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Response to Letter to the Editor by Joe Brew, Department of Epidemiology, University of Florida

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Dear Editors

We are pleased that our paper has been deemed thought-provoking. Regarding the issues brought by Joe Brew, we would like to respond as follows:

1. Brew suggests that we should have used body mass index (BMI) percentiles instead of weight-for-height z-scores (WHZ). We disagree and stand behind our original statement that WHZ is a more appropriate measure for longitudinally assessing adiposity among young children. In the paper cited by Brew¹ as justification for his argument, BMI percentile appears superior to BMI, BMI% and BMI z-scores but was not compared to WHZ. Compared with other BMI-based measures, we agree that BMI percentiles may be superior. However, the use of percentiles also has issues. Importantly, percentiles are bounded above at 100. Bounded outcome data can exhibit non-normal and atypical distributions, such as J-shaped or U-shaped, induced by the boundary constraints. This lack of normality can adversely affect the fitting and estimation of linear or non-linear mixed-effects models, such as are commonly used for longitudinal analysis.²

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2. Brew questions our definition of neighbourhood as census tracts plus 0.5-mile and 1.0-mile buffer zones around the census tracts. As we stated in our article, this definition is not perfect. We are working with a vulnerable population group, however, and one of the conditions for accessing their data is respecting confidentiality. Therefore, the authors had access only to the children's census tract of residence and were not able to use census blocks in the analysis as suggested by Brew. We note, however, that according to the 2009 National Household Travel Survey,³ in this region of the USA, median travel distances for buying goods such as groceries, as well as meal-related trips is two miles (which is roughly our buffer size plus the median internal maximum distance of a census tract in Los Angeles as noted by Brew). Hence, we believe the use of census tracts plus buffers, while not ideal, provides reasonable estimations for our study area. Nevertheless, we agree that in the future there is a need for more sensitivity analyses of the impact of different neighbourhood metrics on obesity and other health outcomes.

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