LIC 101:
Introduction to a new curriculum

University of Colorado
Anschutz Medical Campus

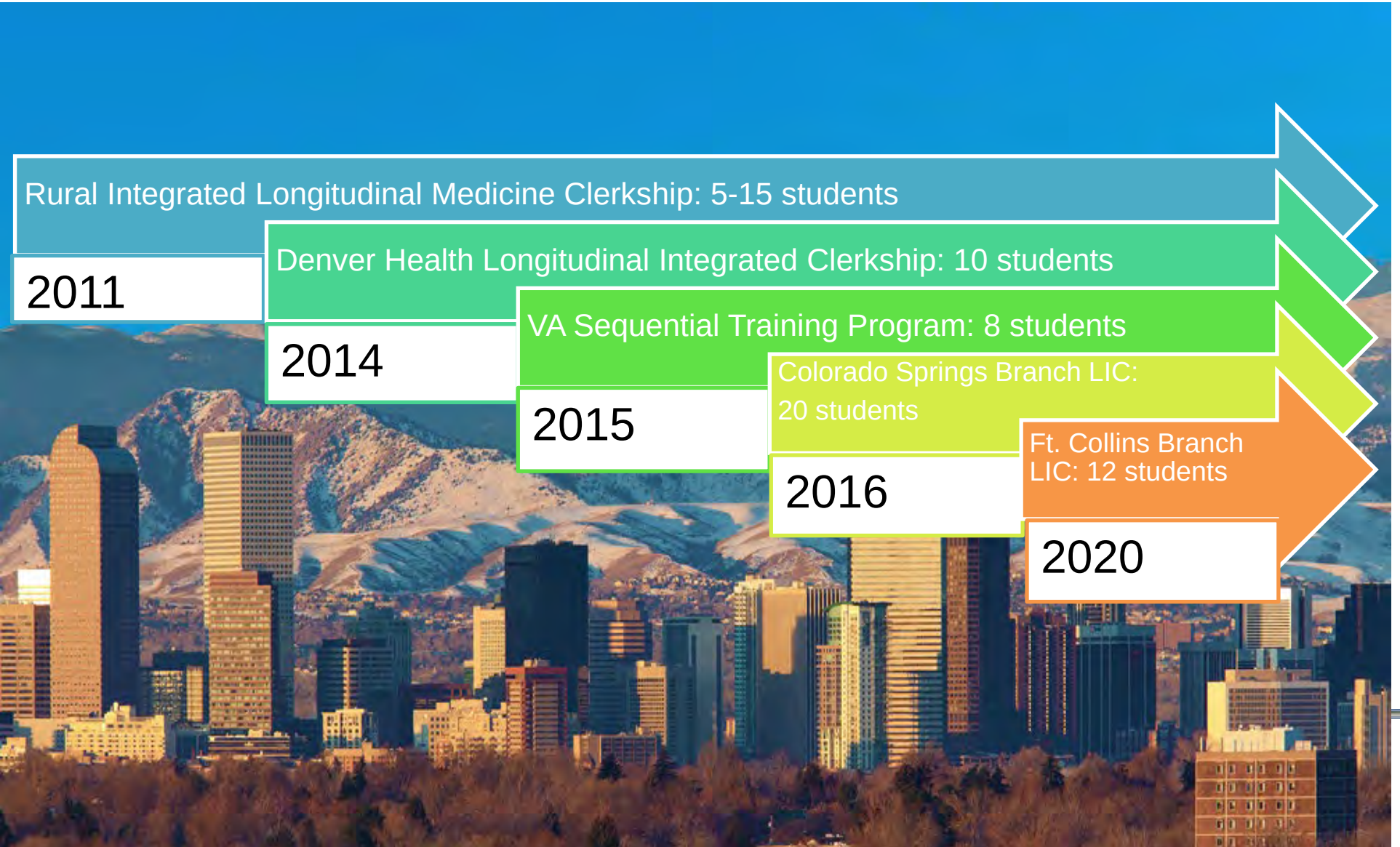
Katlynn Adkins, MD
Assistant Professor of OBGYN
Assistant Dean of Medical Education

Jennifer Adams, MD FACP
Professor of Medicine
Associate Dean of Medical Education

Learning Objectives

- Support your LIC learner and enhance your teaching experience through an understanding of the LIC model
- Develop a plan to approach your first day with your student and ensure a great year together
- Identify teaching resources for faculty preceptors

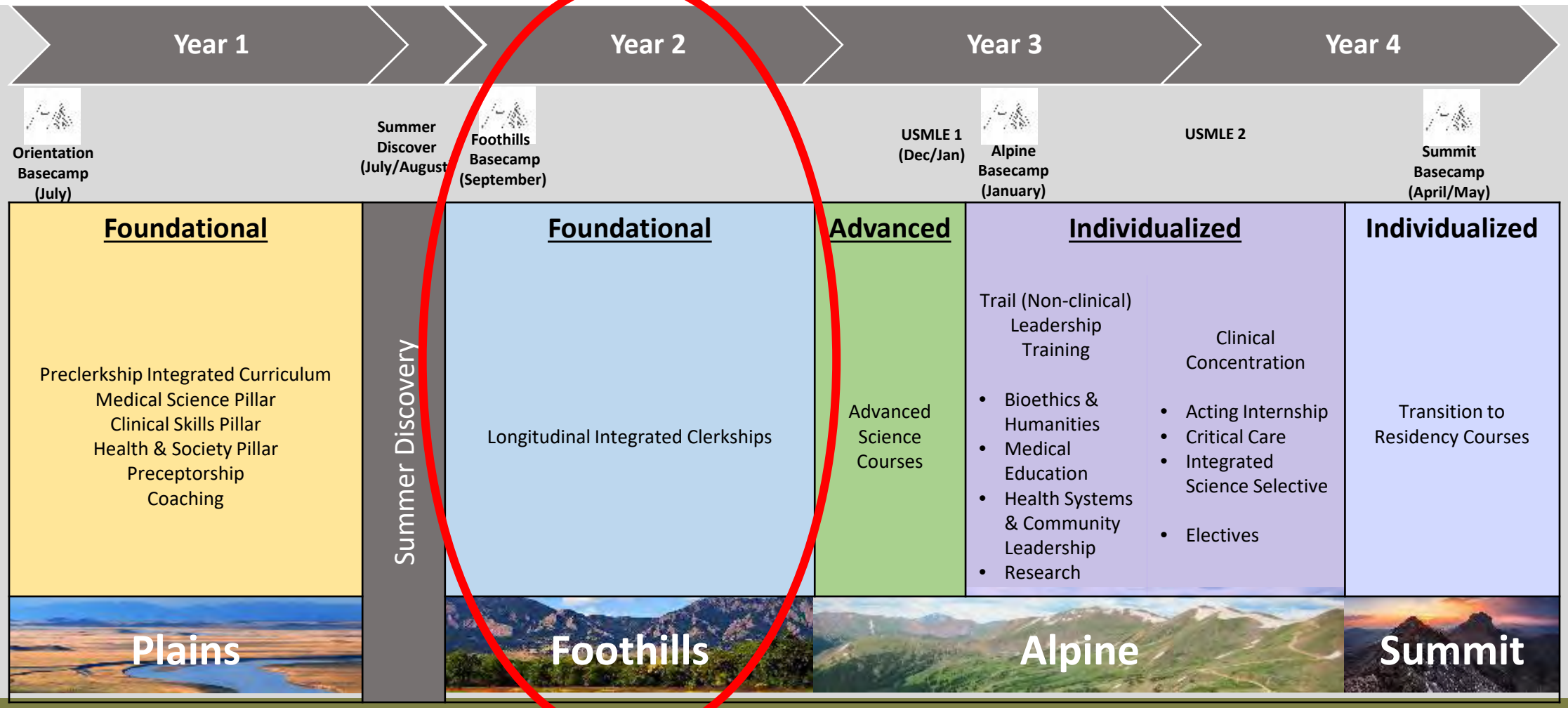
University of Colorado: a transition to all-LIC



