

Health Systems Science: The Evolving Identity of Academic Health Centers

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My Team



Penn State College of Medicine Team



Barbara Blatt



Deanna Graaf



Lynne Peterson



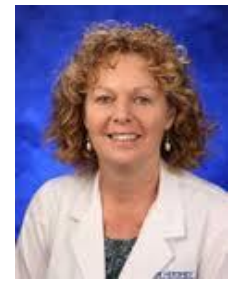
Ami DeWaters



Danny George



Maria Hamilton



Heidi Wolf



Eileen Moser



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Britta Thompson



Terry Wolpaw



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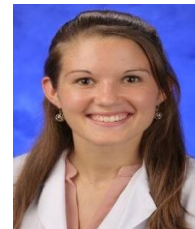
Bobbie Johannes



Cat McDermott



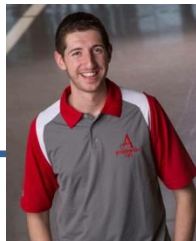
Caleb Shervinskie



Kaitlyn Shank



Chris Davis



David Basile



Mike Dekhtyar



Vince Pinelli



Preet Ahluwalia



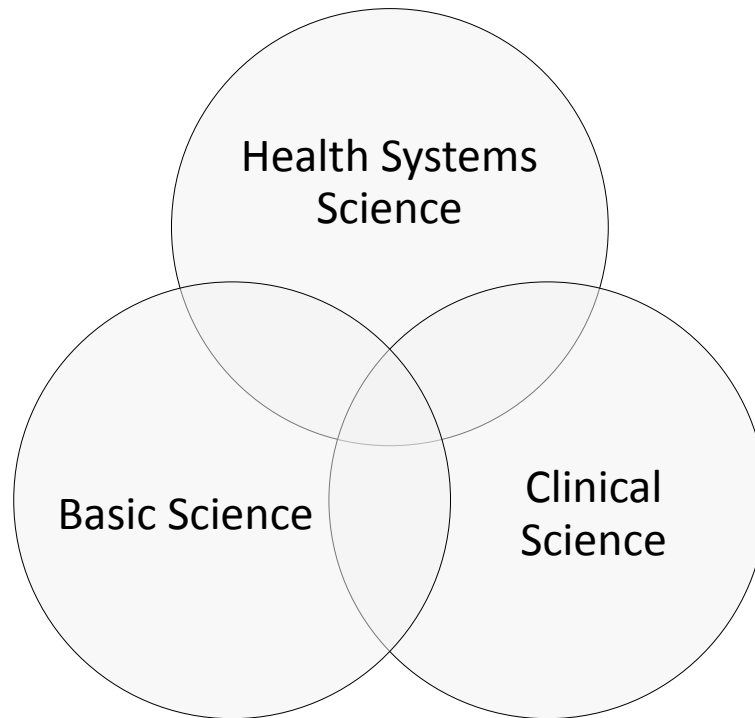
Objectives

Upon completion of this session, participants will be able to:

1. Define health systems science – the 4th pillar of medical education,
2. Articulate the significant events that have contributed to the development of health systems science,
3. Highlight several Health Systems Science curricular components that have been implemented along the education continuum,
4. Discuss an evolving identity of academic health centers and how Health Systems Science is contributing to this change.



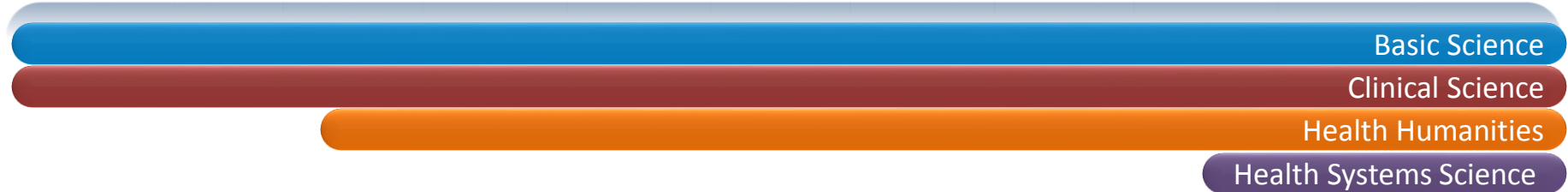
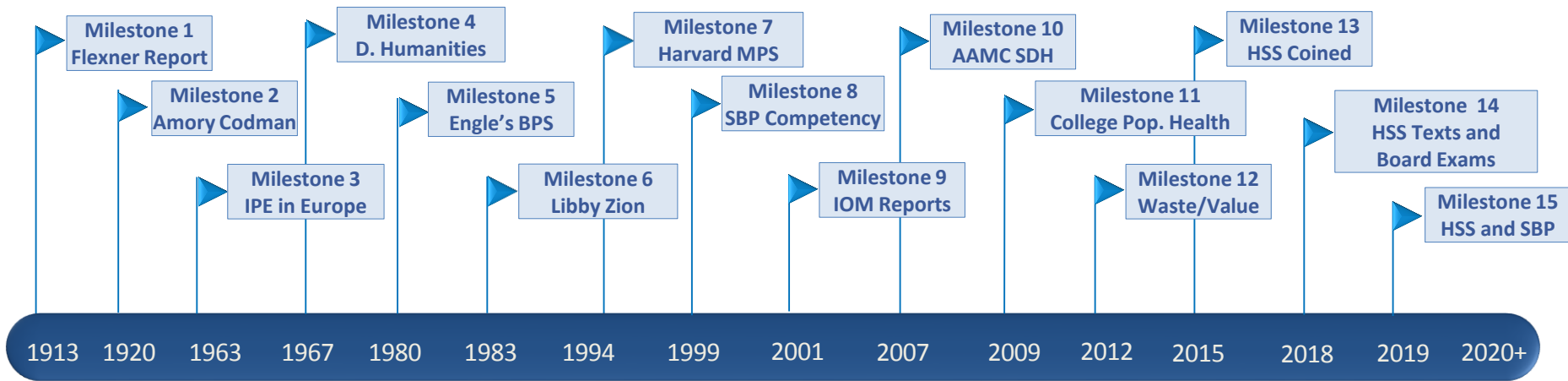
The Third Pillar



