

Submission to the House Standing Committee on Health and Ageing

Inquiry into Obesity

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I thank the committee for the invitation to make a submission regarding this important initiative. I would like to define the perspective that influences me when considering the terms of reference for this Inquiry. I have 20 years experience in medical research and tertiary teaching in the fields of medicine and nutrition. Thus, I am keen to highlight evidence-based approaches that combine education in effective nutrition and lifestyle initiatives in the prevention and treatment of obesity, and the urgent need for new pharmacological treatments.

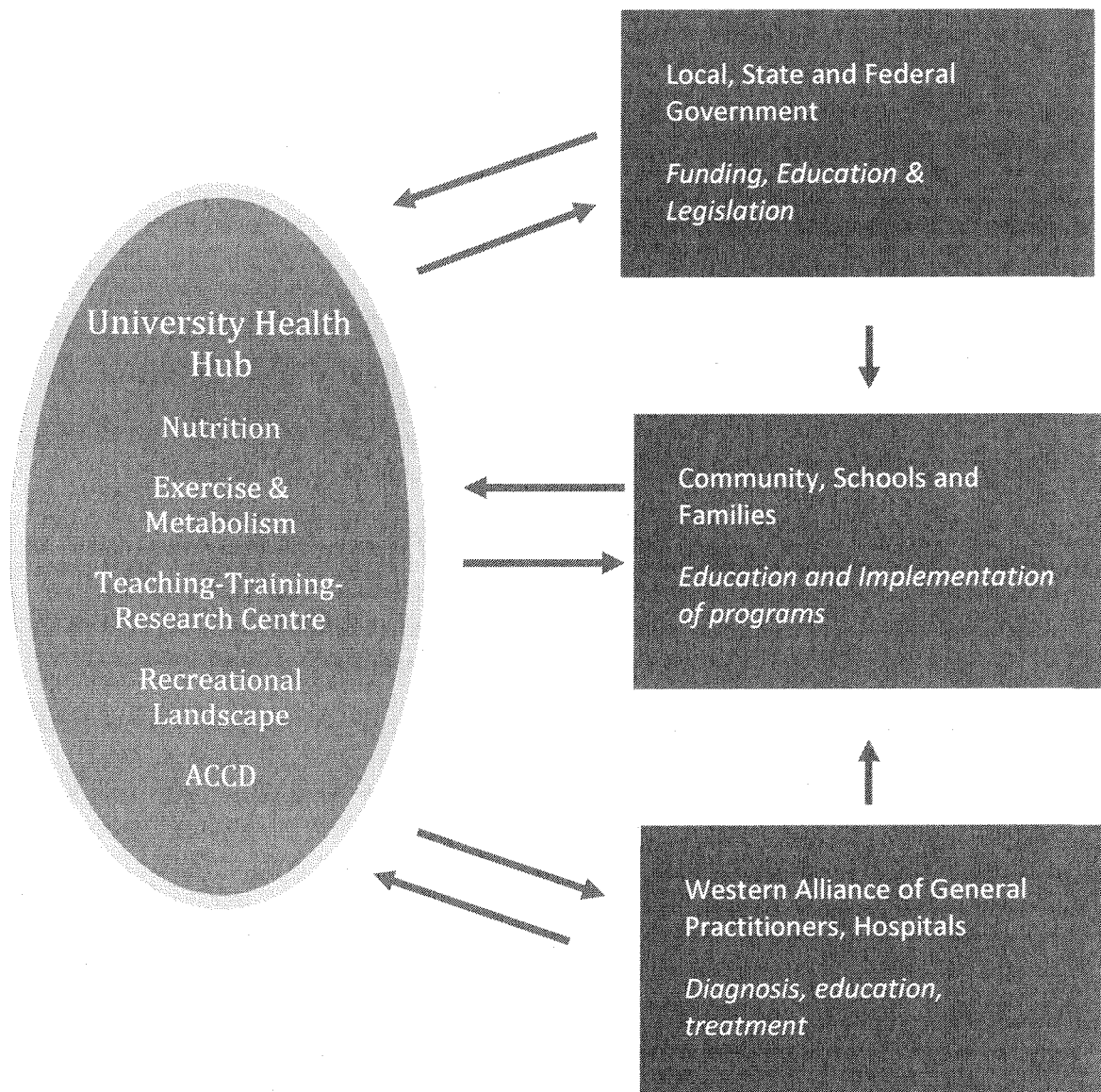
Obesity and Melbourne's West

The increasing incidence of obesity in Australia is largely attributed to changes in diet and lifestyle. It is important to reverse this trend because of the co-morbidities associated with obesity, especially cardiovascular disease and diabetes. It is also clear that the rate of obesity is not uniform, with increased incidence in adults and children from lower socioeconomic backgrounds (1, 2).

Some of the consequences of this high rate of obesity in Melbourne's West have been shown by recent evidence that the rate of diabetes was as high as 8%, which is markedly higher than the overall incidence in Melbourne of 2-3% (2,3). When addressing the problem of obesity and co-morbidities such as diabetes, it is important to avoid stigmatising the condition to decrease the risk of alienation and reduced social capital in the community. On the one hand, the large scale of the problem demands the multi-level approach by government and institutions that embodied the Quit campaign against smoking. However, I believe that this aggressive, proactive strategy must be tempered with the style of community education and open discussion adopted by the BeyondBlue initiative that has generated community understanding and empathy for people with depression.

The model that is proposed has been adapted from the Diabetes Initiative promoted by Victoria University in conjunction with Diabetes Victoria. The main aim is to re-orient use of the University's infrastructure to engage the surrounding community, not just in terms of tertiary education, but also in the provision and promotion of health services (The Health Hub- see diagram). Victoria University will transform its campus at St. Albans to a space that provides public amenity for recreation, in addition to its traditional role in education and research. This provides the community with a Recreational Landscape for outdoor activities, including bicycle/pedestrian tracks around the University and Cairnlea lakes. There will also be space for indoor activities at the

