

Curricular Thread Review: Quality Improvement, Patient Safety, and High-Value Care

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Introduction: The Quality Improvement, Patient Safety, and High-Value Care thread report was last presented by the Curriculum Integration Subcommittee (CIS) to MSEC on April 4, 2017(prepared January 2017). Prior to this the thread was reviewed with MSEC on January 19, 2016. The current thread review confirms: a) thread objectives, b) the thread objectives tie to the Institutional Educational Objectives, c) current thread curriculum content (to include the status of previous recommendations), and d) additional short and/or long recommendations for thread curriculum content.

Thread Objectives (adopted from the *World Health Organization [WHO] Multi-Professional Patient Safety Curriculum Guide – 2011*)

- Mapped to corresponding College of Medicine Institutional Educational Objectives - IEOs (*noted in parentheses*)
- Mapped to USMLE Content Outline (2019) Patient Safety, Quality Improvement and High Value care items – see Appendix I [*noted in brackets*]

Topic 1: What is patient safety?

A.1. Understand the discipline of patient safety and its role in minimizing the incidence and impact of adverse events and maximizing recovery from them (IEOs: 1.3, 7.4) [SS C3 A]

Topic 2: What are human factors and why are they important to patient safety?

A.1. Understand human factors and its relationship to patient safety (IEOs: 6.1, 6.2, 6.3, 6.4, 6.5) [SS C3 C]

Topic 3: Understanding systems and the impact of complexity on patient care

A.1. Understand how systems thinking can improve health care and minimize patient adverse events (IEOs: 6.1, 6.2, 6.3, 6.4, 6.5) [SS C1 A, C1 C, C3 C]

Topic 4: Being an effective team player

A.1. Understand the importance of teamwork in health care (IEOs: 4.2, 4.3, 7.1, 7.2, 7.3, 7.4) [SS C1 C, C3 C]

A.2. Know how to be an effective team player (IEOs: 4.2, 4.3, 7.1, 7.2, 7.3, 7.4) [SS C1 C, C3 C]

A.3. Recognize you will be a member of a number of health-care teams as medical students (IEOs: 4.2, 4.3, 7.1, 7.2, 7.3, 7.4) [SS C1 C, C3 C]

Topic 5: Understanding and learning from errors

A.1. Understand the nature of error and how health care can learn from error to improve patient safety (IEOs: 8.1, 8.8.) [SS C3 B]

Topic 6: Understanding and managing clinical risk

A.1. Know how to apply risk management principles by identifying, assessing, and reporting hazards and potential risks in the workplace (IEOs: 2.4, 6.3, 6.4, 6.5) [SS C3 A]

Topic 7: Introduction to quality improvement methods

A.1. Introduce students to the principles of quality improvement and the basic methods and tools for improving the quality of health care (IEOs: 2.1, 2.4, 3.4, 3.9) [SS C2 A, B, C, D, E]

Topic 8: Engaging with patients and caregivers

A.1. Understand the ways in which patients and caregivers can be involved as partner in health care, both in preventing harm and in healing from an adverse event (IEOs: 1.7, 1.9, 2.5, 3.8, 4.1, 4.2, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 7.1, 7.3, 7.4) [SS C3 A]

Topic 9: Minimizing infection through improved infection control

A.1. Promote understanding of the devastating effects of inadequate infection control and educate students in the ways they can minimize the risks of contamination (IEOs: 2.2, 2.3, 2.4, 2.5) [SS C3 B]

Topic 10: Patient safety and invasive procedures

A.1. Understand the main causes of adverse events in surgical and invasive procedural care (IEOs: 2.3, 3.1, 4.5, 5.6, 6.5, 8.8) [SS C3 B]

A.2. Understand how the use of guidelines and verification processes can facilitate the correct patient receiving the correct procedure at the appropriate time and place (IEOs: 2.3) [SS C2 A, C3 A, C3 C]

Topic 11: Medication safety

A.1. Provide an overview of medication safety (IEOs: .2, 1.5, 2.3) [SS C3 B]

A.2. Encourage students to continue to learn and practice ways to improve the safety of medication use (IEOs:1.3,1.5, 1.9, 2.3, 3.1, 3.3, 3.10) [SS C2 D]

Overall Recommendations to Courses and Clerkships (also see individual course or clerkship specific recommendations)

