Accreditation Council for Graduate Medical Education

AACOM American Association of Colleges of Osteopathic Medicine

AAMC

# Foundational Competencies for Undergraduate Medical Education



*The AAMC (Association of American Medical Colleges), American Association of Colleges of Osteopathic Medicine (AACOM), and Accreditation Council for Graduate Medical Education (ACGME) co-produced this publication. Due to this collaboration, the material does not represent language and usage conventions of any single organization.*

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Founded in 1898, the American Association of Colleges of Osteopathic Medicine (AACOM) is the leading voice for the education and training of physicians who practice osteopathic medicine in settings across the medical spectrum—from primary care to the full range of medical specialties. We support our member colleges of osteopathic medicine in their efforts to attract and train individuals who are fueled by a desire to make a difference in our healthcare system by treating the whole person and building a future emphasizing health and wellness for all people. Today, more than 36,000 future physicians—25 percent of all U.S. medical students—are being educated at one of our 42 accredited colleges of osteopathic medicine, encompassing 67 teaching locations in 36 states. To learn more about AACOM, please visit our website.

## About the ACGME

The Accreditation Council for Graduate Medical Education (ACGME) is a private, non-profit, professional organization responsible for the accreditation of approximately 13,400 residency and fellowship programs and 905 institutions that sponsor these programs in the US. Residency and fellowship programs educate approximately 162,645 resident and fellow physicians in 146 specialties and subspecialties. The ACGME's mission is to improve health care and population health by assessing and enhancing the quality of resident and fellow physicians' education through advancements in accreditation and education. Learn more at www.acgme.org.

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# Introduction

The Association of American Medical Colleges (AAMC), American Association of Colleges of Osteopathic Medicine (AACOM), and Accreditation Council for Graduate Medical Education (ACGME) co-sponsored an initiative to create a common set of shared, foundational competencies for use in medical schools in the United States that recognize the unique identities and contributions of both DO- and MD-granting schools to the health care system. This report presents the product of that initiative — the Foundational Competencies for Undergraduate Medical Education (UME) — the inclusive and iterative development process, and the intended use of these competencies in advancing competency-based medical education (CBME). The framework includes six competencies: Professionalism, Patient Care and Procedural Skills, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, and Systems-Based Practice; 45 subcompetencies for all medical students; and four additional subcompetencies specific to DO students.

Competencies are "observable abilities of a health professional, integrating multiple components, such as knowledge, skills, and attitudes."[1] The Foundational Competencies for UME are intended to apply to all DO and MD students in the United States, regardless of their future career plans; however, regarding what students are expected to achieve during their undergraduate medical education, these competencies are not intended to be exhaustive. Furthermore, medical schools and their faculties will approach differently how these competencies are taught and will likely want to build upon them to be more fully reflective of their own missions, principles, and communities.

This initiative aligns with a recommendation from the Coalition for Physician Accountability's Undergraduate Medical Education-Graduate Medical Education Review Committee report[2] and is part of a comprehensive effort by all three co-sponsors of this report to improve the transition from UME to graduate medical education (GME).

In the development of the Foundational Competencies for UME, we strove to recognize the contributions and unique identities and traditions of all medical schools, including both DO and MD educational programs, and to acknowledge the shared and distinct outcomes of their learners. Our mission was not intended to create a "one-size-fits-all" system. DO-granting schools will continue to incorporate osteopathic principles and tenets throughout all competencies. Subcompetencies specific to DO education are included within three competencies; all competencies and subcompetencies, however, are broad and will need further delineation for specific teaching, learning, and assessment methods. All medical schools should consider how the competencies apply to their local missions and approaches to effective patient care, as well as how they can be further delineated for teaching and assessments. For a full list of the abbreviations and terms used in this report, please refer to the glossary.

# Brief Background on Competency-Based Medical Education

The collaborative development of the Foundational Competencies for UME represents an important evolution in the decades of work led by the three sponsoring organizations and the medical education community at large.

Although competency-based education has a very long history, the first national, modern framework developed for professional competence in medicine was released in 1996 by the Royal College of Physicians and Surgeons of Canada.[3] Known as the CanMEDS framework, it describes the abilities required of physicians to effectively meet the health care needs of the people they serve. It continues as the basis for the Canadian educational and practice standards of the Royal College. Also in 1996, the AAMC embarked on a major initiative, the Medical School Objectives Project,[4] to develop a consensus

within the MD-granting medical education community on the attributes that medical students should possess at the time of graduation and to set forth learning objectives for the medical school curriculum derived from those attributes. This work was an early effort to emphasize outcomes-based education in the United States.

