

**Table S6.** Data Extraction for Studies Included (n= 23)

- The list was according to the publication year (downwards).
- Verbatim was used the documents included in this summary
- The text in “...” was extracted from documents that were public domain (one can find it in the internet).
- The text in [...] was extracted from documents that were not in public domain or authors’ responses via email. Others should contact authors to obtain the information.

Summary of each Document Included in the Scoping Review: 1 article

Title	<b>“An Undergraduate Medical Education Framework for Refugee and Migrant Health: Curriculum Development and Conceptual Approaches”</b>
First author and contact	“Douglas Gruner ( dgruner@bruyere.org )”
Year of publication	2022
Affiliation of the authors	<ol style="list-style-type: none"><li>1. University of Ottawa</li><li>2. University of Toronto</li><li>3. Bruyere Research Institute</li><li>4. Institut Savoir Montfort”</li></ol>
Location of the intervention	“Canada”

Aim	“The objective of this paper was to develop a practical framework to improve medical student curriculum that will enable the next generation of physicians to address refugee and migrant/newcomer health inequities”.
Learners’ level	“undergraduate medical training”
Instructors: selection criteria	Out of the scope
Instructors: specific training	Out of the scope
Support	“This research received no external funding”.
Leadership: definition or conceptualisation.	<ul style="list-style-type: none"> <li>[As Leaders, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.]</li> </ul>
Citation	Gruner, D.; Feinberg, Y.; Venables, M. J.; Shanza Hashmi, S.; Saad, A.; Archibald, D.; Pottie, K. An undergraduate medical education framework for refugee and migrant health: Curriculum development and conceptual approaches. <i>BMC Med Educ</i> <b>2022</b> , 22 (1), 374. DOI: 10.1186/s12909-022-03413-8.

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Consultation	Frank, J.R.; Snell, L.; Sherbino J.Can Meds 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada. <b>2015</b> .CanMEDS Role: Leader :: The Royal College of Physicians and Surgeons of Canada ( achieved on 1 <sup>st</sup> February 2023)
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Summary of each Document Included in the Scoping Review: 2 article

Title	Leadership curricula and assessment in Australian and New Zealand medical schools.
First author and contact	“Simone Jacquelyn Ross (simone.ross@jcu.edu.au)”
Year of publication	2021
Affiliation of the authors	James Cook University, Douglas, Queensland, Australia.
Location of the intervention	“Australian and New Zealand (Australasian)”
Aim	“This study aims to investigate the current curricula, assessment and evaluation of medical leadership in Australasian medical degrees, with particular focus on the roles and responsibilities of medical leadership teachers, frameworks used and competencies taught, methods of delivery, and barriers to teaching leadership.”
Learners’ level	“In this paper, the term undergraduate entry refers to a university tertiary degree where the entry requirement is to have completed and hold a secondary school qualification, whereas graduate entry refers to a university tertiary degree where the entry requirement is to have already completed and hold a tertiary university degree qualification. Also, in this paper,

	the terms medical school or programs/degrees, refers to a qualification that permits the holder to seek general registration as a medical practitioner and does not refer to specialist (postgraduate) training”
Instructors: selection criteria	Out of scope
Instructors: specific training	Out of scope.
Support	“No funding was received”.
Leadership: definition or conceptualisation.	Out of the scope
Citation	Ross, S. J.; Sen Gupta, T.; Johnson, P. Leadership curricula and assessment in Australian and New Zealand medical schools. <i>BMC Med Educ</i> <b>2021</b> , 21 (1), 28. DOI: 10.1186/s12909-020-02456-z.
Consultation	Australian Medical Council Limited. <i>Standards for Assessment and Accreditation of Primary Medical Programs by the Australian Medical Council 2012</i> . <b>2012</b> . Standards-for-Assessment-and-Accreditation-of-Primary-Medical-Programs-by-the-Australian-Medical-Council-2012.pdf (amc.org.au) ( achieved on 1 <sup>st</sup> February 2023)

Summary of each Document Included in the Scoping Review: 3 article

Title	<b>The Pandemic Leadership Model: A study of Medical Student Values During COVID-19</b>
First author and contact	Alec Bernard (bernaral@med.umich.edu)
Year of publication	“2021”
Affiliation of the authors	University of Michigan Medical School, Ann Arbor, MI, United States.
Location of the intervention	“The United States of America”
Aim	“we aim to determine a model for pandemic leadership from the perspective of medical student values”.
Learners’ level	“Undergraduate Medical Education”
Instructors: selection criteria	Out of the scope

Instructors: specific training	Out of the scope
Leadership: definition or conceptualisation.	Not provided
Support	“Conflict of Interest Statement & Funding The Authors have no funding, financial relationships or conflicts of interest to disclose”
Citation	Alec Bernard; Sarah C. Ortiz; Elizabeth Jones; Michael Heung; Timothy C. Guetterman; Nell Kirst. The Pandemic Leadership Model: A Study of Medical Student Values during Covid-19. <i>International Journal of Medical Students</i> 9 (4) DOI: 10.5195/ijms.2021.1001.
Handsearching or consultation	None



Summary of each Document Included in the Scoping Review: 4 article

Title	<b>Contextual Analysis of Stakeholder Opinion on Management and Leadership Competencies for Undergraduate Medical Education: informing course design</b>
First author and contact	Nisreen Rajeh ( nrajeh@kau.edu.sa ; drnisreen73@gmail.com)
Year of publication	2020
Affiliation of the authors	<ol style="list-style-type: none"><li>1. “King Abdulaziz University, Jeddah, Saudi Arabia.</li><li>2. The Open University, Milton Keynes, Buckinghamshire, UK.</li><li>3. University of Illinois, Chicago, IL, USA”.</li></ol>
Location of the intervention	“Saudi Arabia”
Aim	“The study aimed to conduct a contextual analysis of interviews intended to assist with the future design of a feasible and relevant leadership and management course for undergraduate medical students at King Abdulaziz University (KAU), Saudi Arabia”.
Learners’ level	“Undergraduate medical students”

Instructors: selection criteria	Not applicable
Instructors: specific training	Not applicable
Support	“The author(s) received no financial support for the research, authorship, and/or publication of this article”
Leadership: definition or conceptualisation.	<ul style="list-style-type: none"> <li>• “Under the theme of “Concepts of leadership and management”, most of the respondents mentioned that leaders have a vision”</li> <li>• “The whole concept of personal leadership, all the traits of personal leadership, starting from having the insight, having the trait of how a person can contribute to an institutional vision, a country vision, and the traits of time management.”</li> <li>• “A leader should inspire people to move on, to do the job well, to have a good practice, to become the best they can be as a group working together toward a common goal”</li> </ul>

Citation	Rajeh, N.; Grant, J.; Farsi, J.; Tekian, A. Contextual Analysis of Stakeholder Opinion on Management and Leadership Competencies for Undergraduate Medical Education: Informing Course Design. <i>J Med Educ Curric Dev</i> <b>2020</b> , 7, 2382120520948866. DOI: 10.1177/2382120520948866.
Handsearching or consultation	None

