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# Current Comments®

## 100 Classics from *The Lancet*

Number 39 September 24, 1984

We recently initiated a series of essays on the articles most cited in *Science Citation Index*® (*SCI*®) from 1961 to 1982. So far, we've identified 300 of these classic papers,[1-3] and plan to extend the study until at least 1,000 articles are listed. As expected, a significant proportion of the papers discussed to date were published in a small number of multidisciplinary journals—*Proceedings of the National Academy of Sciences of the USA, Science, Nature,* and so on. However, the high-impact articles from clinical and other journals warrant separate discussion. We have already discussed 100 classics from the *New England Journal of Medicine*.[4] This essay covers 100 articles from *The Lancet* that were most cited in *SCI* for the years 1961-1982.

The first issue of *The Lancet* appeared in London on October 5, 1823, making it the oldest weekly medical journal in the UK.[5] Its founder and editor, Thomas Wakley, was a controversial person with a strong desire to reform the British medical establishment. In *The Lancet*, Wakley heaped criticism on the Royal College of Surgeons, inadequate medical education, quackery and malpractice, and the nepotism and patronage governing promotions to hospital surgical teams. At that time, the College determined who could teach in the hospitals and serve as examiners to certify medical students. Teaching positions were highly coveted, because lecturers could earn as much as £20,000 per year in tax-free income from students' fees. These positions were awarded to relatives and close friends of the College's 20-odd ruling administrators, regardless of their qualifications. To make matters worse, no mechanism existed to redress this unfair system. The College's officials were appointed for life, and they named their own successors, also for life.[6,7]

Wakley used *The Lancet* to attack the College's nepotism and patronage. Peter Froggatt, vice chancellor, Queen's University, Belfast, Northern Ireland, noted, "The abscess on the medical body politic required incision: the title *The Lancet* was not idly chosen."[6] In the very first issue, and for many more to come, Wakley published the formal lectures given by the London hospital teachers. By making these lectures public, Wakley threatened the teachers' major source of income and the College's monopolistic authority. Sued 10 times in as many years, Wakley managed to continue publishing the lectures. He carried his fight for reform to Parliament and was elected to the House of Commons in 1835. Wakley's exposure of inadequate education and malpractice within the College led to the enactment of many laws, including the Medical Act of 1858. He also set up a sanitary commission to examine the purity of foods sold in the UK. Wakley's findings of widespread adulteration led to the passage of the Adulteration Act and Sale of Food and Drugs Act.[6-8]

Of course, *The Lancet* was intended to inform as well as reform. *The Lancet* published case reports, updates, medical correspondence, lectures, and society transactions. The consistent high quality of these publications has earned *The*

*Lancet* its current reputation as one of the most important medical journals in the world. Only nine editors have served *The Lancet* in its 160 years of publication, and they must be credited with building and maintaining *The Lancet*'s enviable position. Keep in mind that, primarily, the editors decide what is published in *The Lancet*. However, according to Ian Munro, *The Lancet*'s current editor, about 20 to 25 percent of the submitted manuscripts are sent to outside referees for advice.[9] Remarkably, accepted manuscripts are usually published within 10 weeks of submission.

Many citation analyses indicate *The Lancet*'s preeminence among medical journals. For example, *The Lancet* ranked among the top 10 journals, *regardless* of discipline, in terms of total citations received and average citations per article (impact) in a study based on the 1974 *SCI*.[10] It also routinely appears in studies of the most-cited articles covering various time periods. By highlighting *The Lancet*'s citation classics in this essay, we pay tribute to its excellent publication record.

Table 1 includes the 100 articles from *The Lancet* that were most cited from 1961 to 1982. They are listed in alphabetic order by first author. Column B gives the number of citations each article received during this 22-year period. For papers published before 1961, we've added citations from the 1955-1964 *SCI* cumulation (column A). The number of 1983 citations are shown in column C to give you an idea of how frequently each article is currently cited. These data are followed by full bibliographic information, including the authors' affiliations. Thirty-five articles have already been featured as *Citation Classics* ™ in *Current Contents*® (*CC*®). They are indicated by asterisks. The issue number, year, and edition of *CC* in which the commentary appeared are shown in parentheses after the reference.