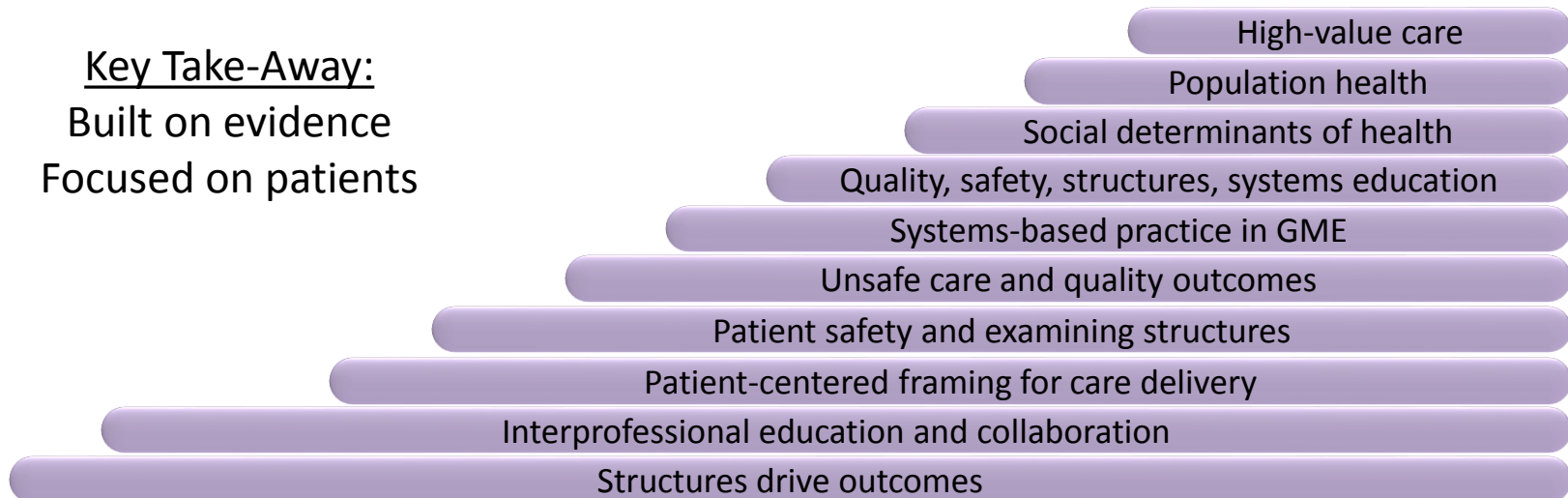
Health Systems Science definition:
the principles, methods, and practice of
improving quality, outcomes, and costs of
healthcare delivery for patients and
populations within systems of medical care.



