The Third Pillar of Medical Education: Health Systems Science

Jed Gonzalo MD MSc
Associate Professor of Medicine and Public Health Sciences
Associate Dean for Health Systems Education
Penn State College of Medicine

Ami DeWaters MD MSc
Assistant Professor of Medicine
Director of Health Systems Science Education
Penn State College of Medicine

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Objectives

Upon completion of this session, participants will be able to:
1. Describe and define Health Systems Science,
2. Highlight the historical context of Health Systems Science and how the field has emerged over the past century,
3. Identify the need for conducive clinical learning environments to enhance Health Systems Science education,
4. Appraise the evolving medical professionalism in healthcare towards systems citizens,
5. Describe a brief overview of sessions 2-5, and how they integrate with one another.
The Third Pillar of Medical Education

Health Systems Science definition:
the principles, methods, and practice of improving quality, outcomes, and costs of healthcare delivery for patients and populations within systems of medical care.

The HSS Framework

Health Systems Science definition:
the principles, methods, and practice of improving quality, outcomes, and costs of healthcare delivery for patients and populations within systems of medical care.
HSS Milestones: Past is Prologue

Key Take-Away:
Built on evidence
Focused on patients

The Comprehensive HSS Framework

Why does a comprehensive HSS framework matter?

1. Ensures core competencies are not marginalized (e.g. HSS ≠ QI)
2. Accounts for related competencies in curricular design
3. Establishes a foundation for comprehensive pedagogies
4. Provides a clear learning pathway for UME → GME → workforce
5. Facilitates a shift towards a national standard
6. Catalyzes the new healthcare professionalism of systems citizens.

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Key Implications for US Medical Education

1. Value-Added Roles for Medical Students
2. The Expanding Educator Bench of US Medical Schools
3. The Clinical Learning Environment
Value-Added Roles for Medical Students

Are medical students an asset or “liability”?

“Value-Added Medical Education: Experiential roles for students in practice environments that can positively impact patient and population health outcomes, costs of care, or other processes within the health system, while also enhancing student competencies in Clinical or Health Systems Science.

Shea et al. Compensation to a dept. of medicine for the teaching of medical students. NEJM 96
Jones et al. On the cost of educating a medical student: Acad Med 97
Gonzalez et al. Medical Students as Systems Ethnographers: Exploring Patient Experiences and Systems Vulnerabilities in the ED. AEM 2017
Gonzalez et al. A Constructive Reframing of Student Roles Using a “Communities of Practice” Lens. AcadMed 2017
What are students learning?

1. Patient’s perspective on health care and his/her health
2. Patient’s social determinants that are impacting his/her health
3. Communicating with patients
4. Interprofessional collaboration and teamwork
5. Healthcare delivery and the system
6. Systems thinking
7. Clinical medicine
What are students learning?

1st-year medical student working as a patient navigator in the Physical Medicine and Rehab Hospital was assigned to perform a home safety assessment for a patient pending discharge. He failed to attend the scheduled appointment with the patient, which was uncovered after the social worker talked to the patient the following week. When confronted with this information, the student communicated that it was not clear to him about the expectation for the experience.

"The Mini Stress Test"

<table>
<thead>
<tr>
<th>Penn State College of Medicine Medical Student EPAs for Patient Navigation</th>
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<tbody>
<tr>
<td>Student is entrusted to:</td>
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<tr>
<td>1. Interact professionally with patients, staff, and clinicians in both informal and clinically-based settings.</td>
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<tr>
<td>2. Effectively manage communication with patients and members of the interprofessional care team.</td>
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<td>3. Comprehensively assess and diagnose the root causes of a patient’s healthcare situation.</td>
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<tr>
<td>4. Identify and facilitate linkage of health system and community resources for patients in need.</td>
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<td>5. Participate in and contribute to the ongoing work of an interprofessional care team within a clinical setting.</td>
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<td>7. Apply the habits of a system thinker when they work to address patients’ healthcare situation.</td>
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<td>8. Build a therapeutic relationship with a patient.</td>
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The Expanding Educator Bench of US Medical Schools
HSS Impacts the Community of Educators

Figure 1. The 12 roles of the teacher.

New and Evolving Medical Educator Roles for HSS

<table>
<thead>
<tr>
<th>Categories</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Classroom Instructor (PBL, lecturer)</td>
<td>Evolving role: Hospitalist physician facilitates a small group</td>
</tr>
<tr>
<td>Clinical supervisor (&quot;attending&quot;)</td>
<td>Evolving role: PCP coaches learner through high-value, cost-conscious decision making</td>
</tr>
<tr>
<td>Curriculum Leader/Evaluator</td>
<td>Evolving role: Associate Dean for Evaluation facilitates new HSS assessments</td>
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<tr>
<td>Mentor or advisor</td>
<td>Evolving role: Clinician-investigator mentors student in informatics research in high-value care</td>
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<tr>
<td></td>
<td>New role: QI/Lean/Black Belt staff mentors student in clinically-based project</td>
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Implication 1: The “new” educators are already in our community.

Implication 2: We can help develop skills of these educators.

Implication 3: We can meaningfully acknowledge and “incentivize” these educators.
The Clinical Learning Environment

“Our first impressions are generated by our experiences and our environment, which means that we can change our first impressions...by changing the experiences that comprise those impressions” – Malcolm Gladwell

Does the environment matter for a comprehensive HSS framework?

Imagine the following scenario...

A patient is admitted with a hip fracture. The patient develops sepsis due to pneumonia post-operatively. Based on the patient’s primary service, the delivery of care will look differently.

If on a surgical service, and the patient has worsening clinical progression, the surgical ICU attending and a critical care trained RN are contacted and the patient is upgraded to the ICU.

If on a medicine service, and the patient has worsening clinical progression, a medicine senior resident will come be contacted and the patient is most likely upgraded to an intermediate care unit.

The environment (primary service) is determining clinical care based on factors such as teamwork, policy, and structures and process.
Why does the environment for a comprehensive HSS framework matter?

The New Professionalism: Systems Citizenship

“Is medical education designed to be transformative (e.g., a physician as a refined alloy produced from the ore of a medical student) or additive (she is the same person but with highly enhanced skills in science, technology and humanities)?”

The New Professionalism

Wave 1  "Discovery"
Wave 2  "Definition"
Wave 3  "Measurement"
Wave 4  "Institutionalization"
Next Wave  "Systems Citizenship"

Systems Citizens

Clinical learning environments need to be transformed

Systems Transformation Network
Penn State Health
Allegheny Health Network
Geisinger Health
Kaiser Permanente SOM/Northern CA GME

"Systems-Based Practice for the 21st-Century Healthcare System: Developing Residents as Systems Citizens."

Evolving professionalism in healthcare

LCME Data Collection Inventory: Common Program Requirements. www.acgme.org
T. Brigham. Nurturing the Continuum Together: Seizing the Opportunity to Improve Medical Education. www.aacme.org
Gonzales et al. A Constructive Re-framing of Student Roles Using a “Communities of Practice” Lens. Acad Medicine 2017
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An Outline for the Series