Each paper was cited at least 265 times, and the most cited about 1,600 times. Many hundreds of papers published in *The Lancet* over the past 160 years would qualify as *Citation Classics*. Table 2 shows the frequency distribution for 3,200 papers from *The Lancet* that were cited 50 or more times from 1961 to 1982. About 200 papers have been cited at least 200 times.

Six of *The Lancet* articles in this study were published between 1975 and 1979; 43, 1970-1974; 22, 1965-1969; 21, 1960-1964; 7, 1955-1959; and one paper was published in the 1800s.

The oldest classic from *The Lancet* was published in 1896 by G.T. Beatson, Glasgow Cancer Hospital, Scotland. Beatson found that inoperable breast tumors regressed following surgical removal of the ovaries (oophorectomy) and ingestion of thyroid tablets. Despite its age, the paper was cited between 2 and 40 times per year from 1955 to 1982, for a total of about 350 citations. Remarkably, it was cited in 25 publications in 1983. These current citations acknowledge Beatson as the first researcher to suggest that hormones influence the growth of solid tumors.

The two most recent classics from *The Lancet* were both published in 1977. S. Moncada and colleagues, Wellcome Research Laboratories, Beckenham, England, reported the discovery that prostacyclin is generated in human arterial and venous tissue. Prostacyclin inhibits platelet aggregation on the vessel wall and plays an important role in the genesis and treatment of circulatory diseases, including atherosclerosis. In a 1982 *Citation Classic* commentary, Moncada said, "I think prostacyclin has already established itself as an endogenous substance to be 'reckoned with' if one wants to understand platelet/vessel wall interactions. As very often happens, thinking back to that time, I find myself wondering how it happened that prostacyclin was there for so long and nobody saw it before us."[11] Apparently, many researchers are indeed "reckoning with" prostacyclin—the paper was cited about 600 times from 1977 to 1983.

In the other 1977 classic, N.E. Miller and colleagues, University of Tromsø, Norway, detailed the relationship be-

**Table 1:** Most-cited articles from *The Lancet*, 1961-1982 *SCI*®, in alphabetic order by first author. A = 1955-1960 citations. B = 1961-1982 citations. C = 1983 citations. D = bibliographic data. An asterisk (*) indicates articles with published *Citation Classic*™ commentaries. The issue number, year, and edition of *Current Contents*® in which these commentaries appeared are in parentheses.

