

## Current Comments®

### 101 Citation Classics from *Annals of Internal Medicine*

Number 47

November 19, 1984

Recently we identified *Citation Classics*™ from the leading journals of medicine. The first two essays in this series focused on the *New England Journal of Medicine*<sup>1</sup> and *The Lancet*.<sup>2</sup> For this essay, we've identified 101 papers from *Annals of Internal Medicine* using *Science Citation Index*® (SCI®) data from 1961 to 1982.

*Annals of Internal Medicine* is published by the American College of Physicians, which is headquartered in Philadelphia. The College had launched several medical journals that, in effect, were predecessors of *Annals of Internal Medicine*. In 1920, the College published *Annals of Medicine* in association with the American Congress on Internal Medicine. Only four numbers of this journal were issued before it ceased publication due to financial difficulties. *Annals of Clinical Medicine*, the College's second journal, was started in 1922. Publication priority was given to papers presented at the Annual Sessions of the College. As a result, other authors were reluctant to submit manuscripts to the journal, and issues were delayed and published irregularly. The College's Board of Regents also was unhappy with its publisher's contract and decided to publish a journal under the College's direct control. The first issue of this new journal, *Annals of Internal Medicine*, which hereafter I will simply call *Annals*, appeared in July 1927.<sup>3</sup>

In its 57-year history, *Annals* has been served by only five editors, each of whom has made significant contribu-

tions to the journal's development and current prestige. Alfred Scott Warthin, the first editor, defined the journal's goals and purposes: "It is not the intention of the editor to make of the *Annals* an ultra-scientific journal directed chiefly to the publication of new experimental investigations, but rather to make of it a practical scientific medium giving to practicing physicians in a concise and usable form the information they should possess as to the new advances and discoveries in the field of internal medicine. It should serve the general practitioners as an index of the progress of the internist's science."<sup>3</sup>

The second editor, Carl V. Weller, helped reduce publication costs by making changes in the style and format of *Annals*. The third editor, Maurice C. Pincoffs, served the journal during the depression of the 1930s and 1940s before retiring in 1960. Pincoffs established the criteria for selecting articles to publish in *Annals*. He also decided to publish transcripts of the National Institutes of Health (NIH) clinical staff conferences as a regular feature. These summaries of research projects were more current and less formal than review articles of the time. J. Russell Elkinton, the fourth editor of *Annals*, developed a peer review system that is still in use today. Elkinton also added the Letters and Comments section to provide readers a forum for communication.<sup>3</sup>

Edward J. Huth, the fifth and present editor, assumed his duties in 1971. In the past 13 years, Huth has also served as a

national chairman of the Council of Biology Editors and editor of the Council's style manual. In 1981, the American Medical Writers Association presented Huth with the Harold Swanberg Distinguished Service Award for "unusual and distinguished services to the medical profession." In 1982, ISI Press® published *How to Write and Publish Papers in the Medical Sciences* by Huth, which I described recently.<sup>4</sup>

Under Huth's tenure as editor, *Annals* has almost doubled its circulation, from just over 50,000 in 1970 to more than 90,000 today. Subscribers in the US and Canada account for about 90 percent of the current circulation, but circulation outside North America is close to 10,000. In addition, the number of manuscripts submitted to the journal has also sharply increased. In the early 1930s, an average of 235 manuscripts was submitted each year, compared to more than 2,000 in recent years. *Annals* is able to publish only about 12 percent of these submissions. Each paper is reviewed by Huth and one or more of *Annals'* eight part-time editors. Manuscripts that pass this initial review are sent to several outside referees for final evaluation.<sup>3</sup>

Various indicators show that *Annals* is one of the most important medical journals in the world today. For example, Max D. Miller, Medical College of Georgia, Augusta, recently surveyed several hundred members of the Society of Teachers of Family Medicine. He asked them to identify the top 10 of more than 80 medical journals. The respondents were asked to judge the journals on two points: those in which they would most like to be published and those in which they would expect to find the most important material for educators of family physicians. *Annals* ranked fifth among the top 10 journals. The other nine journals, ranked in descending order, are *Journal of Family Practice*, *New England Journal of Medicine*, *American Family Physician*, *Journal of the American Medical Association*, *Journal of Medical Education*, *Postgraduate Medi-*

*cine*, *Patient Care*, *Continuing Education for the Family Physician*, and *The Lancet*.<sup>5</sup>

ISI®'s citation data confirm these subjective ratings of importance and prestige for *Annals*. In the 1982 *Journal Citation Reports*® (*JCR*™), volume 14 of *SCI, Annals* ranked 44th out of more than 4,100 journals in terms of the number of 1982 citations it received, regardless of discipline. More significantly, in terms of impact, or the number of times the average article is cited, *Annals* ranked 61st.

Table 1 lists the 101 articles from *Annals* that were most cited from 1961 to 1982 in alphabetic order by first author. The number of citations each article received during this 22-year period is given in column B. Column A shows additional citations from the 1955-1964 *SCI* cumulation for those papers published before 1961. To give you an idea of the current citation frequency for each article, 1983 citations are listed in column C. Full bibliographic information is provided, including the authors' affiliations. The twelve papers with asterisks have already been featured as *Citation Classics*.

Each paper received at least 149 citations—the most cited, 740. The 101 papers in Table 1 represent one-tenth of the 1,100 *Annals* papers cited at least 50 times from 1961 to 1982. (See Table 2.)

Sixteen of the citation classics were published between 1975 and 1979, 32 in 1970-1974, 31 in 1965-1969, 15 in 1960-1964, and 7 in 1959 or earlier. The oldest paper was published in 1948 by William B. Wartman and Herman K. Hellerstein, Case Western Reserve University and University Hospitals of Cleveland, Ohio. The paper provides exhaustive data on the incidence of various types of heart disease—hypertensive, rheumatic, coronary artery, and so on—in 2,000 consecutive autopsies. The paper was cited 185 times from 1955 to 1982—12 times in 1983.

The two most recent papers were published in 1979. Both were identified in our 1982 study of most-cited 1979 papers.<sup>6</sup> Hans R. Brunner, Centre Hos-

pitalier Universitaire, Lausanne, Switzerland, and colleagues assessed the ability of captopril, an inhibitor of the angiotensin-converting enzyme, to lower the blood pressure of patients with hypertension. The authors found "that chronic inhibition of the angiotensin-converting enzyme with [captopril] offers a new, efficient, and well-tolerated approach to the treatment of hypertension." The paper received 213 citations from 1979 to 1982. It was cited in 33 articles in 1983.

