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# Development and Implementation of a Longitudinal Integrated Clerkship at Rural Track Training Sites in Missouri

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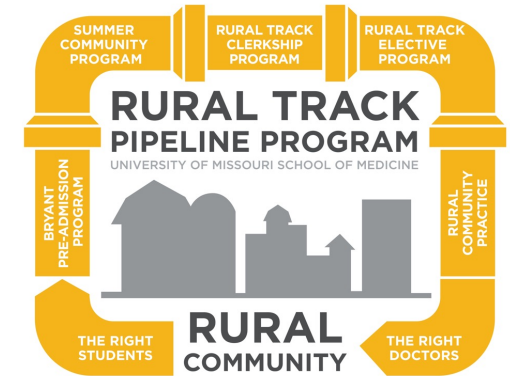
# HRSA Acknowledgment and Disclosure

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- The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.



# MU Rural Track Pipeline Program

**Created in 1995 as a commitment to addressing physician shortages in rural Missouri**



Goal is to solidify student interest in rural practice and increase the number of physicians practicing in rural areas of need in Missouri

99 out of the 101 rural counties in Missouri are designated Primary Medical Care Health Professional Shortage Areas



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# Rural Scholars Continuity

## First Year

- Assigned continuity region

## Second Year

- Summer Community Program (6-week rotation)