| A | B | C | D |
|---|---|---|---|
| 122 | 299 | 13 | **Ahrens E H, Insull W, Blomstrand R, Hirsch J, Tsaltas T T & Peterson M L.** The influence of dietary fats on serum-lipid levels in man. *Lancet* 1:943-53, 1957. Rockefeller Inst., New York, NY. |
| | 411 | 31 | ***Alberti K G M M, Christensen N J, Christensen S E, Prange Hansen Aa, Iversen J, Lundbaek K, Seyer-Hansen K & Orskov H.** Inhibition of insulin secretion by somatostatin. *Lancet* 2:1299-301, 1973. Second Univ. Clin. Intern. Med., Kommunehosp., Aarhus, Denmark. (44/82/LS) |
| | 545 | 25 | ***Allison A C, Denman A M & Barnes R D.** Cooperating and controlling functions of thymus-derived lymphocytes in relation to autoimmunity. *Lancet* 2:135-40, 1971. Clin. Res. Ctr., Harrow, England. (24/80/CP) |
| | 344 | 10 | ***Almeida J D, Rubenstein D & Stott E J.** New antigen-antibody system in Australia-antigen-positive hepatitis. *Lancet* 2:1225-7, 1971. Roy. Postgrad. Med. Sch., Dept. Virol., London; Northwick Park Hosp., Clin. Res. Ctr., Harrow, England. (9/83/LS) |
| | 373 | 10 | ***Almeida J D & Waterson A P.** Immune complexes in hepatitis. *Lancet* 2:983-6, 1969. Roy. Postgrad. Med. Sch., Dept. Virol., London, England. (27/80/CP) |
| | 267 | 1 | **Ardeman S & Chanarin I.** A method for the assay of human gastric intrinsic factor and for the detection and titration of antibodies against intrinsic factor. *Lancet* 2:1350-4, 1963. MRC Exptl. Haematol. Res. Unit; St. Mary's Hosp. Med. Sch., London, England. |
| | 268 | 18 | **Ashbaugh D G, Bigelow D B, Petty T L & Levine B E.** Acute respiratory distress in adults. *Lancet* 2:319-23, 1967. Univ. Colorado Med. Ctr., Denver, CO. |
| 4 | 571 | 6 | **Astrup P, Jorgensen K, Andersen O S & Engel K.** The acid-base metabolism: a new approach. *Lancet* 1:1035-9, 1960. Rigshosp., Dept. Clin. Chem., Copenhagen, Denmark. |
| | 317 | 15 | **Baum J K, Holtz F, Bookstein J J & Klein E W.** Possible association between benign hepatomas and oral contraceptives. *Lancet* 2:926-9, 1973. Univ. Michigan Hosp.; St. Joseph Mercy Hosp., Dept. Pathol.; Wayne Cty. Gen. Hosp., Ann Arbor, MI. |
| 51 | 306 | 25 | **Beatson G T.** On the treatment of inoperable cases of carcinoma of the mamma: suggestions for a new method of treatment, with illustrative cases. *Lancet* 2:104-7, 1896. Glasgow Canc. Hosp., Glasgow Western Infirm., Glasgow and Univ. Edinburgh, Edinburgh, Scotland. |
| | 308 | 8 | **Belzer F O, Ashby B S & Dunphy J E.** 24-hour and 72-hour preservation of canine kidneys. *Lancet* 2:536-9, 1967. Univ. California Med. Ctr., San Francisco, CA. |
| | 294 | 19 | **Bishop R F, Davidson G P, Holmes I H & Ruck B J.** Virus particles in epithelial cells of duodenal mucosa from children with acute non-bacterial gastroenteritis. *Lancet* 2:1281-3, 1973. Roy. Child. Hosp., Dept. Gastroenterol.; Univ. Melbourne, Dept. Microbiol., Melbourne, Australia. |
| | 416 | 7 | **Black J W, Crowther A F, Shanks R G, Smith L H & Dornhorst A C.** A new adrenergic beta-receptor antagonist. *Lancet* 1:1080-1, 1964. Imperial Chem. Ind., Ltd., Pharmaceut. Div., Cheshire; St. George's Hosp., Med. Unit, London, England. |
| | 535 | 10 | **Black J W & Stephenson J S.** Pharmacology of a new adrenergic beta-receptor-blocking compound (nethalide). *Lancet* 2:311-4, 1962. Imperial Chem. Ind., Ltd., Pharmaceut. Div., Cheshire, England. |
| | 408 | 24 | **Bloom S R, Mortimer C H, Thorner M O, Besser G M, Hall R, Gomez-Pan A, Roy V M, Russell R C G, Coy D H, Kastin A J & Schally A V.** Inhibition of gastrin and gastric-acid secretion by growth-hormone release-inhibiting hormone. *Lancet* 2:1106-9, 1974. Middlesex Hosp.; St. Bartholomew's Hosp.; St. Mary's Hosp., London; Roy. Victoria Infirm., Newcastle upon Tyne, England; Vet. Admin. Hosp.; Tulane Univ. Sch. Med., New Orleans, LA. |
| | 270 | 12 | **Bloom S R, Polak J M & Pearse A G E.** Vasoactive intestinal peptide and watery-diarrhoea syndrome. *Lancet* 2:14-6, 1973. Middlesex Hosp., Inst. Clin. Res.; Roy. Postgrad. Med. Sch., Dept. Histochem., London, England. |
| | 275 | 13 | **Braithwaite R A, Goulding R, Theano G, Bailey J & Coppen A.** Plasma concentration of amitriptyline and clinical response. *Lancet* 1:1297-300, 1972. Guy's Hosp., Poisons Unit, London; Warlingham Park Hosp., Warlingham; MRC Neuropsychiat. Unit, Carshalton; West Park Hosp., Epsom, England. |