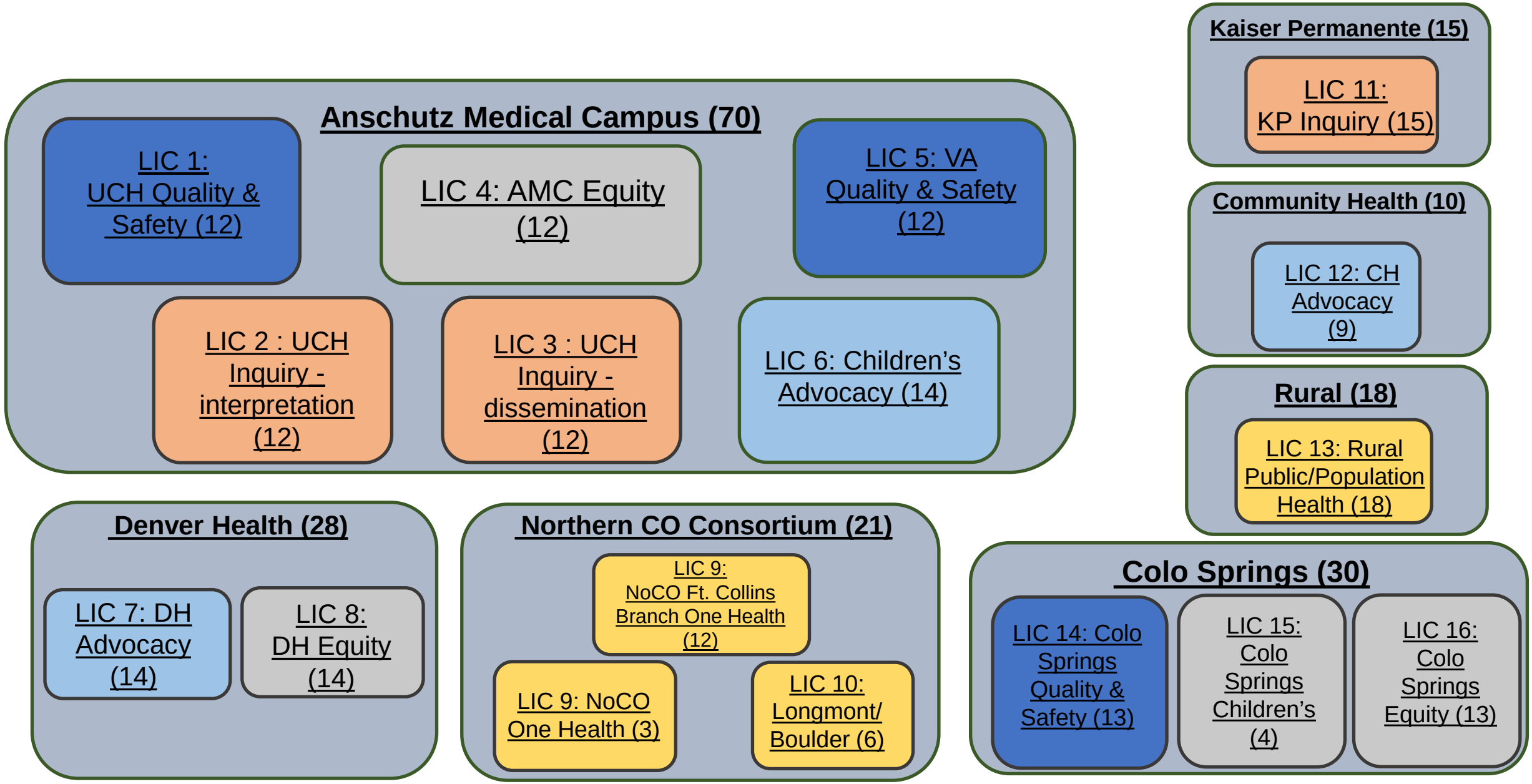
The Trek Curriculum **All-LIC** 200 students *2022*

Leadership.
Curiosity.
Commitment.