## Third Year

- At least three 5–7-week core clerkship rotations or LINC

## Fourth Year

- At least one 4-week elective

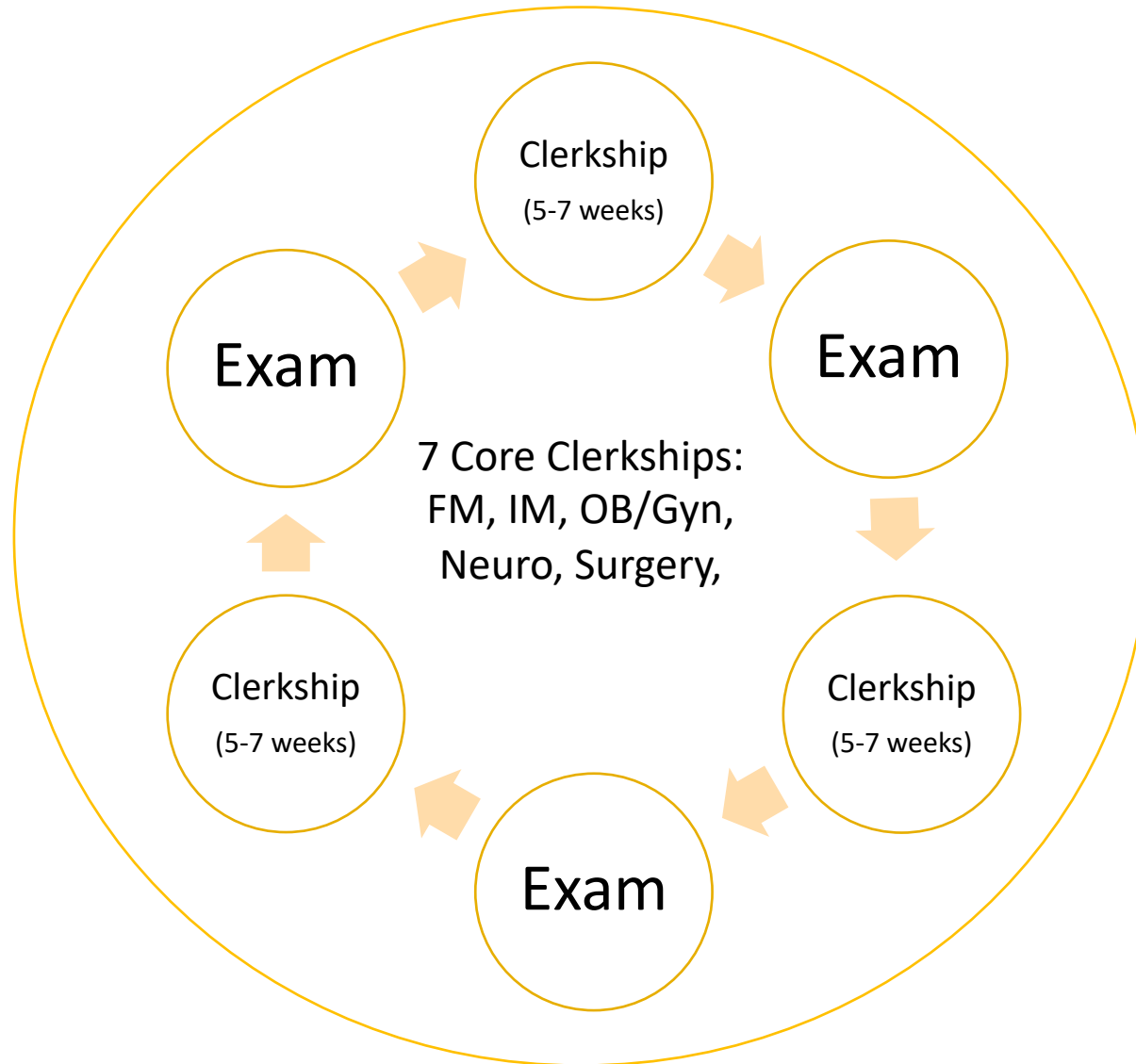


RURAL SCHOLARS  
**PROGRAM**



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# Block Clerkship Structure



## The LINC

We wanted to create a Longitudinal Integrated Clerkship that emphasized continuity, integration, and enduring learning relationships with patients and physician-teachers



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# Why switch to a LINC?

## Student Benefits

- Increased performance on exams (Walters et al., 2012; Teherani et al., 2013)
- Greater satisfaction with clinical training (Teherani et al., 2013)
- Can see continuity of care and longitudinal outcomes
- Improved measures of patient-centeredness and empathy (Ogur et al., 2007; Hirsh et al., 2012; Gaufberg et al., 2014)

## Faculty Benefits

- Increased satisfaction with teaching
- Less impact on time and productivity (Snow et al., 2017)



# LINC Sites & Implementation Timeline



Bothwell  
Regional  
Health  
Center

AY 21-22



Hannibal  
Regional  
Healthcare  
System

AY 22-23



Mosaic Life  
Care

AY 23-24



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# Key Players in Development

## Rural Track Team

- Medical Director
- Associate Dean for Rural Health
- Program Director
- Senior Coordinator
- Rural Scholar as student advisor

## Site Leadership

- Medical Director
- Student Coordinator

## Colleagues

- Dr. Mark Beard – University of South Dakota
- Dr. Jay Erickson – WWAMI Montana
- Dr. Mark Deutchman – University of Colorado
- Dr. Randy Longenecker – Ohio University
- CLIC Community

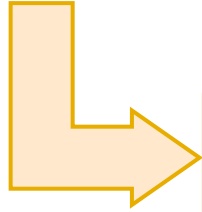




# Development Steps – MU Team

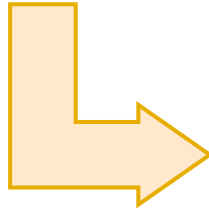
## Leadership

- Identified MU Leadership Team
- Identified Clerkship Directors and Coordinator



## Clerkship Structure & Curriculum Development

- Gathered input from clerkship and curriculum leaders
- Approval from Clerkship Curriculum Steering Committee & Curriculum Board
- MedHub software purchased



## Participants

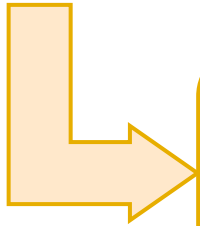
- Identified students
- Provided faculty development



# Development Steps – Rural Site

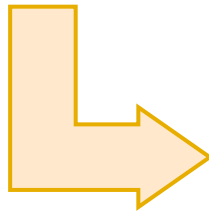
## Leadership

- Identified local physician director and coordinator
- Identified discipline leads



## Clerkship Logistics

- Identified continuity clinics
- Identified and executed needed affiliation agreements
- Identified local EHR/IT needs and barriers

