

Appendix 1.

The most cited articles in medical professionalism identified by searching the Web of Science, showing the number of citations and altmetric scores^a

Rank	Authors, Year [Reference]	Article (<i>Journal</i>)	2015-JIF	Category	Number of citations, Web of Knowledge	Average citation per year ^b	Altmetric scores ^c	Origin: First author's organization, location (country)
1	Epstein and Hundert, 2002 ³⁰	Defining and assessing professional competence. (<i>Journal of the American Medical Association</i>).	37.684	Review	947	63.13	24	University of Rochester School of Medicine and Dentistry, Rochester, New York (United States)
2	Blank et al, 2003 ³¹	Medical professionalism in the new millennium: a physician charter 15 months later. (<i>Annals of Internal Medicine</i>).	16.593	Editorial Material	804	53.60	2	ABIM Foundation, 510 Walnut Street, Suite 1700, Philadelphia, Pennsylvania, (United States)
3	Epstein, 1999 ³²	Mindful practice. (<i>Journal of the American Medical Association</i>).	37.684	Review	588	32.66	12	University of Rochester School of Medicine and Dentistry, Rochester, New York (United States)
4	Brennan et al, 2006 ³³	Health industry practices that create conflicts of interest: a policy proposal for academic medical centers. (<i>Journal of the American Medical Association</i>).	37.684	Article	400	36.36	37	Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts (United States)
5	Papadakis, et al, 2005 ³⁴	Disciplinary action by medical boards and prior behavior in medical school. (<i>New England Journal of Medicine</i>).	59.558	Research	313	26.08	34	School of Medicine, University of California, San Francisco, San Francisco, (United States).

6	Swick, 2000 ³⁵	Toward a normative definition of medical professionalism. (<i>Academic Medicine</i>).	4.194	Article	239	14.05	0	Institute of Medicine and Humanities, Saint Patrick Hospital and the University of Montana, Missoula (<i>United States</i>).
7	Arnold, 2002 ³⁶	Assessing professional behavior: yesterday, today, and tomorrow. (<i>Academic Medicine</i>)	4.194	Review	211	14.07	0	University of Missouri-Kansas City School of Medicine, (<i>United States</i>).
8	Papadakis et al, 2004 ³⁷	Unprofessional behavior in medical school is associated with subsequent disciplinary action by a state medical board. (<i>Academic Medicine</i>)	4.194	Research	208	16.00	2	Department of Medicine, University of California, San Francisco (<i>United States</i>)
9	Neumann et al, 2011 ³⁸	Empathy decline and its reasons: a systematic review of studies with medical students and residents. (<i>Academic Medicine</i>)	4.194	Review	202	33.67	155	Integrative and Anthroposophic Medicine, Faculty of Health, Department of Medicine, University of Witten/Herdecke, (<i>Germany</i>).
10	Chretien et al, 2009 ³⁹	Online posting of unprofessional content by medical students. (<i>Journal of the American Medical Association</i>)	37.684	Research	179	22.38	55	Medical Center and Department of Medicine, George Washington University School of Medicine and Health Sciences, Washington, DC (<i>United States</i>)

11	Kenny et al, 2003 ⁴⁰	Role modeling in physicians' professional formation: reconsidering an essential but untapped educational strategy. (<i>Academic Medicine</i>).	4.194	Article	176	12.57	0	Department of Bioethics, Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, (Canada).
12	Dyrbye et al, 2010 ⁴¹	Relationship between burnout and professional conduct and attitudes among US medical students. (<i>Journal of the American Medical Association</i>).	37.684	Research	170	24.28	80	Mayo Clinic College of Medicine, Rochester, Minnesota, (United States)
13	Swick et al, 1999 ⁴²	Teaching professionalism in undergraduate medical education. (<i>Journal of the American Medical Association</i>).	37.684	Research	168	9.33	0	Association of American Medical Colleges, Washington, DC (United States)
14	Thompson et al, 2008 ⁴³	The intersection of online social networking with medical professionalism. (<i>Journal of General Internal Medicine</i>).	3.494	Research	166	18.44	19	Department of Pediatrics, College of Medicine, University of Florida, Gainesville, Florida, (United States)
15	Wynia et al, 1999 ⁴⁴	Medical professionalism in society (<i>New England Journal of Medicine</i>)	59.558	Editorial Material	165	9.17	6	American Medical Association, Chicago, Illinois (United States).
16	Newton et al, 2008 ⁴⁵	Is there hardening of the heart during medical school? (<i>Academic Medicine</i>)	4.194	Research	164	18.22	34	University of Arkansas for Medical Sciences, 4301 W. Markham St., Arkansas (United States).

