SPECIAL ARTICLE

The fate and reliability of endoscopy research presented at Digestive Disease Week

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The peer-review process for acceptance of abstract data presented at national conferences is limited compared with that of a medical journal considering a manuscript for publication. Data presented at national conferences are either ready for publication or are preliminary, requiring increased numbers of subjects, further investigation, or additional analyses before publication. The reliability of data presented at national conferences, such as Digestive Disease Week (DDW), is therefore unknown. Clinicians looking to cutting-edge research to inform their endoscopic practice may benefit from a clearer understanding of the fate of research data presented.

We therefore sought to quantify the likelihood that endoscopic research findings presented at DDW are ultimately published in a peer-reviewed journal and how often the data and conclusions change. To accomplish these aims, we performed an analysis restricted to the "Best of DDW" review articles published subsequent to annual meetings. We chose this approach, speculating that review articles might exert additional influence over clinicians' practice of endoscopy.

Abbreviations: CI, confidence interval; DDW, Digestive Disease Week; OR, odds ratio.

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METHODS

This study was approved by the Boston Medical Center Institutional Review Board. We included all abstracts cited in the "Best of DDW" review articles published in *Endoscopy* between 2004 and 2007. Although the journal continued to publish such reviews after 2007, with *Gastrointestinal Endoscopy* publishing such articles in 2012 and 2013, we wanted to restrict our analysis to those abstracts that would then have at least 6 years to appear as published articles. We developed a search strategy to determine whether abstracts cited in the DDW review articles were subsequently published in peer-reviewed journals. The online database PubMed was searched for the abstract's title, first author (last name, first initial) and senior author (last name, first initial) from May 2004 through November 2013. The authors and methodology of the originally cited abstract and any subsequently identified published manuscript were compared to verify that the manuscript represented the final form of the DDW abstract. We did not require an exact match on title and/or both first and senior authors. Instead, we reviewed all published papers associated with either author if the title seemed somewhat related to the abstract's title. We included for analysis only full manuscript articles, excluding letters to the editor.

To validate our search methodology, we contacted the first 37 authors whose abstracts were considered not to have been published in full manuscript form. This was a convenience sample based on the number of papers identified as not having been published by our algorithm after the first month of the project. We wanted to clarify fairly early in the process whether our algorithm needed adjustment. Authors were asked whether they had ever published the data presented in the original abstract and whether they could provide a reference. Only 5 of 37 (14%) provided evidence of a publication consistent with data from the original abstract. All 5 manuscripts had been identified during the initial search, but had not been considered the same as the original DDW abstract because of a different research design. Nonetheless, we subsequently altered our search strategy to permit inclusion of published manuscripts by the same authors as DDW abstracts when there were minor alterations in research design, such as a change in the months of a trial's enrollment period.

TABLE 1. Summary of endoscopic topics of abstracts cited in the "Best of DDW" review articles from 2004 to 2007

Topic	Oral, no. (%)	Poster, no. (%)	International, no. (%)	United States, no. (%)
Small-bowel endoscopy and capsule endoscopy	41/164 (25)	123/164 (75)	110/164 (67)	62/164 (33)
Colon tumors and colonoscopy	47/114 (41)	67/114 (59)	80/114 (70)	34/114 (30)
Endoscopy diagnosis and treatment of upper GI tumors	21/154 (14)	133/154 (86)	126/154 (82)	28/154 (18)
ERCP	35/93 (28)	58/93 (62)	43/93 (46)	50/93 (54)
EUS	28/90 (31)	62/90 (69)	34/90 (38)	56/90 (62)
GI bleeding	27/104 (26)	77/104 (74)	73/104 (70)	31/104 (30)
GERD and Barrett's esophagus	56/128 (44)	72/128 (56)	64/128 (50)	64/128 (50)
Total	255/847 (30)	592/847 (70)	530/847 (63)	317/847 (37)

DDW, Digestive Disease Week.

We recorded how the original abstract was presented at DDW (oral vs poster), the country of origin of the cited study, and whether the data and/or conclusion changed between presentation at DDW and final manuscript publication. Changes in data included a change in the sample size and/or a change in the study's numerical findings. Changes in conclusion included a change in study outcome (eg, from a positive outcome to negative outcome), a change in the strength of a reported association, and a change in recommendation from the authors.

Statistical methods

We calculated the percentage of abstracts cited in DDW review articles that were eventually published as full manuscripts and the median number of years between abstract publication and manuscript publication. We also calculated the percentage of abstracts with data and conclusions that changed before publication of the full manuscript and publication rates by topic. We used logistic regression models to measure the strength of association between eventual publication of a full manuscript and (1) the type of presentation at DDW, (2) the country of origin of the cited abstract, and (3) whether the original abstract was published in the *Gastroenterology* or *Gastrointestinal Endoscopy* DDW abstract supplement. We also measured the association between the number of years before an abstract was published as a full manuscript and whether the data or conclusion(s) changed. *P* values were calculated by using the Fisher exact test. Data were analyzed by using SAS version 9.1 (SAS Institute, Cary, NC).

RESULTS

Between 2004 and 2007, 29 DDW review articles were published in *Endoscopy* referencing 847 abstracts. Only 7 of those review articles described a systematic methodology used by the review's authors to select the abstracts cited. Among the abstracts in the "Best of DDW" reviews, 146 (17%) appeared initially in *Gastroenterology* DDW abstract supplements and 701 (83%) appeared initially in *Gastrointestinal Endoscopy* DDW abstract supplements. Among the 847 abstracts, 592 (70%) were presented as posters and 255 (30%) were presented orally. United States–based authors accounted for 317 (37%) of the cited abstracts and non-U.S.–based authors accounted for 530 (63%) of the cited abstracts. Table 1 presents the abstract data in summary form and by endoscopic topic.

The rate of conversion of cited abstracts to published manuscripts was 408/847 (48%). The topic most likely to be published was EUS. The abstracts' data changed in 265 of 408 of final publications (65%), whereas the conclusions changed in 91 of 408 of final published manuscripts (22%) (Table 2). The topic most likely to have the data change was colon tumors and colonoscopy and conclusion change was endoscopy diagnosis and treatment of upper GI tumors. Rates of full manuscript publication were similar across each year analyzed (Table 2).

The median number of years between abstract presentation at DDW and publication of a full manuscript was 1 (interquartile range 1-2) (Fig. 1). Of articles that were eventually published, 90% were published within 4 years of DDW. Increasing number of years until publication was signficantly associated with changes in data and conclusion. For each additional year until publication, the odds ratio (OR) for data change was 1.79 (95% confidence interval [CI], 1.46-2.18), and for conclusion change, it was 1.33 (95% CI, 1.12-1.57). Oral presentations were not more reliable than poster presentations in relation to changes in data (OR 1.08; 95% CI, 0.71-1.65) or conclusion (OR 0.78; 95% CI, 0.47-1.35).

Compared with abstracts presented as posters, abstracts presented orally were twice as likely to be published as a