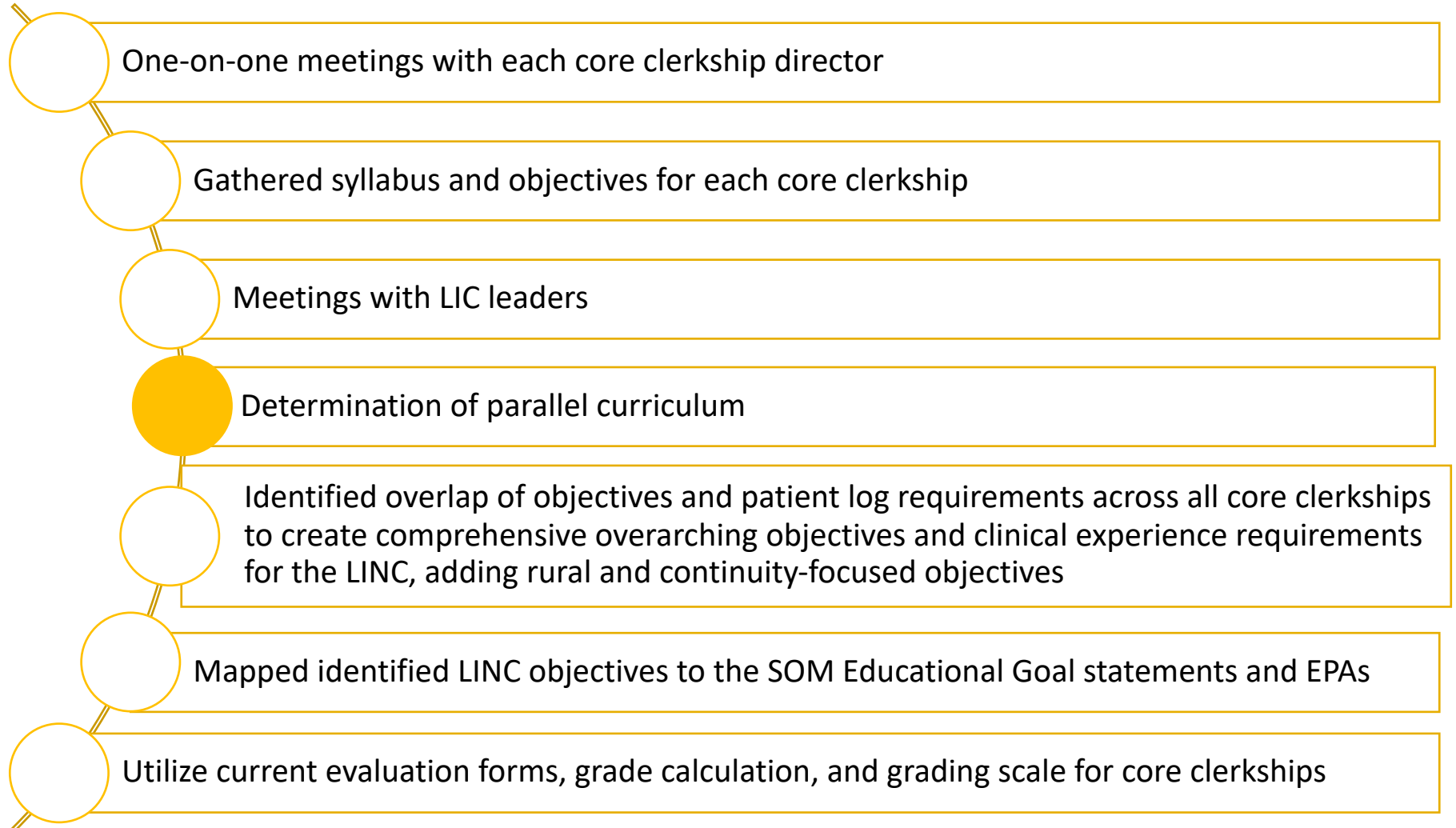


## Faculty Support

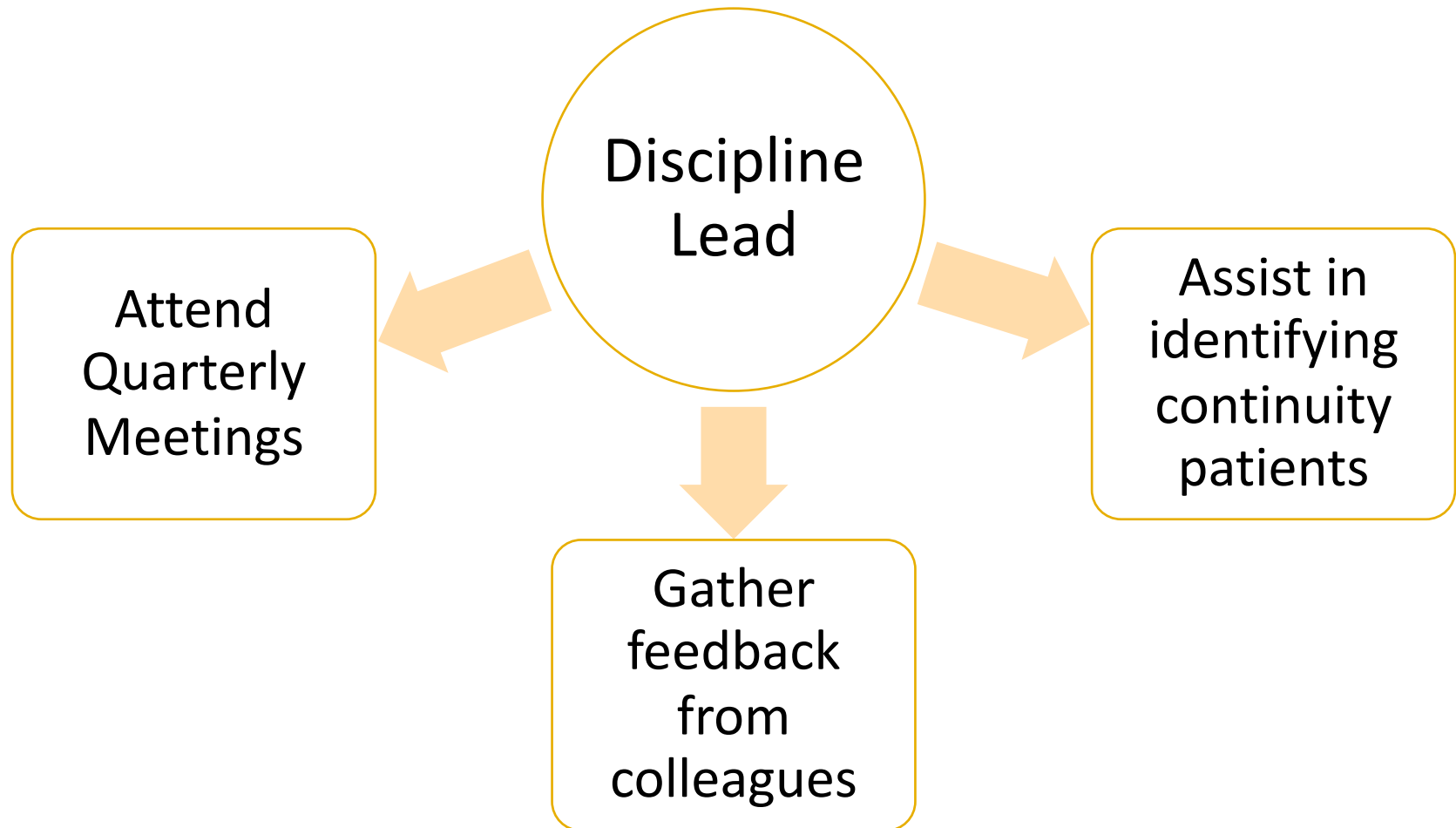
- Identified, and if needed, credentialed faculty
- Identified faculty development needs



# LINC Curriculum Development Process



# Discipline Leads



# Clerkship Structure

Approximately 51 weeks in Academic Year



Quarter 1  
*1 Bootcamp Week*



Quarter 2  
*2 Exam Weeks*



Quarter 3  
*1 Holiday Week*



Quarter 4  
*1 PCC-OSCE Week*  
*2 Exam Weeks*

11-12 Intensive Weeks

32-33 Ambulatory Weeks



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# Clerkship Structure - Ambulatory

## Week 1

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM	Family Medicine	OB/Gyn - Clinic	Reading/Panel	IM Burst - Hospitalists	IM Burst - Hospitalists	IM Burst - Hospitalists	
Noon	Lecture						
PM	Reading/Panel	OB/Gyn - Clinic	ED	IM Burst - Hospitalists	IM Burst - Hospitalists	ED	

