

Systems Thinking and Systems Citizenry

Health Professions Educator and
Health Systems Science Open Forum

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Disclosures

I have no financial disclosures

I hold leadership positions in other organizations

- Association of Professors of Gynecology and Obstetrics - President
- Virginia Neonatal Perinatal Collaborative – OB Co-Chair

This talk is based on my research and biased by my experiences. It does not necessarily represent the views of these organizations.

Intended Learning Outcomes

At the conclusion of this session, you will be able to:

- Describe what systems citizenry is within academic medicine
- Distinguish systems thinking from systems-based practice
- Employ a systems approach into one aspect of your teaching or practice

Definitions

- Systems-Based Practice
- Systems Thinking
- Systems Citizenship (Citizenry)

Systems-Based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, including the social determinants of health, as well as the ability to call effectively on other resources to provide optimal health care.

ACGME Common Program Requirements. IV.B.1.f)

Systems Thinking

- The art and science of making reliable inferences about behavior by developing an increasingly deep understanding of underlying structure¹
- A way of making sense of the complexity of the world by looking at it in terms of wholes and relationships rather than by splitting it down into its parts²

¹Richmond, B. Systems Dynamics/Systems Thinking: Let's Just Get On With It. In International Systems Dynamics Conference (1994). Sterling, Scotland.

²en.wikipedia.org. Systems Thinking. Accessed 7/23/22

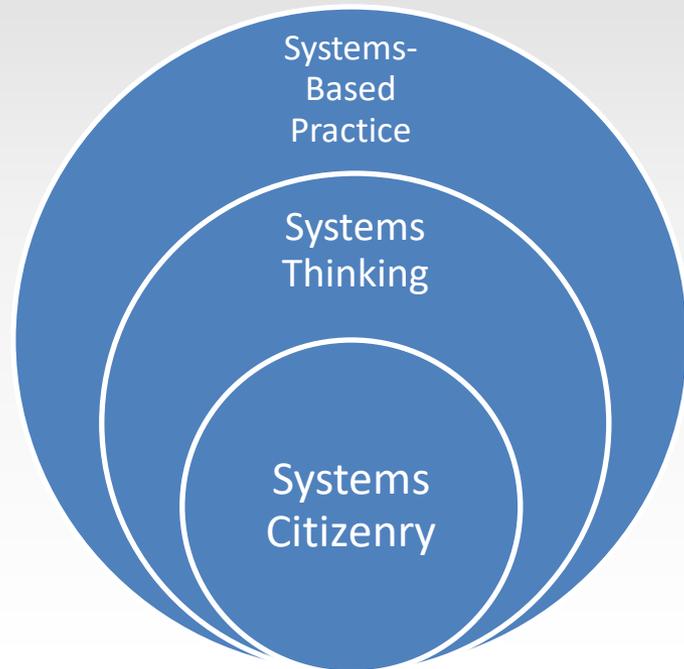
Systems Citizenship (Citizenry)

- “...approaching everyday care by seeing the work through a systems thinking lens and taking a **proactive** approach to *system errors*. It also involves recognizing how one's way of approaching gaps in care is an **obligatory** part of their professional identity, a state we refer to as being a systems citizen.”¹

¹Gonzalo J and Singh M, Building Systems Citizenship in Health Professions Education: The Continued Call for Health Systems Science Curricula. Agency for Healthcare Research and Quality. PSNet. February 1, 2019.

My Conceptual Model

- Systems-Based Practice is an *assessment*
- Systems Thinking is a *fundamental skill*
- Systems Citizenry is an *identity*



Questions I Have As An Educator

1. Does systems-based practice, as an assessment, accurately measure the skills or behaviors we seek in our learners?
2. How should we teach the skills of systems thinking?
3. How can we make systems citizenry a core component of professional identity formation?