A few years later, in 1999, the ACGME and American Board of Medical Specialties released the six Core Competencies framework that defined the foundational skills required of all physicians who completed an ACGME-accredited residency program, to shape and evaluate residency training.[5] In 2001, the ACGME Outcome Project was formally launched to support the actualization of competency-based GME.[6] In 2003, the American Osteopathic Association released the *Report of the Core Competency Task Force*,[7] which was the basis for the National Board of Osteopathic Medical Examiners' initial report on competencies in 2006.[8] In 2012, AACOM published *Osteopathic Core Competencies for Medical Students*[9] and the ACGME launched the Next Accreditation System,[10] which incorporated milestones to further delineate the six core competencies. The milestones described developmental *performance levels* that residents and fellows were expected to demonstrate in the six core competencies. In 2013, the AAMC published the Physician Competency Reference Set (PCRS),[11] a set of eight competencies intended to synthesize the expected outcomes of a UME program.

In 2014, the Coalition for Physician Accountability, a consortium of the national organizations that represent and oversee the continuum of medical education through their assessment, accreditation, licensure, and certification activities,[12] endorsed the six Core Competencies framework of the ACGME and American Board of Medical Specialties.[13] Although the coalition recognized that some constituencies, such as the DO community, may emphasize particular competencies, its endorsement focused on competencies essential for all physicians:

> "The members of the Coalition endorse a framework for professional competence that contains six general but essential domains of competence: Professionalism, Medical Knowledge, Patient Care and Procedural Skills, Interpersonal and Communication Skills, Practice-based Learning and Improvement, and System-based Practice. The Coalition member organizations are committed to ongoing, meaningful processes for assessment and evolution of the competencies to ensure that students and physicians have the knowledge and skills to provide excellent patient care as social and delivery system needs change."

Despite this endorsement a decade ago, the medical education community had not, until now, worked collaboratively to define a common competency framework for UME. The current work described here is to do just that: create a shared competency framework for UME in the United States.

Additional national efforts from the past decade to advance CBME are worth noting in this brief historical overview. In 2005, entrustable professional activities (EPAs) were initially defined as units of professional practice, tasks, or responsibilities that trainees were entrusted to perform, unsupervised, once they had attained sufficient competence.[14] In 2014, the AAMC published 13 Core Entrustable Professional Activities for Entering Residency (Core EPAs) that all medical students should be able to perform upon entering residency, under indirect supervision.[15] The Core EPAs were developed, aligned to the PCRS, and pilot tested to improve student transitions from UME to GME. In 2016, AACOM released its Osteopathic Considerations for Core Entrustable Professional Activities for Entering Residency,[16] and the ACGME began its efforts to update and improve GME Milestones through Milestones 2.0.[5] Between 2015 and 2020, the accreditation of residency and fellowship programs transitioned to a single system. The ACGME created Osteopathic Recognition for those residency or fellowship programs that integrated into their curricula formal education in Osteopathic Principles and Practice.[17]

Not only does the development of Foundational Competencies for UME represent an important evolution in CBME, but this work also responds to 2021 recommendations from the Coalition for Physician Accountability's Undergraduate Medical Education-Graduate Medical Education Review Committee report[2]; specifically, recommendation 9 states: "UME and GME educators, along with representatives of the full educational continuum, should jointly define and implement a common framework and set of outcomes (competencies) to apply to learners across the UME-GME transition."

They further describe the recommendation as follows:

> "A shared mental model of competence facilitates agreement on assessment strategies used to evaluate a learner's progress, and the inferences that can be drawn from assessments. Shared outcomes language can convey information on learner competence with the patient/public trust in mind. For individual learners, defining these outcomes will facilitate learning and may promote a growth mindset. For faculty, defining outcomes will allow for the use of assessment tools aligned with performance expectations and faculty development. For residency programs, defining outcomes will be useful for resident selection and learner handovers from UME, resident training, and resident preparation for practice."[2]

Contrasting CBME with our traditional approach to teaching and learning can be summarized, respectively and in part, as:

- Focused on outcomes versus processes.
- Learner-centered and patient-focused versus teacher-driven.
- Requiring multifaceted, formative assessments over time versus infrequent, high-stakes tests.
- Supporting flexible, time-independent learning versus a standard approach for all.

Additional details about CBME, including the voluminous research and numerous educational theories supporting this approach to medical education, are well beyond the scope of this document. Readers, however, are encouraged to familiarize themselves with the five core components described by Van Melle et al[18] and place the Foundational Competencies for UME within the broader context of CBME.