## Week 2

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM	Internal Medicine	Neuro	Child Health	Specialty Surgery	Family Medicine		
Noon	Lecture						
PM	Reading/Panel	Reading/Panel	Child Health	Specialty Surgery	Family Medicine		

## Week 3

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM	Family Medicine	OB/Gyn - Surg	Child Health	Psych	Family Medicine		
Noon	Lecture						
PM	Reading/Panel	OB/Gyn - Surg	Child Health	Reading/Panel	Family Medicine		

## Week 4

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM	IM - Tuia	Neuro	Child Health	Specialty Surgery	Family Medicine		
Noon	Lecture						
PM	Reading/Panel	Neuro	Reading/Panel	Specialty Surgery	Family Medicine		



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# Clerkship Structure - Intensives

## Internal Medicine

- Two 2-week intensives with hospitalist team

## General Surgery

- Two 1-week intensives

## OB/Gyn

- One 1-week intensive

## Child Health

- Site 1: Monthly Call
- Site 2: One 1-week intensive

## Neurology

- Site 1: One two-week *off-site* intensive
- Site 2: One one-week intensive

## Psychiatry

- One 1-week *off-site* adult inpatient intensive
- One 1-week *off-site* pediatric inpatient intensive



# Bootcamp Week

MU Clerkship  
Orientation  
(lunch provided)