The other 1979 *Annals* paper was authored by William B. Kannel, NIH, Bethesda, Maryland, and colleagues. The authors examined the risks of developing atherosclerotic disease that are associated with cholesterol. In particular, they focused on the four different fractions of lipoproteins that are involved in the transport of cholesterol through the blood. These lipoprotein fractions are defined by very-low-density, intermediary-density, low-density, and high-density. Previous research tended to consider only the serum total cholesterol, not the portions of cholesterol in each lipoprotein fraction. Investigators now think that each lipoprotein fraction by itself can contribute to the risk of coronary heart disease. The authors pointed out, "A relatively large amount of cholesterol in the low-density lipoprotein fraction is atherogenic, whereas that in the high-density fraction appears protective.... The previous position that virtually all of the lipid information pertaining to coronary heart disease resided in the serum total cholesterol must be accordingly modified." The paper was cited 171 times from 1979 to 1982, and 58 times in 1983.

Kannel and colleagues authored four additional papers on cholesterol, lipoproteins, and heart disease. Their 1971 *Annals* paper, in fact, is the second-most-cited paper. In a *Citation Classic* commentary on this paper, Kannel observed, "Knowledge of the lipoprotein transport does enhance risk assessment since the serum total cholesterol reflects

chiefly the atherogenic LDL-cholesterol component but fails to take into account the protective HDL-cholesterol fraction reflecting removal of cholesterol."<sup>7</sup> This paper was cited 683 times from 1971 to 1983. Taken together, all five papers by Kannel and colleagues were cited in more than 1,800 publications through 1983.

The most-cited *Annals* paper was published in 1970 by Vincent T. DeVita and colleagues, NIH. The authors reported their success in treating patients suffering from advanced Hodgkin's disease with combination chemotherapy. They used four different drugs in full doses, expecting that the drugs would have greater antitumor effects when combined than alone. The combination chemotherapy was administered in 28-day cycles for six months. In a *Citation Classic* commentary, DeVita said, "Although it doesn't seem so now, these were all radical ideas. The intensity and duration of treatment and the use of drugs in combination were not medically sanctioned approaches to the treatment of any disease at the time.... The results...were dramatically different from those previously possible with older approaches.... A 10-year follow-up report has shown that 66 percent of all patients who achieved remission have not developed tumor recurrences. We think these patients are rightfully considered cured of their disease."<sup>8</sup> The combination chemotherapy developed by the authors is now the standard drug regimen used for the treatment of advanced Hodgkin's disease and is used routinely as outpatient therapy. The paper was cited 740 times from 1970 to 1982, and 35 times in 1983.

Two Nobel laureates appear in Table 1—Baruch S. Blumberg and F. Macfarlane Burnet. Blumberg and colleagues, Institute of Cancer Research, Fox Chase Cancer Center, Philadelphia, wrote a 1967 paper in *Annals* that has since become a landmark in its field. In a *Citation Classic* commentary, Blumberg observed, "This is the first paper in which it

**Table 1:** Most-cited articles from *Annals of Internal Medicine*, 1961-1982 *SCJ*<sup>®</sup>, in alphabetic order by first author. Asterisks (\*) indicate articles with *Citation Classics*<sup>™</sup> commentaries. The issue number, year, and edition of *CC*<sup>®</sup> in which these commentaries appeared are in parentheses. A=1955-1960 citations. B=1961-1982 citations. C=1983 citations. D=bibliographic data.

