

UNDSMHS COMPETENCIES FOR UNDERGRADUATE MEDICAL EDUCATION

Approved 2.8.17

Updated 9.1.20

Reviewed and Revised 12/8/21 (typographic changes only)

INTRODUCTION

The following document comprises the educational philosophy and competencies for the undergraduate medical education curriculum of the University of North Dakota School of Medicine and Health Sciences (UNDSMHS). On January 13, 2016, the UNDSMHS Medical Curriculum Committee (MCC) mandated that a task force be created to examine and, if necessary, update the existing Medical Student Education Curriculum Goals, Objectives, and Principles document. The Faculty Academic Council (FAC) first approved that document on March 10, 1998. The document was revised in August 2002, spring 2004, and September 2011 and last approved by the UNDSMHS MCC on October 26, 2011.

TASK FORCE COMPOSITION AND PROCESS

The Program Goals and Objectives Task Force (PGOTF), chaired by Charles Christianson (Co-Director Year 1 Clinical Sciences Education), was composed of representatives from the medical education curriculum, including Pat Carr (Director), Devendra Pant (Director, Year 1 Basic Sciences Education), Kurt Borg (Director, Year 2 Basic Sciences Education), Susan Zelewski (Assistant Dean, Northeast Campus), Rosanne McBride (Co-Director Year 1 Clinical Sciences Education), John Shabb (Biomedical Sciences faculty), Dawn Hackman (Medical Education Librarian), Tracy Uhlir (Education Technology Specialist), Laura Morgan (medical year 1 student), Megan Meyer (medical year 2 student), Gwen Halaas (Senior Associate Dean for Education and Faculty Affairs), Stephen Tinguely (Chief Accreditation Officer), and Richard Van Eck (Associate Dean for Teaching and Learning).

Dr. Carr was charged with drafting the task force initiative and composition, which resulted in the following:

1. Program Goals Revision Task Force
 - a. Create a faculty-led Program Goals and Objectives Task Force to review and revise the current UNDSMHS Medical Student Education Curriculum Goals, Objectives, and Principles document to be in alignment with current national standards as exemplified by the 2009 Report of the AAMC-HHMI Committee “*Scientific Foundations for Future Physicians*,” the 2015 AAMC “*Core Entrustable Professional Activities for Entering Residency*” guides and any other

state or national initiatives that inform and are consistent with the mission and vision of the UNDSMHS.

- b. The PGOTF will have completed its assignment upon approval of a revised SMHS Medical Education Goals document by the MCC and FAC. Recommended timeframe for completion of work is one year from inception of the task force.
- c. Work will be initiated upon identification of the resources needed to complete the task.
 - i. The PGOTF will evaluate the scope and nature of the work, required processes, and required resources and will report back to the MCC
- d. In the context of item c, above, the PGOTF includes the evaluation of the length and timing of preclinical (1st and 2nd year) education.¹
- e. In the context of item c, above, the PGOTF will also evaluate the length and timing of clinical (3rd and 4th year) education.
 - i. In particular, the PGOTF will consider the question: Can we compress our 3rd-year schedule enough to have an elective in the 3rd year?
 - ii. The PGOTF will also address the rationale for policies or practices that require or encourage medical students to use electives to pursue a broad range of interests in addition to their chosen specialty.¹

THE DOCUMENT

The document that resulted from the work of this task force is largely based on the Physician Competency Reference Set (PCRS). The PCRS is widely believed to be the basis upon which future accreditation standards will be based, and they are already mapped to the Entrustable Professional Activities (EPA), which themselves are already required curriculum evaluation metrics. Other sources used and referred to throughout this document include the United States Medical Licensing Examination Physician Tasks/Competencies (USMLE/TCOM), the Interprofessional Education Collaborative Expert Panel's Core competencies for interprofessional collaborative practice, and the Association of American Medical Colleges-Howard Hughes Medical Institute AAMC-HHMI (AAMC-HHMI) Scientific Foundations for Future Physicians. All documents are fully referenced in this document and endnotes are used to indicate the origins of competencies contained herein.

TERMINOLOGY

¹ The PGOTF determined that timing of the curriculum, while appropriate to examine in the context of goals and objectives, is beyond the scope of the task force and associated resources as constituted and should best proceed after the curriculum is mapped to the new competencies.