# The Development Process

The nearly three-year process for developing the Foundational Competencies for UME (Figure 1) was informed by the model for developing competency frameworks in the health care professions, presented by Batt et al,[19] and included collaborative planning, community discussions, landscape review, competency development, reporting, and dissemination. The co-leads, representing the three sponsoring organizations, were supported by an advisory committee (AC) of individuals from professional organizations across the field of academic medicine. A working group (WG) was established through a national application process to draft the Foundational Competencies for UME, and two reactor groups (RGs; one composed of patients and caregivers, the other of medical students) were created to support the WG's efforts by providing important insights. For more details about the work of these volunteers and the development process, refer to the Appendix.

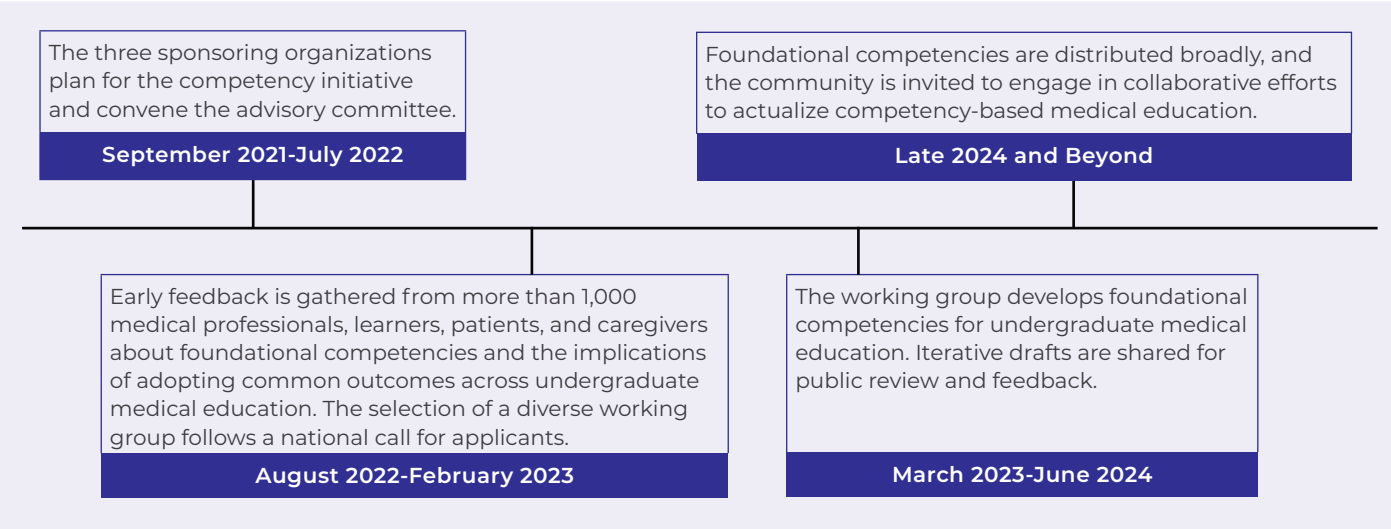



**Figure 1. The timeline for the development of the Foundational Competencies for Undergraduate Medical Education.**

Throughout the community discussion phase, multiple forums were held, engaging more than 1,000 individuals with diverse perspectives on medical care and medical education. The co-leads heard perspectives from medical students, residents, fellows, faculty, patients, hospital CEOs, medical school deans, and PhD scientists. A common question posed during these forums was, "What will we expect all future physicians to be able to do, know, and value, regardless of their future specialties?" Below were some of the responses.

### Compassion

"I knew the day would come that I'd be able to express that missing link with doctors and with nurses, and they're not taught enough about end of life. … That's what the world needs, a little bit more compassion there."

*—Caregiver*

### Self-Care

"The goal is not just how to cope but ideally how to continually return to a baseline that values the purpose and meaning of the profession — to do good in the lives of others."

*—CEO, teaching hospital*

### Quality Care

"Provide the highest level of evidence-based care for every patient in a personalized manner. This means understanding how to create systems that support high-level outcomes and process improvement to continually advance the quality of care for individual patients and populations."

*—CEO, teaching hospital*

### Flexibility and Resiliency

"There are so many ways to access medicine currently and on the horizon. … The structure of medicine will likely change rapidly as it adjusts to these changes. … Physicians need to have flexibility and resiliency to have a successful career."

*—Faculty member*

### Communication

"You can't have science and clinical skills without communication. … There's so much burnout and lack of physician joy. It's also the struggles … working in silos that aren't communicating. So it's communication, leading to teamwork, care coordination, making sure that we can have difficult conversations with each other, pushing through that together and not being afraid of it."