1. Encourage teaching faculty across the curriculum to review the WHO *Multi-Professional Patient Safety Curriculum Guide resources, i.e., fact sheets, tools, handouts, slides, and publications* as they develop and/or update content related to Quality Improvement, Patient Safety, and High Value Care -https://www.who.int/patientsafety/education/mp_curriculum_tools/en/.
2. Ensure current Quality Improvement, Patient Safety, and High Value Care Thread report recommendations are distributed to all course and clerkship directors in a timely manner that will allow review, update and/or implementation of content recommendations as early as the 2020-2021 academic year.
3. Continue to encourage faculty to complete session level mapping with delivered content tagged to the USMLE content list relevant to the areas of Quality Improvement, Patient Safety, and High Value Care. This will allow faculty and students to 1) become familiar with the related USMLE content coverage and 2) ensure accurate identification of all thread content delivered in the curriculum, i.e., Quality Improvement,

Summary:

The World Health Organization Patient Safety Curriculum Guide provides a full, detailed curriculum for implementation. The USMLE Content Outline from 2019 provides a detailed listing of the concepts that medical students are expected to master in the areas of Quality Improvement (QI), Patient Safety (PS), and High Value Care (HVC). Both are useful references for tools and teaching concepts. Quality Improvement, Patient Safety, and High Value Care concepts are covered in the curriculum. Most of the coverage deals with medical errors, which is appropriate for a UME curriculum. There appears to be an opportunity to build on the concepts of QI and HVC in a horizontal manner (across the M1-M4 years) which has not been fully taken advantage of yet. While patient safety and/or quality improvement are mentioned in the objectives of some clerkships, it's unclear by what means the instruction in those areas is actually occurring (incomplete mapping). The greatest depth of instruction appears to be in the areas of medication safety and minimizing infections. Currently the 4th year is not constructed in a way that facilitates being reported as "curriculum". Coverage of these issues has increased since the last report and appears satisfactory in years M1-M2; one way to approach "horizontalizing" and integrating the curriculum for this thread is to recommend that the clerkship directors use one didactic hour (or more) in each clerkship to provide instruction to all M3s in some form of more advanced QI/HVC topic (or more). Surgery clerkship has provided a good example of this. We recommend consideration of building on this example by having each 3rd year clerkship, or most of them, pick an advanced topic that suits its discipline. For example, Family Medicine (FM) or Internal Medicine (IM) clerkships might wish to teach visual data methods such as run charts for QI, Pediatrics clerkship might wish to formally instruct in use of clinical pathways and guidelines as HVC (there is also a resource called Aquifer that provides case studies in the context of HVC), Surgery clerkship appears to have chosen time-outs and other methods to prevent mistaken surgeries, etc. Ob/Gyn clerkship lists "hospital QI". More complete mapping of the formally taught didactics in 3rd year clerkships is highly desirable.

Required Courses-Clerkships - Linked Thread Objectives and Recommendations

Thread Objectives – (IEOs) – [USMLE]	Required Courses-Clerkships Content Linked to Thread Objectives	Short Term Recommendation	Long Term Recommendation
<p><u>Topic 1: What is patient safety?</u> (1.3, 7.4) [SS C3 A]</p> <p>A.1. Understand the discipline of patient safety and its role in minimizing the incidence and impact of adverse events and maximizing recovery from them</p>	<p><u>M2 Doctoring II</u> – Patient Safety/Quality Improvement didactic</p> <p><u>M3 Doctoring III: M3 Transition to Clinical Clerkships</u>– key concepts in patient safety</p>	<p><u>M3 Surgery Clerkship - Continue with New Skill for 2020-2021: QI/Patient Safety: participate in care of patient experiencing postoperative complications.</u></p>	