The previous medical curriculum document was entitled Medical Student Education Curriculum Goals, Objectives, and Principles. The PGOTF decided to adopt the term “competencies” rather than “goals” to reflect current standards and practices in medical education. Therefore, the competencies of the medical education curriculum comprise the skills and behavioral outcomes the UNDSMHS expects its students to be able to do or perform. The PGOTF further determined that the term “objectives” has a specific meaning in medical education and instructional design literature. Objectives are the means of mapping competencies to specific curriculum events and activities and are thus reserved for use in medical curriculum documents associated with those instructional activities themselves. The term “principles” has no specific curriculum design meaning and is therefore not used in the current document. Rather, principles are seen as guiding statements that provide context for the interpretation and implementation of competencies. In developing and modifying the competencies in this document, the task force examined the unique characteristics and beliefs of the UNDSMHS medical curriculum, the community-based health care nature of our region, and the specific regional needs of diverse populations in North Dakota. The Philosophy of Education statement that precedes the competencies themselves embodies these beliefs and characteristics, which are embedded within each competency, whether directly mentioned or not.

PHILOSOPHY OF EDUCATION*

The goal of the medical curriculum at the University of North Dakota School of Medicine and Health Sciences (UNDSMHS) is to prepare graduates to be competent, caring, and compassionate physicians who have the skills of lifelong, self-directed learning necessary to incorporate new knowledge and methods into their practice and to adapt to a changing professional environment. Medical education should aspire to serve the common good and to respond to the health care needs of individuals and societies. Because the SMHS is a community-based medical school, and because of the unique circumstances of our regional location, we place special emphasis on the unique skills needed to provide care for patients and populations in rural and Native American communities across all competencies. In the context of achieving and demonstrating these competencies, students should also be able to identify, analyze, and manage health problems effectively, efficiently, professionally, and humanistically.

Toward these ends, our students should demonstrate a) values and attitudes that promote caring and concern for the health of the individual, family, and society; b) the ability to obtain, assess, and apply knowledge of biomedical, clinical, population health, behavioral, and social sciences to the theory and practice of medicine; c) skill in the collection of clinical information, in communication, and in building rapport with patients, families, and other health professionals in order to facilitate diagnosis and therapy; d) understanding of the scientific process by which new knowledge is generated; e) a scholarly awareness of the traditions, power, limits, and culture of medicine; and f) a holistic understanding of preventive, curative, and rehabilitative health care services.

As technology, patient care, and medical knowledge advance and as population characteristics change, UNDSMHS's teaching programs should also change in order to provide the best physicians possible for North Dakota in the 21st century. Some of the educational innovations that enable UNDSMHS to meet the needs of medicine include patient-centered learning, an early introduction to clinical medicine and standardized patients, simulation, an interprofessional approach to health care, longitudinal integrated educational experiences, and a special emphasis on rural and community-oriented medical education.

*NB: The philosophy of education and goals are statements of broad institutional aspirations for education, research, health care, and community service.

SMHS Undergraduate Medical Education Competencies

Domain 1: Practice-Based Learning and Improvement¹

Develop the ability to investigate and evaluate one's care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

- 1.1 Identify strengths, deficiencies, and limits in one's knowledge and expertise.
- 1.2 Set learning and improvement goals.
- 1.3 Identify and perform learning activities that address one's gaps in knowledge, skills, and/or attitudes.
- 1.4 Systematically analyze practice using quality improvement methods and implement changes with the goal of practice improvement.
- 1.5 Incorporate feedback into daily practice.
- 1.6 Locate, appraise, and assimilate evidence from scientific studies related to patients' health problems.
- 1.7 Use information technology to optimize learning.
- 1.8 Demonstrate proficiency in researching, developing, and presenting effective educational experiences for peers, patients, and other professionals.²
- 1.9 Demonstrate skills in obtaining and using information about populations of patients and communities from which patients are drawn in order to improve health care outcomes.³
- 1.10 Analyze new knowledge, guidelines, standards, technologies, products, and services in order to identify and implement those that have been demonstrated to improve health care outcomes.⁴

Domain 2: Medical Knowledge^{5 6}

Apply foundational science concepts to the practice of medicine.

- 2.1 Given an abnormal effect, identify the cause/causal agent or predisposing factor(s) leading to the effect.
- 2.2 Identify the underlying molecular, cellular, tissue, and/or system processes/pathways that account for, or contribute to, the expression or resolution of a given abnormal condition.⁷
- 2.3 Evaluate clinical and/or physical findings to identify the underlying anatomic structure or physical location associated with the findings.⁷
- 2.4 Apply knowledge about the mechanism of action of various drugs to select appropriate pharmacotherapy.^{6 7}
- 2.5 Apply quantitative knowledge and reasoning—including integration of data, modeling, computation, and analysis—and informatics tools to diagnostic and therapeutic clinical decision making.⁸
- 2.6 Apply foundational physical, chemical, and biochemical principles to explain major technologies used in the prevention, diagnosis, and treatment of disease.⁹
- 2.7 Apply established and emerging principles of clinical sciences to diagnostic and therapeutic decision-making, clinical problem-solving, and other aspects of evidence-based health care.¹⁰
- 2.8 Apply principles of epidemiological sciences, social determinants of health, and of population and public health to the identification of health problems, risk factors, treatment strategies, resources, and disease prevention/health promotion efforts for patients and populations.¹¹
- 2.9 Apply principles of social-behavioral sciences to provision of patient care, including assessment of the impact of psychosocial and cultural influences on health, disease, care-seeking, care compliance, and barriers to and attitudes toward care.¹²
- 2.10 Apply knowledge of health systems organization and financing to provision of patient care.