17	Coulehan and Williams, 2001 ⁴⁶	Vanquishing virtue: The impact of medical education (<i>Academic Medicine</i>).	4.194	Article	163	10.19	0	Helath Science Center, State University of New York at Stony Brook, (<i>United States</i>)
18	Coulehan, 2005 ⁴⁷	Viewpoint. Today's professionalism: Emerging the mind but not the heart (<i>Academic Medicine</i>).	4.194	Article	151	12.58	0	Helath Science Center, State University of New York at Stony Brook, (<i>United States</i>)
19	Thomas et al, 2007 ⁴⁸	How do distress and well-being relate to medical student empathy? A multicenter study. (<i>Journal of General Internal Medicine</i>).	3.494	Research	135	13.50	0	Department of Internal Medicine, Mayo Clinic, Rochester, Minnesota, (<i>United States</i>)
20	Hilton and Slotnick, 2005 ⁴⁹	Proto-professionalism: how professionalisation occurs across the continuum of medical education. (<i>Medical Education</i>).	3.369	Article	134	11.17	4	Department of Community Health Sciences, St. George's Hospital Medical School, London (<i>United Kingdom</i>)
21	Cruess and Cruess, 1997 ⁵⁰	Teaching medicine as a profession in the service of healing. (<i>Academic Medicine</i>)	4.194	Review	131	6.55	0	McGill University Faculty of Medicine, Montreal, Quebec, (<i>Canada</i>).
22	Audet et al, 2005 ⁵¹	Measure, learn, and improve: physicians' involvement in quality improvement. <i>Health Affairs (Millwood)</i> .	5.230	Article	126	10.5	12	American Medical Association, Ccommonwealth Fund, New York City, NY, (<i>United States</i>).

23	Wong et al, 2010 ⁵²	Teaching quality improvement and patient safety to trainees: a systematic review. (<i>Academic Medicine</i>)	4.194	Review	122	17.43	3	Department of Medicine, University of Toronto, Toronto, Ontario, (<i>Canada</i>).
24	Eva et al, 2004 ⁵³	How can I know what I don't know? Poor self assessment in a well-defined domain. (<i>Advances in Health Sciences Education Theory and Practices.</i>)	2.452	Article	120	9.23	7	Program for Educational Research and Development, Room 101, Building T-13, McMaster University, Hamilton, Ontario (<i>Canada</i>)
25	Campbell et al, 2007 ⁵⁴	Professionalism in medicine: results of a national survey of physicians. (<i>Annals of Internal Medicine</i>).	16.593	Research	114	11.40	7	Massachusetts General Hospital, Institute for Health Policy, Boston, Massachusetts (<i>United States</i>)
26	Littlewood et al, 2005 ⁵⁵	Early practical experience and the social responsiveness of clinical education: systematic review. (<i>British Medical Journal</i>)	19.697	Review	111	9.25	1	University of Manchester School of Medicine, Manchester (<i>United Kingdom</i>).
27	Veloski et al, 2005 ⁵⁶	Measuring professionalism: a review of studies with instruments reported in the literature between 1982 and 2002. (<i>Academic Medicine</i>).	4.194	Review	103	8.58	0	Jefferson Medical College, Philadelphia, Pennsylvania (<i>United States</i>)
28	Rothman, 2000 ⁵⁷	Medical professionalism--focusing on the real issues. (New England Journal of Medicine)	59.558	Editorial Material	102	6.00	3	Columbia University College of Physicians and Surgeons, New York, (<i>United States</i>).

29	Cruess and Cruess, 2006 ⁵⁸	Teaching Professionalism: general principles (<i>Medical Teacher</i>).	2.355	Editorial Material	101	9.18	3	Centre for Medical Education, Lady Meredith House, McGill University, Montreal, Quebec, (<i>Canada</i>).
30	Kassebaum and Cutler, 1998 ⁵⁹	On the culture of student abuse in medical school (<i>Academic Medicine</i>)	4.194	Article	101	5.32	0	Division of Medical School Standards and Assessment, Association of American Medical Colleges (AAMC), Washington, DC (<i>United States</i>).
31	Wear and Castellani, 2000 ⁶⁰	The development of professionalism: Curriculum matters (<i>Academic Medicine</i>)	4.194	Article	100	5.88	0	Northeastern Ohio Universities College of Medicine, Rootstown (<i>United States</i>).
32	Suchman et al, 2004 ⁶¹	Toward an informal curriculum that teaches professionalism. Transforming the social environment of a medical school. (<i>Journal of General Internal Medicine</i>)	3.494	Article	99	7.61	21	Relationship-Centered Healthcare, Rochester, New York (<i>United States</i>).
33	Lynch et al, 2004 ⁶²	Assessing professionalism: a review of the literature (<i>Medical Teacher</i>)	2.355	Review	98	7.54	1	Accreditation Council for Graduate Medical Education, Chicago, Illinois, (<i>United States</i>)

