

**Reliable estimates of dietary adequacy in population sub-groups depend on appropriate analysis of national dietary survey data**

*IHE Rutishauser<sup>1</sup> and DEM Mackerras<sup>2</sup>*

<sup>1</sup>School of Health Sciences, Deakin University, Geelong, Victoria, 3216

<sup>2</sup>Menzies School of Health Research, Darwin, NT, 8011

**Background** – National dietary survey data are widely used to estimate dietary inadequacy/excess without due regard either to the main limitations associated with such data – usually short term, often single 24-hour self-report, in which respondents tend to forget all they have eaten.

**Objectives** – Firstly, we determine the impact of adjusting for within-person variance on the spread of nutrient intakes and the effect of excluding under-reporters on the mid-point and the spread of the distribution of nutrient intake. Secondly, we illustrate how allowing for both factors alters estimates of dietary inadequacy for nutrients. We selected nutrients for which it is possible to derive an estimated average requirement (EAR) based on the published background papers for the Australian RDIs.

**Design** – The unit record file data from the 1995 NNS provided by the ABS was analysed using adjustment factors for within-person variance to derive population weighted adjusted intake distributions. Stata (version 6) was used to derive both the adjusted distributions and to determine the proportion with intakes below relevant reference cut-offs for a range of age-sex groups.

**Outcomes** –The effect of adjustment for within-person variance in intake varied both with nutrient and with population sub-group. Typically, the adjusted 10-90 centile range was reduced to between 66 and 80% of the unadjusted range and the percentage below the EAR was reduced by as much as 20%. The exclusion of those with implausibly low energy intakes further reduced the proportion below the EAR to 50% or less of that obtained with the single-day unadjusted intakes. For example, using the single-day unadjusted data, 19% of boys and 43% of girls aged 12-15 had intakes below the EAR for zinc and these dropped to 0% and 18% respectively after adjustment and correction.

**Conclusions**-. Calculated prevalence of low dietary intake in a population may be very misleading if the data are not adjusted for within-person variance and corrected for implausible energy values.