

An “Epidemic” of Wrong or Misleading Research

New Study Demonstrates How Most Systematic Reviews and Meta-analyses Produced Today Are Not Useful

New York, New York, September 13, 2016—There is mass production of unnecessary, misleading, and conflicted systematic reviews and meta-analyses, according to a new study in the September issue of *The Milbank Quarterly*. In an examination of PubMed-indexed articles, author John Ioannidis of Stanford University found that many systematic reviews and meta-analyses are overproduced. As a result, too many reviews are redundant, have little value, make misleading claims, or are produced by those with clear conflicts of interest.

Study Focus

Systematic reviews and meta-analyses are indispensable components in the chain of scientific information and key tools for evidence-based medicine. Ideally, meta-analyses are primary research efforts where investigators collaborate preemptively in consortia with embedded replication across teams and joint analyses. This paradigm has been successful in some fields, for instance, genome data. But teamwork, collaboration, and replication are uncommon in most fields due to lack of incentives.

Findings

- Between 1991 and 2014, annual publication of systematic reviews increased by 2,728 % and meta-analyses increased by 2,635 %. All PubMed-indexed items increased by only 153 % during that time period.
- Some fields produce massive numbers of meta-analyses; for example, 185 meta-analyses of antidepressants were published between 2007 and 2014, the vast majority from authors with industry ties or even industry employees.
- China has rapidly become the most prolific producer of English-language, PubMed-indexed meta-analyses. The most massive of these is on genetic associations, where almost all results are misleading since they combine fragmented information from a mostly abandoned era of candidate genes.
- Many contracting companies working on evidence synthesis receive industry contracts to produce meta-analyses, many of which remain unpublished.

“Systematic reviews and meta-analyses can be extremely helpful and they can offer valuable insights about the totality of the evidence in a given field,” said Ioannidis. “However, they can also be highly damaging, when they are done in ways that are wrong or misleading and when they propagate wrong or misleading evidence. Currently there is an epidemic of wrong and misleading systematic reviews and meta-analyses.”

About *The Milbank Quarterly*

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