Reviewer’s report

Title: Randomised trial investigating the relationship of response rate for blood sample donation to site of biospecimen collection, fasting status and reminder letter: the 45 and Up Study

Version: 1 Date: 19 June 2012

Reviewer: Lyle Gurrin

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MAJOR COMPULSORY REVISIONS

Page 7 Intervention – Commercial pathology centres: The last sentence on page 7 states that “collection of blood samples was undertaken by existing pathology centre staff who were specifically trained by Link-Up Study staff to measure height, weight, waist circumference, blood pressure and heart rate”. Did the participating commercial pathology centres have a large number of individual staff all of whom collected samples from study participants? If so, how was it possible to train them to take measurements and collect specimens in accordance with study protocols?

Page 11 Randomisation: I think it would be OK to indicate more specifically the reason for making the decision to include a fourth arm in Parramatta after the trial has started, and why it was preliminary results from Wagga Wagga that prompted this. If it was poor response rates at commercial pathology centres when a reminder letter was not issued then there would be no harm in making such a statement.

Page 13 Statistical methods: (i) Paragraph two states that “Response rate was analysed in two models and expressed as a participation rate ratio (RR)” but it would be better to say that “Response rate was analysed in two models and ASSOCIATIONS WITH EXPOSURE VARIABLES expressed as a participation rate ratio (RR)”; (ii) The sentence on the “log binomial model” (presumably this is just logistic regression?) appears to be largely repeated for models 1 and 2, so perhaps just state this once and then point out in a separate paragraph the differences between model 1 and model 2; (iii) The statement that “model fit was verified by deviance and chi-squared” is vague and I would leave this out; (iv) stating that “the overall effect of a variable was assessed with a likelihood ratio test” is also a bit vague, so perhaps say that “nested models (e.g. those with and without a given exposure variable) were compared using the likelihood ratio test LRT)”; (v) Similarly, be more direct with the assessment of heterogeneity by saying that “heterogeneity of effect between areas was assessed by including the relevant interaction term and comparing this model to the model without the interaction term using the LRT”; (vi) While the paired t-test is not an unacceptable way to compare self-reported and measured height, this only addresses the null hypothesis that the mean difference is zero, which is not an especially relevant...
hypothesis. What one is really interested in here is comparing these two methods of measurements, and determining the extent of the agreement between them. The Bland-Altman procedure (Lancet 1986) plots the paired difference in measurements against the within-pair average measurement to generate a prediction interval for the mean difference, and to assess (visually) whether this mean difference depends on the level of measurement. I suggest the authors try this out and attempt to incorporate some basic results from this procedure.

Page 15 Results: Many of the estimated rate ratios (RR) are close to 1.00 with large p-values, but the important thing is that the 95% confidence intervals do not include values of the RR that indicate a strong departure from the null hypothesis, that is, in these cases a relevant difference in the response rates can effectively be ruled out since the RR is estimated with high precision. A statement highlighting that there is little evidence for large differences in response rates would be useful.

Page 17 Physical measures etc: The mean differences in measured heights and weights are worth reporting, but the correlations are pointless since they will always be very high for two methods measuring the same underlying quantity even if one is systematically in error. Better to ditch the correlations and report a summary from the Bland-Altman procedure (see above).

Page 20 Discussion: The statement that “the randomised elements of this trial were analysed by intention-to-treat, to avoid biases resulting from the use of observational data” is rather clumsy since intention-to-treat analysis has not been previously mentioned, and it seems to imply that bias is a feature of observational data; what I think the authors meant is that “per protocol” analyses that compare groups defined by the intervention actually received (rather than that randomly allocated) can introduce bias in estimation since the comparison groups are no longer exchangeable. I would just leave this sentence out.

Pages 21-24 Discussion: The discussion is quite long, and I think it digresses on page 21 with the paragraph “the proportion of people willing to participate etc.” The material on pages 22-23 on dedicated clinics and existing commercial pathology centres is rather long-winded and could be consolidated into a single paragraph or two shorter paragraphs.

MINOR ESSENTIAL REVISIONS

Background

Page 4 In the first paragraph I feel it would be better to refer to “biomarkers” rather than “bio-analytic data” since the latter seems to be, well, a made-up term! And in the second paragraph one might equally replace “biodata” with “biomarker”. “Biodata” also appears on page 12 and in the first sentence of the discussion.

Methods

Page 5 Data collection centres: Wagga Wagga is hardly a metropolis, but it is a
city of about 50,000 people and is a major regional centre, so describing it as “rural” is inaccurate. I feel it would be better to replace “rural” with “regional”.

Randomisation

Page 10 “151.00S” should be “151.00E”.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests whatsoever.