Nut-8.4. Data sources and measurements: when using nutritional biomarkers, additionally use the STROBEME; report the type of biomarkers used and usefulness as dietary exposure markers.

Example 1. “Urinary sugars, in particular sucrose and fructose, have been investigated and developed as dietary biomarkers of total sugar intake. If 24-h urine collections are available, sucrose and fructose measured in 24-h urine can be used as predictive biomarkers of total sugar intake.We prospectively investigated the association between sucrose intake and risk of overweight and obesity in a sample of the EPIC (European Investigation into Cancer and Nutrition)-Norfolk cohort study by using urinary sugar biomarkers and self-reported dietary data. Self-reported sucrose intake was significantly positively associated with the biomarker. Associations between

the biomarker and BMI were positive (b = 0.25; 95% CI: 0.08, 0.43), while they were inverse when using self-reported dietary data (b = 21.40; 95% CI: 21.81, 20.99). The age and sex-adjusted OR for BMI (kg/m2 ) >25.0 in participants in the fifth compared with the first quintile was 1.54 (95% CI:1.12, 2.12; P-trend = 0.003) when using the biomarker and 0.56 (95% CI: 0.40, 0.77; P-trend < 0.001) with self-reported dietary data. Conclusions: Our results suggest that sucrose measured by objective biomarker but not self-reported sucrose intake is positively associated with BMI”.

Explanation. Biological markers of dietary intakes (nutritional biomarkers) are objective measures that are useful in the validation of diet assessment instruments and in studies of diet and disease. The use of nutritional biomarkers that reflect dietary exposures will, in combination with self-reported dietary data, strengthen the examination of diet-disease associations. The STROBE-ME provides general guidelines on the reporting in studies that use biomarkers (i.e., not only nutritional biomarkers). Because the type of biological material, sampling method, and choice of analytic method influence the measured concentration of the biomarker, the general guidelines stress the importance of reporting how the samples were collected and handled.

The report needs to indicate if the nutritional biomarker is specific for the dietary exposure, and if it accurately reflects the intake. In addition, it is useful to know if the biomarker is sensitive to an increase in dietary intake (i.e., shows a dose-response association). Readers would also like to know whether the biomarker reflects long- or shortter dietary intake (e.g., through reporting the half-life of the biomarker) and the degree of reliability (reproducibility) of the biomarker.