CUSOM Trek Curriculum



The LICs: 16 learning communities across systems



LIC Structure

Nuts & Bolts

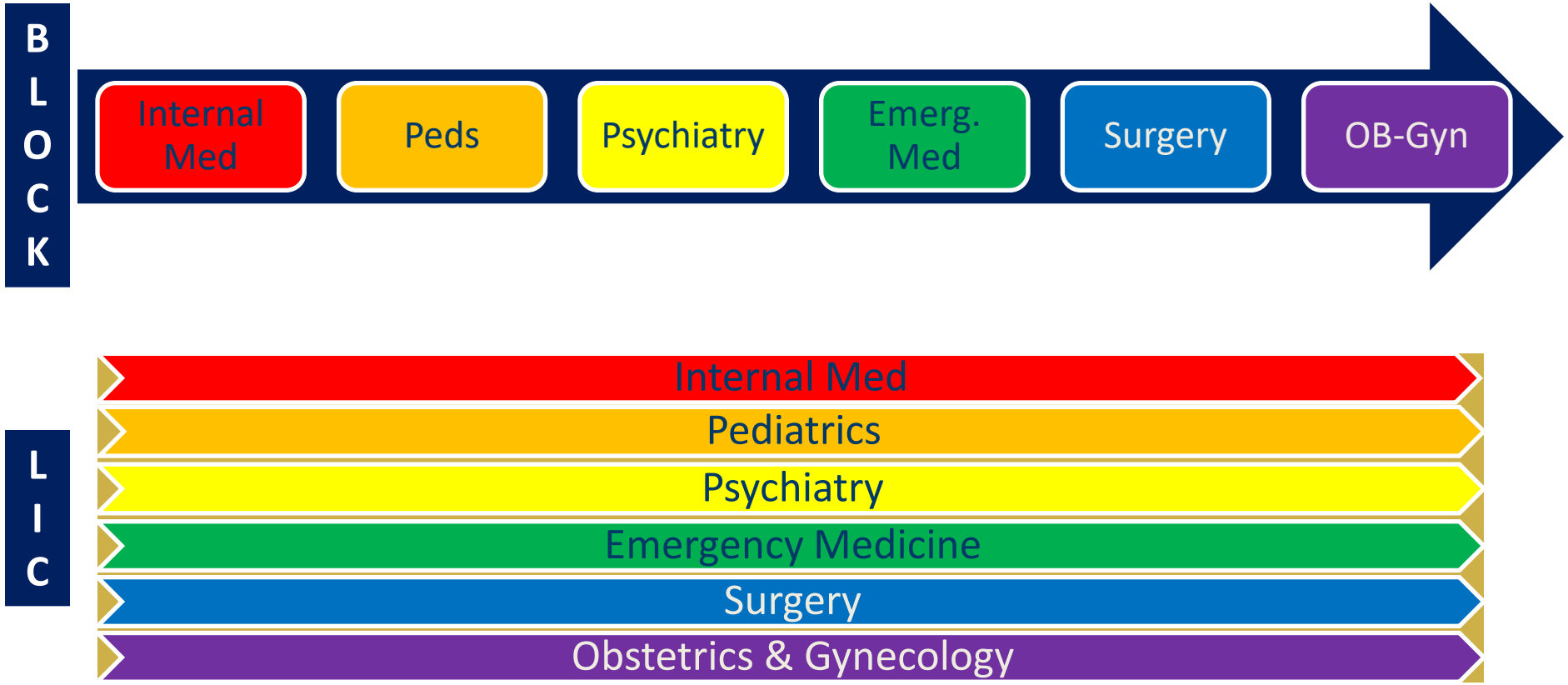
LIC Principles

Core clinical education where medical students:

- Participate in the comprehensive care of patients over time
- Have continuous learning relationships with their patients' clinicians
- Meet the majority of core clinical competencies across multiple disciplines simultaneously

International Consensus Definition; CLIC, 2007

Traditional Block vs. LIC Clerkship Delivery



(adapted from Hirsh et al, NEJM 2007)

Sample weekly schedule

Monday	Tuesday	Wednesday	Thursday	Friday
Peds	FM	Extended Learning Time	Surgery	Extended Learning Time
IM	OB/GYN	Learning Seminar	Emergency Med	Psychiatry

INPATIENT IMMERSIONS

- What it is **NOT**: a condensed comprehensive course in that specialty
- Goals/Objectives
  - Exposure and skill development to support longitudinal care of patients
  - Focused care of acutely ill patients
  - Admissions/discharges
  - Oral presentations, notes, consults
  - Work with teams
  - Career exploration

School of Medicine
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

Surgery
Medicine
Obstetrics/Gynecology
Pediatrics
Psychiatry

Patient Panel

Students serve as primary points of contact, advocates and navigators for their patients throughout the clerkship year by attending visits, admissions, procedures, and deliveries with patients from their panel.

Students will have a minimum number of 'cohort' patients in each specialty. Students are expected to follow these patients over time and care venues. Each cohort patient must have contact with the student in 3 separate encounters through the year

Hirsh, et al. Continuity as an Organizing Principle. NEJM, 2007.

Team-Based Learning

- Small group, interactive learning
- Supportive of development of clinical reasoning
- Foster growth mindset and peer teaching
- Developmentally progressive
- Integration of H&S, Clinical and Medical Science Pillars

Why LICs?

A Call for Change

*" The main strength of (my LIC) is its implicit assumption, in its structure and execution, that **3rd year students are capable of doing meaningful, substantive work."***

- LIC Student

THE WALL STREET JOURNAL.

JOURNAL REPORT | UNLEASHING INNOVATION

Med Schools Aren't What They Used to Be

As the needs of the health-care system change, the way doctors are trained is changing, too

THE LANCET

Education of Health Professionals for the 21st Century: A Global Independent Commission

Health professionals for a new century: transforming education to strengthen health systems in an interdependent world

