

of inappropriate statistical methods, but it does not guarantee that such statistical errors will be identified and corrected.

III. Ethics and Reporting

Other opportunities for unethical practices occur with the interpretation of statistical results and the decision of how and where to report findings. Personal and self-serving interests may influence final conclusions and recommendations. The contribution of individual researchers may be misrepresented to enhance the credibility of the study, and the findings themselves may raise ethical questions.

Conflicts of Interest

Ghostwriting Medical ghostwriting is a practice that has recently raised serious ethical questions. A medical ghostwriter is someone who contributes to the writing of a research study or article but is not acknowledged in the published work. Litigation over the past several years has revealed that pharmaceutical companies have hired professional writers to draft papers regarding clinical trials and they have paid physicians to accept authorship of these articles. Neither the role of the ghostwriters nor the financial compensation for the acknowledged author was mentioned in the work. This was done to increase the credibility and visibility of the results. In some cases, those who accepted authorship made minimal contributions to the study.

Financial Support Pharmaceutical and medical device companies fund a substantial amount of medical research. There is concern that the financial relationship between researchers and sponsors can skew the work and distort findings so that the sponsor can benefit. For example, one study found that authors paid by manufacturers of diabetes medications were three times more likely to express favorable safety views than those not receiving payments. (See “Association between Industry Affiliation and Position on Cardiovascular Risk with Rosiglitazone: Cross-sectional Systematic Review,” by Wang et al., *BMJ*, 340:c1344.)

The nonprofit organization Fair Warning reported that over the past several years, hospitals invested millions of dollars to purchase new automated heart defibrillators. A committee of the American Heart Association recommended the upgrade without the benefit of research or clinical trials showing that the new devices were better than the devices that were being used. According to Fair Warning, more than 25% of the committee members “had business ties with manufacturers of the devices” and “by one estimate, the shortcomings of the automated equipment mean that close to 1000 more hospital cardiac arrest patients die every year in the U.S.”

Passage in 2010 of a federal law now requires companies to disclose payments or goods and services provided to physicians or teaching hospitals. While this law does not *prohibit* financial relationships between companies and physicians or teaching hospitals, it does require disclosure of these relationships.

Reporting Nonsignificant Results

A recent article appeared with the headline “In U.S., Support for Death Penalty Falls to 39 Year Low.” A Gallup poll found that 61% of Americans were in favor of the death penalty and noted that this was a 3% drop from the previous year’s rate. The “Survey Method” description at the end of the article indicated that “one can say with 95% confidence that the maximum margin of sampling error is $\pm 4\%$.” With a sampling error of $\pm 4\%$, a 3% drop in respondents who indicated they were in favor of the death penalty is not significant. We don’t really know whether there was a decrease, increase, or no change in opinions about the death penalty.