new gym and swimming pool complex at this campus. This infrastructure is funded from the University, local government and a number of corporate partners. A primary aim of the Health Hub is to promote exercise and good nutrition in the prevention and treatment of obesity and diabetes.



The community-engagement model (Health Hub) planned by Victoria University.

The Health Hub at the St. Albans campus will engage with the local community, providing education and treatment in obesity and diabetes and promoting effective nutrition and exercise strategies. The Hub works in conjunction with government to research and develop new strategies of treatment and prevention and with the large network of health professionals and hospitals to deliver these health services to the community

As the committee chair, Steven Georganas has said in relation to the problem of obesity (4), “the solution is simple: less food, more exercise. —How do we get people to do those things? That’s the hard part.”

This statement reflects the reality that people become overweight because they consume more energy in the form of food than they use in everyday living, and this excess is stored primarily as fat. When people try reversing this process by eating less or exercising more, many find it difficult to sustain this effort and they regain all the weight and may gain even more weight (5). Many reasons, including those arising from psychology, habit and lifestyle, have been suggested for the difficulty in losing weight. A further explanation is that the control of energy balance is adaptive, and the body reacts to changes in diet and exercise to maintain body weight: eating less reduces energy use; exercising more increases appetite and energy intake. Thus, long-term prevention and treatment of obesity requires i) education to inform the individual’s understanding and attitude to food and exercise and ii) modification of their physiological response to changes in energy balance in order to promote loss of excessive weight. These strategies are addressed by the Health Hub.

The Health Hub and Obesity

Nutrition: Nutritional Therapy provides an on-site clinic for consultations in nutritional therapy. Weight loss strategies need to take account of the increase in appetite that accompanies decreased caloric intake and increased exercise. Satiety signalling can be increased by reducing the energy density of food and slowing the rate of digestion and absorption. Fuel mix should be optimised to reduced insulin release and carbohydrate craving. Snacking on selected foods between meals should reduce hunger at main meals without adding too many calories. The timing of meals is also important, recognising the importance of starting the day with a nutritious breakfast and avoiding eating before sleep. Food composition should include macro- and micronutrients that promote prandial thermogenesis eg. fibre, wholegrains, polyphenols.

