

Supporting Online Material for Dellavalle

DOI: 10.1126/science.1088234

Going, Going, Gone: Lost Internet References

Robert P. Dellavalle, Eric J. Hester, Lauren F. Heilig, Amanda L. Drake, Jeff W. Kuntzman,
Marla Graber, Lisa M. Schilling

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Materials and Methods

Article and Reference Assessment

Articles were classified by type: original research, review article, clinical article, opinion and news, letters, or book reviews (Table S1).

Two issues of each journal from 2000 to 2002 were sampled, and the online and hard copy versions were compared as to whether each version contained the same articles and whether each article contained the same number of end notes. Internet addresses were cut and pasted with word processing software from online versions to minimize database entry error. Two different investigators independently reviewed each qualifying article. Independent databases were compiled and combined after investigation, and all discrepancies were resolved by one author (L.H.).

Accession of cited Internet addresses was independently attempted three times over a 1-week period (12 to 19 March 2003) by two authors (L.H., A.D.) using computers at two different locations (Denver Veterans Affairs Medical Center and University of Colorado Health Sciences Center Denison Memorial Library) using Microsoft Internet Explorer (version 6.0) to allow for temporary equipment or software failure. Internet references were categorized as active or inactive (unable to access referenced Internet site on any attempt over a 1-week period).

Statistical analyses, including descriptive statistics, 95% confidence intervals (CI), and Fisher Exact tests for comparing Internet reference inactivity by journal, were performed by using SAS (Version 8, SAS Institute).

SOM Text

Additional Results

In the 52 journal issues examined, 1062 articles contained at least one reference (*NEJM*-290, *JAMA*-300, and *Science*-472). Articles were of the following types: original research (40%), opinion & news (24%), letters (24%), review article (6%), clinical article (5%), or book reviews (1%) (Table S1). Differences between the journals with regard to qualifying article category frequency were observed (e.g., original research articles: *NEJM* 26%, *JAMA* 29%, *Science* 57%, and Letters: *NEJM* 39%, *JAMA* 30%, *Science* 10%).

Comparing Internet references from 2000 to 2003, we found that the top-level domains (e.g. “.gov,” “.edu,” “.com”) were quite similar. For example, Internet addresses for “.gov” were 41% in 2000-01 compared with 39% in 2002-03.

Study Limitations

This study has several limitations: (i) Only three high-impact U.S. journals were examined, therefore the findings may not be generalizable to all medical and scientific publications. The frequency of Internet reference use and activity will likely vary widely with journal quality, subject matter, editorial policy, and geographic location. (ii) While Internet reference activity was assessed, the content integrity of the site was not. Therefore, active Internet reference URLs might have contained different information from that originally cited by authors. (iii) A 6-week period of issues was used for this study, and overall Internet reference numbers were small. Therefore, fluctuations, such as a decrease in *Science* article use of Internet references, might not reflect larger trends.

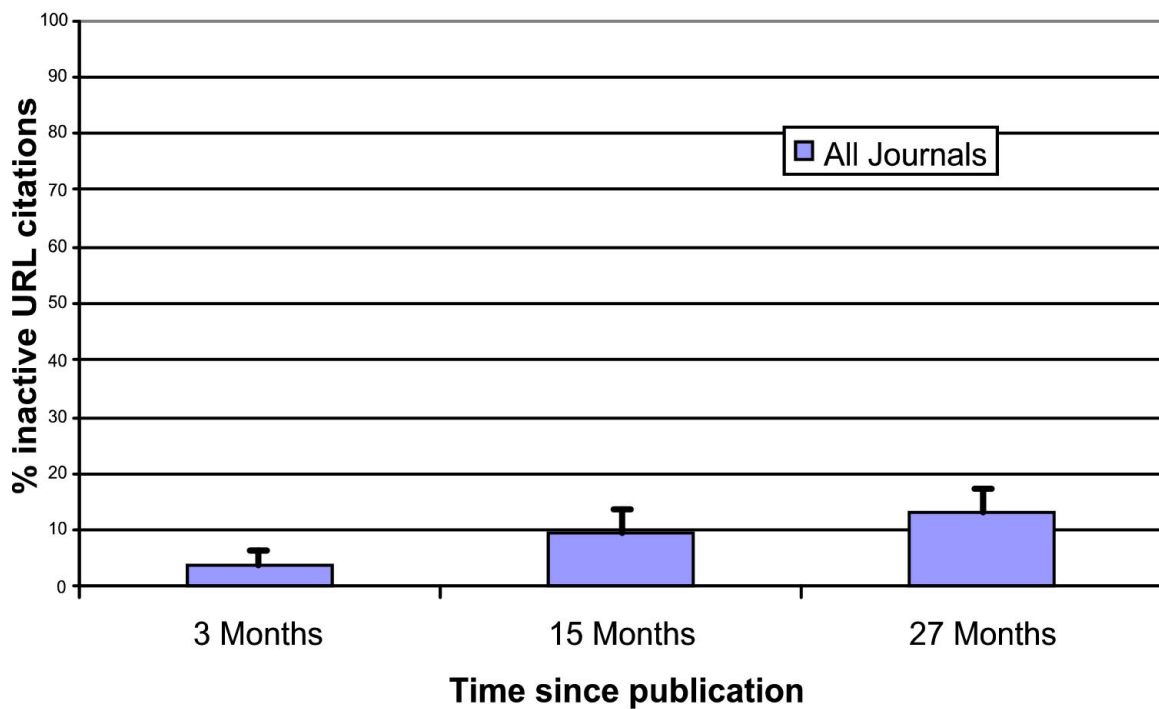


Fig. S1. Internet reference inactivity by months after publication. Error bars represent upper 95% confidence limits.

Table S1. Article categorization by journal and specific journal article category.

Article category	<i>NEJM</i>	<i>JAMA</i>	<i>Science</i>
Original research (%)	75 (26%) Original article, special article	86 (29%) Original contributions, special communication	269 (57%) Reports, brevia
Review article (%)	26 (9%) Review article, clinical implications, legal issues in medicine	10 (3%) Review articles, health law & ethics, scientific review, clinical application	33 (7%) Reviews, policy forum
Clinical article (%)	25 (9%) Images in clinical medicine, case records, clinical practice	25 (8%) Grand rounds, caring for the critically ill patient	0 (0%)
Opinion & news (%)	50 (17%) Perspective, editorial, sounding board	83 (28%) Commentary, editorial, news & analysis	118 (25%) Essay, editorial, news of the week
Letters (%)	114 (39%) Correspondence	91 (30%) Letters	46 (10%) Letters
Book reviews (%)	0 (0%) Book reviews	5 (2%) Books, journals, new media	6 (1%) Books <i>et al.</i>