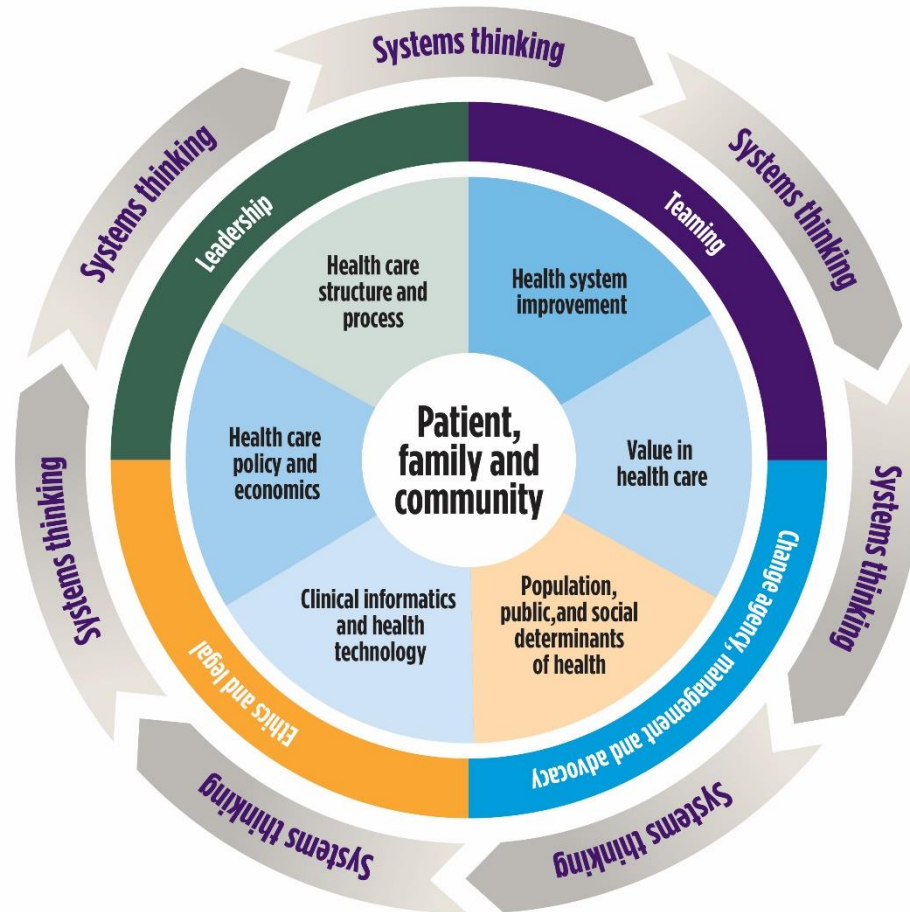
HSS Milestones: Past is Prologue



Key Take-Away:
Built on evidence
Focused on patients



The HSS Framework



The Comprehensive HSS Framework

Schema Cross		
Health Systems Science Core Domains	Patient Experience and Context	
Health Systems Science Subdomains	Patient Experience	Behavior
UME Competencies and Accreditation		
AAMC Core EPAs for Residency	•	
Competency Areas, Health Professions	•	
IPE/collaboration competencies	•	
IHI Knowledge Domains		•
AAMC QI/PS competencies		•
AAMC Grad. Questionnaire (98-04)	•	•
AAMC Grad. Questionnaire (05-09)	•	•
AAMC Grad. Questionnaire (10-17)	•	•
LCME Data Collection Inventory	•	••
USMLE Physician Competencies		
USMLE Content Outline		
GME Competencies and Accreditation		
ACGME SBP Competency Domain		
ACGME harmonized milestones	••	
ACGME Common Program Reqs		••
ACGME CLER Pathways to Excellence		
National/Local Curricula		
IHI Open School Curriculum	••	
ACP High Value Care Curriculum	•	
Quality and Safety Educators Academy		
Harvard Med Social Medicine course		•
East Carolina Faculty Program		
Mayo Clinic Alix SOM Science of HCD	••	••
Recommendations for Curricula		
UME policy curricula		
Prevention/Pop Health Framework		•
Pop Health Curricular Framework		
UME-21 - Education collaborative		
Textbooks		
Pop Health: Creating Culture Wellness	•	••
Understanding Patient Safety	•	•
Understanding Value-Based Care		•
Health Systems Science	•	•
The "•" and "••" designations represent degree of focus dedicated to a		

Welcome to Virginia Tech Carilion School of Medicine

Through a unique public-private partnership between a cutting edge-research university and a major health care institution, the Virginia Tech Carilion School of Medicine educates physician thought leaders through inquiry, research, and discovery.

Basic Science

Clinical Science

Research

Interprofessionalism

The college has four value domains that drive our educational goals and objectives and are interwoven throughout the four-year curriculum: basic science, clinical science, research, and interprofessionalism.

d Textbooks.					
ment	Systems Thinking	Change Management	Ethics and Law	Leadership	Teamwork
Innovation and Scholarship					
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Transitions of Care

Social determinants

Patient safety

QI

IPE



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Why does a comprehensive HSS framework matter?

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

HSS Along the Education Continuum



HSS Curricular Continuum



MS-1	<p><u>Course Title:</u> Science of Health Systems 1 (65 hr)</p> <ul style="list-style-type: none"> • SDH, pop health, public health, and patient navigation • Healthcare delivery, comparative systems • Advocacy, interprofessional collaboration • Experiential role – student patient navigators *
MS-2	<p><u>Course Title:</u> Science of Health Systems 2 (40 hr)</p> <ul style="list-style-type: none"> • EBM, safety, system improvement, teamwork, value • White Belt Certification in Operational Excellence
MS-3	<p><u>Health Equity Clerkship</u></p> <ul style="list-style-type: none"> ◦ Healthcare disparities; SDH <p><u>Internal Medicine Clerkship</u></p> <ul style="list-style-type: none"> ◦ HSS reflection exercise <p><u>Family Medicine Clerkship</u></p> <ul style="list-style-type: none"> • Transitions of care; med reconciliation <p><u>Several Clerkships</u></p> <ul style="list-style-type: none"> ◦ High-value care core curricular session
MS-4	<p><u>Course Title:</u> Translating Health Systems (2w/50 hr)</p> <ul style="list-style-type: none"> • Application of all HSS principles • Team-based projects with specialty coach and op-ex coach • Yellow Belt Certification in Operational Excellence <p><u>HSS Electives:</u> 4 created, 7 created by summer 2020</p> <p><u>Course Title:</u> Transition to Internship (40hr)</p>

Gonzalo JD, et al. Medical Students as Systems Ethnographers: Exploring Patient Experiences and Systems Vulnerabilities in the Emergency Department. AEM Educ Training 2017

Gonzalo JD, et al. Educating patient-centered, systems-aware physicians: perceptions of value-added roles. BMC Med Educ. 2018

Gonzalo et al. A Constructive Reframing of Student Roles Using a “Communities of Practice” Lens. Acad Med 2017