A	B	C	D
158	5		<b>Alter H J, Holland P V, Purcell R H, Lander J J, Feinstone S M, Morrow A G &amp; Schmidt P J.</b> Posttransfusion hepatitis after exclusion of commercial and hepatitis-B antigen-positive donors. <i>Ann. Intern. Med.</i> 77:691-9, 1972. NIH, Clin. Ctr., NIAID & NHLI, Bethesda, MD.
202	30		<b>Austrian R &amp; Gold J.</b> Pneumococcal bacteremia with especial reference to bacteremic pneumococcal pneumonia. <i>Ann. Intern. Med.</i> 60:759-76, 1964. SUNY, Downstate Med. Ctr.; Kings Cty. Hosp., Med. Serv., Brooklyn, NY; Univ. Pennsylvania, Sch. Med., Philadelphia, PA.
236	18		<b>Bagley C M, DeVita V T, Bernard C W &amp; Canellos G P.</b> Advanced lymphosarcoma: intensive cyclical combination chemotherapy with cyclophosphamide, vincristine, and prednisone. <i>Ann. Intern. Med.</i> 76:227-34, 1972. NIH, NCI, Bethesda, MD.
197	14		<b>Baldwin D S, Lowenstein J, Rothfield N F, Gallo G &amp; McCluskey R T.</b> The clinical course of the proliferative and membranous forms of lupus nephritis. <i>Ann. Intern. Med.</i> 73:929-42, 1970. NYU, Med. Ctr.; Bellevue Hosp., New York, NY.
480	50		<b>Blum R H &amp; Carter S K.</b> Adriamycin. <i>Ann. Intern. Med.</i> 80:249-59, 1974. NIH, NCI, Bethesda, MD.
479	15		<b>*Blumberg B S, Gerstley B J S, Hungerford D A, London W T &amp; Sutnick A I.</b> A serum antigen (Australia antigen) in Down's syndrome, leukemia, and hepatitis. <i>Ann. Intern. Med.</i> 66:924-31, 1967. Inst. Cancer Res., Fox Chase Cancer Ctr., Philadelphia, PA. (28/83/LS)
181	1		<b>*Bluming A Z, Vogel C L, Ziegler J L, Mody N &amp; Kamya G.</b> Immunological effects of BCG in malignant melanoma: two modes of administration compared. <i>Ann. Intern. Med.</i> 76:405-11, 1972. Uganda Cancer Inst., Solid Tumor Ctr.; Makerere Univ., Med. Sch., Kampala, Uganda. (31/84/CP)
428	28		<b>*Bodey G P, Buckley M, Sathe Y S &amp; Freireich E J.</b> Quantitative relationships between circulating leukocytes and infection in patients with acute leukemia. <i>Ann. Intern. Med.</i> 64:328-40, 1966. NIH, NCI, Bethesda, MD. (36/81/CP)
320	23		<b>*Braunstein G D, Vaitukaitis J L, Carbone P P &amp; Ross G T.</b> Ectopic production of human chorionic gonadotropin by neoplasms. <i>Ann. Intern. Med.</i> 78:39-45, 1973. NIH, NICHD & NCI, Bethesda, MD. (43/83/CP)
149	1		<b>Breen F A &amp; Tullis J L.</b> Ethanol gelation: a rapid screening test for intravascular coagulation. <i>Ann. Intern. Med.</i> 69:1197-206, 1968. N. Engl. Deaconess Hosp., Dept. Med; Blood Res. Inst., Inc., Cytol. Lab., Boston, MA.
266	3		<b>Brown R S, Haynes H A, Foley H T, Godwin H A, Bernard C W &amp; Carbone P P.</b> Hodgkin's disease. <i>Ann. Intern. Med.</i> 67:291-302, 1967. NIH, NCI, Bethesda, MD.
213	33		<b>Brunner H R, Gavras H, Waeber B, Kershaw G R, Turini G A, Vukovich R A, McKinstry D N &amp; Gavras I.</b> Oral angiotensin-converting enzyme inhibitor in long-term treatment of hypertensive patients. <i>Ann. Intern. Med.</i> 90:19-23, 1979. Ctr. Hosp. Univ., Dept. Med., Lausanne, Switzerland; Boston City Hosp., Thorndike Mem. Labs., MA.
159	7		<b>Cherubin C E.</b> The medical sequelae of narcotic addiction. <i>Ann. Intern. Med.</i> 67:23-33, 1967. Metropolitan Med. Ctr., NY Med. Coll., NY.
235	10		<b>Chiang B N, Perlman L V, Ostrander L D &amp; Epstein F H.</b> Relationship of premature systoles to coronary heart disease and sudden death in the Tecumseh epidemiologic study. <i>Ann. Intern. Med.</i> 70:1159-66, 1969. Univ. Michigan, Sch. Publ. Hlth., Ann Arbor, MI.
178	32		<b>Crystal R G, Fulmer J D, Roberts W C, Moss M L, Line B R &amp; Reynolds H Y.</b> Idiopathic pulmonary fibrosis. <i>Ann. Intern. Med.</i> 85:769-88, 1976. NIH, NHLBI, Bethesda, MD.
740	35		<b>*DeVita V T, Serpick A A &amp; Carbone P P.</b> Combination chemotherapy in the treatment of advanced Hodgkin's disease. <i>Ann. Intern. Med.</i> 73:881-95, 1970. NIH, NCI, Bethesda & NCI, Baltimore, MD. (12/79/CP)
189	8		<b>Doherty J E, Perkins W H &amp; Flanagan W J.</b> The distribution and concentration of tritiated digoxin in human tissues. <i>Ann. Intern. Med.</i> 66:116-24, 1967. Vet. Admin. Hosp.; Univ. Arkansas, Sch. Med., Little Rock, AR.
154	1		<b>Duncan D A, Drummond K N, Michael A F &amp; Vernier R L.</b> Pulmonary hemorrhage and glomerulonephritis. <i>Ann. Intern. Med.</i> 62:920-38, 1965. Univ. Minnesota Hosps., Minneapolis, MN.

- | A   | B  | C  | D |
|-----|----|--|---|
| 213 | 13 | *Edelson R L, Kirkpatrick C H, Shevach E M, Schein P S, Smith R W, Green I & Lutzner M. Preferential cutaneous infiltration by neoplastic thymus-derived lymphocytes. <i>Ann. Intern. Med.</i> 80:685-92, 1974. NIH, NCI & NIAID, Bethesda, MD. (14/84/CP)   |   |
| 253 | 74 | Einhorn L H & Donohue J. Cis-diamminedichloroplatinum, vinblastine, and bleomycin combination chemotherapy in disseminated testicular cancer. <i>Ann. Intern. Med.</i> 87:293-8, 1977. Indiana Univ., Med. Ctr., Indianapolis, IN.   |   |
| 160 | 8  | Ellis C A & Splivack M L. The significance of candidemia. <i>Ann. Intern. Med.</i> 67:511-22, 1967. Boston Vet. Admin. Hosp., Pulm. Infect. Dis. Sect., MA.  |   |
| 248 | 6  | Epstein F H, Ostrander L D, Johnson B C, Payne M W, Hayner N S, Keller J B & Francis T. Epidemiological studies of cardiovascular disease in a total community—Tecumseh, Michigan. <i>Ann. Intern. Med.</i> 62:1170-87, 1965. Univ. Michigan, Sch. Publ. Hlth. & Med. Sch., Ann Arbor, MI.                       |   |
| 161 | 9  | Epstein S E, Henry W L, Clark C E, Roberts W C, Maron B J, Ferrans V J, Redwood D R & Morrow A G. Asymmetric septal hypertrophy. <i>Ann. Intern. Med.</i> 81:650-80, 1974. NIH, NHLBI, Bethesda, MD.   |   |
| 271 | 41 | Fauci A S, Dale D C & Balow J E. Glucocorticosteroid therapy: mechanisms of action and clinical considerations. <i>Ann. Intern. Med.</i> 84:304-15, 1976. NIH, NIAID, Bethesda, MD.  |   |
| 232 | 63 | Fauci A S, Haynes B F & Katz P. The spectrum of vasculitis. <i>Ann. Intern. Med.</i> 89:660-76, 1978. NIH, NIAID, Bethesda, MD.  |   |
| 163 | 21 | Franciosa J A, Pierpont G & Cohn J N. Hemodynamic improvement after oral hydralazine in left ventricular failure. <i>Ann. Intern. Med.</i> 86:388-93, 1977. Univ. Minnesota, Med. Sch.; Vet. Admin. Hosp., Minneapolis, MN.  |   |
| 192 | 2  | Hershman J M & Pittman J A. Utility of the radioimmunoassay of serum thyrotrophin in man. <i>Ann. Intern. Med.</i> 74:481-90, 1971. Vet. Admin. Hosp., Metab. Res. & Nucl. Med. Labs.; Univ. Alabama, Sch. Med., Birmingham, AL.   |   |
| 159 | 4  | Hess J W, MacDonald R P, Frederick R J, Jones R N, Neely J & Gross D. Serum creatine phosphokinase (CPK) activity in disorders of heart and skeletal muscle. <i>Ann. Intern. Med.</i> 61:1015-28, 1964. Wayne State Univ., Sch. Med.; Detroit Receiving Hosp.; Harper Hosp., Depts. Med. & Pathol., Detroit, MI. |   |
| 241 | 8  | Hollander J L, McCarty D J, Astorga G & Castro-Murillo E. Studies on the pathogenesis of rheumatoid joint inflammation. I. The "R.A. cell" and a working hypothesis. <i>Ann. Intern. Med.</i> 62:271-80, 1965. Hosp. Univ. Pennsylvania; Hahnemann Univ., Sch. Med. & Hosp., Philadelphia, PA.                   |   |
| 194 | 14 | Holmes K K, Counts G W & Beaty H N. Disseminated gonococcal infection. <i>Ann. Intern. Med.</i> 74:979-93, 1971. Univ. Washington Hosp.; US Publ. Hlth. Serv. Hosp., Dept. Med.; Harborview Med. Ctr., Dept. Med.; Vet. Admin. Hosp., Dept. Med., Seattle, WA.   |   |
| 245 | 0  | Holmes M C & Burnet F M. The natural history of autoimmune disease in NZB mice. <i>Ann. Intern. Med.</i> 59:265-76, 1963. Walter and Eliza Hall Inst. Med. Res., Melbourne, Australia.   |   |
| 197 | 5  | Jose A, Crout J R & Kaplan N M. Suppressed plasma renin activity in essential hypertension. <i>Ann. Intern. Med.</i> 72:9-16, 1970. Univ. Texas, Southwestern Med. Sch., Dallas, TX.   |   |
| 158 | 21 | Kannel W B, Brand N, Skinner J J, Dawber T R & McNamara P M. The relation of adiposity to blood pressure and development of hypertension. <i>Ann. Intern. Med.</i> 67:48-59, 1967. Heart Dis. Epidemiol. Study, Framingham, MA; NIH, NHI, Bethesda, MD.  |   |
| 171 | 58 | Kannel W B, Castelli W P & Gordon T. Cholesterol in the prediction of atherosclerotic disease. <i>Ann. Intern. Med.</i> 90:85-91, 1979. NIH, NHLBI, Bethesda, MD; Heart Dis. Epidemiol. Study, Framingham; Boston Univ., Med. Ctr., MA.  |   |
| 630 | 53 | *Kannel W B, Castelli W P, Gordon T & McNamara P M. Serum cholesterol, lipoproteins, and the risk of coronary heart disease. <i>Ann. Intern. Med.</i> 74:1-12, 1971. Heart Dis. Epidemiol. Study, Framingham, MA; NIH, NHLBI, Bethesda, MD. (29/83/LS)   |   |
| 280 | 17 | Kannel W B, Dawber T R, Friedman G D, Glennon W E & McNamara P M. Risk factors in coronary heart disease. <i>Ann. Intern. Med.</i> 61:888-99, 1964. Heart Dis. Epidemiol. Study, Framingham, MA; NIH, NHI, Bethesda, MD.   |   |
| 424 | 9  | *Kannel W B, Dawber T R, Kagan A, Revotskie N & Stokes J. Factors of risk in the development of coronary heart disease—six-year follow-up experience. <i>Ann. Intern. Med.</i> 55:33-50, 1961. Heart Dis. Epidemiol. Study, Framingham, MA; NIH, NHI, Bethesda, MD. (29/79/CP)                                   |   |

