the perception is that] it's not our problem.

One of the key challenges for us will be transitioning to a shared ownership model of this issue rather than only a population health/public health problem.

Where you get your best bang for the buck ... if we do have some money what is the best way of investing it to get the best outcome?

The other thing with chronic disease is that the important little bit that we just ignore is the screening and early detection. I think that really needs to go into the model.

Theme 3: Positive approaches that avoid stigmatisation or blame

Forum participants were reminded that the balance of all efforts, prevention or management, needed to be appropriate for children and their parents and, in particular, to avoid apportioning blame. Participants identified the need to raise parents' awareness and to have resources and services available to support them at the same time.

We have a tendency in our society to blame the parents so it needs to be done in a very careful way that says that yes it's a problem and you shouldn't risk your health.

... it shouldn't be about picking on the fat kids to lose weight but rather to turn it around and say that this is not about kids who are fat but we all need to exercise more and eat better.

I get people ringing about where to go for their tertiary clinic service for their [overweight] child, themselves etc and I haven't got very good answers to give them, not because I haven't investigated it but there aren't very good answers to give.

Theme 4: Possible solutions

One specific suggestion was to strike a balance by providing population-wide health checks for children. This is a population level approach, and thus relevant to all children; at the same time, it would provide an opportunity for an initial primary health care intervention and further management services for identified high risk cases/families.

... examine patients in the context of well people eg. your child is actually within the centiles and is healthy or your child is actually in the overweight range.

The discussion focused on the general practice setting. There was a positive anticipation that GPs could play a significant role, as long as this role was supported and allowed to develop incrementally:

[it's acceptable] if you say, there's actually a way we can do it over time to incorporate it into your usual practice approach.

There were a number of suggestions for management strategies and associated service arrangements:

- introduce a well children's health check, in association with the 4 year pre-school immunization for example.

There's a four year old health check that's still in draft form but it's absolutely marvellous. A Medicare item for that check would be great.

- implement brief interventions with motivational interviewing by GPs or in the general practice setting

We shouldn't underestimate the power of short interventions ... GPs are starting to become more skilled at motivational interviewing.

There's been a lot of exploration using motivational interviewing in smoking but we haven't accumulated the evidence for using it to manage overweight.

- allow for a family-oriented approach

Item numbers are only given for one patient but childhood obesity needs to be managed at the family level. There are opportunities to manage the whole family better ... GPs don't manage the whole family anymore – care is fragmented but that doesn't mean the family can't be brought together as a group.

This discussion covered the potential roles of practice nurses in the GP setting, the use of allied health services, and the potential but under-developed role of community health services. There were mixed expectations about how much the GP themselves could do and the extent to which they would need to rely on referral services. Suggestions included:

- develop the role of practice nurses in the general practice setting in assessment and management of overweight and obesity

[Practice nurses] could assist GPs with measuring height and weight.

- develop allied health involvement in services, both within and outside general practice

GPs need allied health staff to refer to.

I suppose that the big problem that I felt in my role is, not that it is that difficult to identify the issue, but it's what am I going to do with this because I don't have much out there.

Having obesity 'careplans' would make it easier to involve other professionals

What we need from the government is money for programs ... that bring some kind of multidisciplinary approach that might bring psychologists, dietitians and exercise physiologists ... and I don't think doctors have a huge treatment role to play except for overseeing plans and referral ... to organise things such as you're going to have a liver biopsy in a year or ... there needs to be some kind of on-going overall management plan, (both for the individual and the population).

- develop the role of community health services

There are large community health services in NSW but most don't address this issue at all, and they don't have the resources to address this issue.

It was recognised that community health professionals are interested in continuing to be a part of the solution and that, if they were available, existing resources in this setting could be developed further.

[As a community health professional] you don't see your role as around obesity because there are other issues that you have to deal with, but there was definitely that interest there.

Yes, [community health] has a responsibility but everyone else is struggling with it; we are struggling with it.

So there are programs out there in primary and community health at the ground level [that could be built on] but you are not necessarily getting the support.

Theme 5: Infrastructure required for management in primary health care

Infrastructure to support management included GP computer software capable of calculating age appropriate BMIs, greater use by clinicians of the Personal Health Record (blue book) to record growth, health and development milestones, and need for health professional training.