| A | B | C | D |
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| | 494 | 39 | *__Brewerton D A, Hart F D, Nicholls A, Caffrey M, James D C O & Sturrock R D.__ Ankylosing spondylitis and HL-A 27. *Lancet* 1:904-7, 1973. Westminster Hosp., London, England. (29/80/CP) |
| | 380 | 17 | *__Brock D J H & Sutcliffe R G.__ Alpha-fetoprotein in the antenatal diagnosis of anencephaly and spina bifida. *Lancet* 2:197-9, 1972. Univ. Dept. Hum. Gen., Western Gen. Hosp., Edinburgh, Scotland. (16/81/CP) |
| | 357 | 30 | __Bryant M G, Polak J M, Modlin I, Bloom S R, Albuquerque R H & Pearse A G E.__ Possible dual role for vasoactive intestinal peptide as gastrointestinal hormone and neurotransmitter substance. *Lancet* 1:991-3, 1976. Hammersmith Hosp., Roy. Postgrad. Med. Sch., London, England. |
| | 277 | 2 | *__Buckton K E, Jacobs P A, Court Brown W M & Doll R.__ A study of the chromosome damage persisting after X-ray therapy for ankylosing spondylitis. *Lancet* 2:676-82, 1962. MRC Clin. Effects Rad. Res. Unit, Edinburgh, Scotland; Univ. Coll. Hosp. Med. Sch., London, England. (46/82/CP) |
| | 606 | 36 | *__Carlson L A & Bottiger L E.__ Ischaemic heart-disease in relation to fasting values of plasma triglycerides and cholesterol: Stockholm Prospective Study. *Lancet* 1:865-8, 1972. Karolinska Hosp., King Gustaf V Res. Inst., Stockholm; Univ. Uppsala, Dept. Geriat., Uppsala, Sweden. (12/83/LS) |
| | 400 | 17 | *__Collins G M, Bravo-Shugarman M & Terasaki P I.__ Kidney preservation for transportation. *Lancet* 2:1219-22, 1969. Univ. California, Ctr. Hlth. Sci., Los Angeles, CA. (32/80/CP) |
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| | 351 | 3 | *__Coulson A S & Chalmers D G.__ Separation of viable lymphocytes from human blood. *Lancet* 1:468-9, 1964. Univ. Cambridge, Dept. Pathol., Cambridge, England. (35/79/LS) |
| | 543 | 18 | *__Dane D S, Cameron C H & Briggs M.__ Virus-like particles in serum of patients with Australia-antigen-associated hepatitis. *Lancet* 1:695-8, 1970. Middlesex Hosp., Bland-Sutton Inst., London, England. (45/80/CP) |
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| | 267 | 25 | __Fischer J E & Baldessarini R J.__ False neurotransmitters and hepatic failure. *Lancet* 2:75-80, 1971. Massachusetts Gen. Hosp., Depts. Gen. Surg. & Psychiat.; Harvard Med. Sch., Boston, MA. |
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| | 426 | 28 | **Franciosa J A, Guiha N H, Limas C J, Rodriguera E & Cohn J N.** Improved left ventricular function during nitroprusside infusion in acute myocardial infarction. *Lancet* 1:650-4, 1972. Vet. Admin. Hosp., Hypertens. Clin. Hemodynam. Sect.; Georgetown Univ. Sch. Med., Washington, DC. |