A	B	C	D
201	2	<b>Kass E H.</b> Pyelonephritis and bacteriuria. <i>Ann. Intern. Med.</i> 56:46-53, 1962. Boston City Hosp., Mallory Inst. Pathol., Thorndike Mem. Lab. & Second and Fourth (Harvard) Med. Servs.; Harvard Univ., Med. Sch., Boston, MA.	
260	6	<b>Kelley W N, Greene M L, Rosenbloom F M, Henderson J F &amp; Seegmiller J E.</b> Hypoxanthine-guanine phosphoribosyltransferase deficiency in gout. <i>Ann. Intern. Med.</i> 70:155-206, 1969. NIH, NIAMD, Bethesda, MD.	
34	149	6	<b>Kemper J W, Baggenstoss A H &amp; Slocumb C H.</b> The relationship of therapy with cortisone to the incidence of vascular lesions in rheumatoid arthritis. <i>Ann. Intern. Med.</i> 46:831-51, 1957. Mayo Clin. and Mayo Fdn., Sects. Med. & Pathol. Anat., Rochester, MN.
161	8	<b>Keys A, Aravanis C, Blackburn H, Van Buchem F S P, Buzina R, Djordjevic B S, Fidanza F, Karvonen M J, Menotti A, Puddu V &amp; Taylor H L.</b> Coronary heart disease: overweight and obesity as risk factors. <i>Ann. Intern. Med.</i> 77:15-28, 1972. Univ. Minnesota, Lab. Physiol. Hyg., Minneapolis, MN.	
26	188	10	<b>Keys A, Kimura N, Kuskawa A, Bronte-Stewart B, Larsen N &amp; Keys M H.</b> Lessons from serum cholesterol studies in Japan, Hawaii and Los Angeles. <i>Ann. Intern. Med.</i> 48:83-94, 1958. Univ. Minnesota, Lab. Physiol. Hyg., Minneapolis, MN; Univ. Kyushu, Med. Sch., Fukuoka, Japan.
245	16	<b>Kirkpatrick C H, Rich R R &amp; Bennett J E.</b> Chronic mucocutaneous candidiasis: model-building in cellular immunity. <i>Ann. Intern. Med.</i> 74:955-78, 1971. NIH, NIAID, Bethesda, MD.	
186	0	<b>Kuchel O, Fishman L M, Liddle G W &amp; Michelakis A.</b> Effect of diazoxide on plasma renin activity in hypertensive patients. <i>Ann. Intern. Med.</i> 67:791-9, 1967. Vanderbilt Univ., Sch. Med., Nashville, TN.	
188	8	<b>Kunin C M.</b> A guide to use of antibiotics in patients with renal disease. <i>Ann. Intern. Med.</i> 67:151-8, 1967. Univ. Virginia, Sch. Med., Charlottesville, VA.	
153	2	<b>Kuo P T &amp; Bassett D R.</b> Dietary sugar in the production of hyperglyceridemia. <i>Ann. Intern. Med.</i> 62:1199-212, 1965. Hosp. Univ. Pennsylvania, Philadelphia, PA.	
0	160	2	<b>Lange K, Wasserman E &amp; Slobody L B.</b> The significance of serum complement levels for the diagnosis and prognosis of acute and subacute glomerulonephritis and lupus erythematosus disseminatus. <i>Ann. Intern. Med.</i> 53:636-46, 1960. Metropolitan Med. Ctr., NY Med. Coll., NY.
227	30	<b>Law D K, Dudrick S J &amp; Abdou N I.</b> Immunocompetence of patients with protein-calorie malnutrition. <i>Ann. Intern. Med.</i> 79:545-50, 1973. Univ. Pennsylvania, Sch. Med.; Vet. Admin. Hosp., Philadelphia, PA.	
160	8	<b>Lee J C, Yamauchi H &amp; Hopper J.</b> The association of cancer and the nephrotic syndrome. <i>Ann. Intern. Med.</i> 64:41-51, 1966. Univ. California, Sch. Med., San Francisco, CA.	
49	169	4	<b>Leinwand I, Duryee A W &amp; Richter M N.</b> Scleroderma (based on a study of over 150 cases). <i>Ann. Intern. Med.</i> 41:1003-41, 1954. NYU, Med. Ctr., NY.
193	7	<b>Levitt M D, Rapoport M &amp; Cooperband S R.</b> The renal clearance of amylase in renal insufficiency, acute pancreatitis, and macroamylasemia. <i>Ann. Intern. Med.</i> 71:919-25, 1969. Univ. Minnesota, Med. Ctr., Minneapolis, MN; Boston Univ., Sch. Med. & Univ. Hosp., MA.	
183	7	<b>Levy R I, Fredrickson D S, Shulman R, Bilheimer D W, Breslow J L, Stone N J, Lux S E, Sloan H R, Krauss R M &amp; Herbert P N.</b> Dietary and drug treatment of primary hyperlipoproteinemia. <i>Ann. Intern. Med.</i> 77:267-94, 1972. NIH, NHLBI, Bethesda, MD.	
149	7	<b>Lichtman M A, Miller D R, Cohen J &amp; Waterhouse C.</b> Reduced red cell glycolysis, 2,3-diphosphoglycerate and adenosine triphosphate concentration, and increased hemoglobin-oxygen affinity caused by hypophosphatemia. <i>Ann. Intern. Med.</i> 74:562-8, 1971. Univ. Rochester, Sch. Med. Dent., NY.	
176	0	<b>Lipsett M B, Odell W D, Rosenberg L E &amp; Waldmann T A.</b> Humoral syndromes associated with nonendocrine tumors. <i>Ann. Intern. Med.</i> 61:733-56, 1964. NIH, NCI, Bethesda, MD.	
194	0	<b>London W T, Sutnick A I &amp; Blumberg B S.</b> Australia antigen and acute viral hepatitis. <i>Ann. Intern. Med.</i> 70:55-9, 1969. Inst. Cancer Res., Fox Chase Cancer Ctr., Philadelphia, PA.	
336	12	<b>Louria D B, Hensle T &amp; Rose J.</b> The major medical complications of heroin addiction. <i>Ann. Intern. Med.</i> 67:1-22, 1967. Bellevue Hosp., Second (Cornell) Med. Div.; Cornell Univ., Med. Coll., New York, NY.	
266	42	<b>Lutzner M, Edelson R, Schein P, Green I, Kirkpatrick C &amp; Ahmed A.</b> Cutaneous T-cell lymphomas: the Sezary syndrome, mycosis fungoides, and related disorders. <i>Ann. Intern. Med.</i> 83:534-52, 1975. NIH, NCI, Bethesda, MD.	