*—Patient advocate*



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We also asked the community about any anticipated benefits of the Foundational Competencies for UME. They shared several ways in which this work could be beneficial, including:

- More opportunities for individualized learning.
- Improved transition from medical school to residency:
  - Residents are better prepared for the first day of residency.
  - Medical schools and residency programs speak a shared language.
  - Residency programs know what to expect from new residents and how best to assist them.
- Better patient outcomes.

During the development phase, the WG created multiple iterative drafts; feedback was sought on each draft from the RGs, AC, the medical education community, and the public via in-person convenings, surveys, and an online comment form. More than 2,000 responses in total were received after three iterative drafts were reviewed (the third draft was shared only with the AC and RGs). All feedback helped inform the final set of Foundational Competencies for UME: six competencies, 45 subcompetencies, and four additional DO-specific subcompetencies.

The Foundational Competencies for UME will periodically be reviewed and updated. Feedback from the diverse medical education community will be sought to better understand how the new competencies are being used in medical schools across the United States and will help inform the sponsoring organizations and others on how to better support their use and future adaptation.

# Important Considerations

## Comparing UME and GME Competencies

Table 1 compares the six new Foundational Competencies for UME with the current GME competencies.[20] An initial task of the WG was to consider whether the competency statements, created in 1999 for GME and last updated in 2019, were appropriate for UME learners. Although the two sets of competencies align, the Foundational Competencies for UME reflect developmentally appropriate language for the UME learner.

**Table 1. Six Competencies: Undergraduate Medical Education and Graduate Medical Education**

| | Undergraduate Medical Education | Graduate Medical Education |
|---|---|---|
| **Professionalism** | Demonstrates integrity, respect, and ethical reasoning, and promotes inclusion of differences in all interactions to improve health care for patients, communities, and populations. | Demonstrates a commitment to professionalism and an adherence to ethical principles. |
| **Patient Care and Procedural Skills** | Demonstrates compassionate, effective, holistic, evidence-informed, equitable, and patient-centered care. | Provides patient care that is patient- and family-centered, compassionate, equitable, appropriate, and effective for the treatment of health problems and the promotion of health. Performs all medical, diagnostic, and surgical procedures considered essential for the area of practice. |
| **Medical Knowledge** | Applies and integrates foundational knowledge to improve health care for patients and populations. | Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, including scientific inquiry, as well as the application of this knowledge to patient care. |
| **Practice-Based Learning and Improvement** | Integrates feedback, evidence, and reflection to adapt behavior, foster improvement, and cultivate life-long learning. | Demonstrates the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. |
| **Interpersonal and Communication Skills** | Effectively communicates and interacts with patients, caregivers, and the health care team to contribute to high-quality, patient-centered care. | Demonstrates interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. |
| **Systems-Based Practice** | Applies knowledge of the larger context of health, including its social and structural determinants, and of systems and resources within and outside of health care, to optimize high-quality care for patients, communities, and populations. | Demonstrates an awareness of and responsiveness to the larger context and system of health care, including the structural and social determinants of health, as well as the ability to call effectively on other resources to provide optimal health care. |

## Intended Uses of the Foundational Competencies for UME

The Foundational Competencies for UME can serve multiple uses depending, in part, on one's role in academic medicine. For example, a curriculum dean and their committee may map the competencies to their current teaching and assessment practices to identify strong areas and potential gaps. They may help faculty coaches codesign learning plans with their students and design or adapt teaching experiences and assessment methods. Other uses include:

- Student self-assessment and use for individual learning plans.
- Development of learning objectives for educational experiences or courses.
- Identification of gaps in programmatic assessment.
- Development of assessment methods.
- Advancement of research and scholarship in medical education.

## How the Foundational Competencies for UME Relate to Other Frameworks

The Foundational Competencies for UME represent expected outcomes in six broad areas that were widely endorsed across the field in 2014 (Table 1).[13] These areas represent competencies that are foundational for all medical students, regardless of degree type or eventual specialty of practice. Other competencies, such as those in the AAMC New and Emerging Areas in Medicine Competency Series[21] and the AACOM Rural Medicine Core Competencies,[22] are intended to add depth to emerging, thematic areas and to guide curricular and professional development, especially in areas that are underrepresented in the educational program. Both thematic competencies and the Foundational Competencies for UME are intended to guide formative performance assessment and cross-continuum collaborations and, ultimately, improve health care services and outcomes.

The Foundational Competencies for UME — a more inclusive, current, and aligned framework — will replace the 2013 AAMC PCRS. Since EPAs are designed to support a broad competency framework, a future, collaborative effort is being planned to revisit the Core EPAs,[15,16] based on the Foundational Competencies for UME.