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HSS Curricular Continuum



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MS-2	<u>Course Title:</u> Science of Health Systems 2 (40 hr) <ul style="list-style-type: none"> • EBM, safety, system improvement, teamwork, value • White Belt Certification in Operational Excellence 	HSS Resident Immersion Week <ul style="list-style-type: none"> • N=30; from most programs • Overlaps with 4th-yr course
MS-3	<u>Health Equity Clerkship</u> <ul style="list-style-type: none"> ◦ Healthcare disparities; SDH <u>Internal Medicine Clerkship</u> <ul style="list-style-type: none"> ◦ HSS reflection exercise <u>Family Medicine Clerkship</u> <ul style="list-style-type: none"> • Transitions of care; med reconciliation <u>Several Clerkships</u> <ul style="list-style-type: none"> ◦ High-value care core curricular session 	Individual Program Initiatives <ul style="list-style-type: none"> • IM – HSS Curricula • FCM – HSS/Pop health • Ortho – core QI (since 2011)
MS-4	<u>Course Title:</u> Translating Health Systems (2w/50 hr) <ul style="list-style-type: none"> • Application of all HSS principles • Team-based projects with specialty coach and op-ex coach • Yellow Belt Certification in Operational Excellence <u>HSS Electives:</u> 4 created, 7 created by summer 2020 <u>Course Title:</u> Transition to Internship (40hr)	Systems-Based Practice and CLE <ul style="list-style-type: none"> • AMA grant *

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MS-2	<p><u>Course Title:</u> Science of Health Systems 2 (40 hr)</p> <ul style="list-style-type: none"> EBM, safety, system improvement, teamwork, value White Belt Certification in Operational Excellence 	<p>HSS Resident Immersion Week</p> <ul style="list-style-type: none"> N=30; from most programs Overlaps with 4th-yr course 	<p>National HSS Academy</p> <ul style="list-style-type: none"> Year 1 – 24 participants Year 2 – 84 applicants
MS-3	<p><u>Health Equity Clerkship</u></p> <ul style="list-style-type: none"> Healthcare disparities; SDH <p><u>Internal Medicine Clerkship</u></p> <ul style="list-style-type: none"> HSS reflection exercise <p><u>Family Medicine Clerkship</u></p> <ul style="list-style-type: none"> Transitions of care; med reconciliation <p><u>Several Clerkships</u></p> <ul style="list-style-type: none"> High-value care core curricular session 	<p>Individual Program Initiatives</p> <ul style="list-style-type: none"> IM – HSS Curricula FCM – HSS/Pop health Ortho – core QI (since 2011) 	<p>HSS Seminar Series</p> <ul style="list-style-type: none"> Year 5 6-8 sessions/yr Aligns w/HSS core areas
	MS-4	<p><u>Course Title:</u> Translating Health Systems (2w/50 hr)</p> <ul style="list-style-type: none"> Application of all HSS principles Team-based projects with specialty coach and op-ex coach Yellow Belt Certification in Operational Excellence <p><u>HSS Electives:</u> 4 created, 7 created by summer 2020</p> <p><u>Course Title:</u> Transition to Internship (40hr)</p>	<p>Systems-Based Practice and CLE</p> <ul style="list-style-type: none"> AMA grant *

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Three Big Ideas Related to HSS

1. The Expanding Educator Bench of US Medical Schools
2. The New Professionalism: Systems Citizenship
3. HSS Informing the Evolving Identity of AHCs



Big Idea #1:

The Expanding Educator Bench of US Medical Schools



HSS Impacts the Community of Educators

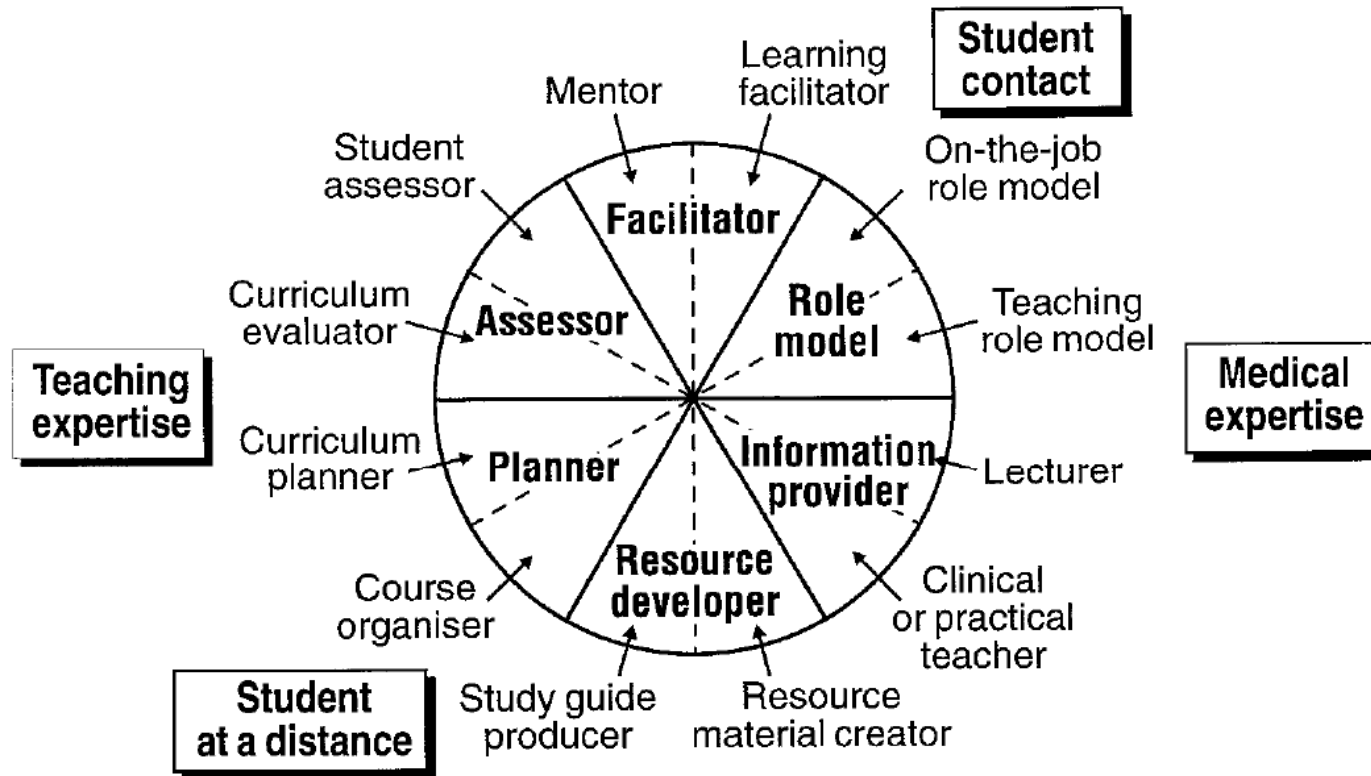


Figure 1. The 12 roles of the teacher.



New and Evolving Medical Educator Roles for HSS

Categories	Examples
Classroom Instructor (PBL, lecturer)	Evolving role: Hospitalist physician facilitates a small group
	New role: Director of Nursing Ambulatory Care leads social determinants of health workshop
Clinical supervisor ("attending")	Evolving role: PCP coaches learner through high-value, cost-conscious decision making
	New role: QI Chief collaborates with student to align project goals and obtain data
Curriculum Leader/Evaluator	Evolving role: Associate Dean for Evaluation facilitates new HSS assessments
	New role: Associate Dean for HSS Education oversees design of HSS curricula
Mentor or advisor	Evolving role: Clinician-investigator mentors student in informatics research in high-value care
	New role: QI/Lean/Black Belt staff mentors student in clinically-based project

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.



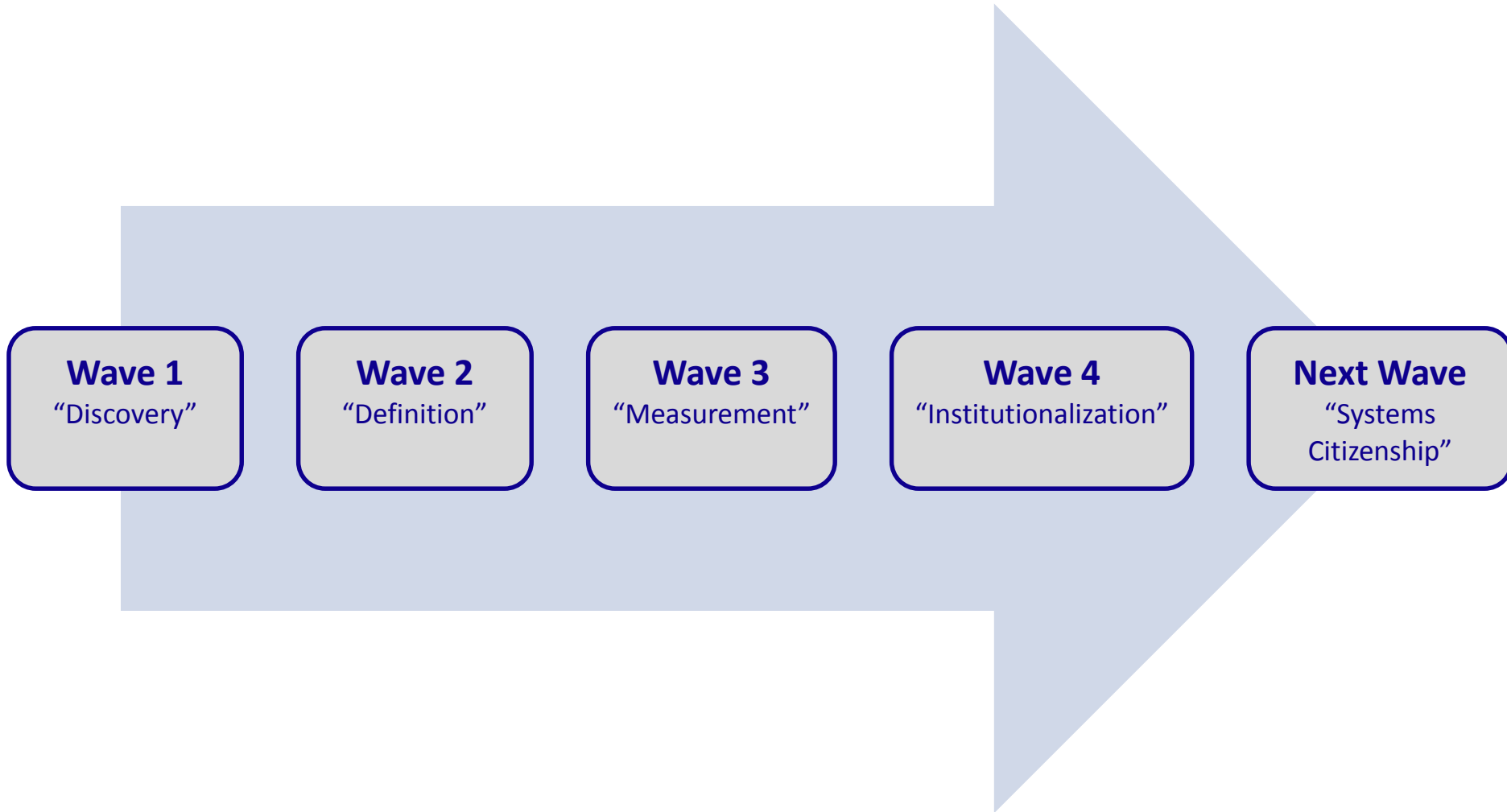
Big Idea #2:

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



Hafferty, Levinson. Moving Beyond Nostalgia and Motives: Towards a Complexity Science View of Professionalism. Perspectives in Bio/Med 2008

Irby, Hamstra. Parting the Clouds: Three Professionalism Frameworks in Medical Education. Acad Med 2016

Lucey, Souba. The Problem With the Problem of Professionalism. Acad Med 2010

Cruess, Cruess, Steinert. Amending Miller's Pyramid to Include Professional Identity Formation. Acad Med 2016

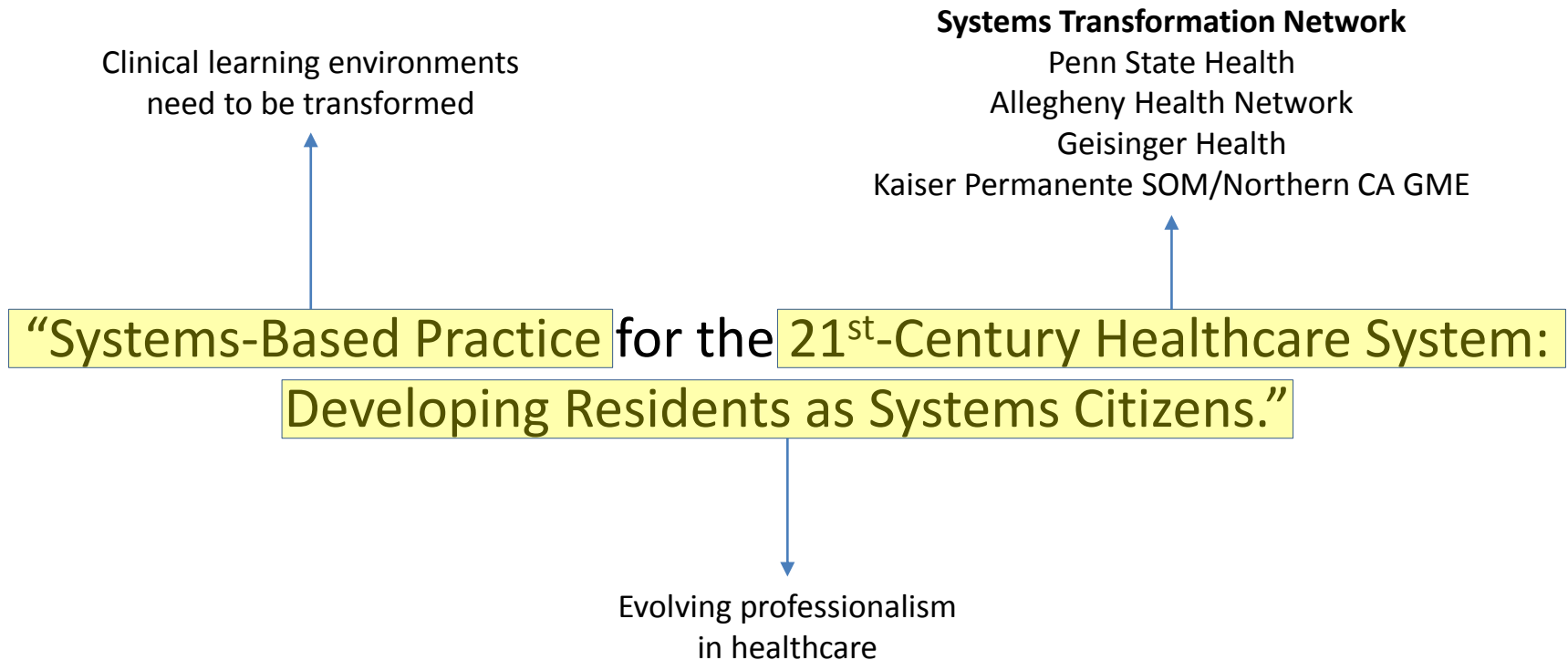
Gruen, Pearson, Brennan. Physician-Citizens—Public Roles and Professional Obligations. JAMA 2004

Brennan. Physicians' Professional Responsibility to Improve the Quality of Care. Acad Med 2002