- 178 20 \*Maki D G, Goldmann D A & Rhame F S. Infection control in intravenous therapy. *Ann. Intern. Med.* 79:867-87, 1973. US Dept. HEW, Ctrs. Dis. Control, Atlanta, GA.; Boston City Hosp., Harvard Med. Serv., MA. (33/84/CP)
- 283 15 Maroko P R & Braunwald E. Modification of myocardial infarction size after coronary occlusion. *Ann. Intern. Med.* 79:720-33, 1973. Peter Bent Brigham Hosp., Dept. Med.; Harvard Univ., Med. Sch., Boston, MA.
- 150 8 Massry S G, Coburn J W, Lee D B N, Jowsey J & Kleeman C R. Skeletal resistance to parathyroid hormone in renal failure. *Ann. Intern. Med.* 78:357-64, 1973. Cedars-Sinai Med. Ctr., Renal Hypertens. Serv., Med. Res. Inst. & Dept. Med.; Vet. Admin., Dept. Med.; Wadsworth Hosp. Ctr., Dept. Med.; UCLA, Sch. Med., Los Angeles, CA; Mayo Clin. Mayo Fdn., Sect. Orthoped. Res., Rochester, MN.
- 177 6 McCarty D J & Hollander J L. Identification of urate crystals in gouty synovial fluid. *Ann. Intern. Med.* 54:452-60, 1961. Hosp. Univ. Pennsylvania, Philadelphia, PA.
- 267 14 McCarty D J, Kohn N N & Falres J S. The significance of calcium phosphate crystals in the synovial fluid of arthritic patients: the "pseudogout syndrome." *Ann. Intern. Med.* 56:711-37, 1962. Hahnemann Univ., Sch. Med. & Hosp., Philadelphia, PA.
- 194 2 McDowell F, Lee J E, Swift T, Sweet R D, Ogsbury J S & Kessler J T. Treatment of Parkinson's syndrome with L dihydroxyphenylalanine (levodopa). *Ann. Intern. Med.* 72:29-35, 1970. Cornell Univ., Med. Coll.; NY Hosp., NY.
- 227 7 Miller D G. The association of immune disease and malignant lymphoma. *Ann. Intern. Med.* 66:507-21, 1967. Mem. Sloan-Kettering Cancer Ctr., Mem. Hosp. Cancer Allied Dis. & Sloan-Kettering Inst. Cancer Res.; Cornell Univ., Med. Coll., New York, NY.
- 191 2 Miller D G. Patterns of immunological deficiency in lymphomas and leukemias. *Ann. Intern. Med.* 57:703-16, 1962. Mem. Sloan-Kettering Cancer Ctr., Sloan-Kettering Inst. Cancer Res. & Mem. Hosp. Cancer Allied Dis.; James Ewing Hosp., Dept. Med.; Cornell Univ., Med. Coll., New York, NY.
- 170 2 Morton D L, Holmes E C, Eilber F R & Wood W C. Immunological aspects of neoplasia: a rational basis for immunotherapy. *Ann. Intern. Med.* 74:587-604, 1971. NIH, NCI, Bethesda, MD.
- 4 211 3 Nelson D H, Meakin J W & Thorn G W. ACTH-producing pituitary tumors following adrenalectomy for Cushing's syndrome. *Ann. Intern. Med.* 52:560-9, 1960. Harvard Univ., Med. Sch.; Peter Bent Brigham Hosp., Boston, MA.
- 211 31 Notman D D, Kurata N & Tan E M. Profiles of antinuclear antibodies in systemic rheumatic diseases. *Ann. Intern. Med.* 83:464-9, 1975. Scripps Clin. Res. Fdn., Div. Allergy Immunol., La Jolla, CA.
- 149 0 Olson R E. "Excess lactate" and anaerobiosis. *Ann. Intern. Med.* 59:960-2, 1963. Univ. Pittsburgh, Grad. Sch. Publ. Hlth., PA.
- 223 6 Ostrander L D, Francis T, Hayner N S, Kjelsberg M O & Epstein F H. The relationship of cardiovascular disease to hyperglycemia. *Ann. Intern. Med.* 62:1188-98, 1965. Univ. Michigan, Sch. Publ. Hlth., Ann Arbor, MI.
- 159 3 Pendas J P & Erickson R V. Hemodialysis: a successful therapy for chronic uremia. *Ann. Intern. Med.* 64:293-311, 1966. Swedish Hosp., Seattle Artif. Kidney Ctr., Seattle, WA.
- 201 40 Popovich R P, Moncrief J W, Nolph K D, Ghods A J, Twardowski Z J & Pyle W K. Continuous ambulatory peritoneal dialysis. *Ann. Intern. Med.* 88:449-56, 1978. Univ. Texas, Dept. Chem. Eng. & Biomed. Eng. Program; Austin Diagnost. Clin., Dept. Med., TX; Harry S. Truman Vet. Admin. Hosp., Dept. Med.; Univ. Missouri, Med. Ctr., Columbia, MO.
- 6 154 0 Popper H & Schaffner F. Drug-induced hepatic injury. *Ann. Intern. Med.* 51:1230-52, 1959. Mount Sinai Med. Ctr., Mount Sinai Hosp., New York, NY.
- 152 3 Posen S. Alkaline phosphatase. *Ann. Intern. Med.* 67:183-203, 1967. Univ. Sydney, Dept. Med., Australia.
- 178 3 \*Posen S, Neale F C & Clubb J S. Heat inactivation in the study of human alkaline phosphatases. *Ann. Intern. Med.* 62:1234-43, 1965. Univ. Sydney, Dept. Med.; Sydney Hosp., Dept. Biochem., Australia. (17/84/CP)
- 247 6 Prockop D J & Kivirikko K I. Relationship of hydroxyproline excretion in urine to collagen metabolism. *Ann. Intern. Med.* 66:1243-66, 1967. Univ. Pennsylvania, Sch. Med.; Philadelphia Gen. Hosp., PA.
- 186 3 Rifkind D, Faris T D & Hill R B. *Pneumocystis carinii* pneumonia. *Ann. Intern. Med.* 65:943-56, 1966. Univ. Colorado, Med. Ctr.; Vet. Admin. Hosp., Denver, CO.
- 162 4 Rifkind D, Goodman N & Hill R B. The clinical significance of cytomegalovirus infection in renal transplant recipients. *Ann. Intern. Med.* 66:1116-28, 1967. Univ. Colorado, Med. Ctr., Denver, CO.

