

DOM Leaders in Informatics, Quality & Systems Fellowship Program

Mission: To develop trainees and junior faculty into future leaders with successful academic careers in the areas of quality improvement (QI), clinical system design, clinical informatics, and/or patient safety able to enact change in a complex healthcare system.

Structure: Two-year program combines didactics, longitudinal mentorship and hands-on training from faculty mentors with diverse expertise to support trainees and junior faculty.

Leadership Team

Program Director: Michael Ho, MD, PhD

Program Manager: Heather Hallman, MSHS, MHA

Clinical Informatics

Lisa Schilling,
MD, MSPH
CT Lin, MD
Jon Pell, MD
Amber Sieja, MD
Brian Montague, DO,
MPH, MS

Quality/Safety

Tyler Anstett, DO
Karen Ream, PA
Tyler Miller, MD,
FACP

Learning Health Systems

Katie Raffel, MD
Michael Ho, MD, PhD
Sri Raghavan, MD
Cory Hussain, MD

LInQS Syllabus Outline – Learning Objectives

Leadership

The overarching mission of this fellowship is to train the future leaders of enacting change in complex health systems. Accordingly, leadership training is core to the success of fellows in this program. Principles and practice of leadership will be woven throughout the didactics and specific activities for all fellows.

Quality and Patient Safety

1. Facilitate an M&M or case-review conference.
2. Establish a division level case-review system.
3. Teach quality and safety to peers and trainees.
4. Coach learners on an improvement project.
5. Identify funding sources for improvement projects.
6. Identify improvement projects with potential for success and provide feedback for improvement.

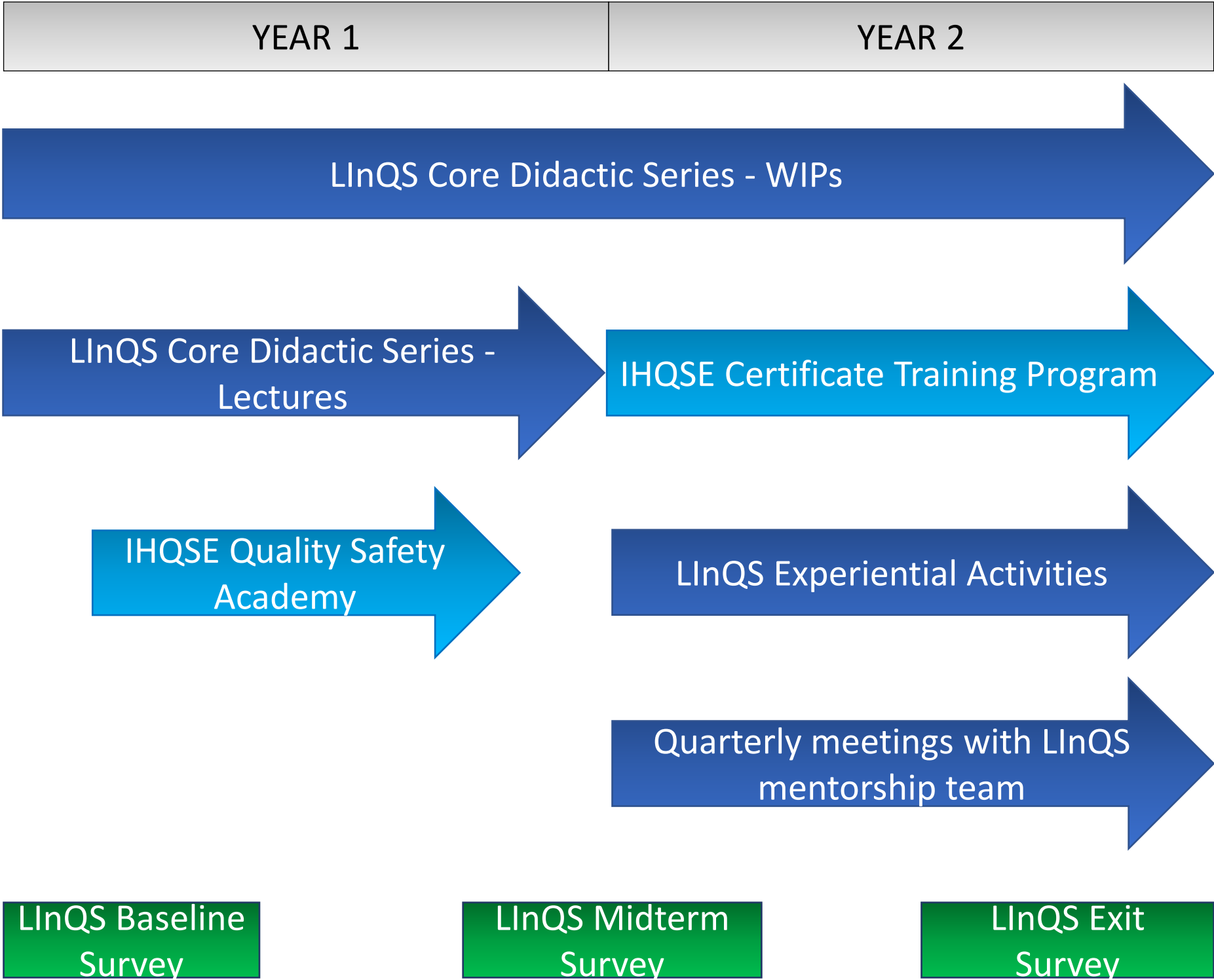
Learning Health System (LHS)