The New England Journal of Medicine

SOUNDING BOARD

MEDICAL EDUCATION

"Continuity" as an Organizing Principle for Clinical Education Reform

Clinical Review & Education

Special Communication

Medical Education
Part of the Problem and Part of the Solution

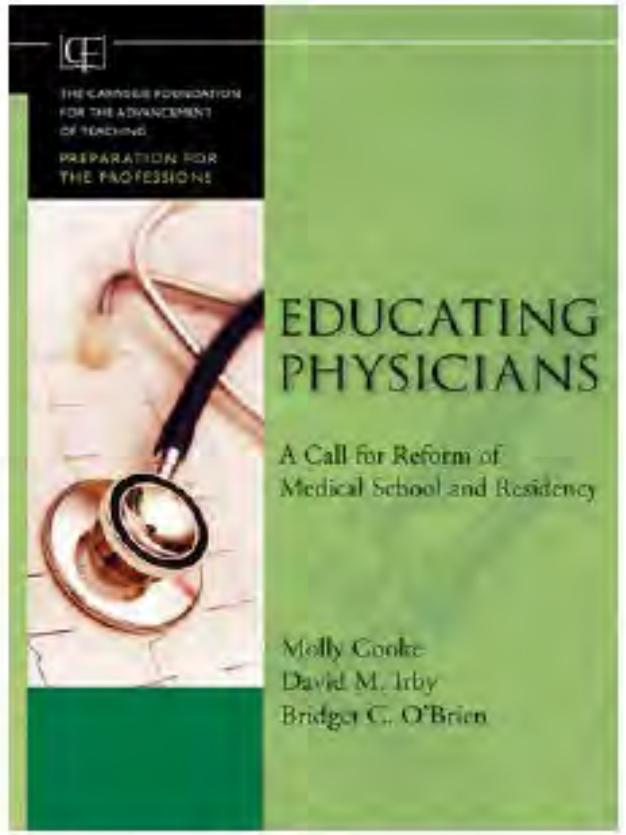
Catherine Peters Lacey, MD

MEDICAL TEACHER

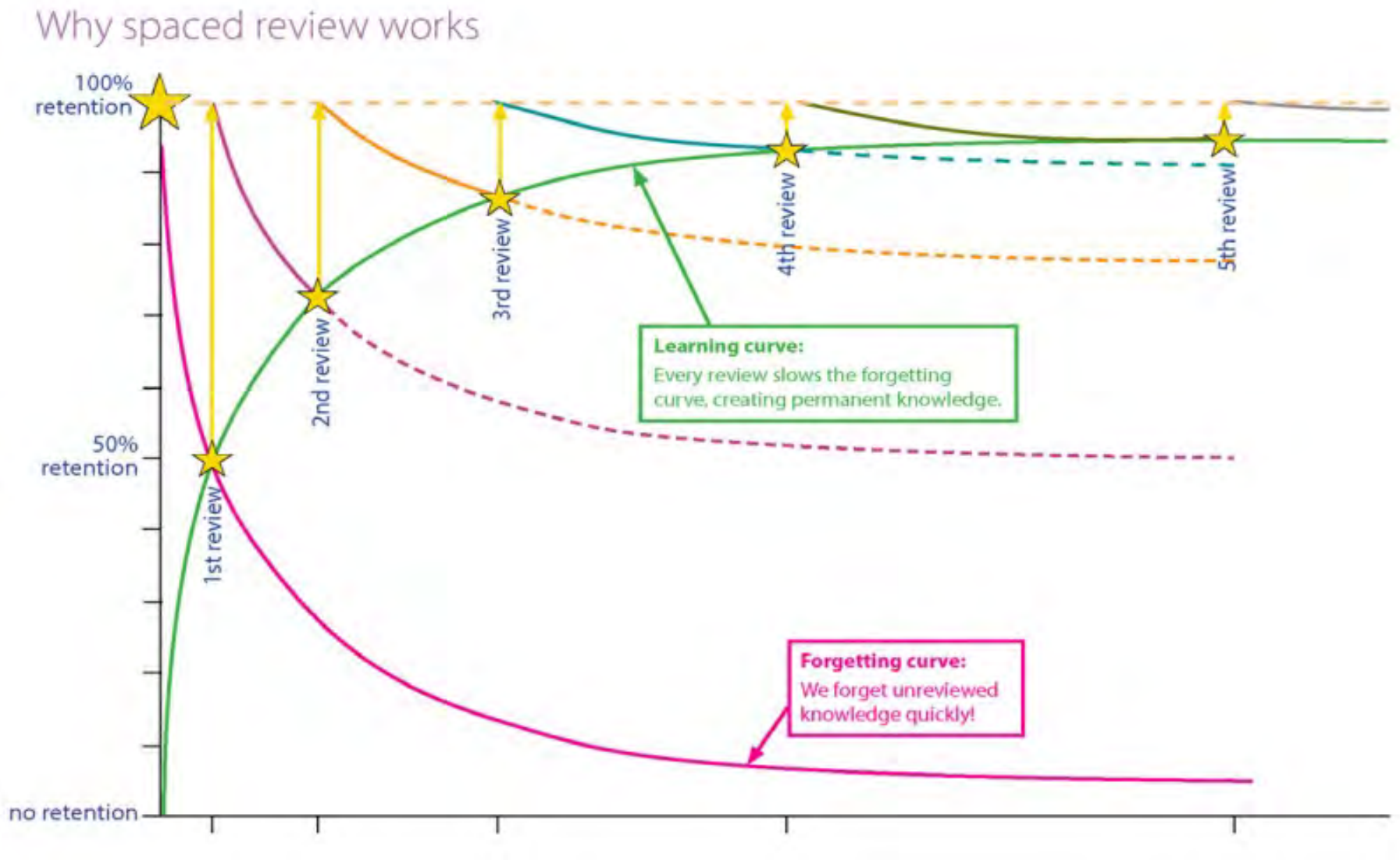
If we keep doing what we're doing we'll keep getting what we're getting: A need to rethink "academic" medicine

Michael Wilkes[a], Christine Cassel[b] and Marc Klau[b]

[a]Davis School of Medicine, University of California, Davis, CA, USA; [b]Kaiser Permanente Medical School, Pasadena, USA

