

Obesity in children

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Never before has so much effort been put into understanding the issue of obesity in children in New Zealand. Growing concern by parents and health professionals has at last been matched by government. A recently announced health select committee enquiry into obesity and type two diabetes will, through the submission process, bring together all that is currently known about this condition. In addition to the many obesity related research papers published in New Zealand over the last year, the March 31 issue of the *NZMJ* published an excellent editorial on the obesity epidemic by Nick Wilson et al.¹

Drawing heavily on the FOE (Fight the Obesity Epidemic) submission currently being compiled, it is useful, I think, to divide the discussion into what is known, what can be reasonably inferred and what we hope will prove to be true. The need for an evidence base is undisputed, but in public health the evidence must be gathered as the experiment takes place rather than be present a priori. In the past there are many examples of public health initiatives that were introduced in advance of evidence of their effectiveness. Those associated with tobacco come to mind most readily. There was no evidence that reducing cigarette smoking would reduce the prevalence of lung cancer (and many were extremely skeptical that this

Robyn Toomath is an endocrinologist, physician and Clinical Director at Wellington Hospital. Twenty years of treating patients with diabetes – most of whom have the disease on the basis of obesity – convinced her that a radical approach to the problem is necessary. Finding her clinical skills were completely inadequate to make any appreciable difference to the problem, she set up the advocacy group FOE (Fight the Obesity Epidemic) in 2001 with the CEO of Diabetes New Zealand, Sarah Thomson.



would be the case), but it clearly did. There was no evidence that controlling the advertising of cigarettes would alter smoking behaviour until this was attempted. Control of tobacco advertising in the States was associated with a steady fall in consumption but industry lobbyists persuaded President Reagan that this was due to other reasons and he was responsible for lifting some of these controls. Immediately there was a rise

again in the sales of tobacco so the restrictions were reintroduced...and sales once again started to fall. Similarly there was no evidence that shutting down the water pump in the area of London affected by the cholera epidemic would stop the

spread of disease or that the British 'Clean Air Act' would result in reduction in pulmonary disease. Waiting for the evidence in these situations would have been, in retrospect, a disaster.

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Having said that there are times in medicine where we must move before the evidence is in, there is also a great responsibility to apply the efforts in a way that is most likely to be effective, to be efficient in terms of cost and to create the least harm. With this perspective, let's go back and review what is currently known – the facts.

Obesity affects large numbers of New Zealanders, both adults and children, and these numbers have been growing rapidly in recent years. The 2002 National Children's Nutrition survey found that 31% of New Zealand children aged five to 14 years were either overweight (21%) or obese (10%).² There is only limited information on trends in childhood obesity in New Zealand, but this information is consistent with the many international studies showing rapid growth in recent years.³ A study of 11 to 12-year-old Hawke's Bay children, for example, found more than twice as many were overweight or obese in 2000 as in 1989.⁴ Results from the 2002/03 New Zealand Health Survey of New Zealanders aged 15 years and over (NZHS) showed a similar pattern but higher levels of overweight and

obesity than for children. In all, 56% of adult New Zealanders were overweight (35%) or obese (21%).⁵

Obesity levels have risen from 10% of adult New Zealanders in 1977 to 21% in 2003, while levels of overweight have remained much the same.⁶ It has been estimated that, under a 'business as usual' scenario, there will be continuing substantial growth in obesity among New Zealanders through to 2011, with somewhat lower growth under an 'intervention' scenario.⁷

Type 2 diabetes (previously known as 'adult-onset diabetes') is the most common form of diabetes among adults, and is now occurring increasingly among adolescents and children.⁸ At the Auckland Diabetes Centre, for example, two adolescents were diagnosed with type 2 diabetes in 1996, but this rose to 18 in 2002.⁹ A study of all cases of type 2 diabetes diagnosed in New Zealand children aged under 15 years of age during 1999 and 2000 found 12 cases, six of whom were Maori.¹⁰ It is estimated that in 1996 there were about 81 000 New Zealanders aged 25 to 89 with diagnosed (mainly type 2) diabetes, and that the real number, assuming one undiagnosed for every diagnosed case, was probably about twice this.¹¹ The Ministry of Health has estimated that about 4700 New Zealanders were newly diagnosed with type two diabetes in 1996. This is expected to grow to around 11 000 in 2011. Increases in obesity are expected to account for about 31% of this increase, with the rest mainly accounted for by demographic changes.¹²

In accordance with the terms of reference for the health select committee, we have gone on to describe and to speculate on the contributing causes of the obesity epidemic. For the purposes of this article, however, I suggest that we focus on our (medical practitioners') response to the problem and that it should be two-fold. Firstly, we must care for our patients – to warn them of impending obesity and associated problems. To assist

them where possible with weight loss programmes and to monitor them for obesity related diseases such as type 2 diabetes. Most importantly we must provide empathetic support and, if possible, optimism. Secondly, I believe that we need to act politically to add our considerable weight to the arguments for a public health approach to obesity prevention. Most will argue that it is in the second capacity that we are on the thinnest ice in terms of an evidence base, but I suggest that there is much about our clinical management of the issue that warrants scrutiny.