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| | 629 | 83 | ***Giblett E R, Anderson J E, Cohen F, Pollara B & Meuwissen H J.** Adenosine-deaminase deficiency in two patients with severely impaired cellular immunity. *Lancet* 2:1067-9, 1972. King Cty. Cent. Blood Bank, Inc., Seattle, WA; Child. Hosp. Michigan and Wayne State Univ., Dept. Pediat., Detroit, MI; Albany Med. Coll., Dept. Pediat.; State NY Dept. Hlth., Kidney Dis. & Birth Defects Insts., Albany, NY. (22/82/CP) |
| | 327 | 44 | **Giblett E R, Ammann A J, Sandman R, Wara D W & Diamond L K.** Nucleoside-phosphorylase deficiency in a child with severely defective T-cell immunity and normal B-cell immunity. *Lancet* 1:1010-3, 1975. King Cty. Cent. Blood Bank, Inc., Seattle, WA; Univ. California, San Francisco Med. Ctr., San Francisco, CA. |
| | 380 | 19 | **Gocke D J, Morgan C, Lockshin M, Hsu K, Bombardieri S & Christian C L.** Association between polyarteritis and Australia antigen. *Lancet* 2:1149-53, 1970. Columbia Univ., Coll. Physn. Surg., New York, NY. |
| 32 | 292 | 3 | ***Gordon R S.** Exudative enteropathy: abnormal permeability of the gastrointestinal tract demonstrable with labelled polyvinylpyrrolidone. *Lancet* 1:325-6, 1959. US Publ. Hlth. Serv., NHI, Bethesda, MD. (13/81/CP) |
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| | 285 | 14 | **Hall R, Schally A V, Evered D, Kastin A J, Mortimer C H, Tunbridge W M G, Besser G M, Coy D H, Goldie D J, McNeilly A S, Phenekos C & Weightman D.** Action of growth-hormone-release inhibitory hormone in healthy men and in acromegaly. *Lancet* 2:581-4, 1973. Roy. Victoria Infirm., Dept. Med., Newcastle upon Tyne; St. Bartholomew's Hosp., Med. Prof. Unit & Dept. Chem. Pathol., London, England; Vet. Admin. Hosp., Dept. Med.; Tulane Univ. Sch. Med., New Orleans, LA. |
| | 394 | 32 | **Hill M J, Drasar B S, Aries V, Crowther J S, Hawksworth G & Williams R E O.** Bacteria and aetiology of cancer of large bowel. *Lancet* 1:95-100, 1971. St. Mary's Hosp. Med. Sch., London, England. |
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| | 317 | 27 | **Hoover R & Fraumeni J F.** Risk of cancer in renal-transplant recipients. *Lancet* 2:55-7, 1973. NIH, NCI, Bethesda, MD. |
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| | 314 | 4 | **Johansson S G O.** Raised levels of a new immunoglobulin class (IgND) in asthma. *Lancet* 2:951-3, 1967. Univ. Hosp., Blood Ctr., Uppsala, Sweden. |
| | 279 | 7 | ***Johansson S G O, Mellbin T & Vahlquist B.** Immunoglobulin levels in Ethiopian preschool children with special reference to high concentrations of immunoglobulin E (IgND). *Lancet* 1:1118-21, 1968. Univ. Hosp., Dept. Pediat. & |