Summary of each Document Included in the Scoping Review: 5 article

Title	A student-led curriculum framework for homeless and vulnerably housed populations
First author and contact	Syeda Shanza Hashmi. Contact autor: Kevin Pottie ( kpottie@uottawa.ca)
Year of publication	“2020”
Affiliation of the authors	<ol style="list-style-type: none"> <li>1. “University of Ottawa, Ottawa, Canada.</li> <li>2. Bruyère Research Institute, Ottawa, Canada.</li> <li>3. University of Toronto, Toronto, Canada.</li> <li>4. University of Manitoba, Winnipeg, Canada.</li> <li>5. University of Sherbrooke, Sherbrooke, Canada.</li> <li>6. Inner City Health Associates, Toronto, Canada.</li> <li>7. Department of Medicine, Schulich School of Medicine, Toronto, Canada[western University].</li> <li>8. McMaster University, Hamilton, Canada.</li> <li>9. Canadian Alliance to End Homelessness, Ontario, Canada”</li> </ol>
Location of the intervention	“Canada”

Aim	“The purpose of this innovation paper is to introduce a new framework to guide the development of homeless health undergraduate medical curriculums”.
Learners’ level	“Undergraduate medical curriculums”
Instructors: selection criteria	Out of scope
Instructors: specific training	Out of scope
Support	“We would like to acknowledge evidence-based project funding from Inner City Health Associates and knowledge translation funding from Canadian Medical Association, Public Health Association of Canada and the Canadian Federation of Medical Students”
Leadership: definition or conceptualisation.	Not provided
Citation	Hashmi, S. S.; Saad, A.; Leps, C.; Gillies-Podgorecki, J.; Feeney, B.; Hardy, C.; Falzone, N.; Archibald, D.; Hoang, T.; Bond, A.; et al. A student-led curriculum framework for homeless and vulnerably housed populations. <i>BMC Med Educ</i> <b>2020</b> , <i>20</i> (1), 232. DOI: 10.1186/s12909-020-02143-z.

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Handsearching or consultation	None
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Summary of each Document Included in the Scoping Review: 6 article

Title	A first-year leadership programme for medical students
First author and contact	Heather Wagenschutz ( hmwags@umich.edu) or : Lisa Schneider lisaschn@umich.edu
Year of publication	2019
Affiliation of the authors	University of Michigan, Ann Arbor, Michigan, USA.
Location of the intervention	The United States of America
Aim	“Our goal was to design, implement and assess an integrated, required leadership programme for all first-year medical students”
Learners’ level	<ul style="list-style-type: none"> <li>• [Currently we have three sessions in the M1 year (first year med students). They have two sessions on public speaking and giving and receiving feedback and one session on writing their mission, vision and values statement, which includes setting short, long and aspirational goals.”]</li> <li>• [In the M2 year, during the clinical trunk intensive, a one week required for all clinical students, we offer a session on Emotional Intelligence. Below is the session description, session objectives, and medical school competencies (see attached University of Michigan Medical School Competencies).]</li> </ul>

	<ul style="list-style-type: none"> <li>• [The students will participate in specific inter-professional educational activities in collaboration with other health professional or health professional students. Other colleges/schools involved in interprofessional education are: Pharmacy, Nursing, Dental, and Social Work]</li> </ul>
Instructors: selection criteria	[Faculty who teach in the Leadership are all MDs. We run a intro session (if needed) before the day of the session and we provide facilitators with a guide that they can refer to, if needed during the session.]
Instructors: specific training	[Faculty who teach in the Leadership are all MDs. We run a intro session (if needed) before the day of the session and we provide facilitators with a guide that they can refer to, if needed during the session.]
Support	“University of Michigan Medical School receives grant funding from the American Medical Association as part of the Accelerating Change in Medical Education Grant.”
Leadership: definition or conceptualisation.	“develop humble, reflective leaders who identify problems, work collaboratively with teams to create solutions, and create a vision for positive change.”
Citation	Wagenschutz, H.; McKean, E. L.; Mangrulkar, R.; Zuraes, K.; Santen, S. A first-year leadership programme for medical students. <i>Clin Teach</i> <b>2019</b> , <i>16</i> (6), 623-629. DOI: 10.1111/tct.13005.
Consultation	Wagenschutz, H. (University of Michigan, Ann Arbor, Michigan, USA).Personal communication Word document: Medical School: Improving healthcare systems 1, 2, and 3 (MEDADM 5160))



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Wagenschutz, H. (University of Michigan, Ann Arbor, Michigan, USA).Personal communication Word document:

Medical School University of Michigan 2021 to 22 competencies)

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Summary of each Document Included in the Scoping Review: 7 article

Title	<b>“Medical Student Consulting: Providing Students Leadership and Business Opportunities While Positively Impacting the Community”</b>
First author and contact	David S. Portney . Contact author Paige VonAchen (vonachen@med.umich.edu)
Year of publication	“2019”
Affiliation of the authors	
Location of the intervention	United States of America
Aim	“Herein, we describe the establishment and growth of Med ECG within our own institution. We provide content and advise readers on how to practically implement a similar program at their home institutions. Last, we describe Med ECG’s challenges, lessons learned, and generalizability”
Learners’ level	“Students across all levels of medical school were involved in the program, and each project team included preclinical and clinical students. In Med ECG’s first year, there were 14 members, including eight first-year students, two second-year students, three third-year students, and one fourth-year student. Of the 14 total members, five of the students were pursuing secondary graduate degrees, including three MBA students and two PhD students”

Instructors: selection criteria	Not provided
Instructors: specific training	Not provided
Support	“Funding from the Alpha Omega Alpha Medical Student Service Leadership Project Grant and the University of Michigan Medical School helped make the implementation of the Medical Educational Consulting Group possible”
Leadership: definition or conceptualisation.	Not provided
Citation	Portney, D. S.; VonAchen, P.; Standiford, T.; Carey, M. R.; Vu, J.; Kirst, N.; Zink, B. Medical Student Consulting: Providing Students Leadership and Business Opportunities While Positively Impacting the Community. <i>MedEdPORTAL</i> <b>2019</b> , <i>15</i> , 10838. DOI: 10.15766/mep_2374-8265.10838.
Hand searching or consultation	None

Summary of each Document Included in the Scoping Review: 8 article

<b>Title</b>	<b>“Medical Student Leader Performance in an Applied Medical Field Practicum”</b>
First author and contact	Erin S. Barry (erin.barry.ctr@usuhs.edu)
Year of publication	2019
Affiliation of the authors	Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd, Bethesda, MD.
Location of the intervention	The United States of America.
Aim	<ul style="list-style-type: none"> <li>• “The purpose of this paper is to describe the comprehensive program and its conceptual framework that may be useful for other academic medical leader and leadership education and development programs around the globe”.</li> <li>• “The purpose of the present study was to determine if a leader assessment tool could be used in an applied military medical practicum, Operation Bushmaster, to assess medical student leader performance. More specifically, we examined whether: (1) leader performance can be measured at Bushmaster; (2) leader performance changed over the Bushmaster practicum; (3) leader performance elements are related to each other; and (4) overall leader performance is related to other medical academic performance measures”.</li> </ul>