1. Describe core components of a learning health system (LHS) and outcomes of interest in a LHS.
2. Obtain, critically evaluate and utilize health system data to inform project work.
3. Understand basic strategies for using information systems to improve patient and health system outcomes.
4. Apply tools for evaluating projects as research versus quality improvement.
5. Evaluate the dissemination and implementation (D&I) of project work according to an accepted D&I framework.
6. Cultivate skills in "grantsmanship" by developing a QI grant proposal, with special attention to communicating the potential of a project via a succinct research plan.

Clinical Informatics

1. Develop and demonstrate the ability to serve as a liaison among IT professionals, Q&S implementers, administrators, and clinicians.
2. Query and analyze data repositories/warehouses to evaluate quality and safety interventions and understand the complexities of EHR and other data types.
3. Develop and use HIT (health information technology) tools (e.g., CDS, registries, documentation tools, etc.) as part of multi-disciplinary approach to support and improve health care outcomes, efficiency, value, quality, and safety (CDS and other tools).
4. Understand the concepts of programming, database design, and user-centered interface design.
4. Evaluate the impact of the use of HIT on patient care and clinician wellbeing, including the consideration of unintended consequences.
5. Apply strategies to support clinician users and promote clinician adoption of Health IT systems.

LInQS Syllabus Outline – Didactics*



*Didactic dates and topics subject to change

LInQS Syllabus Outline – Core Didactics & WIPs

BLOCK 1	7.7.21	WIP-1: Program Orientation (30 mins) & Cohort 2 Year-end Summaries (90 mins)	
		WIP-2: Introduction to DMAIC	
	7.21.21	CI-1: Introduction to Clinical Informatics	LISA SCHILLING
		WIP-3: Cohort 3 Discussion - Identifying gap in quality, scope of problem	
	8.4.21	LHS-1: Case Studies in LHS: Outcomes & Operations	MICHAEL HO
		WIP-4: Cohort 3 Discussion - Problem statement & goals	
	8.18.21	QIPS-1: Change Management Strategies - Persuading Hearts & Minds	KATIE RAFFEL
		WIP-5: Cohort 3 Discussion - Stakeholder analysis & communication plans	
	9.1.21	CI-2: Slicer Dicer Tutorial	BRIAN MONTAGUE
		WIP-6: Cohort 3 Discussion - SMART aim	
	9.15.21	LHS-2: Exempt, Expedited, QI, Oh My!	CAT SUTHERLAND
BLOCK 2	10.6.21	WIP-7: Cohort 3 MILESTONE #1 - Presenting DEFINE in A3 (Fellows 1-5)	
		WIP-8: Cohort 2 Discussion - Overcoming barriers/challenges	
	10.20.21	CI-3: Databases and Data Modeling	LISA SCHILLING
		WIP-9: Cohort 3 Discussion - Identifying/collecting baseline performance data	
	11.3.21	CI-4: Introduction to EHR	CT LIN / JON PELL
		WIP-10: Cohort 3 Discussion - Narrowing scope & developing metrics	
	11.17.21	LHS-3: Systems Theories and Research Design in Complex Systems	HEATHER GILMARTIN
	12.1.21	CI-5: The Business of Health IT	CT LIN
BLOCK 3	1.5.22	WIP-11: Cohort 3 MILESTONE #2 - Presenting MEASURE in A3 (Fellows 1-5)	
		WIP-12: Cohort 2 Discussion - Continuous improvement, making change stick	
	1.19.22	LHS-4: Thick Data - Qualitative & Mixed Methods	JULIANA BARNARD
		WIP-13: Cohort 3 Discussion - Analyzing/validating baseline data	
	2.2.22	CI-6: What is Yottabyte?	CT LIN
		WIP-14: Cohort 3 Discussion - RCA --> Understanding causes	
	2.16.22	QIPS-2: Safety Events & Building a CCR	ANSTETT/ VIRAPONGSE
		WIP-15: Cohort 3 Discussion - RCA --> Developing solutions	
	3.2.22	CI-7: Virtual Health	BENJAMIN SCOTT
		WIP-16: Cohort 3 Discussion - Future state	
	3.16.22	QIPS-3: Intervention Design	TYLER ANSETT
BLOCK 4	4.6.22	WIP-17: Cohort 3 MILESTONE #3 - Presenting ANALYZE in A3 (Fellows 1-5)	
		WIP-18: Cohort 2 Discussion - Project hand-off/sustainability planning	
	4.20.22	CI-8: Strategies to Improve EHR Utilization / Population Health	AMBER SIEJA
		WIP-19: Cohort 3 Discussion - Designing interventions --> root causes	
	5.4.22	LHS-5: Dissemination vs. Implementation Science	AMY TYLER
		WIP-20: Cohort 3 Discussion - Change management plan / Incentives	
	5.18.22	LHS-6: Value in Healthcare - CE vs. CB vs. ROI	ROBERT MCQUEEN
		WIP-21: Cohort 3 Discussion - Timeline of interventions	
	6.1.22	CI-9: Clinical Decision Support - Design, Support, Use & Evaluation	JONATHAN PELL
	6.15.22	WIP-22: MILESTONE #4 - Presenting IMPROVE & CONTROL in A3 (Fellows 1-5)	

