

AAIM Perspectives

AAIM is the largest academically focused specialty organization representing departments of internal medicine at medical schools and teaching hospitals in the United States and Canada. As a consortium of five organizations, AAIM represents department chairs and chiefs; clerkship, residency, and fellowship program directors; division chiefs; and academic and business administrators as well as other faculty and staff in departments of internal medicine and their divisions.

AAIM Recommendations for Undergraduate Medical Education to Graduate Medical Education Transition Curricula in Internal Medicine



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INTRODUCTION

The transition from undergraduate medical education (UME) to graduate medical education (GME) has been carefully examined over the past few years as a focus for improvement by all stakeholders. The diverse background and training of students, which includes allopathic, osteopathic, and international medical schools, has led to significant challenges with their transition to residency. However, systematic solutions such as curricula or assessment development have been lagging.

In 2010, internal medicine (IM) program directors (PDs) were asked to prioritize skills important for an incoming intern and identified competencies that included critical communication, time management, and knowing when to seek assistance.¹ In 2013, to provide a common standard of proficiencies, the Association of American Medical Colleges piloted 13 core entrustable professional activities (EPAs) that all interns, regardless of specialty, are expected to perform at the start of internship.² Though EPAs were not mandated by all medical schools, IM PDs noted that incoming interns were not prepared in many of the domains.^{3–5} To respond to this curricular gap, UME has focused on bolstering valuable experiences that often take place in the fourth year of medical school (MS4) including the subinternship and capstone courses. Curricula has been developed and revamped to prepare students for GME including a redesign of

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the IM subinternship curriculum by the Alliance for Academic Internal Medicine (AAIM).⁶ Capstone courses, also known as “transition to internship” or “bootcamps,” have been established in many Liaison Committee on Medical Education (LCME) schools to reinforce and assess the core EPAs; these transition courses may offer both generalizable topics for all students and subspecialty tracks for those entering specific fields including IM, pediatrics, surgery, and obstetrics-gynecology.^{7–9}

Recently, the UME-GME Review Committee (UGRC) tasked by the Coalition for Physician Accountability presented 34 recommendations for comprehensive reform to improve the continuum. Four of the 34 recommendations reference collaboration between UME and GME to create a shared definition of outcomes for learners in the transition along with curriculum and assessments to deliver content and measure outcomes for a robust handoff between UME and GME.¹⁰ The UGRC outlined that each specialty defines specific competencies and tasked UME and GME to develop corresponding curricula and assessments to ensure intern preparedness. The AAIM Learner Handoff Standards Task Force was established to address some of these recommendations with full representation from both UME and GME including PDs, Designated Institution Officers, program administrators, and clerkship, subinternship, and capstone course directors. The breadth of representation included diversity in geography and institutional size. AAIM recognizes that there is currently no consensus on topics that should be covered in UME capstone courses or GME orientations for IM trainees. Therefore, AAIM seeks to provide a framework of standardized curriculum for IM-bound students for both UME capstone courses and GME orientation to address this gap.

Methods

The topics recommended for an IM-specific capstone course (Table 1) and GME orientation (Table 2) were derived both from existing literature and expert clinician educator faculty input from the task force.^{1,7–9,11,12} The literature review on capstone courses focused on LCME allopathic school curriculum. Following completion of the literature review, an iterative process through expert consensus was utilized to identify core curricular topics. A review and

comment period allowed for deeper analysis and consideration. Once preliminary topics were established, feedback was solicited through consultation with members of the Clerkship Directors in Internal Medicine (CDIM) Council and Association of Program Directors in Internal Medicine (APDIM) Council.

PERSPECTIVES VIEWPOINTS

- There is no standardized curriculum on the transition to internship for students entering internal medicine residency; this includes content for both the undergraduate medical education (UME) capstone course and the graduate medical education (GME) orientation.
- The Alliance for Academic Internal Medicine (AAIM) recommends topics based on domains that are critical for both direct patient care and professional development of new interns.
- The development of standardized competency-based assessments is still needed.

Guiding Principles for Recommendations.

