Journal Citation Studies. VII. Journal of American Medical Association vs New England Journal of Medicine

January 30, 1974

Number 5

Recently we used citation analysis to confirm that the Journal of Clinical Investigation (JCI) provides an interface between research and practice.¹ It surprised me to find that Journal of the American Medical Association (JAMA) did not appear in either list of 50 journals most heavily cited by or most heavily citing JCI. Equally interesting, the New England Journal of Medicine (NEJM) did appear on both lists.

This fact prompted the present comparative analysis of the citation patterns of JAMA and NEJM. Table 1 gives the 50 journals most cited by JAMA; table 2 gives the 50 most cited by NEJM. The fifty journals in each case account for almost a third of JAMA's and NEJM's citations.

It turns out that one can measure the proximity of a journal to the research front by examining the impact factors of the journals it cites. Impact tells how frequently the *average* article in a journal is cited.²

In the case of JAMA and

NEJM, the journals they cite heavily are not only different, but also quite different in terms of impact. The top fifty journals cited by JAMA have an average impact of 1.562. The top fifty cited by NEJM have an average impact of 2.601.

The higher a journal's impact, the more likely it is to be research-oriented. Only 148 journals out of thousands published have an impact greater than 2.601. By comparison about twice as many journals in our study (310) had impact factors greater than 1.562.

Even extending the list of journals cited by JAMA and NEJM to 100, the impact superiority of NEJM-cited journals is maintained. NEJM's top 100 have an average impact of 2.377, those of JAMA 2.107. The difference of 0.237 is not trivial. Consider that of the thousands of scientific and technical journals published, only 923 of those reported in our ISI Journal Citation Reports[™]

Table 1†The Fifty Journals Most Cited byJournal of the American Medical Association

Rank	Times Cited	Cited Journal and Its Impact Factor
1.	1212	J. Amer. Med. Assoc. (1.027)
2.	424	N. Engl. J. Med. (2.453)
3.	200	Ann. Internal Med. (1.640)
4.	200	Lancet (1.509)
5.	148	J. Urology (0.950)
6,	140	Amer. J. Med. (4.694)
7.	140	Arch. Internal Med. (1.610)
8.	128	Brit. Med. J. (0.778)
. 9.	96	Circulation (1.267)
10.	96	J. Clin. Endocr. Metab. (3.829)
11.	88 74	Science (2.894)
12.	70	$Lancer\left(2.102\right)$
13.	70	Arch Dermatol (0.567)
15	68	Amer I Med Sci (0.582)
16	68	L Clin Invest (3.461)
17	60	Nature (2.244)
18	60	Surgery $(1, 347)$
19	56	Amer. I. Cardiology (2.240)
20.	56	Amer. I. Dis. Children (1.257)
21.	56	Amer. I. Obst. Gynecol. (1.269)
22.	56	Surg. Gynecol. Obst. (1.578)
23.	52	Ann. Surgery (1.665)
24.	52	Arch, Surgery(0.888)
25.	52	Clin. Res. (0.262)
26.	52	J. Lab. Clin. Med. (1.742)
27.	48	Am. J. Epidemiology (1.846)
28.	48	J. Pediatrics (1.459)
29.	48	Neurology (0.868)
30.	48	Radiology (1.533)
31.	44	Proc. Soc. Exp. Biol. Med. (1.964)
32.	40	Amer. J. Roentgenol. (1.257)
33. 24	40	Anestnesiology (2.040)
24.	40	Amor Harst I (1.080)
33.	36	Amer. I Clin Bahal (0.625)
30. 27	36	Amer. J. Chin. Pathol. (0.025)
38	36	Amer I Psychiatry (0.673)
10	36	Arch Gen Psychiatry (1.409)
40	36	Arthritis Rheumatism (0.672)
41.	36	Canad. Med. Assoc. I. (0.350)
42.	36	I. Med. Education (0.393)
43.	36	Medicine (5.217)
44.	36	Obstetrics & Gynecology (0.816)
45.	36	Pediatrics (1.417)
46.	36	Tr. Amer. Soc. Art. Int. Org. (1.367)
47.	32	Arch, Environmental Health (0.632)
48.	32	Arch. Neurol. (1.449)
49.	28	Amer. J. Surgery (0.992)
50.	28	Gastroenterology (1.189)
	4692	Total of first 50
	9360	in 788 others
	14052	Grand Total
	-	

 \dagger The source of the data on which the lists are based, and the methodology of their manipulation, have been explained previously. See reference 2.