LIQS Syllabus Outline – IHQSE Certificate Training Program

IHQSE Certificate Training Program	LECTURE TOPIC	LECTURER
10-Aug-22	CTP-1: Creating our learning environment; Beginning with the end in mind; Intro to CTP & Transformation; Enhancing the learning community; Setting the stage for leadership practice & development	IHQSE Faculty
24-Aug-22	CTP-2: Transformation: Leading change at the project level	IHQSE Faculty
14-Sep-22	CTP-3: Strengthening your team's foundation; Leading change at the organizational level	IHQSE Faculty
28-Sep-22	CTP-4: Defining "team"; Personal transformation: Leadership, teamwork & awareness of differences	IHQSE Faculty
12-Oct-22	CTP-5: QI & project management: Intitiate --> Plan phase	IHQSE Faculty
26-Oct-22	CTP-6: QI or research?; Effective meeting management	IHQSE Faculty
9-Nov-22	CTP-7: Business case for quality; Enhancing culture through team behaviors	IHQSE Faculty
23-Nov-22	CTP-8: Complex adaptive systems & systems thinking; Communication as catalyst	IHQSE Faculty
14-Dec-22	CTP-9: Clinical revenue; Data storytelling and positive deviance	IHQSE Faculty
28-Dec-22	CTP-10: Leadership journey; Presenting to influence; Mid-year presentation preparation/coaching	IHQSE Faculty
11-Jan-23	CTP-11: Progress Report Out	IHQSE Faculty
25-Jan-23	CTP-12: Revisiting the change roadmap for projects; Using influence to navigate conflict and skepticism	IHQSE Faculty
8-Feb-23	CTP-13: QI methods integration	IHQSE Faculty
22-Feb-23	CTP-14: Intro to patient safety; Learning from human and system failures	IHQSE Faculty
8-Mar-23	CTP-15: Leadership and high reliability; Keeping humans at the center of resilience and wellbeing	IHQSE Faculty
22-Mar-23	CTP-16: Human experience of complex delivery systems and harm; Keeing humans at the center of user-centered design	IHQSE Faculty
12-Apr-23	CTP-17: Leading across generations; Project consultation workshop	IHQSE Faculty
26-Apr-23	CTP-18: Sustaining and embedding change; Advanced QI data analysis; Measure and reporting safety and effectiveness	IHQSE Faculty
10-May-23	CTP-19: Spreading good ideas in complex systems; Disseminating improvement work	IHQSE Faculty
24-May-23	CTP-20: Progress reports part 1	IHQSE Faculty
14-Jun-23	CTP-21: Progress reports part 2	IHQSE Faculty
28-Jun-23	CTP-22: Closing time; Leadership Journey; Building momentum: Strategy action session	IHQSE Faculty

LIQS Syllabus Outline – IHQSE/GME Quality & Safety Academy

Co-sponsored by Institute for Healthcare Quality Safety and Efficiency & CU Graduate Medical Education

Purpose

To provide relevant and applicable training in quality improvement and patient safety enabling CU residents, fellows, and faculty to improve care and enact change in the healthcare system.

Academy Overview

The QSA offers residents, fellows, and faculty in any program affiliated with University of Colorado a series of workshops designed to build foundational knowledge in quality improvement and patient safety enabling attendees to effectively participate in quality and safety work in the clinical setting. Program content builds on itself to support progressive acquisition of competency. The core content areas are Quality Improvement, Patient Safety, and Healthcare Systems Leadership.

Session	Session Overview	Fall 2021 Dates & Times*
Patient Safety	Attendees will review the historical origins of the patient safety movement and leave with an understanding of what attributes are necessary to create a Culture of Safety. Specific focus will be given to creating a Just Culture and Reporting Culture. Finally, we will explore the second victim phenomenon and discuss how to support caregivers when errors occur.	<i>August 5: 9am-12pm</i>
Applied Patient Safety	Building on the Patient Safety Session, this session will further enhance the concepts of Just Culture and discuss and guide the development and participation in a systems-based case review conference. Attendees will emerge being able to build, facilitate or better participate in these important patient safety tools at their institution.	<i>August 25: 9am-12pm</i>
Quality Improvement & Change Management	This session will focus on the basics of Quality Improvement, following a step-wise guide for implementing a successful QI project. The classic QI teaching is coupled with a practical Change Management framework which facilitates success and makes change more likely to stick.	<i>August 30: 9am-12pm September 2: 9am-12pm</i>
Acquiring Data to Drive Change	Critical to any change effort is finding, sharing and tracking data. Attendees to this session will emerge with skills for obtaining the necessary data for tracking improvement as well as a basic understanding of how to interpret data to identify when a change has occurred.	<i>October 4: 9am-12pm</i>
Spreading Change Locally and Nationally	Success can and should beget more change. This session will show how to spread QI project success within your institution as well as nationally. This session will discuss critical differences between QI and traditional research as well as how and where to share your work through presentations and publications.	<i>October 14: 9am-12pm</i>
Coaching and Teaching Quality Improvement	Quality Improvement is a team sport. Thus, leaders of any project need to be able to teach and coach others through the QI process. This session will teach attendees how to coach and teach the principles of Quality Improvement to inexperienced team members in a way that stokes their passion and ensures project success.	<i>August 26: 9am-12pm</i>

**(Fall sessions will be held virtually on Zoom)*

Spring sessions for AY 2021-2022 coming soon!