Most LCME medical schools have incorporated a capstone course into the fourth year of medical school with variability in timing, duration, specificity, and assessment.^{1–4} Similarly, many IM programs have residency GME orientations that vary in duration, content, and delivery. In addition, many institutions now have a formalized GME orientation that may address general topics for all interns.^{13,14} AAIM provides consensus of expert opinions on curricula to guide UME and GME recognizing that

implementation will be individualized. Some overall themes include:

- 1) Curriculum Topics: Both UME and GME suggested topics are categorized based on core competency, well-being, and the electronic health record (EHR). These topics are meant to encompass both inpatient and outpatient settings if applicable. The topics can be mapped both to EPAs and milestones and are not exhaustive but used to provide a framework.
- 2) Resource Intensity: With variable durations of capstone courses and orientations among institutions, all recommended topics may not be feasibly incorporated into the allotted time frame. Therefore, AAIM recommends focusing on locally determined priority topics first and incorporating other topics depending on availability of time, resources, and medical school or institution importance. The resource intensity of low, high, or variable is directly dependent on suggested potential delivery methods. In comparison to a didactic session, a topic delivered via a simulation session would likely have a high resource intensity requiring several additional resources including time, specialized faculty, and equipment. Topics characterized as variable resource intensity may have a variety of delivery formats available per topic. It is recommended that delivery formats are used as a guide and adapted individually.

Table 1 Undergraduate Medical Education Capstone Course Suggested Topics as Developed by the Alliance for Academic Internal Medicine Learner Handoff Standards Task Force

Suggested Topic	Suggested Priority	Resource Intensity	Potential Delivery Formats
Medical Knowledge			
Respiratory Emergencies (Focus on oxygen delivery, Vent management)	High	Variable	Didactic/Simulation
Primer on Antibiotics	High	Low	Didactic
Primer on ECG	High	Low	Didactic/Small Groups Case-Based Discussion
Fluids and Electrolyte Management	High	Low	Didactic/Small Groups Case-Based Discussion
Pain Management	High	Low	Didactic/Small Groups Case-Based Discussion
Glycemic Control for the Intern	High	Low	Didactic/Small Groups Case-Based Discussion
Well-being			
Well Being- Physical, Mental, Financial	Medium	Low	Didactic/Small Group
PBLI and Professionalism			
Seeking and incorporating feedback	High	Low	Didactic/Small Group Case-Based Discussion
How to quickly and effectively use Evidence-Based Medicine	Medium	Variable	Simulation/Small Group Discussion
Professionalism (ie, emphasis on behaviors, developing a professional identity, or cultivating virtuous traits as deemed important for professional growth and development)	High	Low	Didactic/Small Group Case-Based Discussion
Interpersonal and Communication Skills			
Interprofessional Communication	High	Variable	Small Group/Role Play/Simulation
Requesting a Consultation	High	Variable	Small Group/Role Play
Obtaining Informed Consent	High	Variable	Small Group/Role Play/Simulation
End-of-Life Discussions	High	Variable	Small Group/Role Play
How to Present on Rounds	High	Variable	Small Group/Role Play
Patient Care			
How to Effectively Transition Care (aka handoffs, sign out)	High	Variable	Small Group/Role Play/Simulation
Cross-Coverage and Common Overnight Calls	High	Variable	Simulation/Small Group Discussion
Organizational Skills, Prioritization, and Effective Time Management	High	Variable	Didactic/Small Group/Resident Panel
Rapid Response Training	Medium	High	Simulation
ACLS training	Medium	High	Simulation
Pronouncing a patient and death documentation	Medium	Variable	Didactic/Role Play
Basic Radiology (esp. CXR) for the Intern	Low	Low	Didactic
Procedural skills simulation	Low	High	Simulation
POCUS (Fluid assessment, identifying vasculature)	Low	High	Small Group
EHR Training (inpatient and ambulatory setting)			
Practice entering orders and prescriptions (learn basic structure of admission orders like A.A.D.C. VAAN DISSL and components of prescription)	High	Variable	Simulation/Small Group Discussion
Best practices of documentation in EHR	Medium	Variable	Didactic/Small Group Discussion

AADC VAN DISSL = admit, attending, diagnosis, condition, vitals, activity, allergies, nursing procedures, diet, ins and outs, specific medications, symptomatic medications, labs; ACLS = advanced cardiovascular life support; CXR = chest X-ray; ECG = electrocardiogram; EHR = electronic health record; PBLI = problem-based learning and improvement; POCUS = point-of-care ultrasound.

Low-priority topics can be incorporated into intern survival series/boot camps during the first 1-2 months of residency; variable resource intensity = high-fidelity simulation (high) versus lecture based (low).