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More Definitions

- Competency-Based Medical Education (CBME)
 - “an outcomes-based approach to the design, implementation, assessment and evaluation of a medical education program using an organizing framework of competencies”¹
- Milestone
 - A professional development tool with a focus on the competencies required of residents and fellows and ensuring they match societal, and patients’ needs in a variety of critical ways²
 - A *snapshot* of the overall skills needed that also allows for continuous monitoring and quality improvement for GME
 - Not to be used as the the assessment tool but should be a summative evaluation of what is obtained from other sources

¹McGaghie and Lipson (1978)

²Edgar et al. The Milestones Guidebook (2020)

ACGME Core Competencies

- Medical Knowledge (MK)
- Patient Care (PC)
- Interpersonal and Communication Skills (ICS)
- Professionalism (PROF)
- Systems-Based Practice (SBP)
- Practice-Based Learning and Improvement (PBLI)

Harmonized across specialties

How Do GME Programs Assess Systems-Based Practice?

- The number of SBP sub-competencies assessed varies widely across disciplines
 - Median number = 4
 - Low = 1
 - Hand surgery
 - Congenital cardiac surgery
 - High = 10
 - Interventional radiology

Systems-Based Practice Sub-Competencies

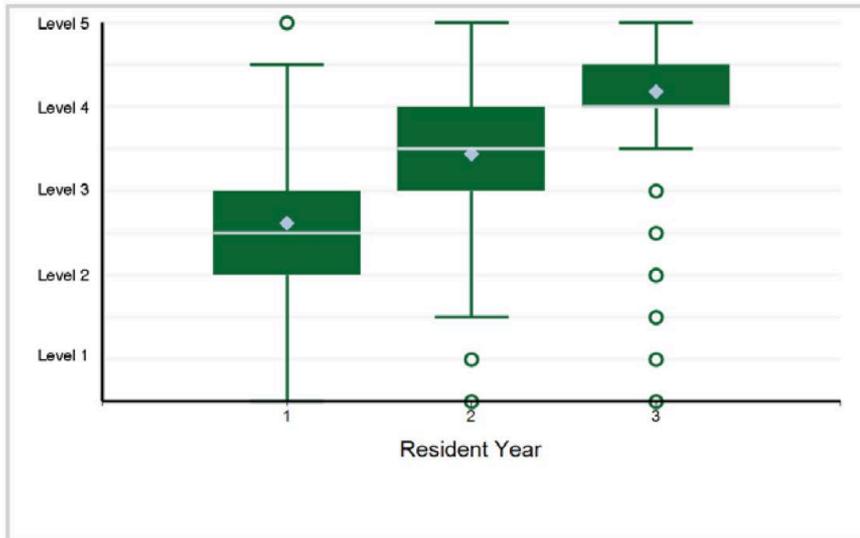
OB Milestones 2.0

- Patient Safety
- Quality Improvement
- Coordination of Care
- Transitions of Care
- Community and Population Health
- Physicians Role in Health Care Systems

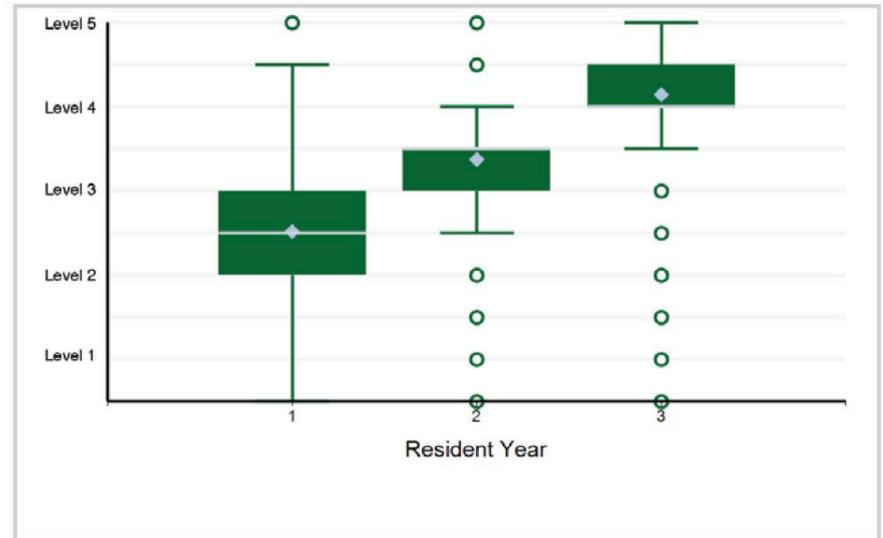
ACGME OB/GYN Milestones 2.0 www.acgme.org/globalassets/pdfs/milestones/obstetricsandgynecologymilestones.pdf

