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I believe that conflicted scientists should not be allowed on EPA or other government or NAS scientific advisory panels. I contend, and will hopefully convince you, that the presence of conflicted scientists on panels reduces the worth of their product, and the EPA and the enterprise of regulatory science can do very well without them.

Furthermore, I will argue, even more convincingly I hope, that scientists who work for product defense or litigation support firms should be barred from advisory panels – these are the EPA equivalent to the physicians working for the drug marketing operations, and that these most mercenary of scientists should never be included on these panels.

I am not talking today about policy panels – giving the government advice about what to do with data that's been collected and synthesized - I am talking about panels that review scientific information and reach conclusions that are sometimes referred to as data syntheses. Is ethylene oxide a human carcinogen? How powerful is it? No single study can answer these questions. Advisory panels are asked to try – they weigh data from many studies to provide an overall set of conclusions. You could say this is not science but rather art; there is no formula for producing an answer. If there were, you wouldn't need the panel. I'm also talking about so-called peer review panels – panels that review the data synthesis of other scientists.

My first point - It is undeniable that having a financial interest in the outcome can and often does, have a profound effect on the way a scientist interprets scientific data.

Vioxx is the best example – who but a scientist paid by Merck could look at the results of a randomized clinical trial comparing naproxen – or Aleve – with Vioxx, and interpret the results to mean that Aleve reduced heart attack risk by 75% instead of Vioxx increasing it by 400% ? If we had a drug that prevented 75% of heart attacks we'd put it in the water supply. Those conflicted scientists – were either lying or their judgment was irreparably clouded. Tens of thousands of heart attacks later, we are paying a great price for those misjudgments.

It is no exaggeration to say that the editors of the major medical journals are furious at the way conflicted scientists and their sponsors use medical journals to manipulate the information the scientific community receives about drugs.

These editors try to manage conflict of interest. Having seen this so many times, most of the leading journals have strong conflict disclosure rules. Yet these rules are often not followed or subverted so the editors regularly strengthen them.

Many of these editors recognize that for review articles -- subjective exercises in data syntheses -– products similar to those of advisory panels. Disclosure is not enough. Some journals have stopped publishing reviews or editorials by financially conflicted authors, because real or even perceived financial conflict can erode confidence in the integrity of the work, and in the overall integrity of the journal. In these cases, disclosure isn't enough – the authors must be conflict free.

These reviews are the journal equivalents of the data syntheses done by EPA and NAS scientific advisory panels.

International Agency for Research on Cancer sponsors a particularly important type of data synthesis - identifying the causes of cancer. IARC pulls together world experts into panels who review – or weigh - the evidence as to the carcinogenicity of an exposure for publication in what are called IARC monographs.

For the past two years, IARC Working Group Members have been selected on the basis of knowledge and experience, and the Absence of real or apparent conflicts of interests. Conflicted scientists are not put on the panel. No waivers allowed.

IARC is trying to meet two equally important ideals:
1. The monographs are developed by the best-qualified experts, AND
2. The impartiality and integrity of the monograph are above question

IARC strives to achieve both ideals, through a category of participant known as an "Invited Specialist" - an expert with critical knowledge and experience who is recused from certain activities because of a conflicting interest. These experts contribute their unique knowledge and experience, but do not draft text or vote.

Thus IARC can say with confidence their meetings include the best-qualified experts, and *IARC Monographs* are developed by experts with no conflicting interests.

Under the new policy, IARC has been able to involve top unconflicted scientists, and publish excellent monographs, demonstrating that there are no experts who are so important they must be included on panels no matter how conflicted. Invite conflicted experts to confer with the panel – but don't let them vote.

Beyond the standard, conflicted scientist whose judgment may be clouded there is another category of scientist who comes into meetings not as a scientist but as a mercenary. His or her job is NOT to weigh the evidence with an open mind but to shape the outcome to the needs of his employer's clients. This is the scientist who specializes in product defense or litigation support - assisting polluters and manufacturers of dangerous products avoid regulation or win in litigation. Here's the best analogy I can offer - The

work of these experts has the same relationship to science as Arthur Andersen's work for Enron had to accounting. These are smart people using impressive skills to help misbehaving companies skirt the law.

Here's how one firm describes itself: "We help our clients… clear regulatory hurdles, and defend products in the courts and the media." I'll translate that for you – "you want a report saying this chemical is less dangerous than EPA or OSHA or FDA says it is – we can do it, and we'll make sure it gets into a peer review journal.

There are many of these groups. Their science is never hypothesis driven – it is result driven, and they know the result in advance. I've written about these in Scientific American and the American Journal of Public Health. They can be downloaded from www.DefendingScience.org the website of the Project on Scientific Knowledge and Public Policy.

Product defense firms make money by helping delay regulation or defeat litigation. If they can't do that, they don't get hired again.

The reports they produce are stacked evidence. Perhaps that's acceptable in a courtroom, where the two sides duke it out – each side has experts, and the ability to cross-examine the opposing experts.

But letting these mercenary experts actually weigh the evidence skews the process – Think of a criminal trial. Let's say that the defendant's lawyer hires an expert who says that the fingerprint just doesn't match – he testifies and then he's cross-examined. The jury believes him or not. But should that expert then be asked to be part of the jury? That's what happens when a product defense expert is put on an advisory panel.

Their work is comparable with that of the experts who get money to help market drugs – they are paid to advance a certain outcome.

An example is the EPA panel reviewing an evaluation of ethylene oxide, a sterilant widely used in hospitals. Several proposed members of the panel work for product defense firms. Their employers were hired by the Ethylene Oxide Industry Council to produce a data synthesis. Not surprisingly, their paper concluded that ethylene oxide does not cause cancer at low doses. I would have been shocked had they reached any other conclusion.

If IARC were running this panel, they would invite industry to pick their experts to make the best case they can, but not serve on the panel. The agencies we are talking about understand science. Why not do an experiment? - set up some panels with only unconflicted experts and see how they do. I believe they can produce quality results, while ensuring the impartiality and integrity of the product.

I am pleased the FDA has finally recognized that scientists hired to advocate for certain positions cannot be impartial, and proposes barring them from advisory panels. It is high time the EPA and the NAS did the same thing with product defense experts.

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