9. Bias: Describe any efforts to address potential sources of bias.

Example 1 ‘‘In most case-control studies of suicide, the control group comprises living individuals but we decided to have a control group of people who had died of other causes (...). With a control group of deceased individuals, the sources of information used to assess risk factors are informants who have recently experienced the death of a family member or close associate - and are therefore more comparable to the sources of information in the suicide group than if living controls were used’’.

Example 2 ‘‘Detection bias could influence the association between Type 2 diabetes mellitus (T2DM) and primary open-angle glaucoma (POAG) if women with T2DM were under closer ophthalmic surveillance than women without this condition. We compared the mean number of eye examinations reported by women with and without diabetes. We also recalculated the relative risk for POAG with additional control for covariates associated with more careful ocular surveillance (a self-report of cataract, macular degeneration, number of eye examinations, and number of physical examinations)’’ .

Explanation

Biased studies produce results that differ systematically from the truth (see also Box 3). It is important for a reader to know what measures were taken during the conduct of a study to reduce the potential of bias. Ideally, investigators carefully consider potential sources of bias when they plan their study. At the stage of reporting, we recommend that authors always assess the likelihood of relevant biases. Specifically, the direction and magnitude of bias should be discussed and, if possible, estimated. For instance, in case control studies information bias can occur, but may be reduced by selecting an appropriate control group, as in the first example. Differences in the medical surveillance of participants were a problem in the second example. Consequently, the authors provide more detail about the additional data they collected to tackle this problem. When investigators have set up quality control programs for data collection to counter a possible ‘‘drift’’ in measurements of variables in longitudinal studies, or to keep variability at a minimum when multiple observers are used, these should be described. Unfortunately, authors often do not address important biases when reporting their results. Among 43 case-control and cohort studies published from 1990 to 1994 that investigated the risk of second cancers in patients with a history of cancer, medical surveillance bias was mentioned in only 5 articles. A survey of reports of mental health research published during 1998 in three psychiatric journals found that only 13% of 392 articles mentioned response bias. A survey of cohort studies in stroke research found that 14 of 49 (28%) articles published from 1999 to 2003 addressed potential selection bias in the recruitment of study participants and 35 (71%) mentioned the possibility that any type of bias may have affected results.