## Response to: Diagnosis of childhood obesity using BMI: Potential ethicolegal implications and downstream effects

Accurate identification of obesity is of undoubted public health importance, particularly given the AMA’s classification of obesity as a disease. Our review, and the related reviews in this journal [1-3], set out to examine whether such a diagnosis is appropriate in children, given that obesity might not persist into later life, and the potential policy implications and stigma of labelling obese children as having a disease.

We agree that BMI has many limitations as a measure of adiposity, such as those described by Ferrara et al [4], but such limitations do not automatically mean that BMI will be a poor tool for identifying obesity in children, as our analysis showed. We also agree that superior tests are available, such as densitometry. However, the aim of our review was to investigate the diagnostic accuracy of “simple” diagnostic tools, such as BMI or skinfold thickness, which are easy to perform and could be used for whole-population screening. The more accurate tests are generally more difficult to perform and more costly, and so are not widely used, particularly in less developed settings. We found that, among such simple tests, BMI had good diagnostic accuracy and no other routinely available tests were obviously superior to it.

While we have shown that BMI has good diagnostic accuracy, we agree that this does necessarily mean it should be used to formally diagnose or label children as obese or overweight. Our related papers have shown that childhood obesity is a poor predictor of obesity-related mortality in later life [3]. Also, while childhood obesity does commonly persist into adulthood, there are many obese children (particularly pre-adolescents) who do not go on to be obese in adulthood [2]. Labelling obese children as having a disease or being at high risk of disease may therefore be very misleading as to their future health. This would still be the case even if more accurate diagnostic tools were used.

We certainly do not suggest that prevention and health care should be focused exclusively on those children diagnosed as obese or overweight. We consider that population-wide strategies to improve diet and health are needed, as targeting only obese children would miss most of those children who will go on to have obesity related morbidity in adulthood [3]. Our paper shows, that where obesity and adiposity is measured as part of such a strategy, BMI is not an “inferior” test, as there is no evidence that any easy-to-perform test (such as skinfold thickness) is any better at identifying obese children.

1. Simmonds M, Llewellyn A, Owen CG, Woolacott N. Simple tests for the diagnosis of childhood obesity: A systematic review and meta-analysis. Obes Rev 2016

2. Simmonds M, Llewellyn A, Owen CG, Woolacott N. Predicting adult obesity from childhood obesity: a systematic review and meta-analysis. Obes Rev. 2016 Feb;17(2):95-107.

3. Llewellyn A, Simmonds M, Owen CG, Woolacott N. Childhood obesity as a predictor of morbidity in adulthood: a systematic review and meta-analysis. Obes Rev. 2016 Jan;17(1):56-67

4. Ferrara PM, Stoner L, Cornwall J. Diagnosis of childhood obesity using BMI: Potential ethicolegal implications and downstream effects. Obes Rev 2016