Table 2 Graduate Medical Education Orientation Suggested Topics as Developed by the Alliance for Academic Internal Medicine Learner Handoff Standards Task Force

Suggested Topic	Suggested Priority	Resource Intensity	Potential Delivery Formats
Institutional Culture			
Introduction to Patient Population	High	Low	Didactic
Diversity, Equity and Inclusion	High	Low	Didactic
Optimal Utilization of Interpreters	Medium	Low	Didactic/Small Group
Health Disparities	Low	Low	Didactic
Community Service and Engagement	Low	Low	Didactic
Well-Being			
Fitness for Duty - when to come to work	High	Low	Didactic
Fatigue Mitigation and Sleep Deprivation Management	High	Low	Didactic/Small Group Case-Based Discussion
Access for Mental Health Services in Your Institution	High	Low	Didactic
Acculturation of International Medical Graduates (if applicable)	High	Variable	Didactic/Small Group Discussion/Resident Panel
PBLI and Professionalism			
Understanding Your Changing Roles and Responsibilities (ie, what to expect as a resident and how it differs than being a med student)	High	Low	Didactic/Small Group Case-Based Discussion
Seeking and incorporating feedback	High	Low	Didactic/Small Group Case-Based Discussion/Role Play
Professionalism (ie, emphasis on behaviors, developing a professional identity, or cultivating virtuous traits as deemed important for institutional culture and professional growth and development)	High	Low	Didactic/Small Group Case-Based Discussion
Intro to Residents as Teachers	Low	Low	Didactic/Small Group Case-Based Discussion
System-Based Practice and Patient Safety			
Knowing When to Seek Assistance	High	Variable	Didactic/Small Group Case-Based Discussion/Simulation
Supervision Outside the Ambulatory Setting (ie, in basket management, telephone encounters, results etc.)	High	Low	Didactic/Simulated Modules
Interpersonal and Communication Skills (ICS)			
Obtaining Informed Consent	High	Variable	Didactic/Small Group Case-Based Discussion/Role Play
Obtaining Code Status & Goals of Care Discussions	High	Variable	Didactic/Small Group Case-Based Discussion/Role Play
Presenting a Patient (on rounds and in the clinic)	High	Variable	Didactic/Small Group Case-Based Discussion/Role Play
ICS Within the Team	Medium	Variable	Didactic/Small Group Case-Based Discussion/Role Play
ICS With Nurses and Other Interprofessionals	Medium	Variable	Didactic/Small Group Case-Based Discussion/Role Play
Requesting a Consult (Inpatient and Ambulatory Setting)	Low	Variable	Didactic/Small Group Case-Based Discussion/Role Play
Patient Care			
How to Effectively Transition Care (aka handoffs, sign out)	High	Low	Didactic/Small Group Case-Based Discussion/Role Play
How to Provide Effective Cross-Coverage	High	Low	Didactic/Small Group Case-Based Discussion/Role Play
Organizational Skills, Prioritization, and Effective Time Management	High	Low	Didactic/Small Group Case-Based Discussion
Rapid Response Training	High	High	Simulation
BLS, ACLS, and Institutional Specific "Code Blue" Training	High	High	Didactic/Simulation
Pronouncing a Patient and Death Documentation	Medium	Variable	Didactic/Role Play

Table 2 (Continued)

Suggested Topic	Suggested Priority	Resource Intensity	Potential Delivery Formats
Ancillary Staff Roles and Responsibilities (Inpatient and Ambulatory Setting)	Medium	Low	Didactic
Procedure Skills Simulation Session	Low	High	Simulation
On-Call Crisis Management	Low	High	Didactic/Small Group Case-Based Discussion/Simulation
EHR Training (Inpatient And Ambulatory Setting)			
Navigating the EHR for New and Follow-Up Patients	High	High	Didactic/Simulated Modules
Medication Reconciliation	High	High	Didactic/Simulated Modules
Entering Orders and Prescriptions	High	High	Didactic/Simulated Modules
Effective Note Writing/Documentation	High	High	Didactic/Simulated Modules
Updating History Fields	Low	High	Didactic/Simulated Modules
Efficiency Tips and Tricks (can be done at another time)	Low	High	Didactic/Simulated Modules
ACLS = advanced cardiovascular life support; BLS = basic life support; EHR = electronic health record; PBLI = problem-based learning and improvement.			
Low-priority topics can be incorporated into Intern survival series/boot camps during the first 1-2 months of residency; variable resource intensity = high-fidelity simulation (high) versus lecture based (low).			