<p><u>Topic 2: What is human factors and why is it important to patient safety?</u> (6.1, 6.2, 6.3, 6.4, 6.5) [SS C3 C]</p> <p>A.1. Understand human factors and its relationship to patient safety</p>	<p><u>M2 Doctoring II</u> – Implicit bias in clinical decision making; self-awareness, cognitive errors</p> <p><u>M2 Introduction to Clinical Psychiatry</u> Multiple disorders (include: suicide prevention, depression screening)</p>		
<p><u>Topic 3: Understanding systems and the impact of complexity on patient care</u> (6.1, 6.2, 6.3, 6.4, 6.5) [SS C1 A, C1 C, C3 C]</p> <p>A.1. Understand how systems thinking can improve health care and minimize patient adverse events</p>	<p><u>M3 Doctoring III</u> – 2 hour didactic involving review of cases of patient safety and the use of root cause analysis.</p> <p><u>M3 Doctoring III – Transition to Clinical Clerkships</u> - HIPAA case based session on PPI and EHR rules</p>	<p>Continuation of thread topic into clinical years as recommended - Partially Done.</p>	
<p><u>Topic 4: Being an effective team player</u> (4.2, 4.3, 7.1, 7.2, 7.3, 7.4) [SS C1 C, C3 C]</p> <p>A.1. Understand the importance of teamwork in health care</p> <p>A.2. Know how to be an effective team player</p> <p>A.3. Recognize you will be a member of a number of health-care teams as medical students</p>	<p><u>M3 Doctoring III -Transition to Clinical Clerkships</u> – role of the medical student in enhancing patient safety</p>		
<p><u>Topic 5: Understanding and learning from errors</u> (IEOs: 8.1, 8.8.) [SS C3 B]</p> <p>A.1. Understand the nature of error and how health care can learn from error to improve patient safety</p>	<p><u>M1 Doctoring I</u> – Medical errors: Disclosure and Apology, Cognitive errors and Implicit Bias in Clinical Care</p> <p><u>M2 Doctoring II</u> – Medical errors</p>		
<p><u>Topic 6: Understanding and managing clinical risk</u> (IEOs: 2.4, 6.3, 6.4, 6.5) [SS C3 A]</p>	<p><u>M3 Ob/Gyn Clerkship</u>: 1 hr didactic given to all med students involving High Value Care and hospital QI.</p>	<p>New, and partially satisfies previous recommendation for a minimum of 4 classroom hours to be dedicated to High Value Care. Partially Done.</p>	

<p>A.1. Know how to apply risk management principles by identifying, assessing, and reporting hazards and potential risks in the workplace</p>			
<p><u>Topic 7: Introduction to quality improvement methods</u> (IEOs: 2.1, 2.4, 3.4, 3.9) [SS C2 A, B, C, D, E]</p> <p>A.1. Introduce students to the principles of quality improvement and the basic methods and tools for improving the quality of health care</p>	<p><u>M1 Anatomy - HIPAA compliance for PPI</u></p> <p><u>M1 Clinical Epidemiology and Biostatistics</u> – Safety in Clinical Research, IRB considerations, informed consent, CITI Human Subjects Research training</p> <p><u>M2 Doctoring II</u> – Institute for Healthcare Improvement: Four modules on Patient Safety (self-directed) Importance, statistics, IOM report, etc.</p> <p><u>Interprofessional Experiences - HIPAA</u></p> <p><u>M3 Rural Primary Care Clerkship</u> – Quality improvement process</p>		
<p><u>Topic 8: Engaging with patients and caregivers</u> (IEOs: 1.7, 1.9, 2.5, 3.8, 4.1, 4.2, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 7.1, 7.3, 7.4) [SS C3 A]</p> <p>A.1. Understand the ways in which patients and caregivers can be involved as partner in health care, both in preventing harm and in healing from an adverse event</p>	<p><u>M2 Doctoring II</u> – Apology</p>		
<p><u>Topic 9: Minimizing infection through improved infection control</u> (IEOs: 2.2, 2.3, 2.4, 2.5) [SS C3 B]</p>	<p><u>M1 Anatomy</u> – Needle safety and PPE usage</p>		