Students travel  
to sites

On-site  
orientations/  
trainings

Continuity Clinic  
orientation

Welcome to the  
community and  
Community  
Integration

Wrap-Up and  
Q&A

**Tuesday**

**Thursday**

**Monday**

**Wednesday**

**Friday**

Welcome  
breakfast

On-site  
orientations/trai  
nings

SIM Session

Windshield  
Survey





# Wrap-Up Week

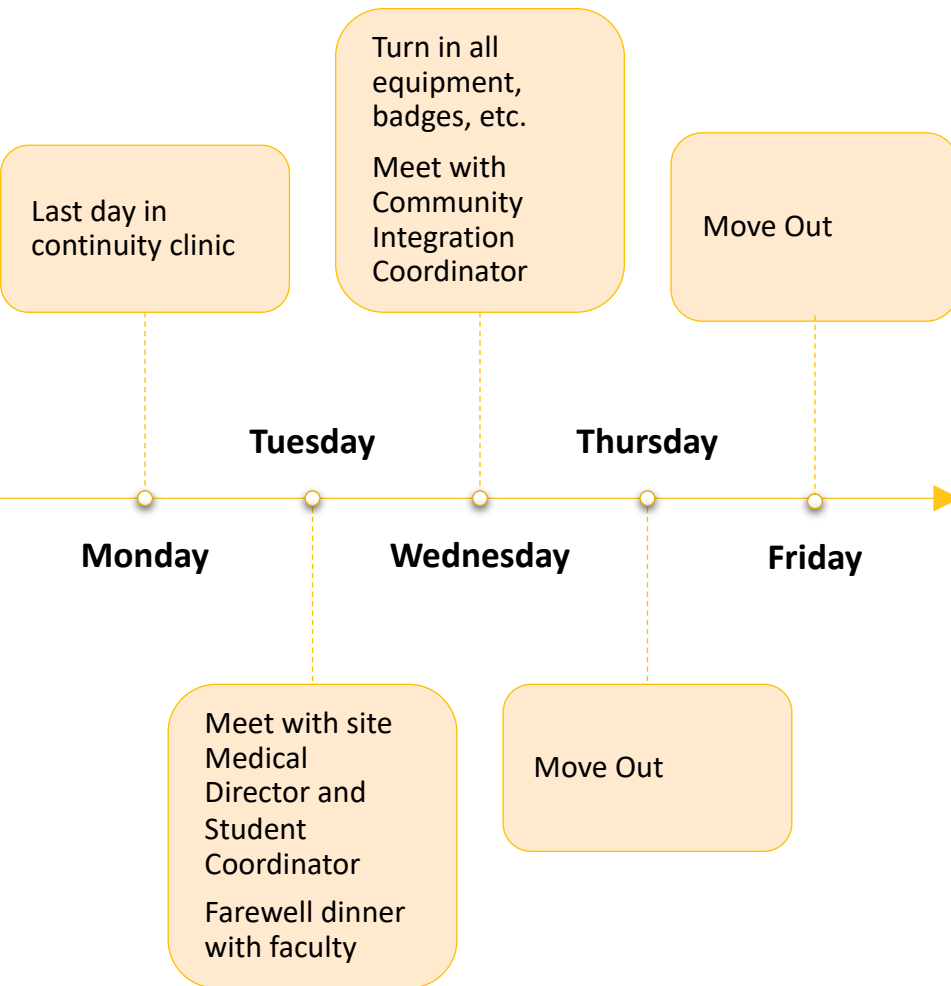


Figure 1. Adapted from "Third-year medical students learning rural medicine", 2021, Sedalia Democrat. Retrieved from <https://www.sedaliademocrat.com/stories/third-year-medical-students-learning-rural-medicine,32005?>

# Student Expectations

## Lectures

- Given by faculty on-site

## PLog

- Patient Log, including continuity patients and clinical experiences

## Simulation

- Every 6-8 weeks

## Community Integration

- Pass/Fail component

## Continuity Patients

- Identified by students and preceptors

## Rotation Feedback

- Every 4 weeks with on-site faculty

## Student Evaluations

- Faculty
- Clerkship



# Continuity Patient Panel

Full panel represents diverse demographics and diagnoses

- Recorded as part of Plog in MedHub

Identify patients in multiple settings

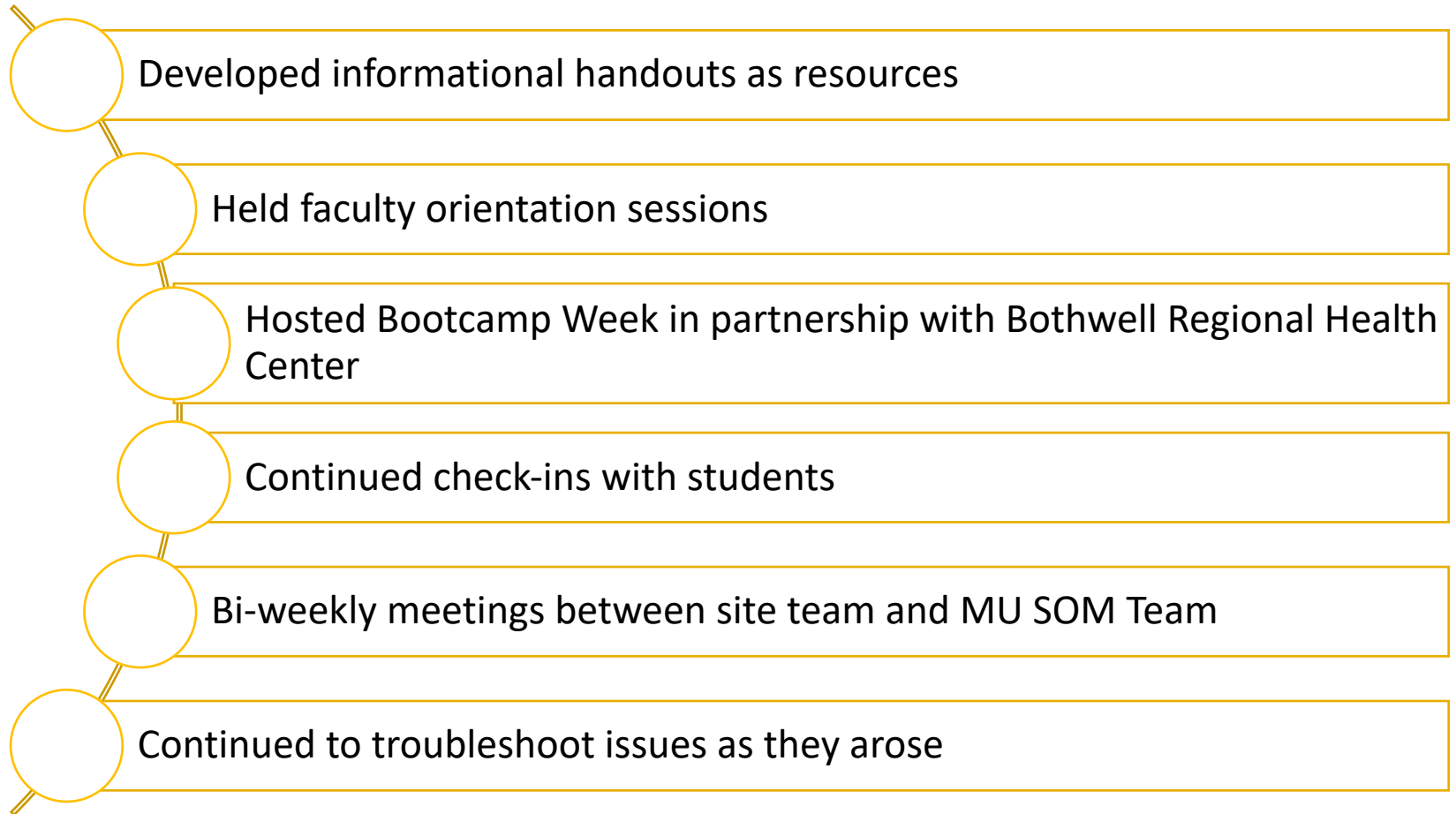
- Significant learning value (new or serious diagnosis, patients undergoing a diagnostic workup, etc)
- Can be student or preceptor-driven