Learners' level	<ul style="list-style-type: none"> <li>• “The Uniformed Services University uses these definitions and delivers a four-year, comprehensive program as a requisite part of the undergraduate medical education of all medical students”.</li> <li>• “This study examined the leader and academic performance of students...for students in the classes of 2016–2018”</li> <li>• [Operation Bushmaster is the capstone event for senior students in the Uniformed Services University School of Medicine and Graduate School of Nursing- Graduating Advanced Practice Nurses-]</li> </ul>
Instructors: selection criteria	<ul style="list-style-type: none"> <li>• [Faculty who are extremely motivated and can guide the operational and clinical scenarios for a platoon of students (about 25 students). You must participate in online training before you attend faculty training (the first day at Ft Indiantown Gap).]</li> <li>• <u>[Faculty Positions]</u> <ul style="list-style-type: none"> <li>A. [Faculty Team Leader               <ul style="list-style-type: none"> <li>a. Must have previous experience at Operation Bushmaster</li> </ul> </li> <li>B. Leadership               <ul style="list-style-type: none"> <li>a. Have expertise/knowledge in operational military leadership</li> </ul> </li> <li>C. Surgeon               <ul style="list-style-type: none"> <li>a. Have expertise/knowledge in TCCC, ATLS, ALS</li> </ul> </li> <li>D. Ambulance Team Leader</li> </ul> </li> </ul>

	<p>a. Have expertise in TCCC</p> <p>E. Behavioral Health. NOTE: The selection criteria was not mentioned</p> <p>F. Preventive Medicine. NOTE: The selection criteria was not mentioned</p> <p>G. Casualty Coach. NOTE: The selection criteria was not mentioned</p> <p>H. Platoon Sergeant. NOTE: The selection criteria was not mentioned</p>
Instructors: specific training	[You must participate in online training before you attend faculty training (the first day at Ft Indiantown Gap).]
Support	“This study was funded by the Henry M. Jackson Foundation Education Grant # 64711-307943-1.00”
Leadership: definition or conceptualisation.	<p>1. “Leadership is defined as influence on individuals and groups by enhancing behaviors (actions), cognitions (perceptions, thoughts, and beliefs), and motivations (why people act and think as they do) to achieve goals that benefit the individuals and groups. Leaders set the vision and inspire followers”.</p> <p>2. “Leadership, therefore, refers to social psychological processes, interpersonal and group dynamics, and influence on all aspects of psychology (behaviors, cognitions, and motivations) of others. Leaders are the drivers of these processes who adjust to goals, individuals, and context”.</p>

Citation	<p>Barry, E. S.; Dong, T.; Durning, S. J.; Schreiber-Gregory, D.; Torre, D.; Grunberg, N. E. Medical Student Leader Performance in an Applied Medical Field Practicum. <i>Mil Med</i> <b>2019</b>, <i>184</i> (11-12), 653-660. DOI: 10.1093/milmed/usz121.</p>
Handsearching	<p>Barry, E. S.; Grunberg, N. E.; Kleber, H. G.; McManigle, J. E.; Schoomaker, E. B. A four-year medical school leader and leadership education and development program. <i>Int J Med Educ</i> 2018, <i>9</i>, 99-100. DOI: 10.5116/ijme.5abe.12d2.</p> <p>Grunberg, N. E.; Barry, E. S.; Callahan, C. W.; Kleber, H. G.; McManigle, J. E.; Schoomaker, E. B. A conceptual framework for leader and leadership education and development. <i>International Journal of Leadership in Education</i> 2019, <i>22</i>(5), 644–650. <a href="https://doi.org/10.1080/13603124.2018.1492026">https://doi.org/10.1080/13603124.2018.1492026</a></p>
Consultation	<p>Barry, E. S. (Department of Military &amp; Emergency Medicine, F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd, Bethesda, USA).Personal communication, Word document: Bushmaster Core Learning Objectives.)</p> <p>Barry, E. S. (Department of Military &amp; Emergency Medicine, F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd, Bethesda, USA) Personal communication, Word document: Word document: LEAD Pre-Clerkship/B3 Curriculum</p>

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Barry, E. S. (Department of Military & Emergency Medicine, F. Edward Hébert School of Medicine, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Rd, Bethesda, USA) Personal communication, Word document: Busmaster Faculty.info. 2021)

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Summary of each Document Included in the Scoping Review: 9 article



Title	<b>“Preparing Medical Students to be Physicians Leaders: A Leadership Training Program for Students Designed and Led by Students”</b>
First author and contact	Kristen Richard (otting.richard@umassmemorial.org)
Year of publication	2019
Affiliation of the authors	1. University of Massachusetts Medical School. 2. Duke University School of Medicine.
Location of the intervention	The United States of America
Aim	“We present our model as an example that another student or faculty administration...can easily adapt to fit individualized goals and objectives and can easily and efficiently implement at other institutions.”
Learners’ level	“We targeted first-year medical students, as early training encourages participants to seek out leadership positions available to senior medical students that they may have not otherwise sought and reinforces skills utilization”
Instructors: selection criteria	<ul style="list-style-type: none"> <li>• “We followed the in-depth course outline, including reference to faculty facilitator qualifications”</li> <li>• “Umass Memorial president/chief executive officer and vice president of operations. Facilitator qualifications: Recognized as a role model for leadership Holds some type of leadership management position”</li> </ul>

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- “Assistant professor and pediatric clerkship director Facilitator qualification: Holds some type of leadership position as a team instructor”
  - “Dean of the Graduate School of Nursing Facilitator qualification: Holds some type of leadership position as a team instructor”
  - “Professor and associate dean for undergraduate medical education, associate dean for curriculum innovation and interprofessional Center for Experiential Learning and Simulation Facilitator qualification: Anyone recognized for leadership ability”.
  - “We recruited faculty according to expertise and dedication to medical education. Qualification for faculty recruitment included the following:
    - a. Recognized by students as a role model in leadership and teaching
    - b. Displayed an academic interest and/or publication(s) in the topic area.
    - c. Obtained a leadership position within the medical school (assistant professor or professor) or a senior clinical leadership position within the hospital administration”.

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Instructors: specific	Not mentioned.
training	

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Support	“None to report”.
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Leadership: definition or conceptualisation.	“Leadership is... inspiring others to work together to achieve a common vision”.
Citation	Richard, K.; Noujaim, M.; Thorndyke, L. E.; Fischer, M. A. Preparing Medical Students to Be Physician Leaders: A Leadership Training Program for Students Designed and Led by Students. <i>MedEdPORTAL</i> <b>2019</b> , <i>15</i> , 10863. DOI: 10.15766/mep_2374-8265.10863.
Handsearching or consultation	NONE

Summary of each Document Included in the Scoping Review: 10 article

NOTE[ The supplementary material is written in a language that is not covered in this review: Spanish, Portuguese or English. Therefore, we did not extract relevant information].