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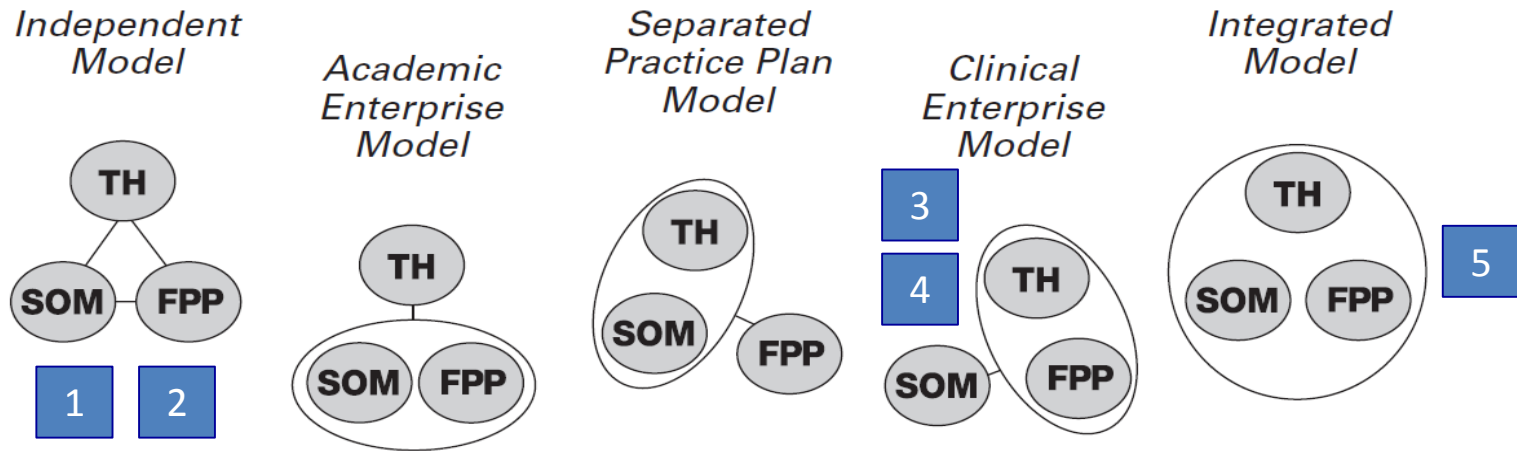
Systems Citizens



Big Idea #3:
HSS Informing the Evolving Identity of AHCs



Exploring Our Evolving Academic Identity in Times of Change



Key: **TH** = Teaching Hospital **SOM** = School of Medicine **FPP** = Faculty Practice Plan

“Tripartite missions...three different lines of endeavor that act synergistically to advance a unified purpose – that of a healthier future for all.” (Rahn)

Research Aim: To explore the current AHC landscape with the goal of identifying barriers and opportunities for productive tripartite mission alignment (i.e. an evolving AHC identity)

Methods:

- Data obtained f/electronic surveys
- Exploratory qualitative design
- Thematic analysis approach
- Constant comparative analysis

Institutions:

1. A.T. Still University SOM
2. U. of Colorado SOM
3. U. of Nebraska SOM
4. Sidney Kimmel Med. College/TJU
5. Penn State COM

Participants → 113/175=65%:

1. Educators
2. Researchers
3. Clinical system leaders
4. Hospital system administrators
5. Clinical providers
6. Students
7. Residents/fellows