<p>A.1. Promote understanding of the devastating effects of inadequate infection control and educate students in the ways they can minimize the risks of contamination</p>	<p><u>M2 Microbiology and Immunology Course</u> – Infectious agents associated with nosocomial infections; basic sterile technique; handwashing</p> <p><u>Doctoring III - Transition to Clinical Clerkships</u> – Infection prevention; hand hygiene, scrub, gown, and glove, needle safety</p> <p><u>M3 Clerkships</u> – Sterile technique patient skill procedure requirement</p>		
<p><u>Topic 10: Patient safety and invasive procedures</u> (IEOs: 2.3, 3.1, 4.5, 5.6, 6.5, 8.8) [SS C3 B] (IEOs: 2.3) [SS C2 A, C3 A, C3 C]</p> <p>A.1. Understand the main causes of adverse events in surgical and invasive procedural care</p> <p>A.2. Understand how the use of guidelines and verification processes can facilitate the correct patient receiving the correct procedure at the appropriate time and place</p>	<p><u>M3 Surgery Clerkship</u> - Understand how the use of guidelines and verification processes can facilitate the correct patient receiving the correct procedure at the appropriate time and place. NEW</p> <p><u>Doctoring III – Transition to Clinical Clerkships</u> - Informed consent, including legal issues for those not English speaking or with disabilities (ASL and medical Spanish interpreter OSCE to get informed consent including online module covering why, how, and legal).</p>	<p>Experiences during clerkship rotations should be formalized (Surgery, OB/GYN. Family Medicine) as topics suggested here appear distinct. Done with regard to processes at left.</p> <p>More standardization with regard to this and other (thread-related) topics (e.g., Pain Management) desirable. May also contribute to hours towards high value care teaching in clinical years.</p> <p>Completion of mapping important</p>	
<p><u>Topic 1: Medication safety</u> (IEOs: .2, 1.5, 2.3) [SS C3 B] (IEOs:1.3,1.5, 1.9, 2.3, 3.1, 3.3, 3.10) [SS C2 D]</p> <p>A.1. Provide an overview of medication safety</p>	<p><u>M2 Medical Pharmacology</u> – Drug adverse effects, contraindications, alterations in pharmacotherapy based upon patient characteristics, drug interactions, and patient education</p> <p><u>M2 Intro to Clinical Psychiatry</u> – Medication adverse effects,</p>		

<p>A.2. Encourage students to continue to learn and practice ways to improve the safety of medication use</p>	<p>contraindications, patient education, and alterations in pharmacotherapy based upon patient characteristics</p> <p><u>M2 Doctoring II - Pain Management</u> large group didactic session (patient and medication safety). Providers' Clinical Support System for Opioid Therapies (PCSS-O – Management of Chronic Pain Patients (3) Modules</p> <p><u>M3 Doctoring III - Transition to Clinical Clerkships</u> – Introduction to Safe Prescribing, Needle safety</p> <p><u>M3 OB/GYN Clerkship</u> – Estrogen use in menopause</p> <p><u>M4 Doctoring IV - Keystone</u> – Patient safety in medical imaging, safe transfusion practice</p>		
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Curricular Outline of Required Courses-Clerkships' Current Content & Recommended Changes – based on Curriculum database search term: High Quality Care, Patient Safety, High Value Care, USMLE Content – Social Sciences codes – D2L course sites, New Innovations clerkship materials module:

Course-Clerkship	Current Content	Adopted since last report {Not Adopted since last report}	Short Term Recommendations for consideration; there are no long term recommendations
M1			
Cellular & Molecular Medicine			

Cell & Tissue Biology			
Clinical Epidemiology & Biostatistics	Safety in Clinical Research – IRB consideration, informed consent	CITI Human Subjects Research training 2.0 hr	
Doctoring I – CBL, HS, Communications,	Medical Errors: Disclosure and Apology Cognitive Errors and Implicit Bias in Clinical Care Effective communications contributing to safer patient care sessions Interprofessional communications sessions		
Human Gross Anatomy & Embryology	Needle safety and PPE usage HIPAA compliance for PPI		
Genetics			
Lifespan Development			
Medical Physiology			
Rural Health Research & Practice			
M2			
Clinical Neuroscience			

<p>Doctoring II – SIM/HPS Lab, HS, IGR, CE, CCE, Prof & Ethics, Societal Issues</p>	<p>Institute for Healthcare Improvement: Modules on 1) Patient Safety in the Health Care System 2) Culture of Safety 3) Error and Harm Relationship 4) Unsafe Acts/Slips, Violations, Mistakes related to safety in Health Care</p> <p>Pain Management large group didactic session (patient and medication safety)</p>	<p>Providers' Clinical Support System for Opioid Therapies (PCSS-O – Management of Chronic Pain Patients (3) Modules (est 1.5 hr)</p> <p>Patient Safety/Quality Improvement case-based large group session 2hr</p> <p>{A minimum of 4 classroom hours should be dedicated to High-Value Care. Resources include the ACP modules (though this 6 session series could easily be contracted to <4 hrs, eliminating content less applicable to the student level). This should be presented late in the M2 year }</p>	<p>Ensure "Time-Out" is included in training.</p> <p>Consider adding some portion of this to the M2 curriculum late in the year https://www.acponline.org/clinical-information/high-value-care/medical-educators-resources/newly-revised-curriculum-for-educators-and-residents-version-40</p>
<p>Introduction to Clinical Psychiatry</p>	<p>Multiple disorders (include: suicide prevention, depression screening)</p> <p>Medication adverse effects, contraindications and patient education</p> <p>Alterations in pharmacotherapy based on patient characteristics</p>		
<p>Medical Microbiology & Immunology</p>	<p>Modes of transmission and methods of prevention for most pathogens</p>		