[We need] computer programs where BMIs are automatically calculated and graphed for children.

Health professional training. We need to upskill professionals eg. paediatricians, dietitians, psychologists, early childhood centre nurses and develop medical curricula.

We all need to get together to make this [the Personal Health Record] a universal tool.

Theme 6: Is the primary problem related to building connections or is it related to resourcing?

In response to this question, raised by a panel member, the general answer was that resources were the primary barrier for the implementation of a model of care. Any difficulties with referral or streaming of clients came about because of lack of services (based on lack of resources), rather than lack of connections.

The connectedness issue for me is not so much as other people seem to be saying. I acknowledge straight away that there's a resourcing issue.

I think that's what people mean when they want to connect with something. It doesn't exist because it hasn't been resourced to exist.

There's a lot of enthusiasm for that type of role [amongst practice nurses to be involved in weight management] but at the moment it's not particularly easy to fund it or to work out how to integrate that into their role.

Theme 7: Suggestions for a model of care

Following discussion and various suggestions for service delivery and infrastructure, the forum revisited the discussion about the appropriateness and utility of an agreed model of care.

We need a framework that is [both] prevention and maintenance orientated.

The pyramid model is right.

One of the issues is that each bit of that pyramid is feeling fragile.

For the success of the program we all really need to get together and work together ... Commonwealth Department and the State Department ... really need to get together to address this issue using the GPs as the coordinators of care.

There was limited discussion about alternatives to the tiered model. It was noted that other models provide guidance for the development of policy around chronic disease care, e.g., the six pillars of care model¹⁶.

The chronic care model that Ed Wagner talks about in the US. The elements of the model are decision support, delivery system design, clinical information systems, patient self management, and building community resources and linkages that help health care organizations to delivery care ... that could be a useful framework for thinking about what could be done to build the system, not just do one thing. Lastly, patient self-management and I think that's where the early wins could be - about really trying to get some social marketing happening that would encourage people to present to GPs and raise this issue.

Theme 8: Immediate actions

The in principle agreement was for a model that recognized a tiered approach to service provision underpinned by prevention. This was followed by more specific discussion about what immediate actions could be taken to develop the idea and policy agenda. It was recognised that we need to develop locally adaptable implementation frameworks.

Where do you go from here is exactly the same place you go whenever you face these kinds of issues in the health system we have in Australia. I don't think we're struggling with conceptualizing things we need to do. It's about how you put them into a framework and how you get them applied. And then that has to be applied at Area Health Service level ... the mechanism around that is to do the kind of planning I talked about at the local level.

We need to do things better and we need to be evaluated ... it's going to be opportunistic and difficult but if we don't get that evaluated we won't be able to prove our value.

Diabetes is actually a very nice model because it has a lot of things in common [with obesity].

¹⁶ Michele Moroz, SA. Improving chronic illness care: the chronic care model. CICRP, 15(1) June 2007; downloaded from [http://www.cacr.ca/news/2007/CICRP15\(1\)E01](http://www.cacr.ca/news/2007/CICRP15(1)E01), 24 August 2007.