3) Pedagogy and Faculty: The type of pedagogy used is often determined by the topic as well as the faculty resources. AAIM recommends faculty development for a broad bench of facilitators as well as utilization of chief residents and senior residents for “near peer” teaching of some of these topics.

IM-Specific Capstone Course Recommendations.

The clinical topics chosen for the capstone course focus on high-yield encounters predominantly in the inpatient setting such as those related to medical emergencies or acute care. The nonclinical topics, applicable to both inpatient and outpatient venues, reinforce skills such as interprofessional communication, systems-based practice including navigation of the EHR, well-being, time management, and efficiency. These skills are often not explicitly addressed in other rotations but highly valued by both medical educators and students.^{5,12,15} Although many of these topics are universal, regardless of specialty, a focus on IM should be implemented when applicable.

Although the subinternship provides the experiential learning that covers many of these topics, the IM capstone course is additive and distinct because of the timing (just prior to graduation) and the delivery of material. Subinternships provide students with the clinical experience of managing acutely ill patients under direct supervision; however, this is often done in a high-stakes environment with pressures of grading and obtaining letters of recommendation. A well-designed IM capstone course provides a low-stakes environment where the students can participate in active learning, receive constructive feedback, and reinforce prior clinical skills in a practical context.

A dynamic capstone course benefits from active engagement from all educators including IM faculty, house staff, and interprofessional colleagues. Based on the resources available, AAIM recommends each

institution design its capstone course using effective methods of pedagogy such as simulation, small group discussion, and role-playing rather than traditional didactics to enhance impact. For instance, for the topic of overnight cross-coverage, one teaching modality can be case-based small groups. The students can work in groups to respond to a scenario with a facilitator.¹⁶ Following collaborative discussion, all groups can be prompted to share their answers. Another low-resource method of delivery could have students work through interactive online modules covering the standard topics for overnight pages.¹⁷ A third more resource-intensive method could utilize either high-fidelity simulation or standardized patients to present scenarios.¹⁸ This modality allows for the addition of other tasks such as handoffs or calling the attending physician for a challenging patient scenario.¹⁸

The IM capstone course affords the opportunity to review critical skills in domains other than medical knowledge and patient care. Most students lack experience with practical tasks like placing orders, prescribing medications, and medication reconciliation.^{19,20} Despite differences in EHR systems, the proficiencies necessary to navigate them are common; the IM capstone course can provide an opportunity to practice these necessary skills.

AAIM appreciates that even within schools that have well-developed capstone courses, skills such as incorporating feedback, evidence-based medicine, and professionalism cannot be learned or remediated in the capstone alone and should be part of a longitudinal curriculum with spaced assessments.

GME Orientation Recommendations. Institutional and programmatic orientations prior to the start of residency training provide interns with the opportunity to learn and understand aspects of their institution and clinical learning environment. Additionally, it can be

used to reinforce and highlight areas that are particularly challenging for interns during this transition process. Although many skills and topics addressed in medical school are not specific to specialty, there are several institution- and specialty-specific areas that are necessary to cover during orientation. These include understanding the institutional culture, health disparities of the community, and the EHR.

Recommendations for an effective transition to residency are based on feedback and input from both PDs and residents.^{4,8} The Coalition for Physician Accountability UGRG recommended that in addition to clinical skills and system utilization, GME orientation content should include both faculty and peers and cover the following topics: introduction to the patient population; known health disparities; community service and engagement; and institutional culture.¹⁰ Emphasis should be placed on these topics because each are unique to the individual program and institution. Additionally, the committee recommended specialty-specific, just-in-time training to all incoming first-year residents.¹⁰ Beyond these recommendations, it is noted that the literature available regarding optimal topics for intern orientation is sparse. Thus, many of the skills PDs and residents regarded as high yield AAIM recommends reinforcing at orientation, despite already being taught in medical school. Repetitive topics should be tailored to institution- and program-specific expectations and needs.