Exercise and Metabolism: Exercise and Sports Science provides an on-site clinic that educates people in the importance of regular exercise to maintain body weight and metabolic health. Regular exercise will be promoted by the use of pedometers that allow self-assessment of everyday exercise. The clinic offers analysis of metabolic rate at rest and during exercise. There will also be a new facility for indoor sports and swimming facilities.

Recreational Landscape: Creation of open space by removing fencing and working in conjunction with local council and indigenous groups to create bicycle/walking tracks in natural grasslands that traverse University and community open space including the Cairnlea lakes. This will connect the University precinct with the surrounding suburbs and facilitate the exercise in a pleasant environment that is separate from major road and rail arteries.

Teaching-Training-Research Centre: The redevelopment of the Sunshine Hospital and the Health Practice Unit at St Albans has formed an important

nexus of medical research and the training of health professionals. Research links with La Trobe, Deakin, Melbourne and Monash University. Education links with Melbourne University. Research into the mechanisms underlying obesity and the efficacy of different treatment programs (diet, exercise, pharmaceutical, nutraceutical, surgical and combinations of individual strategies). New pharmaceuticals will increase satiety and thermogenesis to boost the rate of weight loss, improving compliance with treatment strategies and self-esteem through positive feedback. For example, there is increased understanding of how obesity can result from resistance to satiety signalling by leptin, in a similar way that insulin resistance leads to diabetes. Drugs such as pramlintide (an analogue of the natural hormone amylin) may be able to reverse leptin resistance (6) to restore sensation of satiety thermogenesis. Similarly, existing antihypertensive drugs can improve obesity and glucose control (7) and increase metabolic rate (8).

Australian Community Centre for Diabetes: an organisation within the Health Hub that is focussed on the continuing explosion in the rate of new diabetes cases in the community. It utilises the infrastructure of the Health Hub and pursues the aim of education, prevention and research and is directed by a separate executive that will foster research programs and educational initiatives. The initial aim is to test the impact of the ACCD in the local VU staff community, before developing the model for use in other community centres.

Summary

The VU model will engage with the community to tackle the twin problems of obesity and diabetes which have a higher incidence in Melbourne's West. By informing about the risks of obesity, educating in terms of effective nutrition and lifestyle strategies, we hope to raise community awareness and promote willingness to change. By fostering a community spirit that is accepting and encouraging of the need for change, we will increase the demand for the amenity that we offer, in terms of recreational space, and for our clinical services that analyse individual diets and energy metabolism and manage clients in treatment strategies. We will also engage in research into the mechanisms that lead to obesity and the identification of further novel approaches to deal with this problem. These discoveries will lead to novel pharmaceutical and nutritional treatments that can be trialled in the community.

References

1. O' Dea JA. *Gender, ethnicity, culture and social class influences on childhood obesity among Australian schoolchildren: implications for treatment, prevention and community education*. Health Society Care Community 16:282-290, 2008
2. Richard A Sicree, Jonathan E Shaw, Paul Z Zimmet. *Estimates of Diabetes: Prevalence and Numbers Western Metropolitan Region Victoria*, unpublished, 2008.
3. <http://www.dav.org.au/epidemic/index.htm>

4. Keesey RE and Hirvonen MD. *Body weight setpoints: determination and adjustment* Journal of Nutrition 127:1875S-1883S, 1997
5. Harrison D. *Yes we're fat but what do we do about it?* The Age 18/5/2008.
6. Roth et al. *Leptin responsiveness restored by amylin agonism in diet-induced obesity: evidence from nonclinical and clinical studies.* Proceedings of the National Academy of Sciences (USA), 105:7257-7262, 2008
7. Shimabukuro M et al. *Effect of telmisartan in individuals with the metabolic syndrome.* Journal of Hypertension 25:841-848, 2007
8. Jayasooriya AP et al. *Mice lacking angiotensin converting enzyme have increased energy expenditure, with reduced fat mass and improved glucose tolerance.* Proceedings of the National Academy of Sciences (USA). 105:6531-6536, 2008

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