Health Systems Science and Value-Added Roles for Medical Students
Systems-Based Practice Competencies

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

- Work effectively in various health care delivery settings and systems relevant to one’s specialty
- Coordinate patient care within the health care system relevant to one’s clinical specialty
- Incorporate considerations of cost awareness and risk-benefit analysis in care
- Advocate for quality patient care and optimal patient care systems
- Participate in identifying system errors and implementing potential systems solutions
- Perform administrative and practice management responsibilities commensurate with one’s role, abilities, and qualifications
# Health Systems Science Competencies

<table>
<thead>
<tr>
<th>Functional Competencies</th>
<th>Foundational Competencies</th>
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<tbody>
<tr>
<td>Systems thinking</td>
<td>Patient-centered care</td>
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<tr>
<td>Change management and agency</td>
<td>Health care processes, collaboration, and teamwork</td>
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<tr>
<td>Teaming</td>
<td>Clinical informatics, data, and tools</td>
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<td>Leadership</td>
<td>Population and public health</td>
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<td>Policy and payment</td>
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<td>Value-based care</td>
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<td>Health systems improvement</td>
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## Core Domains
- Leadership and Change Agency
- Systems Thinking
- Teamwork
- Scholarship
- Professionalism and Ethics
- Evidence-Based Medicine
- Structures/Processes
- Policy and Economics
- Clinical Informatics
- Public/Population Health
- Value-Based Care
- Health Systems Improvement

## Cross-Cutting Domains
- Linking Domain

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*ACCELERATING CHANGE IN MEDICAL EDUCATION*

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Are Medical Students an Asset or Liability?

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. Academic Medicine, 97.
Definition of Value-Added Medical Education

“Experiential roles for students in practice environments that have the potential to positively impact individual patient and population health outcomes, costs of care, or other processes within the health system, while also enhancing student knowledge, attitudes, and skills in Clinical or Health Systems Science.
Current Education Model: The Mini Physician Model

Preceptorships
Service Learning
Student-Run Free Clinics

"Chasm"

# Communities of Practice and Current Student Roles

<table>
<thead>
<tr>
<th>Roles</th>
<th>Who is the Community of Practice?</th>
<th>What is the setting of the experience?</th>
<th>What is the competency domain?</th>
<th>What are the opportunities for legitimate participation?</th>
</tr>
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<tbody>
<tr>
<td>Preceptorships</td>
<td>Physicians; nurses, pharmacists, therapists, patients</td>
<td>Clinical settings</td>
<td>Patient care, knowledge for practice</td>
<td>▪ Observing supervisors; practicing history and examination skills</td>
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<tr>
<td>Service Learning Experiences</td>
<td>Community leaders; families/patients</td>
<td>Community-based settings (food pantries)</td>
<td>Professionalism</td>
<td>▪ Completing community-based projects</td>
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<tr>
<td>Student-Run Free Clinics</td>
<td>Physicians; nurses, patients</td>
<td>Independent clinic</td>
<td>Patient care, knowledge for practice, systems-based practice</td>
<td>▪ Performing diagnostic and therapeutic tasks, with supervision</td>
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<tr>
<td>Value-Added Systems Learning Roles</td>
<td>Care coordinators, social workers, nurses, physicians, therapists, pharmacists, patients</td>
<td>Clinical settings</td>
<td>Systems-based practice, patient care, knowledge for practice</td>
<td>▪ Performing systems-based tasks; value added by assisting patients and clinic processes</td>
</tr>
</tbody>
</table>
How Can Medical Students Add Value in Current Roles?

1. **Patient-Care on Clerkships**
   - History-taking
   - EBM contributors
   - Clinical process extenders
   - Patient advocates

2. **Educators**
   - Patients, team members, peers, school

3. **Service Learning Roles**

4. **Systems Research Projects**
How Can Medical Students Add Value

<table>
<thead>
<tr>
<th>Direct Patient Benefit</th>
<th>Direct Clinic Benefit</th>
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<tbody>
<tr>
<td>Monitoring care plans (e.g. calls, home visits)</td>
<td>Facilitators of communication and coordination</td>
</tr>
<tr>
<td>Facilitating patient access to resources</td>
<td>Improving clinical operations and processes</td>
</tr>
<tr>
<td>Patient education</td>
<td>Patient Navigator</td>
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<tr>
<td>Assessing patients to identify barriers</td>
<td>Care Transitions Facilitators</td>
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<tr>
<td>Being a patient “coach”</td>
<td>Safety and Patient-Care Analysts</td>
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<td>Care Transitions Facilitators</td>
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<tr>
<td>Quality Improvement Team Extenders</td>
</tr>
<tr>
<td>Population Health Managers</td>
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<tr>
<td>Patient-Care Technician</td>
</tr>
<tr>
<td>Medical Scribes</td>
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</tbody>
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Systems Navigation Curriculum

Fosters relevance and motivation

Patient Navigation
- Experiential component

Prepares students for practice

Health Systems Course
- Conceptual component

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Student Patient Navigator Network

Inpatient Setting
- Rehab Hospital Transitions Program
- Emergency Department
- Internal Medicine Discharge Program
- Psychiatric Hospital Discharge Program
- Skilled Nursing Transitions Program
- Surgical-Oncology Transitions Program

Outpatient Setting
- Breast Cancer Program
- Heart Failure Clinic
- HIV Clinic
- Inflammatory Bowel Disease Clinic
- Internal Medicine Clinic
- Family Practice Outreach Program
- High-Risk Outreach Clinic
- Patient-Centered Medical Home
- Spine Clinic
- Surgical Weight Loss Program
- DOH Tuberculosis Clinic
- Palliative Care Program

39 Clinical Sites
6+ Health Systems
136 Medical Students

Harrisburg 10
Hershey 25
Lebanon 3
Lancaster 1

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Outcomes

**Proximal Outcome:**
Fully integrated Health Systems Science competencies in medical education (UME, GME, and CME)

**Distal Outcome:**
Achievement of the Triple Aim – improved health for patient populations, patient experience, with reduced healthcare costs.

Key Drivers

- National board and accreditation partnerships
- Comprehensive and standardized curricula
- Robust assessments
- Seamless transitions in UME/GME
- Knowledgeable and skilled teachers
- Value-added medical education
- Hidden and formal curriculum
<table>
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<tr>
<th></th>
<th>Top Concerns</th>
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<tbody>
<tr>
<td>1</td>
<td>“There is limited space in an already packed curriculum.”</td>
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<tr>
<td>2</td>
<td>“If medical education isn’t broke, don’t fix it.”</td>
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<tr>
<td>3</td>
<td>“Health Systems Science is not yet a true science.”</td>
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<tr>
<td>4</td>
<td>“Few faculty have the knowledge and skills to teach Health Systems Science.”</td>
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<td>5</td>
<td>“Accreditation agencies and licensing boards do not support medical education transformation.”</td>
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<tr>
<td>6</td>
<td>“Systems roles for medical students already exist.”</td>
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<td>7</td>
<td>“Early students do not have skills to contribute to health care.”</td>
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<td>8</td>
<td>“Evolving health care systems are not ready to partner with schools with HSS curricula.”</td>
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<td>9</td>
<td>“Administrators, not physicians, drive systems change.”</td>
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<tr>
<td>10</td>
<td>“Health Systems Science is too complex is best learned in residency or practice.”</td>
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