Students maintain contact with their continuity panel

- Attend appointments, procedures, or treatments when possible
- Students can provide patient education, follow up on treatment plans, review results with patients, etc.
- Students may need to “flex” their learning to accompany a panel patient



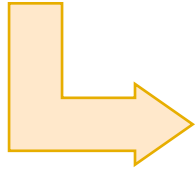
# Implementation



# Evaluations

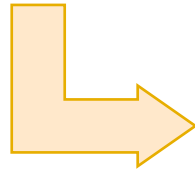
## Student Identified Supervisors

- At the end of each quarter, students identify who they worked with
- This triggers evaluations to send to those identified supervisors
  - Quarters 1, 2, and 3 are formative
  - Quarter 4 is summative



## Roll-Up Evaluation

- Data from evaluations each quarter are then rolled up into one overall evaluation
- In Quarter 4, summative feedback is separated into each discipline and used to determine grade



## Meetings

- Clerkship directors, site medical director, and discipline leads meet quarterly to discuss feedback received
- Clerkship directors then meet with students to discuss feedback and plans for progress



# Grading

## Clinical Performance

- Faculty evaluations

## Knowledge

- Exam percentiles

## Professionalism

- Variety of sources

Overall grade is the lowest of these three categories

Possible final grades are:

Honors (H)

Letter of Commendation (LC)

Satisfactory (S)

Unsatisfactory (U)



# Student Feedback

## Highlights from student mid-point clerkship evaluations:

- 100% strongly agreed the clerkship broadened their comprehension of how to deliver effective, patient-centered care
- 100% strongly agreed the clerkship improved their ability to actively engage in critical thinking/problem solving
- 67% agreed and 33% strongly agreed that they are pleased with their learning during the clerkship

*"I have great relationships with my preceptors and know that some of them will be life-long mentors to me. Hands on experience is phenomenal and probably better than most clerkships."*

*"I feel that I am getting an adequate amount of time with each specialty and I'm gaining a great breadth and depth of experiences."*

*"It's nice to have varied exposure to different specialties. The preceptors are very knowledgeable and invested in student learning."*



