8. Data sources/measurement: For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group.

Example 1

‘‘Total caffeine intake was calculated primarily using US Department of Agriculture food composition sources. In these calculations, it was assumed that the content of caffeine was 137 mg per cup of coffee, 47 mg per cup of tea, 46 mg per can or bottle of cola beverage, and 7 mg per serving of chocolate candy. This method of measuring (caffeine) intake was shown to be valid in both the NHS I cohort and a similar cohort study of male health professionals (...) Self-reported diagnosis of hypertension was found to be reliable in the NHSI cohort’’ .

Example 2

‘‘Samples pertaining to matched cases and controls were always analyzed together in the same batch and laboratory personnel were unable to distinguish among cases and controls’’.

Explanation

The way in which exposures, confounders and outcomes were measured affects the reliability and validity of a study. Measurement error and misclassification of exposures or outcomes can make it more difficult to detect cause-effect relationships, or may produce spurious relationships. Error in measurement of potential confounders can increase the risk of residual confounding. It is helpful, therefore, if authors report the findings of any studies of the validity or reliability of assessments or measurements, including details of the reference standard that was used. Rather than simply citing validation studies (as in the first example), we advise that authors give the estimated validity or reliability, which can then be used for measurement error adjustment or sensitivity analyses (see items 12e and 17). In addition, it is important to know if groups being compared differed with respect to the way in which the data were collected. This may be important for laboratory examinations (as in the second example) and other situations. For instance, if an interviewer first questions all the cases and then the controls, or vice versa, bias is possible because of the learning curve; solutions such as randomizing the order of interviewing may avoid this problem. Information bias may also arise if the compared groups are not given the same diagnostic tests or if one group receives more tests of the same kind than another (see also item 9).