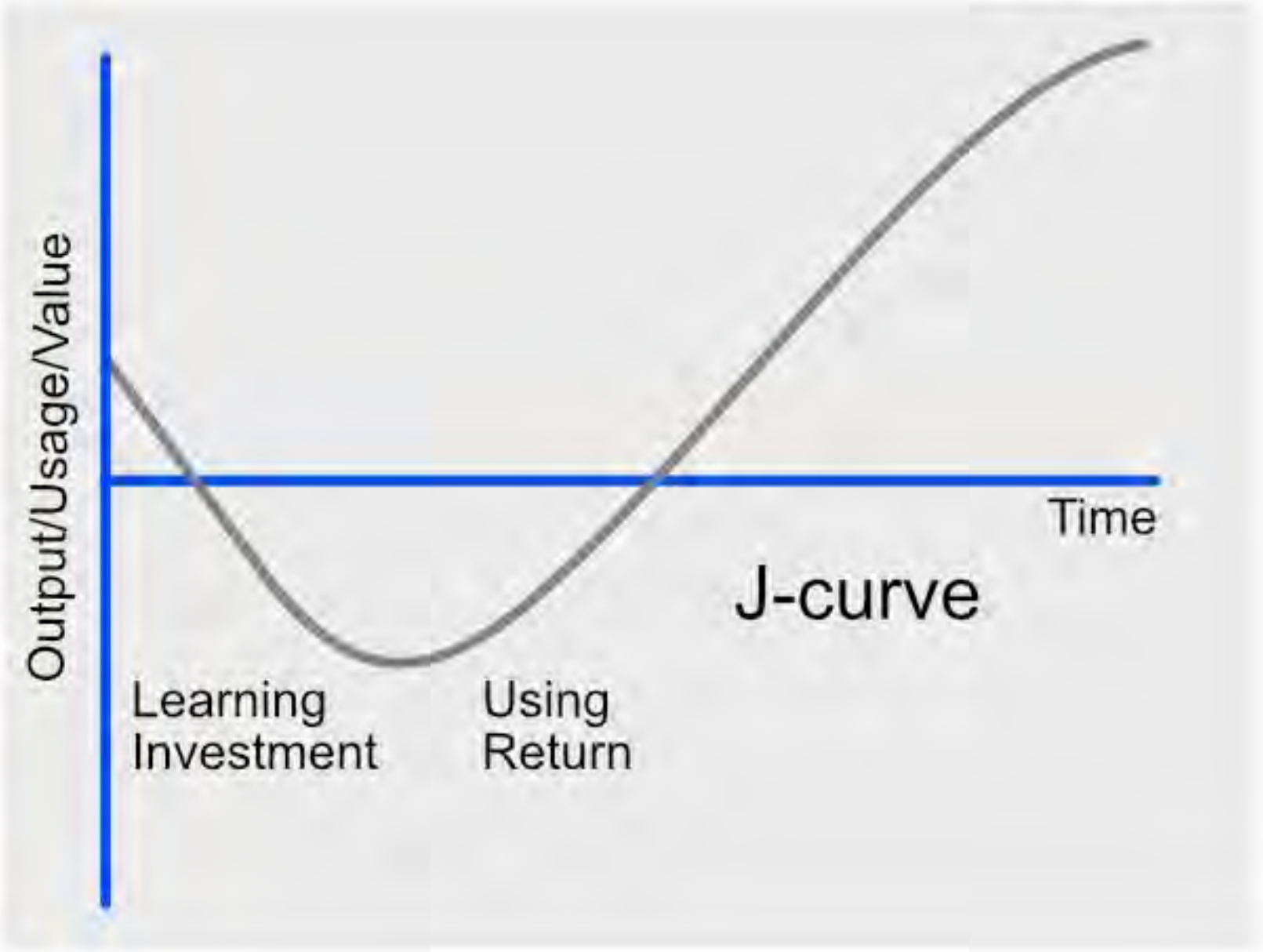


Spaced Learning/ Spaced Review

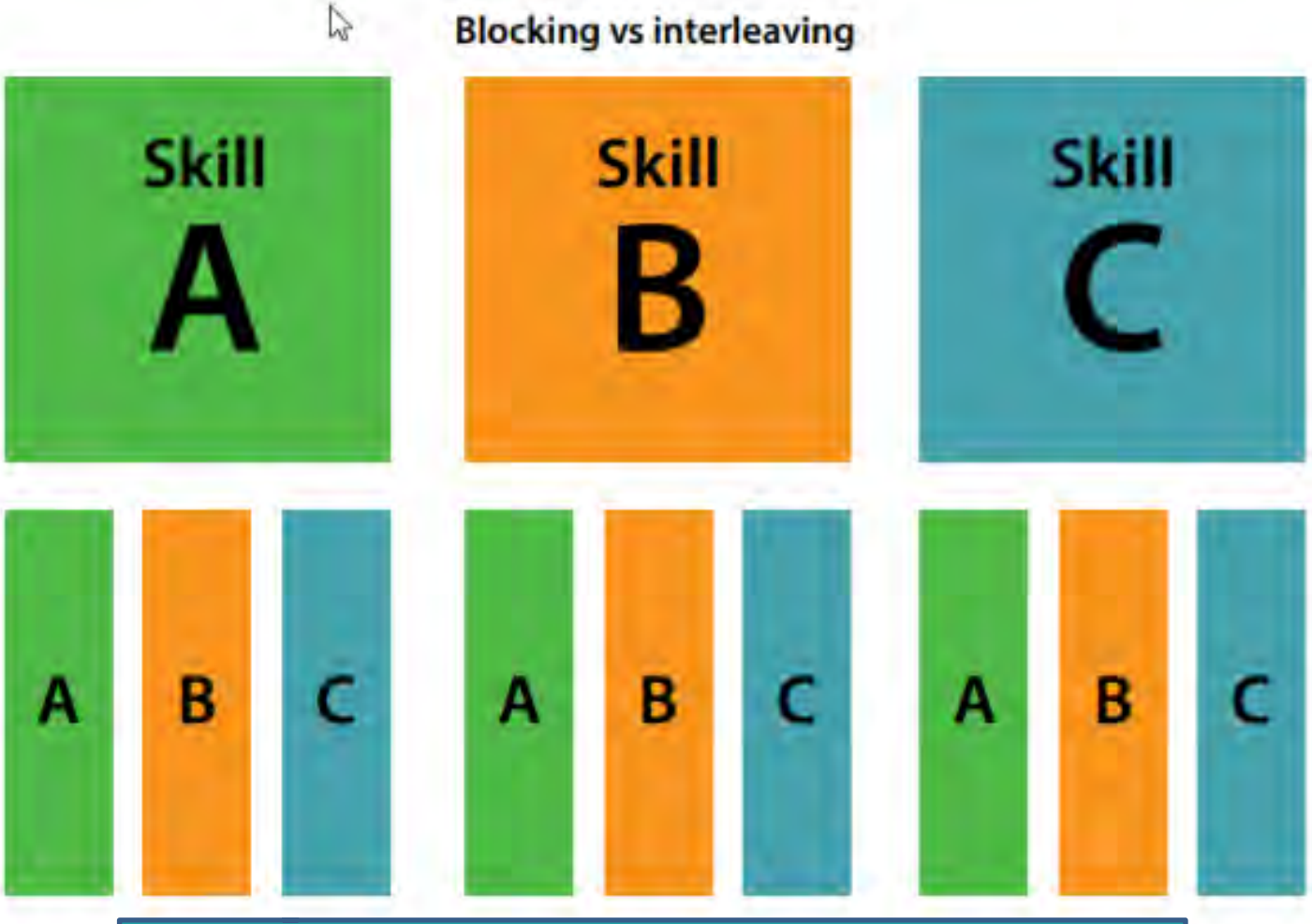


Ebbinghaus, 1885
Kelley & Whatson, 2013

The J Curve


Output/Usage/Value
Time
J-curve
Learning
Investment
Using
Return

Blocking vs. Interleaving



"Interleaving strengthens memory association. The brain is continuously engaged at retrieving different responses and bringing them into short-term memory. Repeating that process can reinforce neural connections between different tasks and correct responses, which enhances learning."