# Lessons Learned

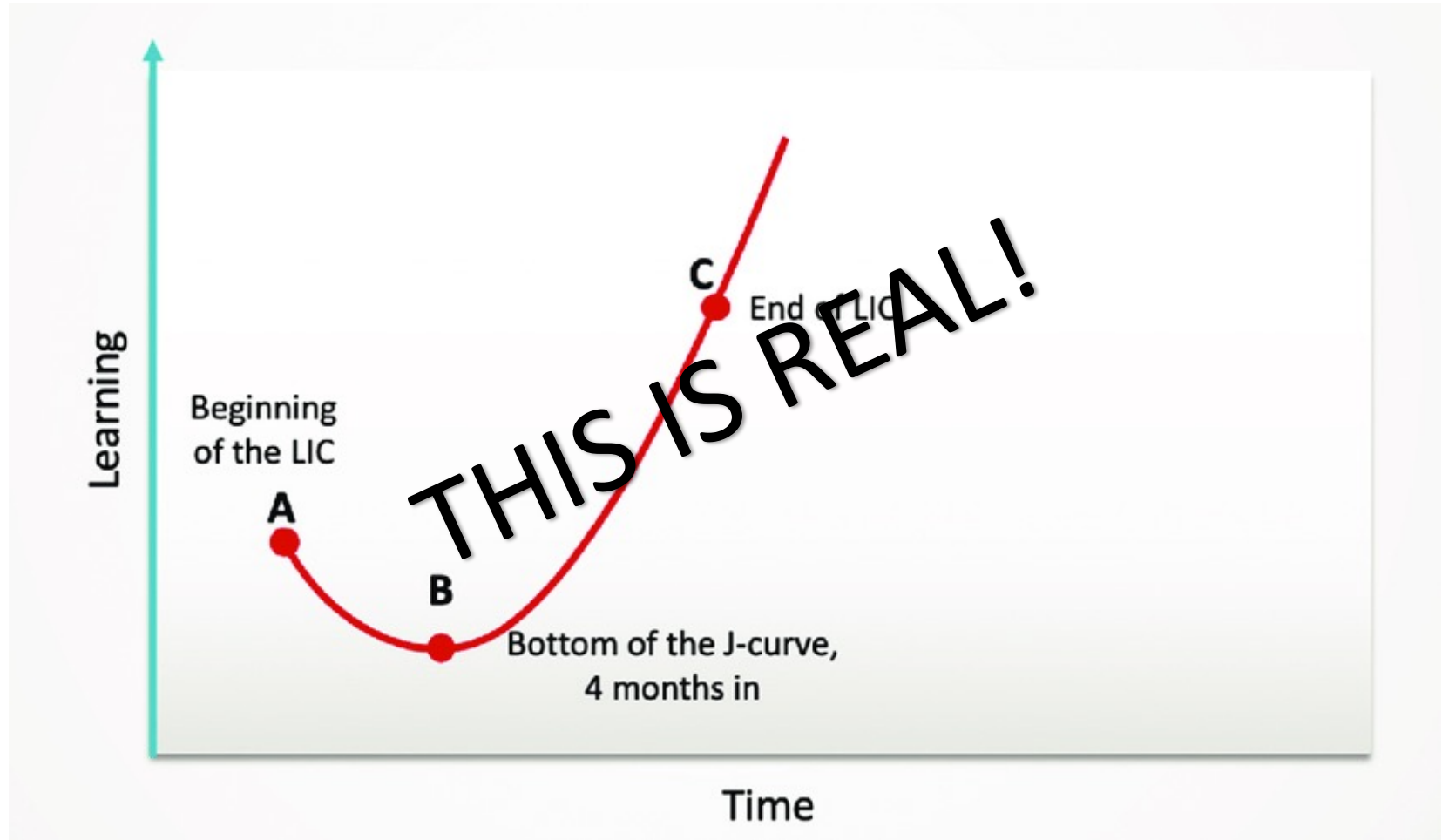


Figure 2. Adapted from Brown, M.E.L., Campton, P.E.S., Anderson, K., & Finn, G.M. (2020). Not all who wander are lost: evaluation of the Hull York medical school longitudinal integrated clerkship. *Education for Primary Care*, 32(3), 140-148. DOI: [10.1080/14739879.2020.1816859](https://doi.org/10.1080/14739879.2020.1816859)





# Lessons Learned and Responses

## Too many continuity preceptors

- Assigned one main continuity preceptor per student

## Too many continuity patients

- Reduced number of required continuity patients for next academic year

## Overscheduling and Inconsistent Scheduling

- Began to ensure students always have two ½ days of white space time each week

## Exam schedules

- Only have one exam per day
- Formative exams will be more spread out – one week in December, one week in February



# Lessons Learned and Responses

## EHR and technical issues

- Have more built-in touchpoints to address issues quickly, especially regarding EHR and notification of panel patient appointments/procedures

## Faculty: How do I evaluate a LINC student?

- Guidepost development and more focused faculty orientations

## Transition to full-time clinical learning

- Discuss transitions to clinical learning and self-directed learning during Bootcamp Week

## Sustainability Funding

- Obtained mission-based management funding for LINC clerkship director and associate director as a stand-alone clerkship



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# Thank You!

The next step in the Rural Track Pipeline Program is...



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