34	Karnieli-Miller et al, 2010 ⁶³	Medical students' professionalism narratives: a window on the informal and hidden curriculum. (<i>Academic Medicine</i>)	4.194	Research	97	13.86	20	Department of Community Mental Health, Focus for Excellence in Patient-Professional Relationships in Health Care, University of Haifa, Haifa, (<i>Israel</i>).
35	Gruen et al, 2004 ⁶⁴	Physician-citizens- Public roles and professional obligations (<i>Journal of the American Medical Association</i>)	37.684	Article	97	7.46	14	Harvard School of Public Health, Harvard Medical School, Boston, Mass, (<i>United States</i>)
36	Brainard and Brislen, 2007 ⁶⁵	Viewpoint: Learning professionalism: A view from the trenches (<i>Academic Medicine</i>).	4.194	Article	96	9.60	14	University of New Mexico School of Medicine, Albuquerque, New Mexico, (<i>United States</i>).
37	Steinert et al, 2005 ⁶⁶	Faculty development for teaching and evaluating professionalism: from programme design to curriculum change. (<i>Medical Education</i>)	3.369	Research	96	8.00	0	Centre for Medical Education, Faculty of Medicine, McGill University, Lady Meredith House, Montreal, Quebec, (<i>Canada</i>).
38	Meisel et al, 2000 ⁶⁷	Seven legal barriers to end-of-life care- Myths, realities, and grains of truth (<i>Journal of the American Medical Association</i>)	37.684	Article	95	5.59	0	Center for Ethics and Professionalism, American College of Physicians-American Society of Internal Medicine, Philadelphia, PA (<i>United States</i>)

39	Hickson, et al, 2007 ⁶⁸	A complementary approach to promoting professionalism: identifying, measuring, and addressing unprofessional behaviors. (<i>Academic Medicine</i>).	4.194	Article	93	9.30	18	Department of Medical Education and Administration, University Medical Center, Nashville, Tennessee (<i>United States</i>)
40	Greysen et al, 2010 ⁶⁹	Online professionalism and the mirror of social media (<i>Journal of General Internal Medicine</i>).	3.494	Article	91	13.00	61	Yale University School of Medicine, New Haven, CT (<i>United States</i>).
41	Eckles et al, 2005 ⁷⁰	Medical ethics education: where are we? Where should we be going? A review. (<i>Academic Medicine</i>)	4.194	Review	90	7.50	9	Division of Hematology/Oncology, Indiana University School of Medicine, Indianapolis, IN (<i>United States</i>)
42	Papadakis et al, 2008 ⁷¹	Performance during internal medicine residency training and subsequent disciplinary action by state licensing boards. (<i>Annals of Internal Medicine</i>).	16.593	Research	89	9.89	9	University of California at San Francisco, San Francisco, California (<i>United States</i>).
43	MacDonald et al, 2010 ⁷²	Privacy, professionalism and Facebook: a dilemma for young doctors. (<i>Medical Education</i>)	3.369	Research	87	12.43	27	Department of Psychological Medicine, University of Otago, Wellington School of Medicine and Health Sciences, Wellington (<i>New Zealand</i>).

44	Patenaude et al, 2003 ⁷³	Changes in students' moral development during medical school: a cohort study. (<i>Canadian Medical Association Journal</i>).	6.724	Research	87	6.21	10	Faculty of Medicine, University of Sherbrooke and the Centre for Clinical Research, Centre hospitalier universitaire de Sherbrooke, QC (Canada)
45	Papadakis et al, 1999 ⁷⁴	A strategy for the detection and evaluation of unprofessional behavior in medical students. University of California, San Francisco School of Medicine Clinical Clerkships Operation Committee. (<i>Academic Medicine</i>)	4.194	Article	86	4.77	3	University of California at San Francisco, San Francisco, California (<i>United States</i>).
46	Lesser et al, 2010 ⁷⁵	A behavioral and systems view of professionalism (<i>Journal of the American Medical Association</i>)	37.684	Article	83	11.86	36	Foundation Programs, American Board of Internal Medicine Foundation, Philadelphia, Pennsylvania, (<i>United States</i>)
47	Wear and Kuczewski, 2004 ⁷⁶	The professionalism movement: Can we pause? (<i>American Journal of Bioethics</i>)	6.500	Article	83	6.38	0	College of Medicine, Northeastern Ohio Universities, (<i>United States</i>).
48	Sargeant et al, 2010 ⁷⁷	The process and dimensions of informed self-assessment: a conceptual model (<i>Academic Medicine</i>)	4.194	Research	82	11.71	2	Dalhousie University, Halifax, Nova Scotia, (<i>Canada</i>).
49	Reynolds, 1994 ⁷⁸	Reaffirming professionalism through the education community (<i>Annals of Internal Medicine</i>)	16.593	Review	80	3.48	0	Robert Wood Johnson Foundation, Clinical Scholars Program, University of Pennsylvania

								School of Medicine, Philadelphia (<i>United States</i>)
50	Aguilar et al, 2011 ⁷⁹	The “top 5” lists in primary care meeting the responsibility of professionalism (<i>Archives of Internal Medicine</i>)	17.333	Research	78	13.00	61	School of Medicine, University of Colorado, Aurora, Colorado (<i>United States</i>)

^a The search was conducted in May 2017 by searching the Web of Knowledge (1900 to 2016).

^b For articles with the same number of citations, the average citation per year (number of citations/number of years since publication) was used to judge the ranking. Articles with a higher average citation per year were considered higher in ranking than an article with the same number of citations but a lower average citation per year.

^c The Altmetric scores were calculated at the publisher website of each article by using the Altmetric Bookmarklet Application (<https://www.altmetric.com/products/free-tools/bookmarklet/>).