## Osteopathic Principles and Tenets

In developing the Foundational Competencies for UME, DO educators and others have focused on the integration of the principles and tenets of osteopathic medicine[23]:

1. The body is a unit; the person is a unit of body, mind, and spirit.
2. The body is capable of self-regulation, self-healing, and health maintenance.
3. Structure and function are reciprocally interrelated.
4. Rational treatment is based on an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function.

The unique identities of both DO and MD educational programs continue to be recognized and valued. The integration of osteopathic principles and tenets into the delineation of all the subcompetencies is expected for DO-granting schools. The WG chose to create four subcompetencies specific to osteopathic medicine; however, they do not represent all the ways in which its principles and tenets will be realized. All subcompetencies are broad by design and will need further delineation for specific teaching, learning, and assessment methods. In other words, all DO- and MD-granting schools and their faculties should consider how the Foundational Competencies for UME apply to their local missions and communities and can be further delineated for teaching and assessment.

# Foundational Competencies for Undergraduate Medical Education

## Professionalism

Demonstrates integrity, respect, and ethical reasoning, and promotes inclusion of differences in all interactions to improve health care for patients, communities, and populations.

1. Demonstrates respect and compassion for patients, caregivers, families, and team members.
2. Safeguards patient privacy, confidentiality, and autonomy.
3. Uses ethical principles and reasoning to guide behavior.
4. Adapts actions and communication according to the situation.
5. Takes ownership of mistakes and acts to address them.
6. Identifies personal limits of knowledge and skills and seeks help appropriately.
7. Identifies personal biases and strategies to mitigate their effects.
8. Demonstrates humility and a willingness to learn from others with different backgrounds and experiences.
9. Recognizes and addresses personal well-being needs that may impact professional performance.
10. Completes duties and tasks in a thorough, reliable, and timely manner.
11. DO-specific: Demonstrates the philosophy of osteopathic medicine by promoting its four tenets.

## Patient Care and Procedural Skills

Demonstrates compassionate, effective, holistic, evidence-informed, equitable, and patient-centered care.

1. Integrates patient and caregiver context, needs, values, preferences, and experiences into patient care.
2. Gathers relevant patient histories from multiple data sources, as necessary.
3. Performs relevant physical examinations using appropriate techniques and tools.
4. Identifies patients in need of urgent or emergent care, seeks assistance, and recommends initial evaluation and management.
5. Creates and prioritizes differential diagnoses.
6. Proposes hypothesis-driven diagnostic testing and interprets results.
7. Formulates therapeutic management plans for commonly encountered clinical conditions.
8. Uses patient-centered language to describe common diagnostic and therapeutic interventions and plans.
9. Demonstrates basic procedural techniques.
10. Incorporates health promotion and disease prevention into patient care plans.
11. Identifies individual and structural factors that impact health and wellness.
12. DO-specific: Incorporates osteopathic principles, practices, and tenets into patient care.
13. DO-specific: Performs an osteopathic, structural examination and treats altered function of the body framework system or somatic dysfunction with osteopathic manipulative treatment (OMT).

## Medical Knowledge

Applies and integrates foundational knowledge to improve health care for patients and populations.

1. Demonstrates knowledge of basic, clinical, pathophysiologic, social, and health systems sciences, as well as humanities, needed for clinical practice.
2. Applies foundational knowledge for clinical problem-solving, diagnostic reasoning, and decision-making to clinical scenarios.
3. Discerns the accuracy of information and relevance to clinical problems.
4. Demonstrates knowledge of research design, interpretation, and application to clinical questions.
5. Accesses knowledge relevant to clinical problems using appropriate resources, including emerging technologies.
6. DO-specific: Demonstrates knowledge of how to integrate osteopathic principles, practices, and tenets into patient care.

## Practice-Based Learning and Improvement

Integrates feedback, evidence, and reflection to adapt behavior, foster improvement, and cultivate lifelong learning.

1. Actively seeks and incorporates feedback and assessment data to improve performance.
2. Identifies opportunities for growth in one's own performance through informed self-assessment and reflective practice.
3. Develops, implements, and reassesses learning and improvement goals.
4. Locates, critically appraises, and synthesizes information to support evidence-informed, patient-centered clinical decisions.
5. Demonstrates inquiry and ability to grow and seek new knowledge.

## Interpersonal and Communication Skills

Effectively communicates and interacts with patients, caregivers, and the health care team to contribute to high-quality, patient-centered care.

1. Collaborates with patients, caregivers, and team members to enhance the therapeutic relationship.
2. Collaborates with health care and administrative team members to enhance team and organizational function.
3. Demonstrates active listening.
4. Communicates clearly, accurately, and compassionately in verbal, nonverbal, written, and electronic formats.
5. Demonstrates skills in educating patients, caregivers, peers, and team members.
6. Formulates and shares feedback constructively with others.