	Antibiotic stewardship and hand cleaning techniques/options		
Medical Pharmacology	Drug interactions, adverse effects, contraindications Alternations in pharmacotherapy based on patient characteristics Patient education		
Medical Pathology			
Rural Community Based Projects			
Interprofessional Experiences	HIPAA		
M3			
Doctoring III: Transition to Clinical Clerkships	1. Introduction to Safe Prescribing 2. Informed Consent 3. Use of Medical Interpreters 4. Infection Prevention 5. Key Concepts in Patient Safety (Time-outs, student part in error identification)	Infection control training skills – scrub/gloved/glove and hand hygiene. HIPAA case based session on PPI and EHR rules Needle safety and PPE usage	
M3 OSCE		Informed consent, including legal issues for those not English speaking or with disabilities (ASL and medical Spanish interpreter OSCE to get informed consent including online module covering why, how, and legal).	

Doctoring III Course - IGR, Content Discussion Sessions		Review of cases concerning patient safety and root cause analysis 2-hours NEW	
Community Medicine Clerkship			<p>Short term recommendation for consideration:</p> <p>Have clerkship directors convene and develop a template for each clerkship for a 1-hour didactic on a high value care topic relevant to each discipline:</p> <ol style="list-style-type: none"> 1. Review tools and methods if necessary 2. Introduce visual data (run charts, etc) to assess quality and areas for improvement 3. Teach high value care for the discipline. This is currently missing as a formal element of the curriculum. <p>Implement this sometime in the near future. If undertaken by the clerkship directors as a group, differing elements of High Value Care could be taught in separate clerkships as long as they are presented consistently and the group of directors tracks and maps them.</p>
Family Medicine Clerkship			
Internal Medicine Clerkship		<p>{1 hr didactic dedicated</p> <ol style="list-style-type: none"> 1. Review tools and methods if necessary 2. Introduce visual data (run charts, etc) to assess quality and areas for improvement 3. Teach delivery of High Value Care the discipline} 	
Pediatrics Clerkship		<p>{1 hr didactic dedicated</p> <ol style="list-style-type: none"> 1. Review tools and methods if necessary 2. Introduce visual data (run charts, etc) to assess quality and areas for improvement 3. Teach delivery of High Value Care the discipline} 	
Obstetrics /Gynecology Clerkship		System Based Practice and Student Role in culture of PS and QI didactic/case	

		discussion for inpatient and outpatient settings	
Psychiatry Clerkship		Prevention and Management of Disruptive Behavior {Teach delivery of High Value Care in the discipline}	
Surgery Clerkship	Understand the main causes of adverse events in surgical and invasive procedural care	Understand how the use of guidelines and verification processes can facilitate the correct patient receiving the correct procedure at the appropriate time and place. NEW New Skill for 2020-2021: QI/Patient Safety: participate in care of patient experiencing postoperative complications	
Rural Programs Clerkship			
M4			
Doctoring IV - Keystone		Patient safety in medical imaging NEW	
Selectives – Inpatient Subinternships		{Other than Doctoring IV: Keystone above which is somewhat specialized, no M4 elective, selective or required course formally deals with QI/PS/HVC during 2019-2020 AY}	

APPENDIX I

USMLE CONTENT OUTLINE (2019) FOR Patient Safety, Quality Improvement and High-Value Care (HIGH LEVEL TERMS)

file:///T:/Shared/Curriculum%20Management/Mapping/2019-2020%20Curriculum%20Event%20Mapping/2019%20USMLE%20Outline%20w-Index_Updated%20to%20New%20Innovations_20190808.pdf

Social Sciences (SS)

SS C1 Complexity/systems thinking

- a. Characteristics of a complex system and factors leading to complexity
- c. Health care/organizational behavior and culture

SS C2 Quality improvement

- a. Improvement science principles
- b. Specific models of quality improvement
- c. Quality measurement
- d. Strategies to improve quality
- e. Attributes of high-quality health care

SS C3 Patient Safety

- a. Patient safety principles
- b. Specific types of error
- c. Strategies to reduce error