- 322 25 **Robbins J H, Kraemer K H, Lutzner M A, Festoff B W & Coon H G.** Xeroderma pigmentosum. *Ann. Intern. Med.* 80:221-48, 1974. NIH, NCI, Bethesda, MD.
- 165 22 **Rosen S W, Weintraub B D, Valtukaitis J L, Sussman H H, Hershman J M & Muggla F M.** Placental proteins and their subunits as tumor markers. *Ann. Intern. Med.* 82:71-83, 1975. NIH, NIAMDD, Bethesda, MD.
- 179 12 **Rosenow E C.** The spectrum of drug-induced pulmonary disease. *Ann. Intern. Med.* 77:977-91, 1972. Mayo Clin. and Mayo Fdn., Rochester, MN.
- 187 3 **Rozenecwielg M, Von Hoff D D, Slavik M & Muggla F M.** Cis-diamminedichloroplatinum (II). *Ann. Intern. Med.* 86:803-12, 1977. NIH, NCI, Bethesda, MD.
- 228 17 **Samter M & Beers R F.** Intolerance to aspirin. *Ann. Intern. Med.* 68:975-83, 1968. Univ. Illinois, Coll. Med., Chicago, IL.
- 159 29 **Schein P S, DeVita V T, Hubbard S, Chabner B A, Canellos G P, Berard C & Young R C.** Bleomycin, adriamycin, cyclophosphamide, vincristine, and prednisone (BACOP) combination chemotherapy in the treatment of advanced diffuse histiocytic lymphoma. *Ann. Intern. Med.* 85:417-22, 1976. NIH, NCI, Bethesda, MD.
- 159 16 **Schimpff S C, Greene W H, Young V M, Fortner C L, Jepsen L, Cusack N, Block J B & Wiernik P H.** Infection prevention in acute nonlymphocytic leukemia. *Ann. Intern. Med.* 82:351-8, 1975. Univ. Maryland Hosp., Baltimore, MD.
- 152 1 **Shils M E.** Renal disease and the metabolic effects of tetracycline. *Ann. Intern. Med.* 58:389-408, 1963. Mem. Sloan-Kettering Cancer Ctr., Sloan-Kettering Inst. Cancer Res. & Mem. Hosp. Cancer Allied Dis.; James Ewing Hosp., Dept. Med.; Cornell Univ., Med. Coll., New York, NY.
- 171 9 **Smith J W, Seidl L G & Cluff L E.** Studies on the epidemiology of adverse drug reactions. *Ann. Intern. Med.* 65:629-40, 1966. Johns Hopkins Univ., Sch. Med., Baltimore, MD; Univ. Florida, Coll. Med., Gainesville, FL.
- 197 6 **Spark R F & Melby J C.** Hypertension and low plasma renin activity: presumptive evidence for mineralocorticoid excess. *Ann. Intern. Med.* 75:831-6, 1971. Harvard Univ., Sch. Med.; Beth Israel Hosp.; Boston Univ., Sch. Med. & Univ. Hosp., MA.
- 308 17 **\*Tedesco F J, Barton R W & Alpers D H.** Clindamycin-associated colitis. *Ann. Intern. Med.* 81:429-33, 1974. Washington Univ., Sch. Med., St. Louis, MO. (25/84/CP)
- 250 21 **Thomson P D, Melmon K L, Richardson J A, Cohn K, Steinbrunn W, Cudlhee R & Rowland M.** Lidocaine pharmacokinetics in advanced heart failure, liver disease, and renal failure in humans. *Ann. Intern. Med.* 78:499-508, 1973. Univ. California, Med. Ctr., San Francisco, CA.
- 154 6 **Tong M J, Sun S-C, Schaeffer B T, Chang N-K, Lo K-J & Peters R L.** Hepatitis-associated antigen and hepatocellular carcinoma in Taiwan. *Ann. Intern. Med.* 75:687-91, 1971. USN, Naval Med. Res. Unit No. 2, Depts. Clin. Invest. & Pathol.; Chinese Vet. Gen. Hosp., Depts. Gastroenterol. & Med. Res., Taipei, Taiwan; USC, Sch. Med.; John Wesley Hosp., Los Angeles, CA.
- 163 18 **Waldmann T A, Blaese R M, Broder S & Krakauer R S.** Disorders of suppressor immunoregulatory cells in the pathogenesis of immunodeficiency and autoimmunity. *Ann. Intern. Med.* 88:226-38, 1978. NIH, NCI, Bethesda, MD.
- 182 10 **Waldmann T A, Strober W & Blaese R M.** Immunodeficiency disease and malignancy. *Ann. Intern. Med.* 77:605-28, 1972. NIH, NCI, Bethesda, MD.
- 154 17 **Walzer P D, Perl D P, Krogstad D J, Rawson P G & Schultz M G.** *Pneumocystis carinii* pneumonia in the United States. *Ann. Intern. Med.* 80:83-93, 1974. US Dept. HEW, Ctrs. Dis. Control, Atlanta, GA.
- 28 157 12 **Wartman W B & Hellerstein H K.** The incidence of heart disease in 2,000 consecutive autopsies. *Ann. Intern. Med.* 28:41-65, 1948. Case Western Reserve Univ., Inst. Pathol.; Univ. Hosps. Cleveland, OH.
- 172 3 **Weil M H, Shubin H & Biddle M.** Shock caused by gram-negative microorganisms. *Ann. Intern. Med.* 60:384-400, 1964. USC, Sch. Med.; Los Angeles Cty. Hosp., CA.
- 10 166 0 **Wiener A S, Unger L J, Cohen L & Feldman J.** Type-specific cold auto-antibodies as a cause of acquired hemolytic anemia and hemolytic transfusion reactions: biologic test with bovine red cells. *Ann. Intern. Med.* 44:221-40, 1956. Jewish Hosp. Brooklyn, Div. Immunohematol.; Off. Chief Med. Examiner NYC, Serolog. Lab.; NYU, Med. Ctr., NY.
- 281 16 **Wilson W E C, Kirkpatrick C H & Talmage D W.** Suppression of immunologic responsiveness in uremia. *Ann. Intern. Med.* 62:1-14, 1965. Univ. Colorado, Med. Ctr., Denver, CO.
- 152 12 **Yagoda A, Mukherji B, Young C, Etcubanas E, Lamonte C, Smith J R, Tan C T C & Krakoff I H.** Bleomycin, an antitumor antibiotic. *Ann. Intern. Med.* 77:861-70, 1972. Mem. Sloan-Kettering Cancer Ctr., Sloan-Kettering Inst. Cancer Res. & Mem. Hosp. Cancer Allied Dis., New York, NY.