Domain 3: Patient Care

Provide patient-centered care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

- 3.1 Gather essential and accurate information about patients and their conditions through history-taking and physical examination.¹³
- 3.2 Employ diagnostic reasoning to select appropriate laboratory, imaging, and other diagnostic tests.¹⁴
- 3.3 Interpret the results of history, physical examination, laboratory, and imaging data to generate a differential diagnosis¹⁵
- 3.4 Develop and carry out individualized patient management plans.¹⁶
- 3.5 Organize and prioritize clinical responsibilities to provide care that is safe, effective, and efficient.¹⁷
- 3.6 Perform procedures considered essential for graduation from medical school.¹⁸
- 3.7 Present, orally and in written form, the results of patient encounters in an organized, concise and accurate manner.¹⁹
- 3.8 Enter and justify orders and prescriptions.²⁰
- 3.9 Provide care which is concordant with the patient's experiences, perspectives and values, and which empowers patients and their families to participate in their care through shared decision making.²¹

Domain 4: Interpersonal and Communication Skills

Develop interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.

- 4.1 Communicate effectively with patients, families, and the public across a broad range of socioeconomic and cultural backgrounds.²²
- 4.2 Communicate effectively and responsively with colleagues within one's profession or specialty, other health professionals and interprofessional teams, and health-related agencies in order to support and facilitate the maintenance of health and the treatment of disease in individual patients and populations.²³
- 4.3 Work effectively with others as a member or leader of a health care team or other professional group.²⁴
- 4.4 Provide health education to patients, families, and communities which enables patients to self-manage their care.²⁵
- 4.5 Demonstrate effective teaching of peers and other health professionals.²⁶
- 4.6 Demonstrate sensitivity, honesty, and compassion as well as effective methods of communication about sensitive topics such as death, end of life, adverse events, bad news and disclosure of errors.²⁷
- 4.7 Demonstrate the ability to recognize, manage, and communicate about patient emotions.²⁸
- 4.8 Demonstrate patient-centered communications.
- 4.9 Demonstrate the ability to communicate respectfully and effectively about the essential elements of obtaining patient informed consent.²⁹

Domain 5: Professionalism³⁰

Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.

- 5.1 Demonstrate compassion, integrity, and respect for others.
- 5.2 Demonstrate responsiveness to patient needs that supersedes self-interest.
- 5.3 Demonstrate respect for patient privacy and autonomy.
- 5.4 Demonstrate accountability to patients, society, and the profession.
- 5.5 Demonstrate sensitivity and responsiveness to a diverse patient population, especially those encountered in North Dakota.
- 5.6 Demonstrate a commitment to ethical principles pertaining to provision or withholding of care, confidentiality, informed consent, and business practices, including compliance with relevant laws, policies, and regulations.
- 5.7 Carry out responsibilities in a timely manner.³¹
- 5.8 Maintain appropriate professional boundaries and use appropriate and respectful language.³²
- 5.9 Identify and propose solutions for common and important moral, ethical, and legal problems of medical practice.³³

Domain 6: Systems-Based Practice³⁴

Demonstrate an awareness of, and responsiveness toward, the larger context and system of health care, including the ability to call effectively on other resources in the system to provide optimal health care.

- 6.1 Work effectively in various health care delivery settings and systems, including those with low resources.
- 6.2 Coordinate patient care within the health care system.³⁵
- 6.3 Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care.
- 6.4 Advocate for quality patient care and optimal patient care systems.
- 6.5 Participate in identifying system errors and implementing potential systems solutions.

Domain 7: Interprofessional Collaboration³⁶

Develop skills in functioning both as a team member and as a team leader, and demonstrate the ability to engage in an interprofessional team in a manner that optimizes safe, effective patient-centered and population-focused care.

- 7.1 Identify potential barriers to the effective coordination of care of patients with multiple health care needs and providers.
- 7.2 Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust.³⁷
- 7.3 Use the knowledge of one's own role and the roles of other health professionals to appropriately assess and address the health care needs of patients and to promote and advance the health of populations.³⁸
- 7.4 Communicate with other health professionals in a responsive and responsible manner that supports a team approach to promotion and maintenance of health and the prevention and treatment of disease in individual patients and populations.³⁹
- 7.5 Apply relationship-building values and the principles of team dynamics to work collaboratively with other members of health care teams in different team roles in order to provide both patient-centered and population-focused care that is safe, timely, efficient, effective, and equitable.⁴⁰

Domain 8: Personal and Professional Development⁴¹

Demonstrate the qualities required to sustain lifelong personal and professional growth.