Can We Differentiate SBP in IM Residents?

11. Systems-Based Practice - Systems-Based Practice 2: System Navigation for Patient-Centered Care



12. Systems-Based Practice - Systems-Based Practice 3: Physician Role in Health Care Systems



Milestones National Report 2022. Accreditation Council for Graduate Medical Education

Internal Medicine Suggested SBP Assessments and Tools

SBP 2: System Navigation for Patient-Centered Care

- Direct observation
- Medical record (chart) audit
- Multisource feedback
- OSCE
- Portfolio
- Review of sign-out tools
- Simulation

SBP 3: Physician Role in Health Care Systems

- Curriculum vitae (CV) review
- Direct observation
- Medical record (chart) audit
- Multisource feedback
- Portfolio
- Procedure log
- QI project

Questions I Have As An Educator

1. Does systems-based practice, as an assessment, accurately measure the skills or behaviors we seek in our learners? – **Maybe**
2. How should we teach the skills of systems thinking?
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My Journey As a Systems Thinker

My PD asks all 4th residents to critically analyze an OB topic. I chose electronic FHR monitoring

-Awarded APGO educational grant to study EBM educational outcomes.
-Spent a week at McMaster University

ACOG asked me to join Ohio Governor's Task Force on Infant Mortality

1996

1999

2000

2004

2009

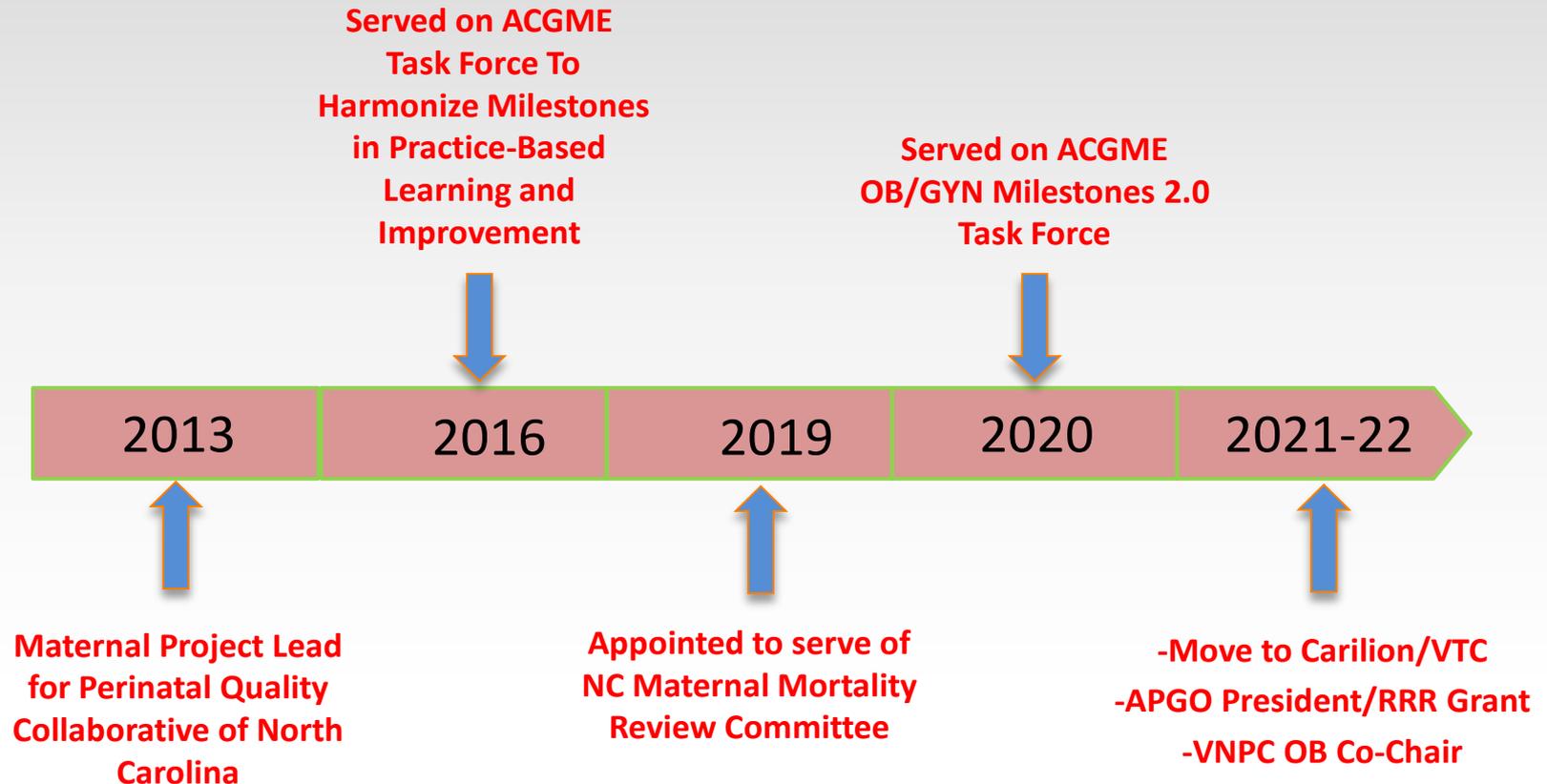
2011

Invited to attend the Grimes-Schulz Clinical Research Course

UC EBM Taskforce was created to develop a longitudinal EBM curriculum *

Physician Champion for Western NC Medicaid Pregnancy Medical Home

My Journey As a Systems Thinker



*The Evidence Pyramid



*Another Way to Look at This

Quality of Evidence

High



Low



Applicability

Systems

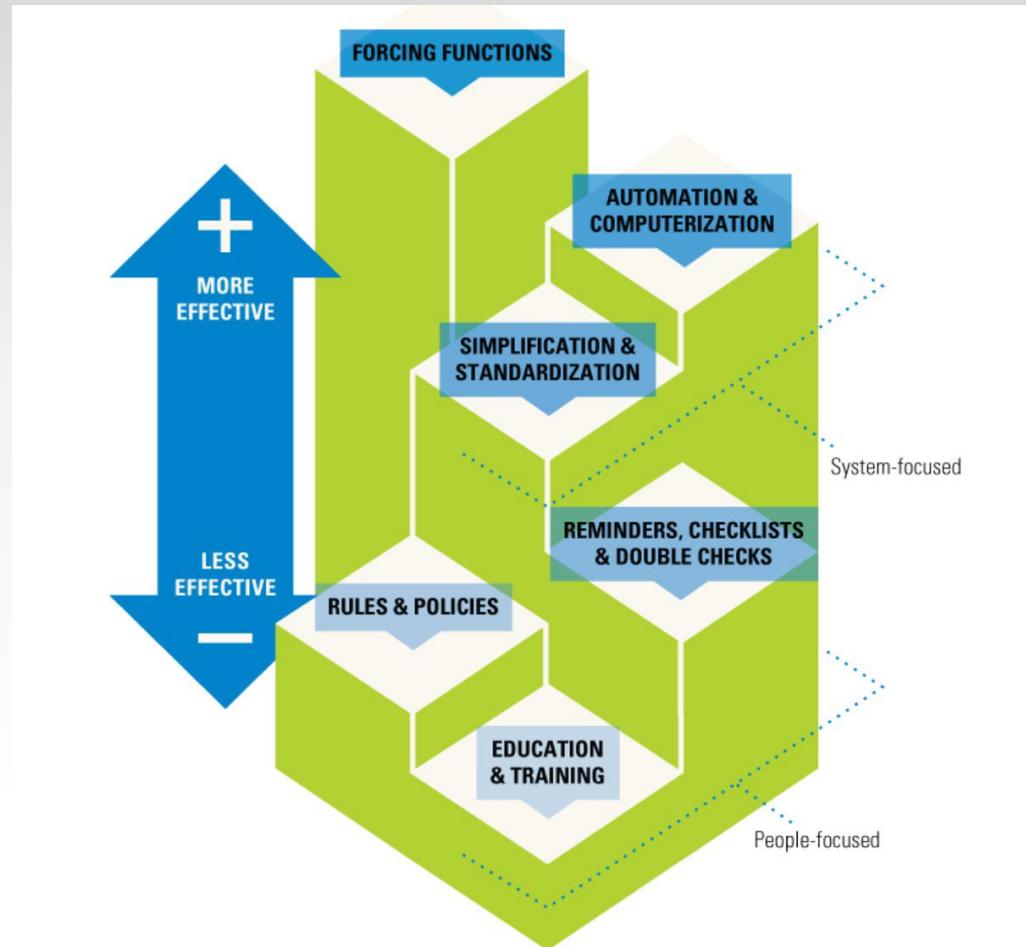


Individuals

Systems Thinking Is Not New

- Family Medicine (mid 20th century)
 - You cannot understand the patient without knowing their situation at home
- Just Culture (1997)
 - A change in focus from errors and outcomes to system design and management of behavioral choices
- Clinical Learning Environment Review (2014)
 - ACGME program that recognizes that one cannot educate residents and fellows in an environment that is siloed from other important system-level issues

Hierarchy of Intervention Effectiveness



patientsafe.wordpress.com/the-hierarchy-of-intervention-effectiveness/. Accessed 7/27/22

Teaching Systems Thinking

- Teach concepts and terminology early in training
- Experiential learning
 - M&M Conference
 - Change the focus from individual error to a systems lens
 - Actively participate in established processes
 - Participate in safety event analyses
 - Join clinical quality teams
 - Advocacy
 - Community level
 - State level

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Why Should Systems Citizenry Be Part of Professional Identity?

- One aspect of a profession is self-regulation
- Medicine, in an ethical framework, is based on four principles
 - Beneficence
 - Non-maleficence
 - Justice
 - Autonomy

Professional Identity

- Perhaps one of the more important goals of educating the future physician workforce
 - “I do not teach. I change behaviors and values” -Bill Parcells
- An individual’s journey that from “who they are” to “who they wish to become”¹
- Achieved by socialization and occurs in stages

¹Cruess RL *et al.* Acad Med. 2015;90:718–725.