<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
7	256	2	<b>*Zieve L.</b> Jaundice, hyperlipemia and hemolytic anemia: a heretofore unrecognized syndrome associated with alcoholic fatty liver and cirrhosis. <i>Ann. Intern. Med.</i> 48:471-96, 1958. Vet. Admin. Hosp., Dept. Med. & Radioisotope Serv.; Univ. Minnesota, Minneapolis, MN. (39/83/CP)
190	35		<b>Zwilllich C W, Sutton F D, Neff T A, Cohn W M, Matthay R A &amp; Weinberger M M.</b> Theophylline-induced seizures in adults. <i>Ann. Intern. Med.</i> 82:784-7, 1975. Univ. Colorado, Med. Ctr. & Univ. Hosps., Denver, CO.

**Table 2:** Frequency distribution of highly cited articles in *Annals of Internal Medicine*, 1961-1982 *SCIT*<sup>9</sup>. A = number of citations. B = number of articles receiving that number of citations. C = percent of articles examined (n = 1098).

A	B	C
≥ 500	2	.2
400-499	4	.4
300-399	4	.4
250-299	11	1.0
200-249	19	1.7
150-199	57	5.2
100-149	181	16.5
75-99	259	23.6
50-74	561	51.1

**Table 3:** Geographic areas represented by the 101 most-cited articles published in *Annals of Internal Medicine*, 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 States	97	3	Japan, Switzerland, Taiwan
Maryland	31		
Massachusetts	14		
New York	14		
Pennsylvania	10		
Minnesota	9		
California	6		
Colorado	4		
Michigan	4		
Georgia	2		
Missouri	2		
Texas	2		
Washington	2		
Alabama	1		
Arkansas	1		
Florida	1		
Illinois	1		
Indiana	1		
Ohio	1		
Tennessee	1		
Virginia	1		
Australia	3	0	
Japan	1	1	US
Switzerland	1	1	US
Taiwan	1	1	US
Uganda	1	0	

was stated that Australia antigen (Au) was the hepatitis virus. This subsequently led to the identification of the hepatitis B virus (HBV), the development of methods for the diagnosis of hepatitis B, the prevention of post-transfusion hepatitis, the control of hepatitis in high-risk environments, a vaccine against hepatitis B, and the recognition of the role of HBV in the causation of primary hepatocellular carcinoma (PHC).<sup>9</sup> Blumberg also is a coauthor with W.T. London and A.I. Sutnick, Institute of Cancer Research, Fox Chase Cancer Center, of a 1969 *Annals* paper on Australia antigen and acute viral hepatitis. Blumberg and D. Carleton Gajdusek shared the 1976 Nobel prize for their work on the origin and dissemination of infectious disease.

Burnet and Peter Medawar were awarded the 1960 Nobel prize in recognition of their discovery of acquired immunological tolerance. Burnet is the coauthor with M.C. Holmes, Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, of a 1963 *Annals* paper on autoimmune disease in a particular strain of mice designated as NZB. The authors compared the pattern and manifestation of autoimmune disease in mice with that in humans.