Birnbaum et al, 2012

Pan, 2015

LICs: Evidence-Based Education

Turning theory into practice

Students: superior academic achievement and non-cognitive outcomes

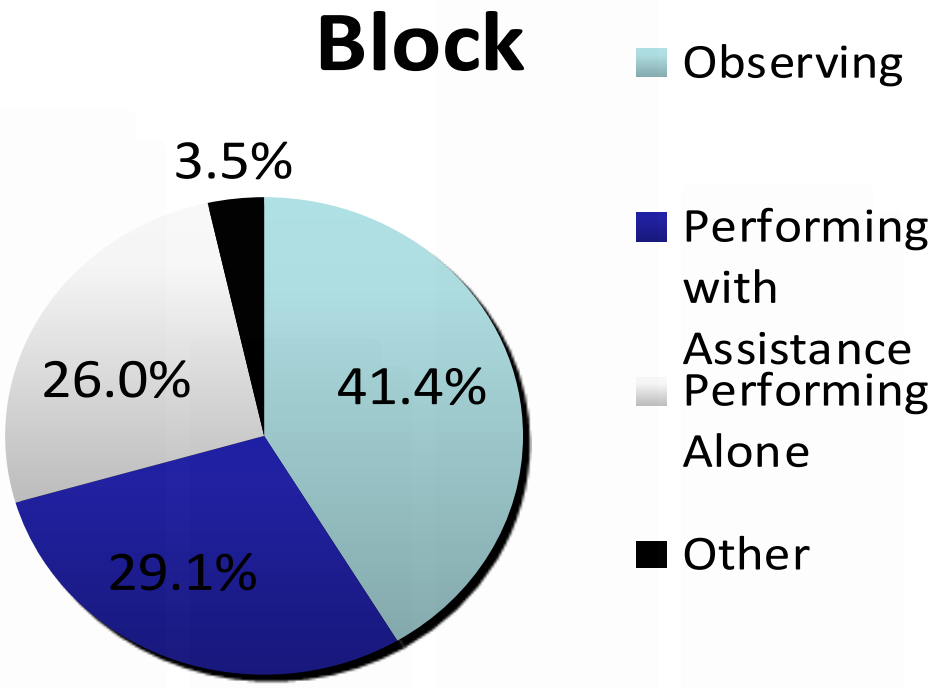
Faculty impact, Patient outcomes, Health care systems, Communities

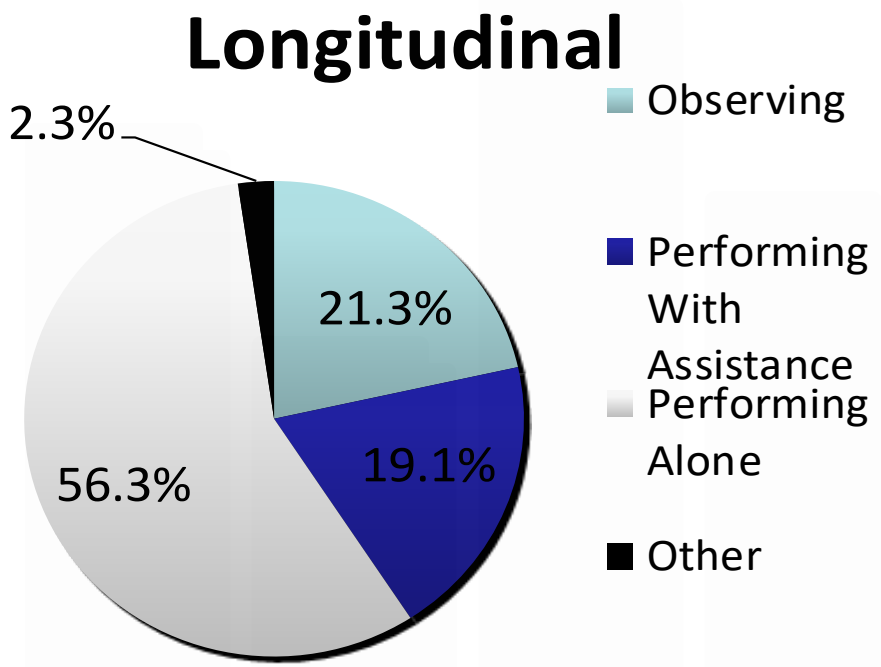
Authentic and longitudinal roles with patients

- Reframing of role
- Shared responsibility for patient care with faculty → transform into team members, care providers, navigators and advocates
- Longitudinal = **Entrustable**
  - Students earn progressive level of patient care responsibility
  - Students develop a holistic approach to patient care and sense of responsibility to individual patients

Walters, et al. Outcomes of longitudinal integrated clinical placements for students, clinicians and society. Med Educ 2012; 46: 1028-1041
Poncelet, et al. Development of a longitudinal integrated clerkship at an academic medical center. Med Educ Online 2011; 16: 5939.
Teherani, et al. Outcomes of Different Clerkship Models: Longitudinal Integrated, Hybrid and Block. Acad Med 2013; 88: 1-9

Direct Patient Care Time Greater in LICs





O'Brien, Poncelet, Hansen, Hirsh, Ogur, Krupat, Alexander, Ma, Hauer, CLIC. Sept 2011.

Student Academic Outcomes

- Students in LICs have equal or better performance on:
  - Standardized exams
  - Clinical assessments
  - Acting/Sub-internships
  - National board examinations
  - Residency match

Teherani A, Irby D, Loeser H. Outcomes of different clerkship models: longitudinal integrated, hybrid, and block. Acad Med. 2013;88:35-43.

Walters L, Greenhill J, Richards J, et al. Outcomes of longitudinal integrated placements for students, clinicians and society. Med Educ. 2012;46:1208-41.

Hirsh D, Gauberg E, Ogur B, et al. Educational outcomes of the Harvard Medical School—Cambridge integrated clerkship: a way forward for medical education. Acad Med. 2012;87:643-50

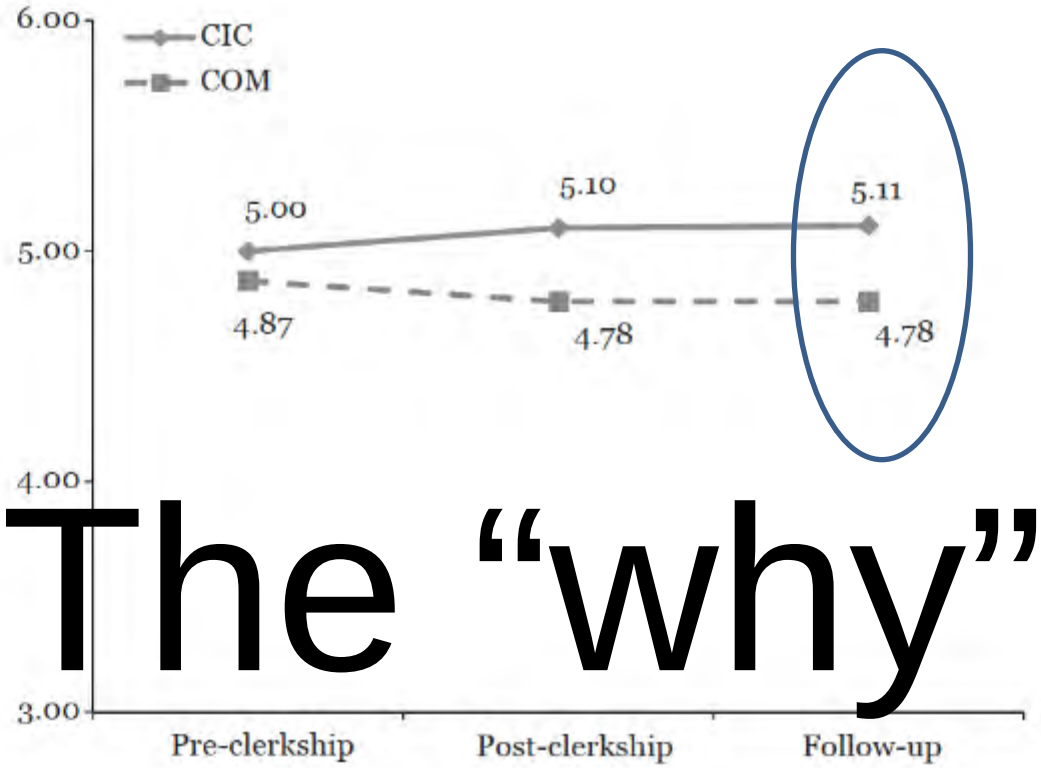
Speaking of the match…. CUSOM LIC classes 2016-2025