## Systems-Based Practice

Applies knowledge of the larger context of health, including its social and structural determinants, and of systems and resources within and outside of health care, to optimize high-quality care for patients, communities, and populations.

1. Applies knowledge of social and structural drivers of health.
2. Recognizes mechanisms to reduce disparities and advance health equity in patient care and health care systems.
3. Adapts performance to various health care teams, delivery settings, and systems.
4. Collaborates in transitions and coordination of patient care.
5. Evaluates the risks and benefits of using current and emerging technologies in patient care.
6. Identifies patient safety concerns, systems issues, and opportunities for quality improvement.
7. Describes health policy and the financial context of health care.
8. Applies knowledge of local population and community health needs, disparities, and resources.

# Glossary

**AACOM:** American Association of Colleges of Osteopathic Medicine

**AAMC:** Association of American Medical Colleges

**ACGME:** Accreditation Council for Graduate Medical Education

**Active listening:** "… being deeply engaged in and attentive to what the speaker is saying. It requires far more listening than talking. [The goal of] an active listener is to truly understand the speaker's perspective … and to communicate that understanding back to the speaker so that [they] can confirm the accuracy of your understanding."[24]

**Care plan:** "A written, [personalized] care plan, which, under the single-assessment process, details a patient's integrated health and social care needs."[25]

**Competence:** "The array of abilities [(knowledge, skills, and attitudes)] across multiple domains or aspects of performance in a certain context. Statements about competence require descriptive qualifiers to define the relevant abilities, context, and stage of training. Competence is multi-dimensional and dynamic. It changes with time, experience, and setting."[1]

**Competency:** "An observable ability of a health professional [related to a specific activity that integrates] knowledge, skills, values, and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition. Competencies can be assembled like building blocks to facilitate progressive development."[1]

**Competency-based medical education (CBME):** "An outcomes-based approach to the design, implementation, assessment, and evaluation of medical education programs, using an organizing framework of competencies."[1]

**Confidentiality:** An ethical duty that prevents certain people from sharing information with third parties.

**Educational continuum/Continuum of medical education:** The span of a physician's education, from undergraduate medical education (medical school) to graduate medical education (residency and fellowship) and continuing medical education (during years in practice).

**Effective care:** Providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and misuse, respectively).[26]

**Equitable care:** Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.[26]

**Evidence-informed care:** Care that integrates information from scientific research, clinical experience and judgment, and the patient's preferences and values.[27]

**Five core components of competency-based medical education curricula:** Outcome competencies, sequenced progression, tailored learning experiences, competency-focused instruction, and programmatic assessment.[18]

**Health disparity:** Refers to a higher burden of illness, injury, disability, or mortality experienced by one group relative to another.[28]

**Health equity:** "'Health equity' or 'equity in health' implies that ideally everyone should have a fair opportunity to attain their full health potential and that no one should be disadvantaged from achieving this potential."[29]

**Patient-centered care:** "Care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions."[26]

**Patient-centered language:** "Patient-centered communication focuses on goals that should be achieved jointly by physicians, patients and, when appropriate, families. Some features of patient-centered communication are stated as follows:

- "Reveals the patient's perspective (beliefs, preferences, concerns, needs).
- "Explores the bio-psycho-social context of the patient's health and well-being.
- "Builds or strengthens trust and mutual respect in the physician-patient relationship.
- "Present disease and treatment options in a way that the patient understands.
- "Supports patients' active participation in the communication and decision-making process.
- "It is based on common sense in problem solving and action plans.
- "Allows for decisions that are evidence-based, consistent with the patient's values and feasible to implement."[30]

**Patient safety:** The practices that reduce the occurrence of preventable adverse events and medical errors.[31]

**Patient privacy:** "... encompasses a number of aspects, including personal space (physical privacy), personal data (informational privacy), personal choices including cultural and religious affiliations (decisional privacy), and personal relationships with family members and other intimates (associational privacy)."[32]

**Quality improvement:** The systematic ongoing practices that lead to measurable improvement in health care services and patient outcomes.[31]

**Reflective practice:** "... the practice by which professionals become aware of their implicit knowledge base and learn from their experience."[33]

**Social and structural drivers of health:** Both social and structural drivers of health intersect to affect many different aspects of health, including access to health care services, morbidity and mortality, and health care quality.