The authors of the *Annals* papers in this study came from six countries, but the overwhelming majority were based in the US. Table 3 lists the authors' national affiliations in order of the number of papers from each country. For the US, we also show the number of papers from individual states. US authors account for 97 of the 101 papers, three of which were coauthored with researchers from Japan, Switzerland, and Taiwan. Of the 97 US papers, 31 were by authors based in Maryland—one each at the

**Table 4:** Article-by-article analysis of 1977 source items published by *Annals of Internal Medicine*. A=number published in 1977. B=number cited from 1977-1982. C=percent citedness (B/A). D=number of 1977-1982 citations. E=cited impact (D/B). F=total impact (D/A).

	A	B	C	D	E	F
Letters	281	112	39.9	580	5.2	2.1
Articles	135	129	95.6	4992	38.7	37.0
Editorials	35	27	77.1	275	10.2	7.9
Notes	73	66	90.4	1284	19.5	17.6
Reviews	19	19	100.0	1090	57.4	57.4
All Others	15	3	20.0	156	52.0	10.4
<b>TOTAL</b>	<b>558</b>	<b>356</b>	<b>63.8</b>	<b>8377</b>	<b>23.5</b>	<b>15.0</b>

**Table 5:** Six-year impact factors for 1977 source items published in *Annals of Internal Medicine* and nine other general and internal-medicine journals. Impacts were calculated by dividing 1977-1982 citations to a journal's 1977 source items by the number of 1977 source items it published. The number of 1977 source items follows each journal title in parentheses.

Journal	Six-Year Impact for						All Others
	Articles	Letters	Editorials	Notes	Reviews		
Ann. Intern. Med. (558)	37.0	2.1	7.9	17.6	57.4		10.4
Arch. Intern. Med. (335)	10.7	.8	3.7	2.8	42.3		.5
Brit. Med. J. (3486)	16.6	.9	.3	5.8	11.6		.1
Can. Med. Assn. J. (765)	3.1	.4	.6	2.0	5.0		—
Deut. Med. Wochenschr. (725)	4.3	.5	1.5	.6	3.8		2.0
JAMA—J. Am. Med. Assn. (1605)	14.8	.6	2.1	6.3	23.5		—
Lancet (3149)	33.2	4.4	.2	4.4	—		.2
Med. J. Australia (1228)	3.6	.2	.2	1.1	3.6		.1
N. Engl. J. Med. (1772)	54.0	1.9	8.0	2.5	57.6		9.3
Nouv. Presse Med. (884)	3.7	1.4	1.1	2.7	—		—

University of Maryland and Johns Hopkins University Medical School, Baltimore, and 29 from NIH. Keep in mind that *Annals* regularly publishes transcripts of NIH clinical staff conferences, many of which appear in this study. Although *Annals* is based in Philadelphia, the journal is not obviously biased in favor of papers from Pennsylvania institutions—just 10 papers were by authors from Pennsylvania. However, a more thorough analysis of all papers published in *Annals*, not just the most-cited papers, would be required to determine the general validity of this assertion.

Australia accounts for three papers, two from the University of Sydney and one from the Walter and Eliza Hall Institute of Medical Research. One paper was authored by researchers from the

Uganda-based Makerere University Medical School and the Uganda Cancer Institute, Kampala.

In these analyses of the most-cited articles from individual journals, it is easy to overlook many other types of communications that are published in them—letters to the editor, notes, corrections, editorials, and so on. For example, Table 4 presents data on the source items published by *Annals* in 1977, the number of items that were cited from 1977 to 1982, the number of 1977-1982 citations, cited impact, and total impact. In this study, total impact is calculated by dividing 1977-1982 citations by the total number of 1977 source items. Cited impact is determined by dividing 1977-1982 citations by the number of cited 1977 items.

Clearly, *Annals* has published more letters than any other type of source item. Only 40 percent of the 281 letters it published in 1977 were cited at least once from 1977 to 1982. The average letter in *Annals* had an impact of 2.1. On the other hand, 96 percent of the 1977 research articles in *Annals* were cited, and the average article had a six-year impact of 37.0. All 19 review articles published that year were cited, with an average six-year impact of 57.4.

For purposes of comparison, Table 5 presents six-year impact data for 1977 source items published in several general and internal-medicine journals, including *Annals*. I should caution that these data may not be directly comparable. Journals may have different definitions of what they consider to be "articles," "letters," "reviews," and so on. With this caveat in mind, the data confirm that *Annals* is indeed one of the high-impact medical journals. The impact of the

average *Annals* letter is second only to that of *The Lancet*. *New England Journal of Medicine* is the only journal with a higher impact than *Annals* for the research articles that they published. When we consider the impact of review articles, *Annals* and *New England Journal of Medicine* share first place among the 10 journals listed.

We will continue to identify citation classics from other significant medical journals in the coming months. This series of essays also will report on journals from other fields, as well as the major multidisciplinary journals of science.

\* \* \* \* \*

*My thanks to Abigail W. Grissom and Alfred Welljams-Dorof for their help in the preparation of this essay.*

©1984 ISI

#### REFERENCES

1. Garfield E. 100 classics from the *New England Journal of Medicine*. *Current Contents* (25):3-10, 18 June 1984.
2. ...., 100 classics from *The Lancet*. *Current Contents* (39):3-13, 24 September 1984.
3. Huth E J & Van Steenburgh K C. *Annals of Internal Medicine: the first 50 years*. *Ann. Intern. Med.* 87:103-10, 1977.
4. Garfield E. The history and mission of ISI Press. *Essays of an information scientist*. Philadelphia: ISI Press, 1983. Vol. 5. p. 768-73.
5. Miller M D. Ratings of medical journals by family physician educators. *J. Fam. Pract.* 15:517-9, 1982.
6. Garfield E. The 1979 articles most cited from 1979 to 1981. 1. Life sciences. *Essays of an information scientist*. Philadelphia: ISI Press, 1983. Vol. 5. p. 575-90.
7. Kannel W B. Citation Classic. Commentary on *Ann. Intern. Med.* 74:1-12, 1971. *Current Contents/Life Sciences* (29):18, 18 July 1983.
8. DeVita V T. Citation Classic. Commentary on *Ann. Intern. Med.* 73:881-95, 1970. *Current Contents/Clinical Practice* (12):10, 19 March 1979.
9. Blumberg B S. Citation Classic. Commentary on *Ann. Intern. Med.* 66:924-31, 1967. *Current Contents/Life Sciences* (28):18, 11 July 1983.