| A | B | C | D |
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| | | | Blood Ctr., Uppsala, Sweden.; Child. Nutr. Unit, Addis Ababa, Ethiopia. (50/81/CP) |
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| | 293 | 10 | **Kakkar V V, Corrigan T, Spindler J, Fossard D P, Flute P T, Crellin R Q, Wessler S & Yin E T.** Efficacy of low doses of heparin in prevention of deep-vein thrombosis after major surgery. *Lancet* 2:101-6, 1972. King's Coll. Hosp. Med. Sch., London, England; Jewish Hosp. St. Louis, Dept. Med.; Washington Univ. Sch. Med., St. Louis, MO. |
| 0 | 331 | 14 | ***Kissmeyer-Nielsen F, Olsen S, Posborg Petersen V & Fjeldborg O.** Hyperacute rejection of kidney allografts, associated with pre-existing humoral antibodies against donor cells. *Lancet* 2:662-5, 1960. Aarhus Kommunehosp., Blood Bank Blood Grp. Lab.; Univ. Aarhus, Depts. Pathol. & Intern. Med., Aarhus, Denmark. (23/81/CP) |
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| | 377 | 25 | **Lassen N A, Lindbjerg J & Munck O.** Measurement of blood-flow through skeletal muscle by intramuscular injection of xenon-133. *Lancet* 1:686-9, 1964. Bispebjerg Hosp., Dept. Clin. Physiol.; Glostrup Hosp., Dept. Clin. Physiol. & Med. Dept. C, Copenhagen, Denmark. |
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| | 430 | 14 | ***Marbrook J.** Primary immune response in cultures of spleen cells. *Lancet* 2:1279-81, 1967. Walter and Eliza Hall Inst. Med. Res., Melbourne, Australia. (11/81/LS) |
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| | 298 | 16 | **Miettinen M, Turpeinen O, Karvonen M J, Elosuo R & Paavilainen E.** Effect of cholesterol-lowering diet on mortality from coronary heart-disease and other causes. *Lancet* 2:835-8, 1972. Coll. Vet. Med., Dept. Biochem.; Inst. Occup. Hlth., Helsinki; Kellokoski Hosp., Kellokoski; Nikkila Hosp., Nikkila, Finland. |
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| | 454 | 60 | **Miller N E, Forde O H, Thelle D S & Mjos O D.** The Tromso heart-study. High-density lipoprotein and coronary heart disease: a prospective case-control study. *Lancet* 1:965-8, 1977. Univ. Tromso, Insts. Clin. Med., Commun. Med. & Med. Biol., Tromso, Norway. |
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| A | B | C | D |
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tween coronary heart disease and plasma levels of high-density lipoprotein (HDL). The paper was cited more than 500 times from 1977 to 1983. While at the Royal Infirmary, Edinburgh, Scotland, Miller also coauthored the third most-cited paper in Table 1 with his brother, G.J. Miller, Llandough Hospital, Penarth, Wales. They discovered an inverse relationship between coronary heart disease and HDL. This finding suggested that HDL is involved in the removal of cholesterol from tissues and the retardation of atherosclerosis. G.J. Miller commented on *The Lancet* editors' reactions to this 1975 work: "I sent my ideas to my brother Norman.... He strengthened the argument considerably and we completed the manuscript over a weekend. Several weeks later I sat at my desk facing the rejected manuscript—returned with apologies. Somewhat bewildered, I was urged by colleagues to seek the editor's advice. To my delight,