<b>Title</b>	<b>Identification and evaluation of the core elements of character education for medical students in Korea</b>
First author and contact	Yera Hur ( april0401@hanmail.net)
Year of publication	2019
Affiliation of the authors	1 “Institute of Medical Education, Hallym University College of Medicine, Chuncheon, Korea 2 Korea Institute for Research in the Behavioral Sciences, Seoul, Korea”.
Location of the intervention	The Republic of Korea
Aim	“Therefore, this study aimed to evaluate and redefine character education in Korean medical schools by investigating the following questions:  1. What are the core elements of character that good doctors should have?; 2. How can we define those core elements, and what sub-elements do they contain?; 3. How can a model of character education for medical students be presented?; 4. What are medical students’ levels of the identified core elements?; and

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5. What is the appropriate academic year during which the core elements should be provided?"

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Learners' level	"The results of this study can be used as a reference for establishing the goals and desired outcomes of character education at the level of undergraduate or graduate medical education."
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Instructors: selection criteria	Out of scope
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Instructors: specific training	Out of scope
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Support	"This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2018S1A5A2A01038037)".
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Leadership: definition or conceptualisation.	"Attitudes and ability to reflect on, examine, and endure in difficult situations, to view health care in its social context, and to reach agreement with other members of an organization"
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Citation	Hur, Y.; Lee, K. Identification and evaluation of the core elements of character education for medical students in Korea. <i>J Educ Eval Health Prof</i> <b>2019</b> , <i>16</i> , 21. DOI: 10.3352/jeehp.2019.16.21.
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Handsearching	None
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Summary of each Document Included in the Scoping Review: 11 article

Title	<b>Leadership and Academic Medicine: Preparing Medical Students and Residents to Be Effective Leaders for the 21st Century.</b>
First author and contact	Joel Dickerman . Contact author: Jhon P Sanchez ( jps304@njms.rutgers.edu)
Year of publication	2018
Affiliation of the authors	1. Rocky Vista University College of Osteopathic Medicine  2. Rutgers New Jersey Medical School  3. Bureau of Health Workforce, Health Resources Services Administration  4. Florida International University Herbert Wertheim College of Medicine.
Location of the intervention	The United States of America
Aim	“this workshop introduces medical students and residents to the range of leadership responsibilities and opportunities available during training and clinical practice. In addition, the workshop provides participants with an opportunity to apply leadership skills and principles to simulated cases”.
Learners’ level	<ul style="list-style-type: none"> <li>• “Medical students and residents”</li> </ul>

	<ul style="list-style-type: none"> <li>• “This workshop can be implemented among medical students or residents, or even fellows or junior faculty”</li> </ul>
Instructors: selection criteria	<ul style="list-style-type: none"> <li>• “facilitators”: “One or two individuals can facilitate the workshop. At least one facilitator should be of a rank higher than the participants so that participants can acknowledge that skills and solutions presented during the simulated cases represent realistic and credible possibilities given their current educational/work scenarios (i.e., the facilitator has walked in their shoes)”</li> </ul>
Instructors: specific training	<ul style="list-style-type: none"> <li>• “facilitators should review the PowerPoint (PPT) presentation (Appendix A), slide instructions (Appendix B), worksheet (Appendix C), case scenarios (Appendix D), and watch the train-the-trainer video (Appendix E)”</li> <li>• “The preworkshop time commitment is approximately 1-2 hours for a review of materials”.</li> </ul>
Support	“None to report”
Leadership: definition or conceptualisation.	<ul style="list-style-type: none"> <li>• “Origin of words lead, leader, leadership is “laid”, alluding 'path' or 'road'”.</li> <li>• “verb læden = 'to travel'. A leader is an individual who shows other travellers the path ahead”</li> <li>• “Leadership has been described as the behavior of an individual when directing the activities of a group toward a shared goal.”</li> <li>• “The new health care leader is not fearful or resistant in the face of change, but rather embraces change as a means to innovate. The leader is able to apply leadership skills to all aspect of health care, from education to delivery of care”.</li> </ul>



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- “What is the difference between management and leadership? Management produces order and consistency whereas leadership produces change and movement”.

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Citation	Dickerman, J.; Sánchez, J. P.; Portela-Martinez, M.; Roldan, E. Leadership and Academic Medicine: Preparing Medical Students and Residents to Be Effective Leaders for the 21st Century. <i>MedEdPORTAL</i> <b>2018</b> , <i>14</i> , 10677. DOI: 10.15766/mep_2374-8265.10677.
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Handsearching or consultation	None
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Summary of each Document Included in the Scoping Review: 12 article

<b>Title</b>	<b>On the road to becoming a responsible leader: A simulation-based training approach for final year medical students</b>
First author and contact	Marion Schmidt-Huber , Contact author: Jan Kiesewetter (jan.kiesewetter@med.uni-muenchen.de)
Year of publication	2017
Affiliation of the authors	<p>1. Ludwig-Maximilians-Universität, Munich, former: LMU Center for Leadership and People Management, A47 Consulting Munich, Munich, Germany.</p> <p>2. Klinikum der LMU München, Institut für Didaktik und Ausbildungsforschung in der Medizin, München, Germany.</p>
Location of the intervention	Germany
Aim	<p>“The goals of this article are</p> <p>1. to point out the importance of adding leadership competencies as an integral part of medical education and demonstrate the leadership training program, applied in a German University hospital as a worthwhile expansion of the undergraduate medical education curriculum. Additionally, we</p> <p>2. present the results of our training evaluation and predictors of training effectiveness, and</p>

	3. draw lessons learned with respect to the successful implementation of leadership competency trainings in medical education”
Learners’ level	“German medical students are required to work in three different specialties (Internal Medicine, Surgery, and one discipline of their choice) during their final year (the so called “practical year”)”.
Instructors: selection criteria	“The training team consisted of two experienced work and organizational psychologists specialized in leadership development, one medical educator, specialized in simulation-based training and two trained actors for the role plays”.
Instructors: specific training	Not mentioned.
Support	“This work was supported by the Research Fund “Hildegard Hampp Humanitas” of the University hospital of LMU Munich. The authors won the prize for “Young Lecturers 2014”, awarded from the German Society of Medical Education (“Preis junger Lehrender 2014”, GMA Gesellschaft für Medizinische Ausbildung) and dedicated the prize to the preparation of the manuscript”.
Leadership: definition or conceptualisation.	1. “In this context, the concept of leadership comprises exerting conscious, goal-oriented social influence on people (subordinates, colleagues and teams) for the purpose of performing shared tasks in pursuit of common goals, and focuses on leading”.