Conclusions

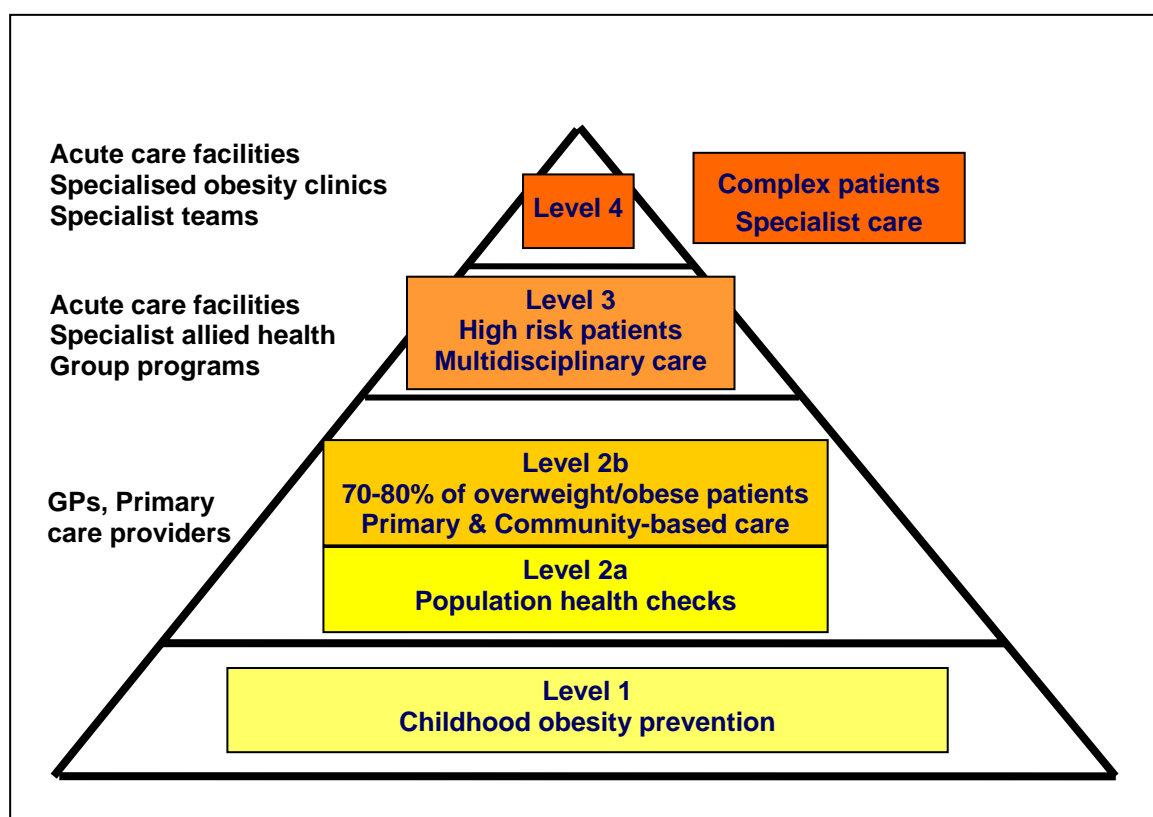
Model of care

The forum supported in principle the concept of this tiered model of care as one way of structuring a coordinated system for addressing childhood obesity. The original model of care which formed the basis of this research policy forum discussion, was revised slightly (Figure 2) as a result of compiling this summary of themes. The revised model incorporates population health checks at the level of primary and community-based care and the prevention tier was moved from outside to within the pyramid.

The tiered model essentially indicates the significant role of prevention and primary health services in providing population-wide programs. It also proposes that there is a need for more specialized management services for smaller number of families with serious complex problems associated with weight. It is beyond the scope of this simple model to address how to implement this system or the exact proportion of resources that should be allocated to each tier.

The pyramidal concept provides an appropriate guide for coordinated service development at local, state and national levels. Service development towards a tiered model of care has implications for policy and, most significantly, resource allocation.

Figure 2: Revised chronic disease model of care for paediatric overweight and obesity



The implementation of a model of care also requires infrastructure development and a range of policy initiatives appropriate for primary care. Other chronic care models can be drawn upon to provide further guidance on specific actions, such as the development of appropriate clinical software systems, recognition that obesity is a disease for reimbursement purposes, a change to the Medicare item number of chronic care plans, reimbursement for family management health

problems, practice nurse management of problems, child pre-school health checks and also social marketing and awareness raising (awareness of the problem, its health consequences, and the sources of help available). Potential new roles require support through professional development programs covering doctors, nurses and allied health professionals.

Importantly, implementation of the model involves a balance of investment and effort at each level. This includes major ongoing commitment to primary prevention.

Development, implementation and evaluation of specific primary health care roles and strategies: the need for evidence of effectiveness for management strategies

Primary health care services can adopt and implement population-wide actions that span preventive and early intervention strategies. They can do this through the implementation of routine health checks that involve assessment and advice. This would be relevant to all children and families regardless of weight status. In the same process, the primary health care professionals are able to identify cases which require more specific or intensive advice and intervention, such as goal setting and monitoring, or referral to specialized services.

Such a role could be implemented in various forms, depending on policy incentives and local structures. The implementation systems require further investigation. Importantly, feasibility and cost-effectiveness of the strategies need to be studied.

One proposed way this role could be adopted is through the introduction of a well children's health check at age 4 to 5 years linked with pre-school immunisation.

Attachment:

Chair:

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Presenters:

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