

Confronting conflict of interest

Recent news stories about conflict of interest in biomedical research have shaken up public and private institutions alike, but their focus was on clinical research. Amidst the renewed focus on conflicts of interest in clinical work, let's not disregard the fact that financial conflicts also pose a concern to basic and preclinical research.

For a while now, tightening purse strings at federal funding agencies have led biomedical researchers at public and private universities to look for external sources of funding. This search often leads to industry partners, and such partnerships are now flourishing. According to Nature Index's 2017 Science Inc. issue, the number of academic–industry collaborations globally more than doubled from over 12,000 in 2012 to nearly 26,000 just four years later in 2016. Half of those 26,000 collaborations were in the life sciences (*Nature* 552, S6–S7, 2017). As these partnerships continue to grow, it's the job of those in the biomedical research community to carefully navigate what could be a minefield of conflicts of interest.

A 'conflict of interest' can mean different things depending on the context, but most often relates to financial payments from industry sources from which a researcher could stand to gain personal benefit, just as the company involved stands to benefit from a researcher's expertise. These outside payments pose a dilemma because the funding could cloud a researcher's judgment and thereby influence how a study is designed, interpreted and reported. *Nature Medicine* and other Nature Research journals [require](#) authors to declare any competing financial interests when submitting articles, and [last January](#), we revised our policy to require the reporting of any competing non-financial interests such as personal relationships with stakeholders.

It's obvious why conflicts of interest are problematic in clinical settings. Undue influence on how a drug, procedure or device is tested can potentially cause harm to patients—either those enrolled in the trials designed to test the products or those who take the drug after market approval. Even outside of the possibility of harm, the trial could be designed in such a way as to sway the results. Previous research looking at industry-sponsored scientific studies, most of them clinical trials, found that such studies could be more than three times as likely as non-industry-funded studies to find results that favor their sponsors (*J. Am. Med. Assoc.* 289, 454–465, 2003). Such findings don't negate the important

role that industry plays in biomedical research. Industry partnerships provide much-needed financial support and regulatory know-how to help bring drugs to market, regardless of where the drugs originated. Similarly, merely the presence of a conflict of interest doesn't diminish the value of research. But the positive influence of industry and the ability to conduct sound research despite conflicts don't mean the threat of negative influence isn't ever-present.

Clinical research, rightly, is often subject to federal oversight when it comes to conflict of interest. In the US, the Sunshine Act, or the National Physician Payment Transparency Program, was introduced as part of the country's 2010 Affordable Care Act. The Sunshine Act mandates that medical industry companies notify the US Centers for Medicare and Medicaid Services of any payments, including gifts or free meals, that they make to physicians and teaching hospitals.

The lines that demarcate conflicts of interest begin to get blurry when it comes to preclinical, or 'basic', research. Patients are often not in the picture at this early stage of research, and recognizing the harm wrought by possible conflicts of interest gets more difficult. But that doesn't mean that conflict-of-interest issues are any less problematic. One of the most famous historical examples of industry influence affecting the biomedical research agenda is that of sugar industry-funded science that downplayed the negative effects of sugar (*JAMA Intern. Med.* 176, 1680–1685, 2016). Those studies set the stage for thousands of subsequent studies—not to mention products and devices—focusing on fat as the culprit behind cardiovascular disease. Meanwhile, an analysis evaluating preclinical studies of the type 2 diabetes drugs known as thiazolidinediones, for example, found that estimates of harm outweighed efficacy estimates in only four of seven studies that were sponsored by industry alone, when compared to 38 of 49 studies that were not industry-sponsored and ten studies of 17 that were sponsored by both industry and non-industry sources (*Evid. Based Preclin. Med.* 1, e00005, 2014).

It's not as though there are no checks and balances in the current system. Universities typically require their scientists conducting basic research to disclose any industry relationships they may have and often place caps on how much of a financial stake a researcher is allowed to hold in a company. But no mandate such as the Sunshine Act seems to exist, for example, when it comes to payments by industry to scientists working in the lab rather than with patients. Teaching hospitals often allocate some of the funds they receive from industry sources to non-clinical researchers, but the Open Payments system that tracks payments to physicians does not track any payments that were allocated to non-physicians. Clearly, the system isn't perfect, and with increased scrutiny on the scientific process as a whole, an increased awareness about being forthcoming about conflicts of interest is worthwhile. And without a standardized disclosure process for preclinical research, raising awareness about conflicts of interest becomes difficult.

Basic research is the bedrock of all of the applied research that follows, particularly in drug development. It's in the basic research stage that scientists discover molecules and pathways that have potential translational value. The foundational science that society uses to uphold clinical research could be in danger of being flawed if researchers aren't more cognizant of and transparent about who is funding these basic discoveries. We ask our authors and reviewers to be diligent about any competing interests—be they financial or otherwise. Transparency is crucial not only for preserving the integrity of the research but also in preserving the trust of the public whose tax dollars help fund a significant portion of basic science. We welcome an open discussion about how best to ensure more transparency in reporting conflict of interest in a way that would protect and promote the research that advances biomedical science. □

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