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2. “We explicitly put the focus on differences in role expectations of lateral leadership (exerting influence without formal power) and disciplinary leadership functions as well”.
  3. “Ethical leadership emphasizes the responsibility of leaders for human dignity and, at the same time, strives for excellent performance. So, leaders’ drive for success and self-realization is bound by their responsibility for other humans and the environment they live in; “Act in a way you would like others to act; treat people in a way you would like to be treated; lead in a way you would want to be led””
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Citation	Schmidt-Huber, M.; Netzel, J.; Kieseewetter, J. On the road to becoming a responsible leader: A simulation-based training approach for final year medical students. <i>GMS J Med Educ</i> <b>2017</b> , <i>34</i> (3), Doc34. DOI: 10.3205/zma001111.
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Handsearching or consultation	None
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Summary of each Document Included in the Scoping Review: 13 article

<b>Title</b>	<b>Health Systems Science Curricula in Undergraduate Medical Education: Identifying and Defining a Potential Curricular Framework</b>
<b>First author and contact</b>	Jed D. Gonzalo (jgonzalo@hmc.psu.edu)
<b>Year of publication</b>	2017
<b>Affiliation of the authors</b>	<ol style="list-style-type: none"> <li>1. “Penn State College of Medicine, Hershey, Pennsylvania</li> <li>2. American Medical Association, Chicago, Illinois</li> <li>3. Mayo Medical School, Mayo Clinic College of Medicine, Rochester, Minnesota</li> <li>4. Alpert Medical School of Brown University, Providence, Rhode Island</li> <li>5. Oregon Health &amp; Science University School of Medicine, Portland, Oregon</li> <li>6. University of California Davis School of Medicine, Sacramento, California.</li> <li>7. Vanderbilt University School of Medicine, Nashville, Tennessee.</li> <li>8. University School of Medicine, Indianapolis, Indiana”.</li> <li>9. University of California San Francisco School of Medicine, San Francisco, California”.</li> <li>10. Brody School of Medicine at East Carolina University, Greenville, North Carolina. (East Carolina University)</li> <li>11. University of Michigan Medical School, Ann Arbor, Michigan.</li> <li>12. New York University School of Medicine, New York, New York”.</li> </ol>

Location of the intervention	The United States of America.
Aim	This report describes the development of a comprehensive HSS curricular framework and its application to build a comprehensive list of curricular content
Learners' level	<ol style="list-style-type: none"> <li>1. "Undergraduate Medical Education: Identifying and Defining a Potential Curricular Framework"</li> <li>2. "This broad framework aims to build on the traditional definition of systems-based practice and highlight the need for medical and other health professions schools".</li> </ol>
Instructors: selection criteria	Not applicable
Instructors: specific training	Not applicable
Support	"Funding/Support: This project was performed with financial support from the American Medical Association as part of the Accelerating Change in Medical Education Initiative".

Leadership: definition or conceptualisation.	<p>1. “Leadership and Change Agency: All issues related to the ability to inspire motivation in others to create goals toward a desirable vision. In the context of undergraduate medical education, leadership pertains to team-based care, quality improvement projects, etc”</p> <p>2. “Professionalism and ethics “All issues related to ethical behavior and professionalism, including conduct, congruent with generally accepted moral principles and values and with professional guidelines based on those principles and values. This definition includes general leadership ethics, such as honesty and responsibility, as well as ethics and professionalism specific to the HSS domains”.</p>
Citation	<p>Gonzalo, J. D.; Dekhtyar, M.; Starr, S. R.; Borkan, J.; Brunett, P.; Fancher, T.; Green, J.; Grethlein, S. J.; Lai, C.; Lawson, L.; et al. Health Systems Science Curricula in Undergraduate Medical Education: Identifying and Defining a Potential Curricular Framework. <i>Acad Med</i> <b>2017</b>, 92 (1), 123-131. DOI: 10.1097/ACM.0000000000001177.</p>
Hand searching or consultation	NONE

Summary of each Document Included in the Scoping Review: 14 article.

Title	<b>“The Health Professions Education Pathway: Preparing Students, Residents, and Fellows to Become Future Educators”</b>
First author and contact	Carrie Chen (carrie.chen@ucsf.edu)( hcarriechen@gmail.com) and Amin Azzam (Amin.Azzam@ucsf.edu)
Year of publication	2017
Affiliation of the authors	<ol style="list-style-type: none"><li>1. “University of California, San Francisco School of Medicine San Francisco, California</li><li>2. University of California, Davis, School of Medicine, Sacramento, California</li><li>3. University of British Columbia, Vancouver, British Columbia, Canada.</li><li>4. University School of Medicine, Stanford, California”</li></ol>
Location of the intervention	The United States of America
Aim	“In this article, we describe the HPE Pathway program development, curriculum, and initial program outcomes by focusing on the pathway’s CoP approach to supporting the professional identity formation and career development of participants as future educators”.



Learners' level	<ol style="list-style-type: none"> <li>1. "To prepare students, residents, and fellows for a breadth of scholarly careers in medical education, the University of California San Francisco (UCSF) applied the CoP framework in developing the Health Professions Education (HPE) Pathway as part of a larger scholarly concentrations program".</li> <li>2. "The HPE Pathway is also unique among other scholarly concentration programs in that it welcomes medical students, residents, fellows, and learners from other health professional schools on the UCSF campus (dentistry, nursing, pharmacy, and physical therapy)".</li> <li>3. [ the students in that table were all in their final (4th) year of medical school. Some students might have elected to spread out the traditional (graduate-entry) 4-years of US medical school across 5 years. In those cases, the students would have been anywhere in their 4<sup>th</sup> - 5<sup>th</sup> year of their 5-year journeys.]... [Students typically enter the pathway at the beginning of their final year of medical school (i.e. 4th year), but may choose to enter earlier and it would be rare for them to complete the leadership curriculum earlier than their final year]</li> </ol>
Instructors: selection criteria	<ol style="list-style-type: none"> <li>1. "The health professions education CoP comprises members of the UCSF Academy of Medical Educators and educational researchers in the Center for Faculty Educators, as well as other teachers, curriculum developers, educational leaders, and educational scholars from the various health professional schools whose primary identity is as an educator"</li> </ol>

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2. [We leveraged our community of practice to invite visible UCSF leaders in educational leadership positions (e.g. Deans of the various professional schools, Vice Deans for Education, etc.) to be guest speakers for sessions.]

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Instructors: specific training	1. “ To identify the competencies required of an effective teacher in medical education, the authors developed a comprehensive conceptual model...The authors identified six core competencies, based on the ACGME competencies framework: medical (or content) knowledge; learner centeredness; interpersonal and communication skills; professionalism and role modeling; practice-based reflection; and systems-based practice. They also included four specialized competencies for educators with additional programmatic roles: program design/implementation, evaluation/scholarship, leadership, and mentorship”
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Support	<ul style="list-style-type: none"><li>• [University of California San Francisco School of Medicine]</li><li>• “The Teaching as a Competency conference was generously funded by the Department of Psychiatry and Behavioral Medicine and Department of Medicine at the University of California, Davis, School of Medicine. Dr. Srinivasan’s time was funded in part by the Robert Wood Johnson Foundation Generalist Physician Faculty Development Program”.</li></ul>
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Leadership: definition or conceptualisation.	[We thought of Educational Leadership as one of the core domains of educators, as conceptualized through domains of an Educators' Portfolio. We treat Educational Leadership as a domain that encompasses academic positions that encompass formal administrative responsibilities for educational programs (e.g. residency training directors, directors of medical student education in specific departments, etc.).]
Citation	Chen, H. C.; Wamsley, M. A.; Azzam, A.; Julian, K.; Irby, D. M.; O'Sullivan, P. S. The Health Professions Education Pathway: Preparing Students, Residents, and Fellows to Become Future Educators. <i>Teach Learn Med</i> <b>2017</b> , 29 (2), 216-227. DOI: 10.1080/10401334.2016.1230500.
Consultation	Srinivasan, M.; Li, S. T.; Meyers, F. J.; Pratt, D. D.; Collins, J. B.; Braddock, C.; Skeff, K. M.; West, D. C.; Henderson, M.; Hales, R. E.; et al. "Teaching as a Competency": competencies for medical educators. <i>Acad Med</i> <b>2011</b> , 86 (10), 1211-1220. DOI: 10.1097/ACM.0b013e31822c5b9a.