**Social drivers of health:** "The terms *social drivers of health* and *social determinants of health* are used interchangeably."[34] "[Social drivers of health refers] to the underlying community-wide social, economic and physical conditions in which people are born, grow, live, work and age. They affect a wide range of health, functioning, and quality-of-life outcomes and risks. These determinants and their unequal distribution according to social position, result in differences in health status between population groups that are avoidable and unfair."[35]

**Structural drivers of health:** *Structural drivers of health* and *structural determinants of health* are used interchangeably. "The structural drivers of health refer to the upstream social, economic, and political mechanisms that generate social inequities and therefore affect health (eg, extent a government finances healthcare)."[36]

**Tenets of Osteopathic Medicine:** "... express the underlying philosophy of osteopathic medicine and were approved by the AOA House of Delegates as policy.

1. "The body is a unit; the person is a unit of body, mind, and spirit.
2. "The body is capable of self-regulation, self-healing, and health maintenance.
3. "Structure and function are reciprocally interrelated.
4. "Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function."[23]

**Therapeutic relationship:** The relationship between a caregiver and a patient that includes the caregiver valuing the patient, and the caregiver's commitment to the patient, management of the power imbalance, and character and competencies.[37]

**Transition of care:** "... the movement of a patient from one setting of care to another. Settings of care may include hospitals, ambulatory primary care practices, ambulatory specialty care practices, long-term care facilities, home health, and rehabilitation facilities."[38]

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# Appendix
# Foundational Competencies for Undergraduate Medical Education: The Detailed Development Process

The development of the Foundational Competencies for Undergraduate Medical Education (UME) took place over approximately three years and included collaborative planning, community discussions, a landscape review, competency development, reporting, and dissemination (Figure 1). The co-leads, representing the three sponsoring organizations, steered the initiative; an advisory committee (AC) provided expert guidance; a working group (WG; its members were selected through an application process) developed the draft competencies; and two reactor groups (RGs; one composed of patients and caregivers, the other of medical students) provided initial feedback to the WG on the iterative drafts.

The collaborative planning phase lasted 10 months and began with the co-leads agreeing on the goals and plan for the development of the competencies, and a draft of the guiding principles. They identified and recruited 24 members to serve on the AC, who were from 16 unique organizations representing important roles in undergraduate medical education. AC members participated in six meetings over the course of the project, between July 2022 and June 2024. The AC reviewed and provided input on the plan and the WG criteria, rated WG applicants, provided input on iterative drafts of competencies, assisted with communications and promotions of related engagement opportunities, and advised on practical issues related to the release of the competencies and their future use. The co-leads, with assistance from the AC, finalized seven guiding principles to facilitate the competency development process:

1. Choose quality over speed.
2. Value diversity of perspectives (over a single small group of experts).
3. Cocreate via iterative feedback (and not offer a single short window for input or no input).
4. Apply lessons from published research as well as practical evidence from the field.
5. Value equity in how competency-based medical education (CBME) is constructed, operationalized, and supported.
6. Value well-being and commit to considering the implications of this CBME work on the health and wellness of those impacted.
7. Embrace a complementary language of CBME, grounded in the six core competencies created in 1999 and endorsed by the Coalition for Physician Accountability in 2014.[13]

The 20-member WG was formed after a national application process. These volunteers were carefully selected to ensure a highly qualified and representative group. Selection factors included, but were not limited to: geographic location; size and mission of the applicant's institution; their specialty; the types of degrees awarded by their institution; and the applicant's race, ethnicity, and gender. The primary responsibility of the WG was to help develop the new Foundational Competencies for UME by following a facilitated, iterative process. The two RGs were formed to ensure that perspectives from medical students, patients, and caregivers were included during the development phase. Other outcomes of this phase included: the creation of a shared website with frequently asked questions and an anonymous feedback form for ongoing questions and concerns from the community, a dossier of literature, research on CBME, and the creation of protocols for listening sessions that were held during the second phase.

The second phase — community discussions and landscape review — lasted seven months and helped inform the overall project, including the identification of major trends facing health care and the competency-based education frameworks used at various stages of physician training. This phase also included multiple listening sessions with a broad array of individuals who reflected on how health care is changing and how CBME is currently experienced within the local institution or program.

Questions posed included:

- What will we expect all future physicians to be able to do, know, and value regardless of their specialties?
- What will we need to teach and assess to ensure an ideal future workforce?
- What competency frameworks for CBME are currently being used, and what does "use" mean at the local school level?

These discussions provided valuable information to help guide the competency development process. Patients, caregivers, and patient advocates shared valuable insights on the need for future physicians to have strong communication and interpersonal skills, coordinate care within the complex health care system, value cultural differences and address biases, and inform and support patients and their caregivers at the end of life.