- Internal Medicine
- OB/GYN
- Family Medicine
- Emergency Medicine
- Surgery
- Pediatrics
- Med/Peds
- Psychiatry

- Anesthesia
- Radiology
- Interventional Radiology
- Neurology
- Pediatric Neurology
- Radiation Oncology
- Dermatology
- Urology
- Ophthalmology
- Orthopedics
- PM&R
- ENT
- Neurosurgery
- Vascular surgery

Non-Cognitive Student Outcomes

- Students in LICs demonstrate:
  - Improved measures of patient-centeredness
  - Increased empathy



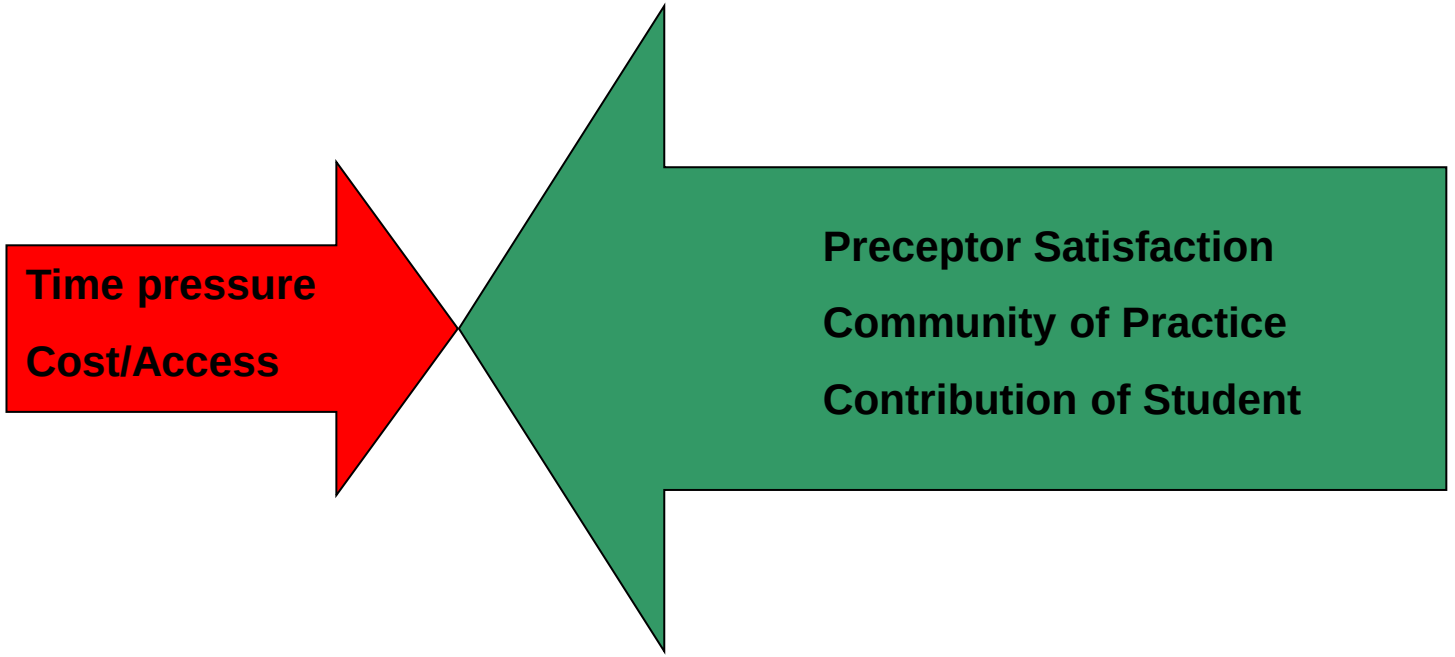
The "why"

Enduring Improvement in Patient-Centeredness
p = 0.035

Figure 1 Comparison of pre- and post-clerkship mean scores of 27 Harvard Medical School–Cambridge Integrated Clerkship (CIC) students and 40 traditionally trained comparison group (COM) students on the Patient–Practitioner Orientation Scale (PPOS), which measures patient-centredness on a 6-point scale. All study participants engaged in their clerkship year at Harvard Medical School during 2004–2007. The graph is extended to compare PPOS scores of 19 CIC and 21 COM students 4–6 years later. For scores pre-clerkship, p = 0.239; for scores immediately post-clerkship, p = 0.011; for follow-up scores 4–6 years later, p = 0.035.

Gaufberg E, Hirsh D, Krupat E, et al. Into the future: patient-centeredness endures in longitudinal integrated clerkship graduates. Med Educ. 2014;48:572-82.

LIC Impact on Faculty



Walters et al, Med Educ, 2012; Teherani et al, Acad Med, 2009;
Mazotti et al, Med Educ, 2011;
Hauer et al, Acad Med, 2012;
Snow, Adams. Med Teach, 2017

Faculty Teaching Experience

- Survey of preceptors in the DH-LIC at baseline and year-end in inaugural year of program to compare experiences teaching in traditional block clerkships (TBC) and LIC.
- Satisfaction:
  - 85.2% of faculty were satisfied with the DH-LIC
  - **57.1% report increased overall job satisfaction** as a result of teaching in the DH-LIC
  - **93.8% reported higher satisfaction and reward from teaching in the DH-LIC compared with TBCs**
  - 85.7% retention (in subsequent years, 90-95%)
- **LICs offer a strategy retain excellent, invested faculty**

Snow S, Adams JE. Faculty Experience and Engagement in a LIC. Medical Teacher, 2017.

