

Benchmarking Study of leadership training programs for undergraduate medical students

Introduction

While there is general agreement on many of the competencies that are necessary for on the abilities that define good leadership, there are limited opportunities for physicians to receive training, develop and/or practice these skills prior to assuming leadership roles in hospitals, medical schools and other healthcare organizations.

There is increasing recognition of this need by physician organizations (e.g., American Medical Association) and medical school organizations (e.g., American Association of Medical Colleges) for the necessity to develop leadership skills in physicians as part of their training, and many undergraduate medical curricula and residency programs have developed such programs. This overview is an effort to benchmark the status of such leadership training programs in U.S. medical schools. We have emphasized what currently exists or is in development in medical schools at Big 10 universities, but have also included similar programs

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OVERVIEW OF LEADERSHIP PROGRAMS FOR MEDICAL STUDENTS¹

Medical School/Program Name (websites)	# years in existence	# students per year	Integration Method	Elements of Curriculum	Exceptional Characteristics	Program Duration	Assessment Methods	Refs
Big 10 Medical Schools								
Indiana University School of Medicine http://medicine.iu.edu/ http://medicine.iu.edu/education/dean-s-office-of-educational-affairs/ Pisacano Scholars Leadership Program http://www.pisacano.org/leadership.html	National program by the American Board of Family Medicine. Started in 1993	3 rd year students from US medical schools can apply; 5 awards granted per year	4 th year of medical school plus 3 year residency in Family Medicine	Annual Leadership Skills Development Symposia; Peer Reviewer-in-training; Test Item Writing; Leadership positions at American Academy of Family Physicians	Commitment to Family Medicine; scholarship award @ \$7K/yr. for 4 yrs.; Internship at the National Center for Policy Studies in Family Medicine	4 years	Pisacano Scholars are evaluated each year by the Foundation's Board of Directors	Web sites
Michigan State University College of Human Medicine http://humanmedicine.msu.edu/ http://lmu.msu.edu/leadership (Leadership in Medicine for the Underserved - LMU)	Started in 2004	Students apply in their 1 st /2 nd year; 18 accepted each year	LMU activities are integrated into the 3 rd & 4 th year electives and clerkships;	Weekly community involvement; Monthly community service; Core clerkship integration in rural/urban underserved clinics; International urban/, rural, electives	In addition to traditional clinical medical education the LMU program focuses on the acquisition of knowledge, skills, and attitudes necessary to address the varied medical needs of urban, rural, and international underserved populations.	3 rd & 4 th years of medical school	No information mentioned on websites	Web sites
Northwestern University Medical School http://www.feinberg.northwestern.edu/ http://www.feinberg.northwestern.edu/sites/mstp/ [Medical Scientist Training (MSTP) Program – MD/PhD Leadership thread in the medical school curriculum led by Dr. Brigid Dolan bdolan@nm.org http://sps.northwestern.edu/program-areas/professional-	The program's roots go back to 1928	Each year the program admits up to 15 exceptional students to the MSTP program	Northwestern University Medical Scientist Training Program (MSTP) prepares students for exciting and rewarding careers combining biomedical investigation and the practice of medicine.	Monthly MSTP Grand Rounds; student-run MSTP Student Council; leadership opportunities in the MSTP program. There is a teamwork and leadership thread in the medical school curriculum, as well as a "Professional	Big Sibs Program partners each MSTP first year medical student with a graduate-phase student; student-run mentoring program, Promoting Inner-City Youth in Science and Medicine ; MSTP Newsletter	Integrated 8 year program for both degrees	No information mentioned on websites	Web sites

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development/fundamentals-leadership/ https://lead.northwestern.edu/pages/programs/programs.html				Leadership Certificate” program on the Evanston campus.				
Ohio State University College of Medicine http://medicine.osu.edu/Pages/default.aspx http://medicine.osu.edu/mstp/welcome/pages/index.aspx (Medical Scientist Training Program – MD/PhD) http://medicine.osu.edu/students/lsi_curriculum/pages/index.aspx (LSI – Lead, Serve, Inspire – program)	The LSI curriculum was adopted in August of 2012	The LSI curriculum is for all medical students – entering class of (n=185)	The LSI curriculum is a three-part, four-year program that fully integrates basic science learning in the classroom with clinical science applied in the clinical arena. The LSI competency-based framework ensures that future physicians are prepared to provide high-caliber health care to diverse populations.	LSI incorporates several aspects of leadership training; some are for all students (e.g., reflection on preferences for leadership styles & interacting with others; exploring characteristics and behaviors of effective team leaders). There are also electives on advanced leadership skills for students who wish to take them. The advanced competencies involve leadership in the business context, in an advocacy context and, as part of our humanism in medicine initiative, in the servant leader context.	Competency-based nature of the curriculum; Students create a web-based ePortfolio to post written reflections on educational experiences and performance, with the aim of charting their improved performance & achievements to help establish patterns of lifelong reflective practice and self-directed learning. Students share their portfolios with a faculty coach/mentor, who provides feedback.	LSI is the 4-year medical school curriculum	LSI employs a competency-based evaluation system that facilitates student self-assessment and individualized education plans. Students must demonstrate how they have met core educational objectives. A faculty committee assesses evidence the students provide to determine whether or not the student has met the competency.	Web sites