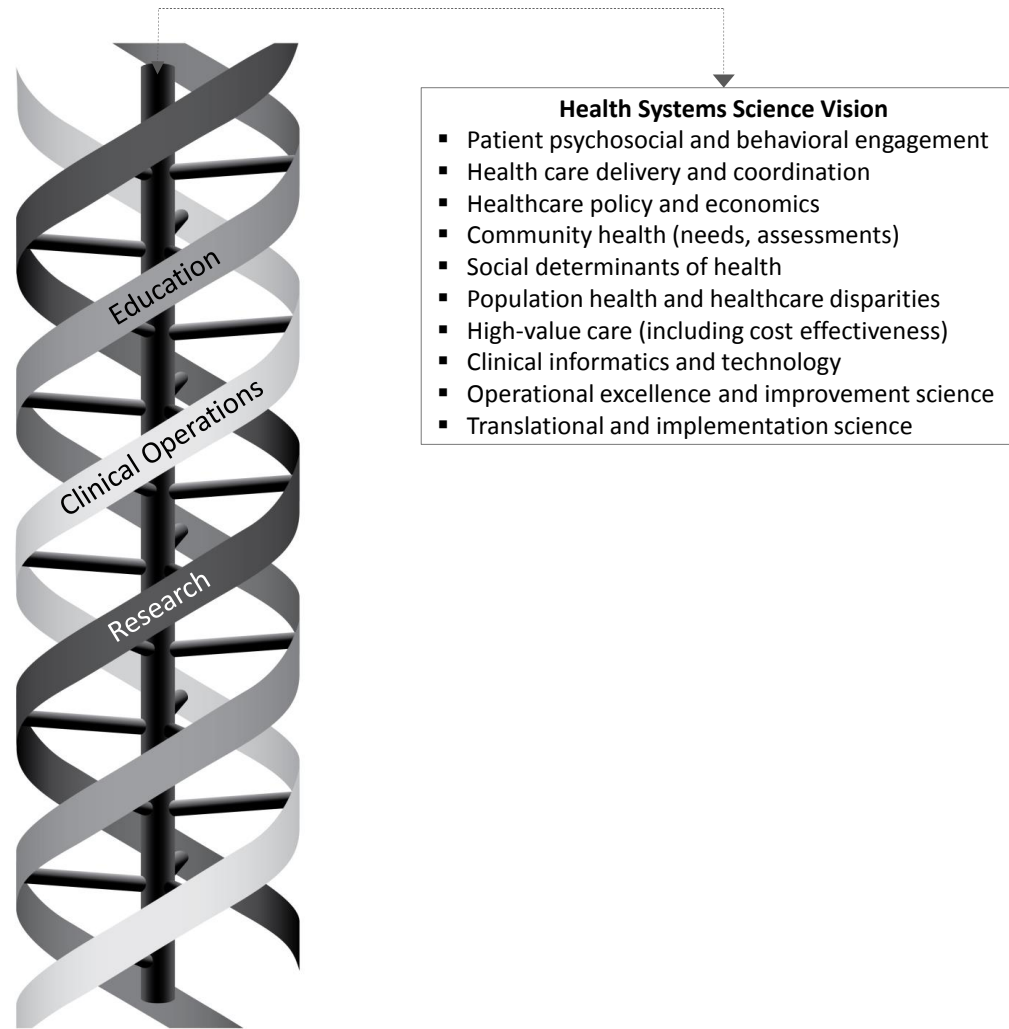
Two Key Findings

1. Co-production and co-creation is required
2. There are unifying concepts to use as a roadmap
 - Patient psychosocial factors, behavior, and engagement
 - Healthcare delivery and coordination
 - Healthcare policy and economics
 - Community health (needs, assessments)
 - Social determinants of health
 - Population health and healthcare disparities
 - High-value care (including cost effectiveness)
 - Clinical informatics and technology
 - Operational excellence and improvement science
 - Translational and implementation science

Health
Systems
Science



The Evolving Academic Health Center Identity



Objectives

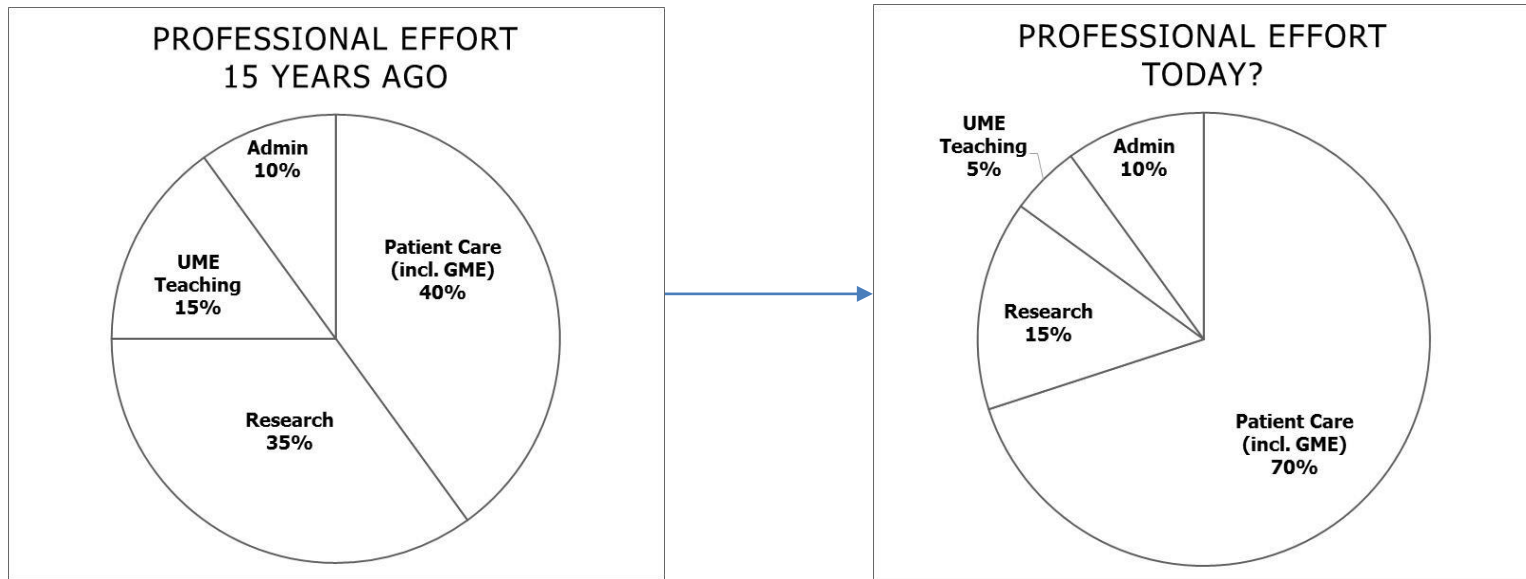
Upon completion of this session, participants will be able to:

1. Define health systems science – our 4th pillar of medical education at PSCOM,
2. Articulate the significant events that have contributed to the development of health systems science,
3. Highlight several health systems science curricula that have been implemented at PSCOM across the education continuum,
4. Discuss an evolving identity of academic health centers and how health systems science is contributing to this change.



The Oslerian “Triple Threat” Faculty Member

“Excellence of American Medicine is associated with a healthcare system that inherently values the coexistence of research, teaching, and clinical care within a single faculty.”



Flexner, Abraham. Carnegie Foundation Report. 1910.

Herbert RS, TA Elasy, JA Canter. The Oslerian Triple-Threat: An Endangered Species? A Survey of Department of Medicine Chairs. *AJM*, 2000

Pellegrini, K, GW Arana. Why the Triple-threat Approach Threatens the Viability of Academic Medical Centers. *Academic Medicine*, 1998

Arana, GW, L McCurdy. Realigning the Values of AHCs: The Role of Innovative Faculty Management. *Academic Medicine*, 1995



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