**Table 2:** Frequency distribution of highly cited articles appearing in *The Lancet*, 1961-1982. A = number of citations. B = number of articles receiving that number of citations. C = percent of articles examined (n = 3224).

| A | B | C |
|---|---|---|
| ⩾ 500 | 17 | .5 |
| 400-499 | 17 | .5 |
| 350-399 | 16 | .5 |
| 300-349 | 25 | .8 |
| 250-299 | 37 | 1.1 |
| 200-249 | 81 | 2.5 |
| 150-199 | 197 | 6.1 |
| 100-149 | 559 | 17.3 |
| 75-99 | 755 | 23.4 |
| 50-74 | 1520 | 47.1 |

he recalled the paper, reconsidered his decision, and accepted in little more than 24 hours!"[12] Interestingly, several other authors have noted that their manuscripts were initially rejected and later accepted by the editors. Perhaps because they don't exclusively rely on outside referees as the final authority, *The Lancet*'s editors can exercise the freedom to change their opinions. Of course, an editor of a refereed journal may also choose to do so, but at the risk of losing the services of strong referees.

It is interesting that several of *The Lancet* classics are letters to the editor. These include the most-cited classic, by Marina Seabright, Salisbury General Hospital, Wiltshire, England, which will be discussed in detail later. The important role that letters to the editor play in the progress of science can be seen in an article-by-article citation analysis of journals. For example, Table 3 gives data on the number of *The Lancet* items published in 1977; the number that were cited from 1977 to 1982; the number of 1977-1982 citations they received; cited impact; and total impact. Similar data for the *New England Journal of Medicine* (*NEJM*) are provided for comparison. Total impact is calculated here by simply dividing 1977-1982 citations by the number of 1977 source items. Cited impact is the quotient of 1977-1982 citations divided by *cited* 1977 items.

As you can see, most of the items that *The Lancet* and *NEJM* have published are letters. About 68 percent of *The Lancet*'s letters were cited, compared with 41 percent for *NEJM* letters. The average letter in *The Lancet* was cited about four times from 1977 to 1982, twice as often as the average *NEJM* letter. About 94 percent of *The Lancet*'s 1977 articles were cited at least once during this six-year period, slightly less than the 97 percent citation rate for *NEJM* articles. The average article from *The Lancet* had a six-year impact of 33, compared with 54 for *NEJM*. Of course, definitions for "articles" are not always consistent between journals, and they may include several different types of publications.

The authors of *The Lancet* classics in this study come from 17 countries. Table 4 lists their national affiliations, in order of the number of papers from each country (column A). Also shown is the number of multinational collaborations each nation's authors were involved in, and the national affiliations of the coauthors. For example, 54 papers listed UK authors. Of these, seven were coauthored with researchers from Austria, Belgium, Denmark, Federal Republic of Germany (FRG), Switzerland, and the US. Forty-seven papers listed *only* UK authors.

The figures in Table 4 and other data confirm that *The Lancet* is an international forum for medical research. For example, we created a country-by-country file that detailed the national affiliations of authors in the 1978 *SCI*. Our analysis of Latin-American research[13] was based on that file. Of the 2,300 source items *The Lancet* published in 1978, 49 percent listed first authors based in the UK. The US accounted for 20 percent; Europe and Scandinavia combined for 19 percent; Third World nations, 3 percent; and Canada, Australia, New Zealand, and Japan accounted for the bulk of the remaining 8 percent. Many journals claim to be international in scope and circulation. It would be interesting to identify the truly international research journals by examining which nations' research they publish. Of course, the nationalities of the *citing* au-

**Table 3:** Article-by-article analysis of 1977 *The Lancet* and *New England Journal of Medicine* source items and their citations from 1977-1982. *SCI*®. A=number published in 1977. B=number that were cited from 1977 to 1982. C=percent citedness (B/A). D=number of 1977-1982 citations. E=cited impact (D/B). F=total impact (D/A).

*The Lancet*

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| All Items | 3149 | 1937 | 61.5 | 26,586 | 13.7 | 8.4 |
| Articles | 506 | 473 | 93.5 | 16,785 | 35.5 | 33.2 |
| Letters | 2069 | 1401 | 67.7 | 9043 | 6.5 | 4.4 |
| Notes | 149 | 36 | 24.2 | 663 | 18.4 | 4.4 |
| Rest* | 425 | 27 | 6.4 | 95 | 3.5 | 0.2 |

*New England Journal of Medicine*

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| All Items | 1772 | 1054 | 59.5 | 26,141 | 24.8 | 14.8 |
| Articles | 379 | 369 | 97.4 | 20,464 | 55.5 | 54.0 |
| Letters | 1103 | 457 | 41.4 | 2104 | 4.6* | 1.9 |
| Notes | 4 | 4 | 100.0 | 10 | 2.5 | 2.5 |
| Rest* | 286 | 224 | 78.3 | 3563 | 15.9 | 12.5 |

*Includes corrections, editorials, meeting reports, obituaries, reviews, etc.

thors are another factor to consider in determining whether or not a journal is international in impact. Such a study of international journals might turn up a few surprises.