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Penn State University Medical School/ http://www.pennstatehershey.org/web/fcm/education/accelerated-program Family Medicine Accelerated Program Residency Leadership program http://www.pennstatehershey.org/documents/93532/2909823/AOC++Leadership+%26+Advocacy/95238c52-b9fe-41bb-89a7-7913ceee0c4e	3+3 program where students complete medical school in 3 years, followed by a 3-year Family Medicine Residency at Penn State Hershey.	4 students per year are accepted into the program	Integrated learning during medical school years through Longitudinal Integrated Clerkships (LIC) in the place of traditional block clerkships.	Residents can focus on areas of leadership related to : Health Administration; Patient Safety and Risk Management; Business of Medicine; Clinical Quality Improvement	3 + 3 program design; Longitudinal Integrated Clerkships during medical school years; Continuum of undergraduate medical school and graduate residency training	3 years during residency training in Family Medicine	No information mentioned on websites	Web sites
Purdue University Indiana-Purdue University Indianapolis (IUPUI) https://www.iupui.edu/about/index.html				Joint IUPUI undergraduate and graduate programs with Indiana University	Medical School appears only under Indiana University (see above)			
Rutgers University – New Jersey Medical School http://njms.rutgers.edu/								
Rutgers University – Robert Wood Johnson Medical School http://rwjms.rutgers.edu/ http://odl.rutgers.edu/leadership-programs/#academic-healthcare				Programs include Distinction in: Medical Education; Research; Community Service; Bioethics; Global Health;	http://odl.rutgers.edu/2015/12/new-odlrobert-wood-johnson-medical-school-pre-doctoral-program/			Web sites
University of Illinois College of Medicine at Urbana-Champaign www.med.illinois.edu/sa/ O'Morchoe Fellowship in Leadership Skills http://www.med.illinois.edu/SA/Awards/Patricia%20J.%20and%20Charles%20C.C.%20O'Morchoe%20Award.pdf	Started in 2010	Not stated, but appears to be 1 student per year based on the number of students given awards since 2010	Awards are given to students who plan to engage in significant leadership training and experiential opportunities that exhibit commitment above and beyond the usual	Students submit a plan for use of award funds and how it will benefit them. Applicants are judged on excellence of academic record; evidence of leadership in the College of Medicine, the campus and/or community as	Ability of the student to design her/his own program based on personal interests.	Not stated, but appears to be 1 year based on the description on the website	After each year of fellowship activity, the recipient submits a synopsis of activities and how he/she has been affected as a result of	Web sites

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			student activities and experiences.	demonstrated by positions of responsibility in existing organizations and activities or the development of new ones.			receiving the fellowship.	
University of Illinois College of Medicine at Chicago http://chicago.medicine.uic.edu/ Urban Medicine Program http://chicago.medicine.uic.edu/cms/one.aspx?portalId=506244&pageId=19069471	Started in 2005	24 students per year from a pool of ~105	Spans all 4 years of medical school and is supplementary to the regular curriculum	Seminar series (1 st & 2 nd yrs); web-based learning curriculum (3 rd & 4 th yrs); longitudinal community project (all 4 yrs); Policy and Advocacy Forum(4 th yr)	Comprehensive and well-designed program with well-planned methods of assessment	Contiguous with 4 years of medical school	Validated survey on attitudes towards underserved [1] and intercultural/professional assessment; Pre/post assessment; Community project progress reports	[2]
University of Iowa Carver Col. of Medicine http://www.medicine.uiowa.edu/ http://www.healthcare.uiowa.edu/mstp/ Iowa Medical Scientist Training Program – MSTP; (MD/PhD) http://csil.uiowa.edu/ The Center for Student Involvement & Leadership http://www.medicine.uiowa.edu/internalmedicine/pstp/ (post graduate training/career development)	Center for Student Involvement & Leadership	Available to all Univ. of Iowa students,	Variety of leadership classes and opportunities for involvement in community service projects	Students can enroll in for-credit academic leadership classes to discover more about leadership and the skills necessary for effective leadership. Students learn about leadership models and develop a personal philosophy of leadership. Student leaders are encouraged to take	LeaderShape Iowa Institute: 6 days of non-stop self-discovery and learning from practical experiences that build leadership concepts and abilities; Student Leadership Institute: 2-day, off-campus retreat for student leaders interested in fostering collaboration across campus.	Opportunities are available during and between semesters throughout a student's 4 years of college	No information mentioned on websites	Web sites