Summary of each Document Included in the Scoping Review: 15 article.

<b>Title</b>	<b>Leadership and management in UK medical school curricula</b>
First author and contact	Richard Jefferies. Contact authors: Peter Lees (P.C.Spurgeon@warwick.ac.uk, peter.lees@fmlm.ac.uk) and Olivia Jagger and olivia.jagger@nhs.net

Year of publication	2016
Affiliation of the authors	<ol style="list-style-type: none"> <li>1. Barts and the London School of Medicine and Dentistry, London, UK (Queen Mary University of London)</li> <li>2. King's College London, London, UK</li> <li>3. University of Birmingham, Birmingham, UK</li> <li>4. Faculty of Medical Leadership and Management, London, UK</li> <li>5. St George's Medical School, University of London, London, UK</li> <li>6. Warwick Medical School, Coventry, UK</li> <li>7. University of Southampton, Southampton, UK</li> <li>8. University of Leicester, Leicester, UK</li> <li>9. University of Warwick, Coventry, UK</li> <li>10. University of Birmingham, Birmingham, UK</li> <li>11. Newcastle University, Newcastle, UK</li> <li>12. Peninsula College of Medicine and Dentistry, Plymouth, UK</li> <li>13. University of Manchester, Manchester, UK</li> <li>14. Nick Cork, School of Clinical Medicine, University of Cambridge, Cambridge, UK</li> <li>15. University of Nottingham Medical School, Nottingham, UK</li> <li>16. University College London, London, UK</li> </ol>

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17. Swansea University, Swansea, UK
  18. University of Liverpool, Liverpool, UK
  19. Keele University, Keele, UK
  20. Brighton and Sussex Medical School, Brighton, UK ( University of Brighton and the University of Sussex).
  21. University of Edinburgh, Edinburgh,
  22. University of Oxford Medical School, Oxford, UK
  23. University of London, London, UK
  24. The University of Sheffield, Sheffield, UK
  25. Imperial College London, London, UK
  26. Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK”.

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Location of the intervention	The United Kingdom
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Aim	<p>“This study therefore aimed to:</p> <ol style="list-style-type: none"> <li>1. assess MLM framework awareness and usage across UK medical schools;</li> <li>2. ascertain methods used to teach and assess MLM and at which time points;</li> <li>3. describe the methods and extent of curriculum evaluation and development;</li> </ol>
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	<ol style="list-style-type: none"> <li>4. identify barriers to MLM inclusion in UK medical school curricula and opportunities to overcome these;</li> <li>5. explore the student selected curricular and extracurricular engagement in MLM across the UK; and</li> <li>6. collect case studies of excellence in undergraduate MLM education for national reapplication”.</li> </ol>
Learners’ level	“This study is the first in-depth insight into MLM teaching practices in UK undergraduate medical curricula”.
Instructors: selection criteria	Out of scope.
Instructors: specific training	Out of scope.
Support	Not provided.
Leadership: definition or conceptualisation.	<p>“ In recent years, other frameworks and guidelines have been published including the Healthcare Leadership Model (NHS Leadership Academy, 2013) and the Faculty of Medical Leadership and Management’s (FMLM) Standards for Medical Leadership (Faculty of Medical Leadership and Management, 2015), which emphasise the concepts of “shared leadership”: leadership being a responsibility for all staff at every level through effective teamwork and the continuous development of personal MLM attributes and behaviours”.</p>

Citation	<p>Jefferies, R.; Sheriff, I. H.; Matthews, J. H.; Jagger, O.; Curtis, S.; Lees, P.; Spurgeon, P. C.; Fountain, D. M.; Oldman, A.; Habib, A.; et al. Leadership and management in UK medical school curricula. <i>J Health Organ Manag</i> <b>2016</b>, 30 (7), 1081-1104. DOI: 10.1108/JHOM-03-2016-0042.</p>
Handsearching or consultation	None

Summary of each Document Included in the Scoping Review: 16 article

Title	<b>“Aspects of Development of Leader Creative Thinking of a Medical Student at the Undergraduate Level of Medical Education”.</b>
First author and contact	Anyuta Sydorchuk ( <a href="mailto:sidorchuk@bsmu.edu.ua">sidorchuk@bsmu.edu.ua</a> )
Year of publication	2016
Affiliation of the authors	Higher State Educational Establishment of Ukraine "Bukovinian State Medical University", Chernivtsi, Ukrain
Location of the intervention	“Chernivtsi city, Western Ukraine”.
Aim	“The purpose of the study is to emphasize on the best-used ways for a development of leader creative thinking at the first basic level of medical education”.
Learners’ level	“undergraduate foreign medical students who studied disciplines «Infectious diseases» and «Epidemiology of Infectious diseases», «Tropical Medicine and Clinical Parasitology» at the Higher state educational establishment «Bukovina State Medical University» (Chernivtsi city, Western Ukraine, Eastern Europe)”



Instructors: selection criteria	Out of the scope “Prospects for further researches. Most compelling evidence of writing a plan to implement correct moving on steps for training student leaders, especially within entire reforming of Ukrainian public health system.”
Instructors: specific training	Out of the scope “Prospects for further researches. Most compelling evidence of writing a plan to implement correct moving on steps for training student leaders, especially within entire reforming of Ukrainian public health system.”
Support	Not provided
Leadership: definition or conceptualisation.	Not provided
Citation	Sydorchuk, A.; Moskaliuk, V. D.; Randiuk, Y. O.; Sorokhan, V. D.; Golyar, O. I.; Sydorchuk, L.; Humenna, A. V.  Aspects of development of leader creative thinking of medical student at the undergraduate level of medical education.  <i>Wiad Lek</i> <b>2016</b> , 69 (6), 809-812.
Handsearching or consultation	None

Summary of each Document Included in the Scoping Review: 17 article

Title	<b>Defining the structure of undergraduate medical leadership and management teaching and assessment in the UK</b>
First author and contact	Thomas D Stringfellow (mzytds@nottingham.ac.uk)
Year of publication	2014
Affiliation of the authors	<p>1. The University of Nottingham.</p> <p>2. University of London.</p> <p>3. Epsom and St. Helier University Hospitals NHS Trust, London.</p> <p>4. Lewisham and Greenwich NHS Trust, London.</p> <p>6. The Faculty of Medical Leadership and Management, London.</p> <p>8. Warwick University.</p>
Location of the intervention	The United Kingdom
Aim	“The aim is to identify appropriate and feasible medical leadership and management teaching interventions for undergraduate medical students”.