The development phase lasted 18 months and included the writing and revising of the Foundational Competencies for UME. Early in this phase, the WG was given a dossier of literature, research on CBME, and a summary of the feedback received during the first phase. They began by considering the current version of the Accreditation Council for Graduate Medical Education competency statements, asking whether each of the six statements were appropriate for an undergraduate learner. The WG met virtually each month for two hours, beginning in March 2023. The 20 members worked in small, facilitated groups to focus on a single competency at a time. Once drafted, the six statements were disseminated to select groups, including the RGs and the AC, for initial reactions. After review and modification, the WG began drafting the subcompetencies at monthly meetings held in the same small-group format. The members were randomly assigned to a small group at each meeting to increase the applicability of the subcompetencies across the spectrum of learning environments. The groups went to great lengths to choose the words and phrasing of the competencies and subcompetencies to ensure that knowledge, skills, and abilities were accurately identified and relevant to all learners. Early drafts of the subcompetencies were shared with medical educators, the AC, and the RGs. The work was revised based on this initial feedback and posted for public comment for three weeks, from late January to February 2024.

The results of the first draft survey included 761 responses from across the United States, representing every state except Wyoming, South Dakota, Idaho, Delaware, and Alaska. A slight majority (56%) of the respondents self-identified as serving in a leadership role at a medical school or graduate medical education-sponsoring institution, or for an educational program (e.g., clerkship or program director). Of the 718 respondents affiliated with a medical school, 90% were affiliated with MD-granting schools, and 10% were affiliated with DO-granting schools.

The first review-period survey invited feedback on the overall set, while the second review-period survey invited more granular feedback on each of the six competencies. Researchers from the sponsoring organizations analyzed the quantitative and qualitative data obtained during the first review period. Forced-choice items were aggregated, and a modified, qualitative analysis approach was used to review and synthesize the free-text responses. There were four free-text responses on each survey:

1. Are the draft competencies and subcompetencies clearly written?
2. Do the draft competencies and subcompetencies appropriately describe the expected core abilities of a medical student, regardless of where they attended medical school or their future specialty?
3. Do any of the draft competencies or subcompetencies reflect abilities that are not considered core or foundational to all medical students?
4. If you consider the entire set of draft competencies and subcompetencies to be expected of all medical students, regardless of where they attended medical school or their future specialty, what, if anything, is missing?

The number of open-ended comments for the items ranged from 86 to 253 comments for the first round and from 251 to 485 comments for the second round. Given the size and nature of the dataset, a combination of manual inspections and artificial intelligence-automated text analyses were employed to systematically categorize the feedback. Themes were then mapped to specific competency areas for targeted revisions.

The overarching themes identified included, but were not limited to, the need to: use precise language, avoid ambiguity, eliminate redundancy across subcompetencies, and establish a more effective way to integrate the unique aspects of DO training into the competencies. Based on the specific feedback that was received for all competencies, the area in need of most revision was medical knowledge. Additional recommendations included the need for more emphasis on communication, health system science and health policy, evidence-based practice, personal and professional development, procedural skills, and patient-centered care.

The WG reviewed the results of the first round of comments and revised the draft Foundational Competencies for UME in March 2024, resulting in a second draft that was released for public comment for four weeks, from April to May 2024. The results of the online survey included 1,189 valid responses from across the United States, representing every state except Alaska, Nebraska, Wyoming, and the U.S. Virgin Islands. In this review cycle, 35% of respondents self-identified as serving in a leadership role at a medical school or graduate medical education-sponsoring institution, or for an educational program (e.g., clerkship or program director). Of the 982 respondents affiliated with a medical school, 53% were affiliated with MD-granting schools, and 47% were affiliated with DO-granting schools.

Overarching themes from the second round of comments included, but were not limited to, the need for: reducing redundancy, increasing clarity, further integrating evidence-based practice, and incorporating more patient-centered care. There was significant feedback indicating the need to emphasize osteopathic principles and tenets. Other areas for consideration included inclusivity and equity, emerging technologies, lifelong learning and adaptability, population health, self-reflection, interprofessional communication, and ethical practice. Most respondents agreed that the competencies and subcompetencies were written clearly and appropriately described the expected ability of a medical student, regardless of where they attend medical school or what their future specialty is. The WG reviewed the draft and addressed any areas that were missing or of concern or increased interest. Again, each small group was assigned a competency and made needed changes to the subcompetency statements. The second public draft was completed, and each group was asked before adjournment to write a brief narrative of their time in the WG.

The third draft was reviewed by select individuals, including the AC and RGs, for any needed minor changes, such as word choice or further emphasis on osteopathic principles and tenets. The final version was approved by the co-leads in September 2024.

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