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				part in many leadership activities throughout each semester.				
University of Michigan Medical School https://medicine.umich.edu/medschool/education/md-program/curriculum/longitudinal-learning/leadership-program Longitudinal Leadership Program	Appears to have been started very recently	All medical students (n=170) participate in 3 programs that are integrated into the curriculum: Leadership; Interprofessional Health Education; Paths of Excellence	Management and leadership skills are cultivated across all four years of medical school	Action-based learning experiences that fulfill four critical competencies for future physicians: Leading Teams; Systems-based Practice; Influence & Communication; Change management	Use of the Michigan Leadership Matrix , a tool that provides an individualized framework to map leadership activities and assess milestones as they are completed with the flexibility to adapt to your personal goals and interests.	Contiguous with 4 years of medical school	Michigan Leadership Matrix	Web sites
University of Minnesota Medical School http://www.med.umn.edu/ http://carlsonschool.umn.edu/faculty-research/medical-industry-leadership-institute/students (Medical Industry Leadership Institute)		Not clear if medical students can take advantage of this program						
University of Nebraska College of Medicine http://www.unmc.edu/com/ http://www.unmc.edu/mmi/education/traininprograms/lend.html (LEND Leadership Training Program)			Program for graduates with doctoral degrees (including MD)	Part of a national network of leadership training programs for students and practicing professionals who serve children and youth with special health care needs.				
University of Wisconsin School of Medicine & Public Health/ Leadership Opportunities with Communities, the Underserved, and Special populations (LOCUS)	Started in 1998, but not mentioned on their website	1 st year students are invited to apply through a selective	20 hours of scheduled activities per academic year	Core curriculum comprises a series of retreats, workshops, and seminars	Each student establishes a mentor relationship with a physician who is engaged in community health services. With their mentor, students	Contiguous with 4 years of medical school	On-line surveys and interviews with current and past participants	[3, 4]

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http://www.woncaeurope.org/content/3571-locus-preparing-medical-students-community-health-leadership http://www.med.wisc.edu/education/main/100		application process; 15-20 are accepted into the program each year.			apply and refine leadership skills through design and completion of a community health service project,		as well as direct observations were used to evaluate the effects of the program on participants	
Other U.S. Medical Schools								
Brown University Alpert Medical School of Medicine/ Primary Care--Population Medicine dual degree program (MD & MS) http://www.brown.edu/academics/medical/education/other-programs/primary-care-population-medicine/	First class of students in 2015	Up to 24 students out of class of ~120	MS courses in Health Systems & Policy; Quant Methods; Population Medicine; Leadership	Competency training in inter-professional teamwork, epidemiology, and quality improvement	This first of its kind four-year program awards both a MD and a MS in Population Medicine.	4 years of medical school; major course spans 8 months in 2 nd year + elements in 3 rd and 4 th years	Not yet developed	[5-8]
Creighton University School of Medicine - Leadership Development/ Program for Leadership Development http://medschool.creighton.edu/leadership/	Not available on their website	Entire class (n=155)	"First week" seminars; "Leading to Success" symposia;	Team Building, Situational Leadership, Developing One's Strengths, Leading through Diversity, and Mentoring.	Information on the website is from 2011-2012	Year-long course - Physician's Lifestyle Management – includes section on leadership	No information mentioned on websites	Web site
Duke University School of Medicine/ Primary Care Leadership Track (PCLT) https://www.dukeintegrativemedicine.org/leadership-program/ http://medschool.duke.edu/education/degree-programs/pclt	Started in 2004	8 out of class of 100	In addition to medical school curriculum	PCLT students contribute to community health initiatives, perform community engaged research, and participate in leadership training.	"Immersion experiences" on hospital wards (first 4 months of 2 nd year); LIC (longitudinal integrated clerkship) to allow students to follow patient care over time to understand illness longitudinally; community health orientation &	Contiguous with 4 years of medical school	No information mentioned on websites	[9]