Learners' level	"undergraduate medical students"
Instructors' selection criteria	Out of the scope
Instructors: specific training	Out of the scope
Support	"All funding was provided by the FMLM".
Leadership: definition or conceptualisation.	Out of the scope
Citation	Stringfellow, T. D.; Rohrer, R. M.; Loewenthal, L.; Gorrard-Smith, C.; Sheriff, I. H. N.; Armit, K.; Lees, P. D.; Spurgeon, P. C. Defining the structure of undergraduate medical leadership and management teaching and assessment in the UK. <i>Med Teach</i> <b>2015</b> , 37 (8), 747-754. DOI: 10.3109/0142159X.2014.971723.
Handsearching or consultation	None

Summary of each Document Included in the Scoping Review: 18 article

Title	<b>“A medical student leadership course led to teamwork, advocacy, and mindfulness”.</b>
First author and contact	Carole M. Warde ( carole.warde@va.gov)
Year of publication	2014
Affiliation of the authors	Sepulveda VA Ambulatory Care Center, North Hills, CA  University of California Los Angeles.
Location of the intervention	The United States of America.
Aim	“The UCLA-PRIME program aims to prepare medical students to work among vulnerable groups and begins with a 3-week leadership course. We describe this course and share lessons with those seeking to foster leadership, advocacy, and resiliency in our future physician workforce”.
Learners’ level	first year of medical school

Instructors: selection criteria	Not mentioned
Instructors: specific training	Not mentioned.
Support	“Funding for this work was received from the Association of American Medical Colleges Western Group on Educational Affairs (WGEA) and the NIH Hispanic Center of Excellence at UCLA”
Leadership: definition or conceptualisation.	“A student’s capacity for leadership and resilience stems from the intrapersonal relationship one has with oneself; interpersonal relationships; and relationships within organizations that build partnership, respect, and change capacity”.
Citation	Warde, C. M.; Vermillion, M.; Uijtdehaage, S. A medical student leadership course led to teamwork, advocacy, and mindfulness. <i>Fam Med</i> <b>2014</b> , 46 (6), 459-462.
Hand searching or consultation	None

Summary of each Document Included in the Scoping Review: 19 article.

Title	<b>“Promoting medical students’ reflection on competencies to advance a global health equities curriculum”</b>
First author and contact	Patricia B Mullan (pbmullan@umich.edu)
Year of publication	2014
Affiliation of the authors	University of Michigan Medical School, Ann Arbor, USA.
Location of the intervention	The United States of America
Aim	“This study examines an innovative approach to the use of potential competency expectations related to advancing global health equity to promote students’ reflections and to inform curriculum development”.
Learners’ level	“In 2012, 32 first-year medical students were admitted into a newly developed Global Health and Disparities (GHD) Path of Excellence”
Instructors: selection criteria	Not applicable: “Further research is necessary to study the optimal teaching and assessment methods for a UME curriculum on leadership”

Instructors: specific training	Not applicable “Further research is necessary to study the optimal teaching and assessment methods for a UME curriculum on leadership”.
Support	“The school’s administration also provided financial support equivalent to 10% full time equivalence to support the participation of a Director, six clinical faculty members, and a faculty member in medical education”.
Leadership: definition or conceptualisation.	Out of the scope
Citation	Mullan, P. B.; Williams, J.; Malani, P. N.; Riba, M.; Haig, A.; Perry, J.; Kolars, J. C.; Mangrulkar, R.; Williams, B. Promoting medical students' reflection on competencies to advance a global health equities curriculum. <i>BMC Med Educ</i> <b>2014</b> , <i>14</i> , 91. DOI: 10.1186/1472-6920-14-91.
Handsearching or consultation	None

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Summary of each Document Included in the Scoping Review: 20 article

Title	<b>“Leadership and management in the undergraduate medical curriculum: a qualitative study of students’ attitudes and opinions at one UK medical school”.</b>
First author and contact	Thelma Quince (taq100@medschl.cam.ac.uk)”
Year of publication	2014
Affiliation of the authors	<ol style="list-style-type: none"> <li>1. University of Cambridge, Cambridge, UK</li> <li>2. Queen Edith Medical Practice, Cambridge, UK</li> <li>3. Imperial College Healthcare NHS Trust, London, UK</li> <li>4. West Suffolk Hospital NHS Trust, Bury St Edmunds, UK</li> <li>5. Hnchingbrooke Health Care NHS Trust, Hinchingsbrooke, Cambridgeshire, UK</li> </ol>
Location of the intervention	The United Kingdom
Aim	“To explore undergraduate medical students’ attitudes towards and opinions about leadership and management education”.
Learners’ level	“Undergraduate medical students”.

Instructors: selection criteria	Out of the scope
Instructors: specific training	Out of the scope
Support	“Funding The research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors”.
Leadership: definition or conceptualisation.	Out of the scope
Citation	Quince, T.; Abbas, M.; Murugesu, S.; Crawley, F.; Hyde, S.; Wood, D.; Benson, J. Leadership and management in the undergraduate medical curriculum: a qualitative study of students' attitudes and opinions at one UK medical school. <i>BMJ Open</i> <b>2014</b> , 4 (6), e005353. DOI: 10.1136/bmjopen-2014-005353.
Handsearching or consultation	None

Summary of each Document Included in the Scoping Review: 21 article

<b>Title</b>	<b>“In search for a public health leadership competency framework to support leadership curriculum-a consensus study”</b>
First author and contact	Katarzyna Czabanowska (kasia.czabanowska@maastrichtuniversity.nl.)
Year of publication	2014
Affiliation of the authors	<ol style="list-style-type: none"> <li>1. Maastricht University, Maastricht, The Netherlands</li> <li>2. Sheffield Hallam University, Sheffield, UK.</li> <li>3. Lithuanian University of Health Sciences, Kaunas, Lithuania.</li> <li>4. The Association of Schools of Public Health in the European Region (ASPHER), Brussels, Belgium.</li> <li>5. University of Belgrade, Belgrade, Serbia.</li> <li>6. Jagiellonian University Medical College</li> <li>7. The Rethmeier Group, LLC, Town of Bermuda Run, NC, USA</li> <li>8. University of North Carolina, Chapel Hill, NC, USA</li> <li>9. Education Advisor, GRL Consulting in Higher and Medical Education Southampton, Hampshire, UK</li> <li>10. Health Services Department, School of Medicine, Gold Coast, Queensland, Australia</li> <li>11. University of Medicine, Tirana, Albania</li> </ol>

Location of the intervention	[The well established, striving for success project partnership includes: Maastricht University (The Netherlands), the Sheffield Hallam University (UK), Kaunas University of Health Sciences (LT), Medical University of Graz (A) and the Association of Schools of Public Health in the European Region (ASPHER) which plays a key role in promotion and dissemination activities”].
Aim	The aim of this study was to develop a public health leadership competency framework to support the development of competency-based European public health leadership curriculum.
Learners’ level	<p>The programme was piloted in Austria Gratz Medical University, Nursing, Kaunas University of Health Sciences Public Health Studies and Sheffield Hallam University, Health Sciences Programme (Undergraduate)</p> <p>The students have various backgrounds: medicine, dentistry, health sciences, microbiology, social sciences, psychology etc.</p>
Instructors: selection criteria	Based on professional discipline and experience in a specific area of leadership, they were teaching the topics which they know or wrote about them or teach them.
Instructors: specific training	[We only trained the instructors in PBL and Blended educational format. The teachers piloted their skills and received feedback on their performance. This happened before we started teaching the course].