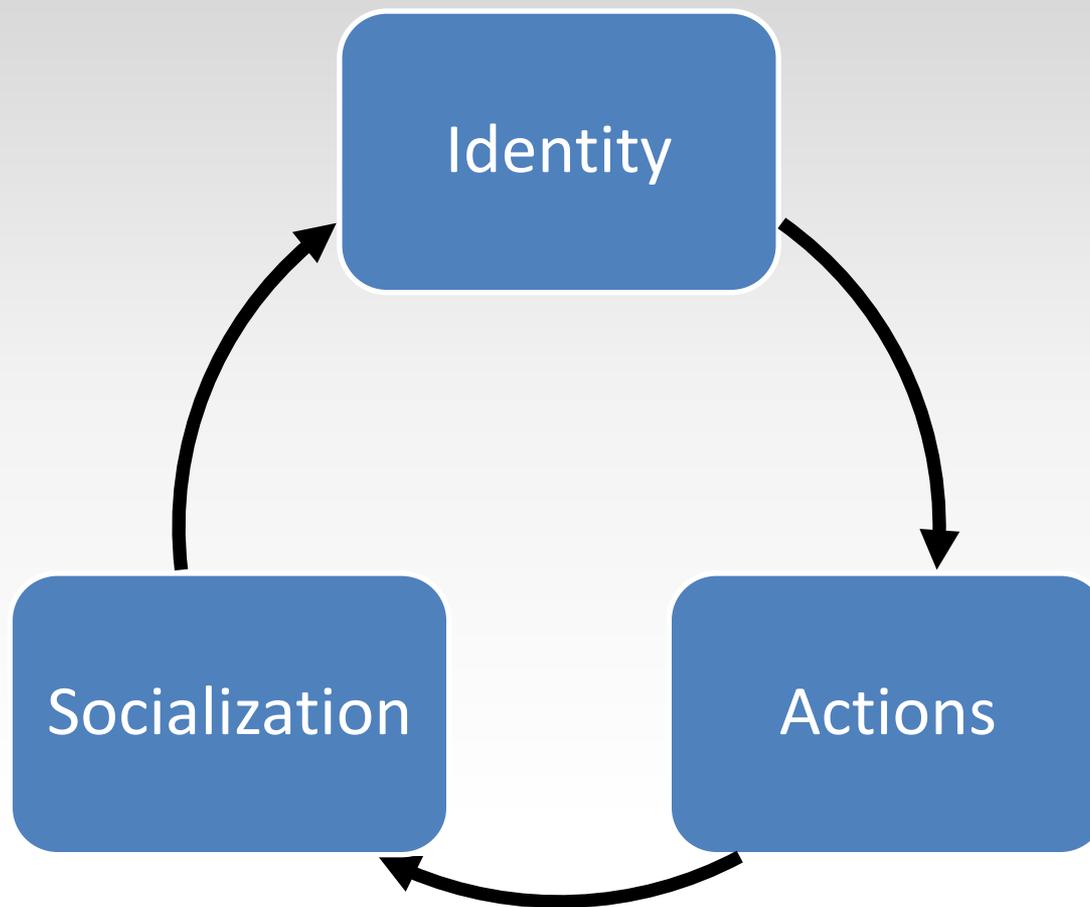
Stages of Professional Identity Formation

Kegan's Stages 2 to 4 of Identity Formation Adapted to Describe the Development of a Professional Identity in Medicine

Stage	Personal characteristics	Manifestations in a professional context
2: Imperial	An individual who takes into account the views of others but whose own needs and interests predominate	An individual who can assume professional roles but is primarily motivated to follow rules and to be correct; self-reflection is low. Emotions can overwhelm reason.
3: Interpersonal	An individual who is able to view multiple perspectives simultaneously and subordinate self-interest; who is concerned about how she or he is perceived by others	An individual who can assume professional roles and is oriented towards sharing obligations; tends to seek out those to emulate; is idealistic and self-reflective. Emotions are generally under control, and she or he generally does the right thing.
4: Institutional	An individual who can assume a role and enter into relationships while assessing them in terms of self-authored principles and standards; the self is defined independently of others	An individual who is able to understand relationships in terms of different values and expectations. The external values of the professional become internal values. Reason is in full control over needs, desires, and passion.

Note: Adapted from Kegan R. *The Evolving Self: Problem and Process in Human Development*. Cambridge, Mass: Harvard University Press; 1982.⁸

Cruess RL *et al.* *Acad Med.* 2015;90:718–725.



How To Move Ahead

- Acknowledge that there is a gap in understanding of systems between learners and faculty
 - System citizenry relies on a proactive approach to system errors
- Leverage innate curiosity
 - Ask “The 5 Whys” when something doesn’t make sense
- Start the socialization process early
 - At VTC we have an integrated HSIS curriculum and a department