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					assignment to a community health team.			
East Carolina University Brody School of Medicine/ Brody Scholars Program http://www.ecu.edu/brodyscholarship/ http://www.ecu.edu/cs-dhs/brodyscholarship/upload/2014_The_Brody_Medical_Scholarship_Brochure.pdf	Started in 1983	12 out of a class of 80 are invited to apply for 4 scholar positions	Students design unique programs of study that are supported by the scholarship program	Students develop, plan, and conduct: a symposium topic; a summer enrichment service project; a professional development seminar	Flexibility for scholars to choose their own program of study based on their interests	Contiguous with 4 years of medical school	No information mentioned on websites	Web sites
George Washington University School of Medicine and Health Sciences - Medical Education Leadership track https://smhs.gwu.edu/oso/track-program/medical-education-leadership				Oriented toward academic (not clinical) leadership training and experiences				Web site
Johns Hopkins/The Colleges Program http://www.hopkinsmedicine.org/som/colleges/ Director: Robert Shochet, MD rshoche1@jhmi.edu	Started in 2005	Entire class of 120	"The Colleges" is a learning community of students and faculty, dedicated to supporting medical students' professional growth, career development and well-being.	Each of the 4 colleges has 30 students from each class (120 students across 4 years) and 6 core faculty. No specific training in "leadership" as part of the curriculum	The Colleges values collaboration, interpersonal connection, and longitudinal advising relationships as the means to support caring attitudes and commitment to excellence in the practice of medicine.	Contiguous with 4 years of medical school	No information mentioned on websites	[10]
Mayo Medical School/Science of Health Care Delivery http://www.mayo.edu/mms/programs/md/curriculum/science-of-health-care-delivery	Started in 2015	Entire class of 50	The Science of Health Care Delivery program is integrated within the medical school curriculum	Six domains in this program: Health policy, economics, & technology; Person-centered care; Leadership ; Team-based care; Population-centered care; High-value care	In collaboration with Arizona State University - an innovative curriculum, called the Science of Health Care Delivery, in which students learn about how health care systems work	Contiguous with 4 years of medical school	No information mentioned on websites	

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University of North Carolina at Chapel Hill/ Advanced Leadership Skills in Community Service (ALSCS) selective	Started in 2004	12-14 per year	11 class sessions offered to 2 nd year medical students	Each 2-hour class has specific course objectives, readings, class activities (Table 1 of reference)	Well-defined curriculum strategies based on tested leadership frameworks	4 month period	Evaluation includes written comments, Individual feedback & grades.	[11]
Wright State University Medical School/ Boonshoft Physician Leadership Development Program (BPLDP) https://medicine.wright.edu/education/physician-leadership-development-program	Started in 2004	10 students per year (5 MBA & 5 MPH) are accepted during the fall of their first year.	Combined MD + MBA or MPH degree program	~40 semester hours of coursework and activities related to the MBA or MPH programs	Students are encouraged to initiate new programs within the BPLDP program (e.g., Leadership conference; Student Teaching program; Community Service Learning activities	4 year medical school curriculum plus 1 year	Not yet developed	[12]

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References

1. Crandall, S.J., R.J. Volk, and V. Loemker, *Medical students' attitudes toward providing care for the underserved. Are we training socially responsible physicians?* *Jama*, 1993. **269**(19): p. 2519-23.
2. Girotti, J.A., et al., *The Urban Medicine Program: Developing Physician-Leaders to Serve Underserved Urban Communities*. *Acad Med*, 2015. **90**(12): p. 1658-66.
3. Carufel-Wert, D.A., et al., *LOCUS: immunizing medical students against the loss of professional values*. *Fam Med*, 2007. **39**(5): p. 320-5.
4. Haq, C., M. Grosch, and D. Carufel-Wert, *Leadership Opportunities with Communities, the Medically Underserved, and Special Populations (LOCUS)*. *Acad Med*, 2002. **77**(7): p. 740.
5. Clyne, B., B. Rapoza, and P. George, *Leadership in Undergraduate Medical Education: Training Future Physician Leaders*. *R I Med J* (2013), 2015. **98**(9): p. 36-40.
6. Epstein-Lubow, G., et al., *Development of a Longitudinal Integrated Clerkship at The Warren Alpert Medical School of Brown University*. *R I Med J* (2013), 2015. **98**(9): p. 27-31.
7. George, P., et al., *The Primary Care-Population Medicine Program at The Warren Alpert Medical School of Brown University*. *R I Med J* (2013), 2015. **98**(9): p. 16-21.
8. Mello, M.J., et al., *Advancing the Integration of Population Medicine into Medical Curricula at The Warren Alpert Medical School of Brown University: A New Master's Degree Program*. *R I Med J* (2013), 2015. **98**(9): p. 22-6.
9. Sheline, B., et al., *The Primary Care Leadership Track at the Duke University School of Medicine: creating change agents to improve population health*. *Acad Med*, 2014. **89**(10): p. 1370-4.
10. Bicket, M., et al., *Medical student engagement and leadership within a new learning community*. *BMC Med Educ*, 2010. **10**: p. 20.
11. Goldstein, A.O., et al., *Teaching Advanced Leadership Skills in Community Service (ALSCS) to medical students*. *Acad Med*, 2009. **84**(6): p. 754-64.
12. Crites, G.E., J.R. Ebert, and R.J. Schuster, *Beyond the dual degree: development of a five-year program in leadership for medical undergraduates*. *Acad Med*, 2008. **83**(1): p. 52-8.