Table 2†The Fifty Journals Most Cited by

New England Journal of Medicine

Rank	Times Cited	Cited Journal and Its Impact Factor
1.	1172	New Engl. J. Med (2.453)
2.	476	J. Clin, Invest. (3.461)
3.	356	Lancet (1.509)
4.	352	J. Biol. Chem. (6.371)
5.	348	Amer. J. Med (4.694)
6.	308	Ann. Internal Med. (1.640)
7.	300	Circulation (1.267)
8.	288	J. Amer. Med. Assoc. (1.027)
9.	216	Amer. J. Cardiology (2.240)
10.	208	Science (2.894)
11.	196	Brit. Med. J. (0.778)
12.	180	Nature (2.244)
13.	176	J. Clin. Endocrinol. Metab. (3.829)
14.	1/2	Blood (2.867)
15.	140	Amer. Heart J. (1.980)
10.	140	Arch. Internal Med. (1.610)
17.	140	J. Exp. Med. (9.030)
18.	136	Gastroenterology (1.189)
19.	120	Amer. J. Physiology (5.579)
20.	110	Piocham Biophys Bas Comm (4.468)
21.	112	I Am Vet Med Acros (0.448)
22.	112	J. Ani. Vet. Med. Assoc. (0.440)
23.	112	Proc Nat Acad Sci USA (8.828)
25	108	Biochim Biophys Acta (3 287)
25.	108	Proc Soc Exp Biol Med (1964)
27	104	Brit I Haematol (2.179)
28	100	L Lab Clin Med (1.742)
29	100	L Pediatrics (1.459)
30.	88	Ann. New York Acad. Sci. (1.815)
31.	88	Medicine (5.217)
32.	84	J. Heredity (0.600)
33.	80	Clin. Res. (0.262)
34.	80	J. Immunology (4.305)
35.	76	Brit. Heart J. (1.697)
36.	76	Fed. Proc. (0.568)
37.	76	Radiology (1.533)
38.	72	Am, J. Vet. Res. (0.831)
39.	72	Biochem. J. (3.193)
40.	72	Cancer Res. (3.084)
41.	68	Arch. Biochem. Biophys. (3.519)
42.	68	Arch. Pathology (1.509) Biochamiatau (5.006)
43.	00	Dishatas (2.030)
44.	00 60	Amer I Die Children (1 257)
4J. 16	60	Amer I Med Sci (0.582)
47	56	Amer I Clin Pathol (0.502)
48	56	OI Med (4.238)
49	52	Acta Med Scand (1 534)
50	52	Amer. I. Pathology (1.916)
50.		· · · · · · · · · · · · · · · · · · ·
	7980	in first 50
	1/248	In 1019 other publications
	25228	Grand Total

[†] The source of the data on which the lists are based, and the methodology of their manipulation, have been explained previously. See reference 2.

achieved impact factors as great as 0.237!³

This comparison of JAMA and NEJM may explain not only the close relationship between NEJM and the Journal of Clinical Investigation, but the following facts as well. Although NEJM and *JAMA* were cited by all other journals with about the same frequency (they rank 24th and 26th respectively in terms of total citations), their own impact factors are significantly different. NEJM has an impact of 2.453, standing 160th in terms of impact among all journals. JAMA's impact of 1.027 places it 474th. In both cases, the impact factors would be larger if one excluded letters,

1. Garfield, E. Journal citation studies. 6. Journal of Clinical Investigationhow much 'clinical' and how much 'investigation'? Current Contents ® (CC[®]) No. 4, 23 January 1973, p. 5-8. 2. ______. Citation analysis as a tool in journal evaluation. Science 178:471-79, 1972. editorials, and other non-articles from "items published," one of the counts on which the impact is figured. But even when that is done, a hasty calculation shows the greater impact of *NEJM* to be not only maintained, but substantially improved. It bears out the findings of the previous editorial,¹ namely that *NEJM* is much more research-oriented than *JAMA*, although both are heavily cited by other clinical journals.

From the list of journals cited by JAMA, the average practitioner can easily select a well-rounded collection of clinical journals. His university colleague may well prefer a selection based on the list of journals cited by NEJM.

200