Suggested topics related to institutional culture would lend themselves well to be delivered by members of the institution's GME department because these areas of focus are not limited to one training program. However, given variability of GME onboarding, these topics may be addressed at the programmatic level as well. Well-being should also be addressed during orientation. The Accreditation Council for Graduate Medical Education IM Program Requirements outline the need for resident education on fatigue mitigation strategies.²¹ This topic and instruction on recognizing one's own ability to take care of patients is imperative and orientation is an optimal time to reinforce these areas. The Accreditation Council for Graduate Medical Education additionally requires IM residency programs to evaluate their learners on their knowledge of systemic and individual factors of well-being.²² An orientation affords the opportunity for incoming interns to be provided with a comprehensive introduction to well-being resources at their institution. Particular attention should be paid to the acculturation of international medical graduates, if applicable, because this group faces additional challenges.

For the incoming residents, it can be surmised that time management and efficiency are greatly impacted by their ability to navigate and utilize the EHR effectively. Comprehensive training should be provided utilizing simulated modules and hands-on workshops to best acclimate residents. Additional topics such as

efficiency tips and tricks can be addressed at alternative points longitudinally.

Although medical knowledge is a key core competency to be addressed throughout residency, AAIM recommends that the orientation focus on other domains because these may be the most vital for integration into a new role and system. Patient care skills have been identified by PDs and residents as some of the most important topics for review during orientation.^{5,6} These include how to effectively transition care, how to provide effective cross coverage, organizational skills, prioritization, and effective time management. AAIM recommend prioritizing these topics when designing the orientation schedule.

AAIM's recommendations are meant to address these competencies in both inpatient and outpatient settings. For example, "working within the team" can include an inpatient multidisciplinary team composed of nursing, care management, pharmacists, and others. This same topic can include a robust outpatient team composed of schedulers, nursing, care management, and others.

FUTURE DIRECTIONS

The capstone course and orientation topics listed are suggested high-yield skills and competencies residents need to hone and reinforce at the start of residency. AAIM recognizes the limited time and resources for capstone courses and orientation and thus focused on topics that were highest priority and most feasible. Although many topics can be addressed in the context of the inpatient and outpatient setting, it is likely that broader outpatient orientation or bootcamps would be beneficial to residents.⁵⁻⁷ Future directions could include recommended topics for outpatient-specific transitions curricula. Similarly, though many PDs do not expect proficiency in procedures immediately, consideration for procedural readiness through teaching microskills of common procedures, point-of-care ultrasound, and informed consent, are gaps that should be considered. Other topics that were considered but not recommended include leadership skills, fundamentals of patient safety and quality improvement, and health system science.⁸

Though the appeal of the capstone course is often that it is low stakes with opportunity for true learning, fourth-year assessments that may include those from a capstone course can help provide a meaningful handoff to future PDs.⁹ Its could be through formative feedback by observers during small group or simulated experiences or through more formal mechanisms, such as an objective structured clinical examination (OSCE). One strategy may be to focus on competencies not covered elsewhere in the curriculum and to build assessments around these for capstone courses as well as GME orientation.

There is wide variability in postcore clerkship clinical education requirements among medical schools and

potential gaps in clinical experiences.^{4,10,13} The 2013 CDIM annual survey results indicated that undergraduate medical advisors recommend specific strategies to enhance students' preparation for residency, such as an average of 6.5 months of clinical rotations inclusive of a subinternship, critical care, and medicine specialty clinical rotation.¹¹ Another study of IM interns demonstrated a correlation between fourth-year clinical rotation intensity and intern preparedness.¹² Utilizing such recommendations to coach students on both timing and types of value-added rotations could further ease the transition to internship.

We acknowledge that international medical school graduates and graduates of some Commission on Osteopathic College Accreditation and LCME-accredited medical schools may not experience a capstone course as part of their final-year curricula. Therefore, adapting and standardizing capstone curricula should be considered by these stakeholders for students who desire to train in the US.

AAIM also recognizes the time limitations of GME orientation to cover all recommended topics. Some specialties have addressed these gaps by creating curricula for all incoming residents to prepare for their specialty. For example, stakeholders for general surgery have come together to create a resident prep curriculum with positive results.²³ This model also pools resources and minimizes the need for every institution to design curricula. In the future, AAIM and other organizations could consider curating and sponsoring such a transition course that could be widely disseminated to potentially disadvantaged learners.

AAIM hopes medical schools and IM residency programs can use this framework to expand on their existing curricula for the UME to GME transition. Curriculum development is only part of a larger solution that includes robust competency-based assessments and improved communication between UME and GME.

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