Immeasurable Value of our Faculty

"One key strength of the LIC is the ability to connect with preceptors over time, which allows them to **help identify areas for improvement and learning. It also allows us to become integrated onto the care teams**"

"**The greatest strength of this program is the dedication of faculty members to our education and to the population they serve**"

"I am **blown away by how hard all my preceptors work to ensure immaculate care for all of their patients**, and how they approach each visit without any sort of judgment, but instead a genuine desire to use whatever resources they can to help their patients"

Another opportunity for gratitude

Patients' Experiences in LICs

- Patients participating in LIC student panels:
  - Value therapeutic alliance with LIC students
  - Voice improved patient experience
  - Report improvement in health outcomes
  - Experience mitigation of perceived health systems failures
  - See students as bridges between care providers and navigators in the health care system
  - Can experience loss when student completes the LIC year

"He snuck in to see me at the ER. That made me feel like I mattered to him. . . . He didn't have to be there."

Flick RJ, Adams JE. Alliance, trust, and loss: experiences of patients cared for by students in a longitudinal integrated clerkship. Acad Med. 2019

Patient Outcomes in LICs

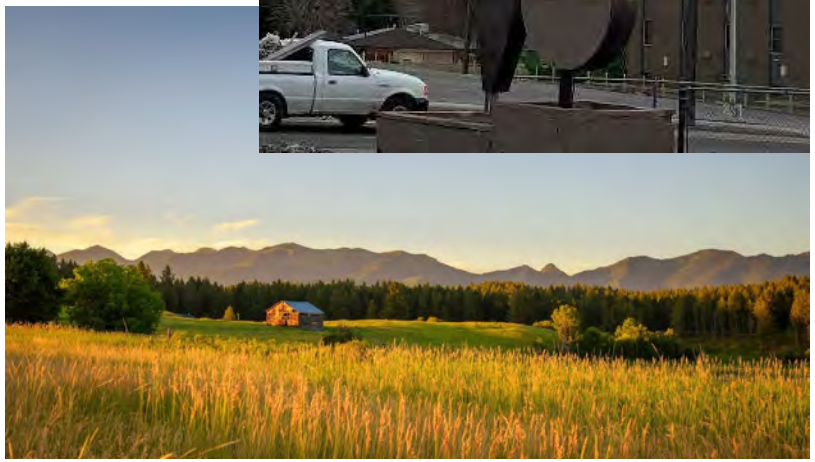
- Veteran Affairs Longitudinal Undergraduate Medical Education (VALUE) LIC
  - Student patients and controls matched for disease severity
  - Mixed methods telephone survey
- Patient of providers working with LIC students report:
  - Greater **satisfaction** with explanations provided by their PCP
  - Greater **satisfaction** with provider's knowledge of their personal history
  - Greater agreement that **provider was looking out for their best interests**

- Patients in the VALUE panel selected the top category more often than control patients for overall satisfaction with their health care
  - 65% vs 43% ($P<0.05$)
  - ***Higher patient satisfaction scores***

Beard AS, Candy AE, Anderson TJ, Derrico NP, Ishani KA, Gravely AA, Englander R, Ercan-Fang NG. Patient satisfaction with medical student participation in a longitudinal integrated clerkship: a controlled trial. Acad Med. 2020. 95(3):417-424.

Community and Workforce Outcomes

- Both urban and rural communities are challenged by disparities in health outcomes and inadequate access to care
- Medical schools must develop curricular interventions to address these societal challenges
- Formative UME experiences in underserved communities can support interest and commitment
- Rural and Urban LICs retain 60-70% of graduates



Strasser R, et al. Transforming health professional education through social accountability: Canada's Northern Ontario School of Medicine. Med Teach 2013;35(6):490-6.
Rabinowitz HK, et al. Retention of rural family physicians after 20-25 years: outcomes of a comprehensive medical school rural program. J Am Board Fam Med 2013;26(1):24-7.
Adams JE, et al. An Urban Longitudinal Integrated Clerkship: Preliminary Workforce Outcomes. Academic Medicine, 2024.

Ok, Ok, I signed up! Now what? ….

- What happened to a clerkship director?
- What should I do with these students all year?
- What actually makes me good at this?

The LIC team

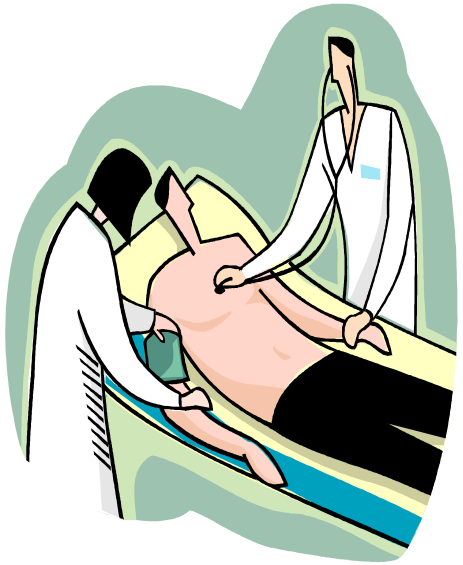
- **Preceptor**
  - Clinical teacher, mentor, coach, advisor
  - Responsible for periodic written assessments critical for growth and grading
- LIC Director
  - Organize the curriculum
  - Oversight of student progress
  - Regular meetings with students to review progress
- LIC Liaison
  - Specialty site director
  - Oversight of clinical and didactic training in specialty
  - Participate in grading
- Clinical Content Director
  - Oversight of specialty training across all LIC sites
  - Development of specialty specific curriculum
  - Chair grading committees

The LIC Coordinator

- The glue that holds the program together
- Management of student and faculty schedules
- Coordinate flexibility around panel patient care
- Track and organize student assignments and assessments
- Safe space for students
- Please communicate with your coordinator!

Help your student prepare for their first day!

- Consider a meeting *before* your first day (meet over coffee!)
  - Get to know one another
  - What time to arrive, where to go, where to park?
  - What to bring, what to wear?
  - What will a typical session or day be like?
  - What expectations do you have of the student?
  - Share the best way to contact one another



What makes a great preceptor?

- Be a great role model – of professionalism, patient care, caring
- Give feedback and coaching regularly (based on direct observation)
- Complete your assessments of students
- Demonstrate interest in your students as learners and people

Who do I go to if I'm worried about my student?

- The LIC director is the best place to start
- Liaisons and coordinators are great too!
- But anyone can help (keep my email handy)
- The most important thing is that you reach out early

Resources

LIC Faculty Development Guidebook (licguide.org)

6 minute LIC testimonial video

CUSOM LIC – Teaching and Learning

Pepper J, Riegels NS, Ziv TA et al. Twelve Tips for Students in Longitudinal Integrated Clerkships. MedEdPublish 2019, 8:59 (https://doi.org/10.15694/mep.2019.000059.1)

Thank You!

Katlynn Adkins, MD
Assistant Dean, Medical Education
University of Colorado SOM
katlynn.adkins@cuanschutz.edu