Support	<ul style="list-style-type: none"> <li>• “This study was supported by the European Commission Lifelong Learning Programme in the framework of ERASMUS Multilateral Curriculum Development project: LEPHIE. Project n 510176-LLP-1-2010-1-NL-ERASMUS-ECDCE. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use that may be made of the information contained herein”</li> <li>• The authors would like to acknowledge that the main source of funding was Maastricht University where they are employed. Another acknowledgement should also be given to the Leonardo da Vinci mobility grant (LdV 2012-1- PT1-LEO02-11434) from the University of Coimbra, Portugal, financed by the European Commission Lifelong Learning Programme that supported the internship of André Malho (28th January-14th June, 2013) at the Department of International Health, Maastricht University, during which he collected the data and contributed to the design and analysis of the data.</li> </ul>
Leadership: definition or conceptualisation.	<p>[We base the programme on the idea of influencing others to work together towards achieving a common goal, which is improved health and wellbeing of the population through transformation and change. The leadership training is competency based supported by a framework and self-assessment including the following areas: system thinking, emotional intelligence, collaboration and teamwork, organisational learning and development, leading change, ethical and professional practice].</p>

Citation	<p>Czabanowska, K.; Smith, T.; Könings, K. D.; Sumskas, L.; Otok, R.; Bjegovic-Mikanovic, V.; Brand, H.; Health, L. f. E. P. In search for a public health leadership competency framework to support leadership curriculum-a consensus study. <i>Eur J Public Health</i> <b>2014</b>, <i>24</i> (5), 850-856. DOI: 10.1093/eurpub/ckt158.</p>
Consultation	<p>de Jong, N.; Könings, K. D.; Czabanowska, K. The Development of Innovative Online Problem-Based Learning: A Leadership Course for Leaders in European Public Health. 2014.</p> <p>Könings, K. D.; de Jong, N.; Lohrmann, C.; Sumskas, L.; Smith, T.; O'Connor, S. J.; Spanjers, I. A. E.; Van Merriënboer, J. J. G.; Czabanowska, K. Is blended learning and problem-based learning course design suited to develop future public health leaders? An explorative European study. <i>Public Health Rev</i> <b>2018</b>, <i>39</i>, 13. DOI: 10.1186/s40985-018-0090-y.</p> <p>Czabanowska, K.; Rethmeier, K. A.; Lueddeke, G.; Smith, T.; Malho, A.; Otok, R.; Stankunas, M. Public health in the 21st century: working differently means leading and learning differently. <i>European Journal of Public Health</i> <b>2014</b>, <i>24</i>(6), 1047–52. <a href="https://doi.org/10.1093/eurpub/cku043">https://doi.org/10.1093/eurpub/cku043</a></p> <p>Czabanowska, K.; Malho, A.; Schröder-Bäck, P.; Popa, D.; Burazeri, G. Do we develop public health leaders?- association between public health competencies and emotional intelligence: a cross-sectional study. <i>Bmc Medical Education</i> <b>2014</b>, <i>14</i>, 83–83. <a href="https://doi.org/10.1186/1472-6920-14-83">https://doi.org/10.1186/1472-6920-14-83</a></p>

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Czabanowska, K. (Department of International Health, CAPHRI, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands) (Personal communication, Education, Audiovisual & Culture Executive Agency. Leadership for European Public Health. 2008.

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Summary of each Document Included in the Scoping Review: 22 article

Title	<b>“Preparing students to be academicians: a national student-led summer program in teaching, leadership, scholarship, and academic medical career-building”</b>
First author and contact	Michelle M. Coleman. Contact author: Dr. Greenberg L (greenbe@gwu.edu)
Year of publication	2012
Affiliation of the authors	<ol style="list-style-type: none"> <li>1. Baylor College of Medicine, Houston, Texas</li> <li>2. George Washington University School of Medicine, Washington, DC</li> </ol>
Location of the intervention	“The United States of America”.
Aim	“The first purpose of this article is to describe the development and implementation of the 2009 Institute and to share lessons learned from the program. The second purpose is to demonstrate the usefulness of a multifaceted approach to career program evaluation, a key part of which is rooted in social cognitive career theory (SCCT).”
Learners’ level	“The AMSA coordinator (M.C.) recruited medical student participants at all levels (rising first through fourth year) from a diverse set of training programs (MDgranting, osteopathic, naturopathic, and dual-degree programs”



Instructors: selection criteria	“We recruited faculty members according to their areas of expertise and commitment to medical student teaching”
Instructors: specific training	Not provided
Support	“Funding/Support: None”
Leadership: definition or conceptualisation,	Not provided
Citation	Coleman, M. M.; Blatt, B.; Greenberg, L. Preparing students to be academicians: a national student-led summer program in teaching, leadership, scholarship, and academic medical career-building. <i>Acad Med</i> <b>2012</b> , 87 (12), 1734-1741. DOI: 10.1097/ACM.0b013e318271cfd6.
Handsearching or consultation	None

Summary of each Document Included in the Scoping Review: 23 article

<b>Title</b>	<b>“Leadership curriculum in undergraduate medical education: a study of student and faculty perspectives”.</b>
First author and contact	Prathibha Varkey (varkey.prathibha@mayo.edu)
Year of publication	2009
Affiliation of the authors	<ol style="list-style-type: none"> <li>1. Mayo Clinic, Rochester, USA.</li> <li>2. Johns Hopkins, Baltimore, USA.</li> <li>3. University of Illinois Chicago, USA.</li> </ol>
Location of the intervention	The United States of America
Aim	“The purpose of this study was to elicit the perspectives of students, faculty physicians and administrators regarding the knowledge and competencies necessary in an undergraduate leadership curriculum”.
Learners’ level	“Undergraduate medical education provides an ideal setting to lay the foundation for these leadership competencies”
Instructors: selection criteria	Out of the scope

Instructors: specific training	Out of the scope
Support	Not provided
Leadership definition	Out of scope
Citation	Varkey, P.; Peloquin, J.; Reed, D.; Lindor, K.; Harris, I. Leadership curriculum in undergraduate medical education: a study of student and faculty perspectives. <i>Med Teach</i> <b>2009</b> , <i>31</i> (3), 244-250. DOI: 10.1080/01421590802144278.
Handsearching or consultation	None.