As noted here, the most-cited classic from *The Lancet* is a 1971 letter from Seabright. She described a method for banding human chromosomes using trypsin. In a *Citation Classic* commentary on this letter, Seabright explained, "The immediate application was to determine the location of break points in naturally occurring chromosome rearrangements...in patients with congenital defects, and to study the lesions and patterns of exchange induced by X-irradiation."[14] The method is now used in routine cytogenetic investigations. It was cited more than 1,600 times from 1971 to 1983.

The second most-cited classic was by A.St.G. Huggett, University of London, and D.A. Nixon, St. Mary's Hospital Medical School, London, England. They described a method for determining glucose levels in blood and urine using a fungal oxidase preparation. Unfortunately, both authors had died before we were able to contact them about writing a *Citation Classic* commentary. However, their wives were kind enough to comment on the work. Marion Nixon and Helen Huggett wrote, "It is very sad that neither Professor Huggett, FRS, nor Dr. D.A. Nixon is alive to learn of...this *Citation Classic*. By the mid-1960s, both men realised that the paper was often referred to.... The frequent citation of this paper is not difficult to understand for it provided a method [that] has had widespread daily use in clinical medicine."[15] This paper received more than 1,300 citations from 1957 to 1983.

In closing, I'd like to invite the authors listed in Table 1 to submit *Citation Classic* commentaries if they have not done so already. When the original authors are not available, we welcome commentaries by their colleagues, former students, and anyone else who has something relevant to say about their work. These commentaries are valued for the personal and anecdotal background they provide on high-impact research. The humor, frustration, and serendipity of the research process rarely find expression in the dry and impersonal publi-

**Table 4:** Geographic areas represented by the 100 most-cited papers published in *The Lancet*, listed in descending order of the number of papers produced. A=number of papers. B=number of multinational collaborations. C=nationality of collaborators.

| Country | A | B | C |
|---|---|---|---|
| United Kingdom | 54 | 7 | Austria, Belgium, Denmark, FRG, Switzerland, US |
| England | 44 | | |
| Scotland | 7 | | |
| Northern Ireland | 2 | | |
| Wales | 1 | | |
| United States | 32 | 7 | Austria, Belgium, Denmark, FRG, Switzerland, UK |
| Denmark | 7 | 1 | Austria, Belgium, FRG, Switzerland, UK, US |
| Sweden | 6 | 2 | Ethiopia, South Africa |
| Australia | 4 | 0 | |
| Norway | 2 | 0 | |
| South Africa | 2 | 1 | Sweden |
| Austria | 1 | 1 | Belgium, Denmark, FRG, Switzerland, UK, US |
| Belgium | 1 | 1 | Austria, Denmark, FRG, Switzerland, UK, US |
| Ethiopia | 1 | 1 | Sweden |
| Federal Republic of Germany | 1 | 1 | Austria, Belgium, Denmark, Switzerland, UK, US |
| Finland | 1 | 0 | |
| France | 1 | 0 | |
| New Zealand | 1 | 0 | |
| Nigeria | 1 | 0 | |
| Switzerland | 1 | 1 | Austria, Belgium, Denmark, FRG, UK, US |
| USSR | 1 | 0 | |

cations that usually are the final product. This public call for *Citation Classic* commentaries will be followed up with letters to the individual authors involved. In future essays, we'll identify and discuss the classics published in other leading journals.

* * * * *

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