Perhaps the most vexing question is whether or not to screen for obesity and overweight – and to a lesser extent how. Colleges of Paediatricians are concerned that obese children are not being diagnosed as such and that we should be more diligent in this regard. This is especially important as there is good evidence that parents fail to recognise when their children are significantly overweight and this is particularly so in households where the parents are overweight/obese. But to what end are we diagnosing obesity in children? Cochrane's principles for screening dictate that at the end of the exercise we must have an effective treatment to offer. And is this really so? In addition the screening itself must be associated with low morbidity...and are we confident that diagnosing obesity in a child does more good than harm? By comparison, the issue of whether we make the diagnosis using standard height and weight charts (my preference), BMI, BMI percentiles or waist circumference, seems to me to be minor.

A 1998 *Pediatrics* article reported on the recommendations of an expert committee on obesity evaluation and treatment.¹³ The recommendation was that BMI is easily calculated from height and weight and correlates

with markers of secondary complications of obesity and long-term mortality (as it does in adults). They suggest that children and adolescents with a BMI greater or equal to the 95th percentile for age and sex should undergo a detailed assessment looking for underlying causes and secondary complications. The likelihood of finding an underlying cause

is extremely low with Prader-Willi occurring in 1/25 000 and Cushing's disease in 1/140 000 according to two sources. Rarely does an experienced clinician need to perform tests to rule out these conditions, but it can be

reassuring to parents that these possibilities are considered and most practitioners would have a low threshold for measuring thyroid function tests for this purpose alone.

The real difficulty is in treating the condition once identified. It is my true belief that the only effective means of treating established obesity is bariatric surgery but this is hardly an appropriate recommendation for children. Having said that, increasing numbers of these operations are being performed in the US and when we have, as I do, 15-year-old diabetic patients who weigh 150kg, this is something that we should probably be offering. Short of this the American expert committee referred to earlier has come up with recommendations for therapy. They suggest that children aged three years and over who are overweight should be treated in the belief that once a child reaches adolescence then behaviour change is more difficult to achieve. The treatment must be family-based and initiated at a time when the family is ready for change. They recommend gradual, incremental changes in diet with a view to producing long-term adherence.

The section I found most helpful is that related to parenting skills. For example:

We need to act politically to add our considerable weight to the arguments for a public health approach to obesity prevention

1. Never use food as a reward.
2. Establish daily family meal times.
3. Parents should determine what a child is offered to eat and when. The child only gets to choose whether to eat it or not.
4. Offer only healthy food options (an apple or popcorn, not an apple or a biscuit).
5. Remove temptations – don't buy the rubbish (including fruit juice).
6. Be a role model.

Sometimes you meet a child who eats so badly that you can be optimistic of weight loss by eliminating just one or two inappropriate items from the diet. In my experience this is a more successful approach than encouraging a child to take up a new sport as a means of increasing energy expenditure although all such options should be considered and enthusiastically supported. A careful dietary and physical activity history is therefore mandatory. Setting the goals in terms of weight may be trickier. For a rapidly growing child weight maintenance is all that is required and children and their families are often gratified to hear this. To some extent this deals with the anxiety about anorexia, which lurks in the back of many parents' minds and may be a reason for choosing not to confront the issue of weight gain in their child.

To what extent these initiatives are successful is another matter and

clinical experience would suggest that they are often not. A recent *BMJ* review article¹⁴ determined that research about prevention and treatment of childhood obesity was meager and that '*no interventions were definitively effective.*' The ones that showed the most promise were strategies that reduced television watching and involved parents.

Looking for complications is likely to be more profitable and few would doubt the value of making an early diagnosis of type 2 diabetes, hypertension or dyslipidaemia. Asthma complicated by obesity and hypoventilation syndromes generally must be under-diagnosed but according to recent newspaper reports we are soon to lose our only paediatrician experienced in the management of this disorder in children. Adult respiratory physicians will need to become skilled in this area in the way that paediatric surgeons are learning to perform cholecystectomies in their paediatric patients. Even screening for complications is, however, beset with difficulties. There are no guidelines for the screening of diabetes in children and adolescents either with regard to whom or how. Family history is unreliable as children are now often more overweight than their parents and therefore the first to manifest diabetes. While excess weight is obviously a huge risk fac-

tor, a young age is very protective. Modeling of the type which takes in family history and possibly ethnicity is required to provide us with age and weight guidelines for screening in children – perhaps this is a more useful avenue for research funding than yet more intervention studies? In Japan, where most diabetes in childhood is type 2 and relatively common, screening is by urine testing. Should this be part of a health check in NZ secondary schools?

In comparison with the clinical conundrums that managing obesity presents, the suggestions for controlling the epidemic at a population level now seem less controversial. Certainly they are no more experimental. They are, however, beyond the realm of clinicians in that restructuring of society requires controls on advertisers and producers of high energy foods; council by-laws that restrict the proliferation of fast food outlets in poorer suburbs and adjacent to schools; policies that dictate access to food and exercise in work places and schools, etc. Our role is to emphasise the difficulties our patients have in dealing with this on an individual level in order to shift the emphasis to a public health focus.

Competing interests

None declared.

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