- 8.1 Demonstrate self-awareness of knowledge, skills, and emotional limitations to engage in appropriate help-seeking behaviors.
- 8.2 Demonstrate healthy coping mechanisms to respond to stress.
- 8.3 Manage conflict between personal and professional responsibilities.
- 8.4 Practice flexibility and maturity in adjusting to change with the capacity to alter one's behavior.
- 8.5 Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients.
- 8.6 Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system.⁴²
- 8.7 Demonstrate self-confidence that puts patients, families, and members of the health care team at ease.
- 8.8 Recognize that ambiguity is part of clinical health care and respond by utilizing appropriate resources in dealing with uncertainty.
- 8.9 Demonstrate skills in patient advocacy.⁴³

References Cited

- AAMC-HHMI Scientific Foundations for Future Physicians (2009). Available at <https://www.aamc.org/download/271072/data/scientificfoundationsforfuturephysicians.pdf>
- AAMC (2014). Core Entrustable Professional Activities for Entering Residency Curriculum Developers' Guide. Available at <http://members.aamc.org/eweb/upload/Core%20EPA%20Curriculum%20Dev%20Guide.pdf>
- Englander et al. (2013). Toward a Common Taxonomy of Competency Domains for the Health Professions and Competencies for Physicians. *Acad Med* 88:1–7.
- Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, D.C.: Interprofessional Education Collaborative.
- USMLE Physician Tasks/Competencies (TCOM1) (2014), Medical Knowledge, Science Concepts. Available at <http://www.usmle.org/pdfs/tcom.pdf>

-
- ¹ Items 1.1-1.7 in this domain are mapped from PCRS 3.1-3.7
 - ² Maps to PCRS 3.8
 - ³ Maps to PCRS 3.9
 - ⁴ Maps to PCRS 3.10
 - ⁵ Items 2.1 through 2.6 all map to PCRS 2.2
 - ⁶ Adapted from USMLE TCOM1
 - ⁷ Adapted from AAMC-HHMI Competency M7
 - ⁸ Adapted from AAMC-HHMI, Competency M8
 - ⁹ Adapted from AAMC-HHMI, Competency M2
 - ¹⁰ Maps to PCRS 2.3
 - ¹¹ Maps to PCRS 2.4
 - ¹² Maps to PCRS 2.5
 - ¹³ Maps to PCRS 1.2, EPA 1, SMHS 3.11., 3.1.2
 - ¹⁴ Maps to PCRS 1.2, EPA 3
 - ¹⁵ Maps to PCRS 1.4, EPA 2, EPA 3, SMHS 3.2.1
 - ¹⁶ Maps to PCRS 1.6, SMHS 3.2.2, 3.3.5
 - ¹⁷ Maps to PCRS 1.3, SMHS 3.3.7
 - ¹⁸ Maps to PCRS 1.1, EPA 12, SMHS 3.5
 - ¹⁹ Maps to EPA 5. EPA 6, SMHS 3.11, 3.1.2
 - ²⁰ Maps to EPA 4
 - ²¹ Maps to PCRS 1.7
 - ²² Maps to PCRS 4.1
 - ²³ Maps to PCRS 4.2. See also 7.4.
 - ²⁴ Maps to PCRS 4.3. See also 7.5
 - ²⁵ Maps to PCRS 3.8
 - ²⁶ Maps to PCRS 3.8
 - ²⁷ Maps to PCRS 4.6
 - ²⁸ Maps to PCRS 4.7
 - ²⁹ Maps to EPA 11
 - ³⁰ Items 5.1–5.6 maps to PCRS 5.1–5.6
 - ³¹ Maps to SMHS 5.1.8
 - ³² Maps to SMHS 5.1.6, 5.1.7, 5.1.9
 - ³³ Maps to SMHS 5.4.1
 - ³⁴ Items 6.1–6.4 map to PCRS 6.1-6.5
 - ³⁵ See also 3.5.2 and 3.5.3
 - ³⁶ Derived from the Interprofessional Education Collaborative Expert Panel. (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel.*
 - ³⁷ Maps to PCRS 7.1
 - ³⁸ Maps to PCRS 7.2
 - ³⁹ Maps to PCRS 7.3
 - ⁴⁰ Maps to PCRS 7.4
 - ⁴¹ Items 8.1–8.8 Map to PCRS 8.1-8.8
 - ⁴² Maps to SMHS 5.2
 - ⁴³ Maps to SMHS 5.3.3