A LA CARTE REGISTRATION	QSA CERTIFICATE
<i>Take any 3-hour session and mix and match to fit your needs.</i>	<i>Complete all six sessions to achieve the QSA Certificate. Participants may take any course at any time.</i>

Contact GME Quality & Safety at gmequalityandsafety@ucdenver.edu with questions.

LInQS Syllabus Outline – A3 Template

Milestone Presentations

Fellows will complete the below A3 template based on the DMAIC improvement model and present progress at each milestone presentation (5 total). Please reference the WIP schedule for milestone dates.

DEFINE
 10.2021

Gap in quality
 Problem scope
 Stakeholders
 Communication
 Best practices
 Project goals

MEASURE
 1.2022

Baseline data
 Performance gap
 Process mapping
 Workflows
 FMEA

ANALYZE
 4.2022

RCA
 Driver diagram
 Pareto chart
 Brainstorming
 Future state

IMPROVE
 6.2022


Interventions
 Iterative changes
 Timeline
 Leading change
 Celebrate wins
 Accountability

CONTROL
 6.2022

Track performance
 Control plan
 Sustainability
 Barriers
 Future changes

FINAL REPORT
 6.2023

Outcomes
 Lessons learned
 Expansion
 Dissemination
 Publication

<div>  <div> TITLE OF PROJECT </div> </div>					<div> FELLOW NAME/TEAM & DIVISION </div>					<div> MONTH/YEAR </div>														
DEFINE: Describe the current state, performance issues, scope of problem, literature search										IMPROVE: Identify interventions, GANTT timeline, PDSA cycles, Kaizen events (RIE)														
PROBLEM STATEMENT & BACKGROUND: (Identify gap in quality and best practices)																								
SMART AIM: (Improve X from # to # by this date)					KEY STAKEHOLDERS: (Every team member, unit and leaders impacted by this problem and whose participation is necessary for improvement plans)																			
COMMUNICATION PLAN: (Detail of vision/methods (e.g., in-person, email, calls, group meetings, newsletters, etc.) and frequency for communication with your stakeholders)																								
BASELINE DATA COLLECTION PLAN: (e.g., Epic reports, slider dicer, process mapping, FMEA, SIPOC, etc.)																								
										CHANGE MANAGEMENT PLAN: (e.g., create urgency, form coalition & vision, remove obstacles, celebrate short-term wins, build on change, make it stick)														
MEASURE: Capture current performance and develop goals to track progress										CONTROL: Track and sustain performance														
Key Measures	Definitions			Baseline		Goal		Progress			GRAPHS:					CHALLENGES & BARRIERS:								
Outcome																								
Process																								
Balancing																								
ANALYZE: Analyze baseline data, identify root causes, develop future state										LESSONS LEARNED:														
MAIN DATA FINDINGS: (Analysis of baseline data, pareto chart, benchmarking, driver diagram)					ROOT CAUSE ANALYSIS: (Fishbone diagram, action priority matrix, multi-voting, brainstorming, 5 why's)															FUTURE PLANS:				

InQS Syllabus Outline – Block Schedule

		LnQS Fellowship Year 1																						
		BLOCK 1											BLOCK 2											
		Jul-2021	Aug-2021	Sep-2021	Oct-2021	Nov-2021	Dec-2021	Jan-2022	Feb-2022	Mar-2022	Apr-2022	May-2022	Jun-2022											
LnQS Fellowship Core Meetings 1st & 3rd Wednesdays @ 3-5p	Work-In-Progress (WIP) Updates - 1st hour		WIP-2	WIP-3	WIP-4	WIP-5	WIP-6		WIP-8	WIP-9	WIP-10			WIP-12	WIP-13	WIP-14	WIP-15	WIP-16		WIP-18	WIP-19	WIP-20	WIP-21	
	Didactic Lectures (LHS & CI) - 2nd hour	WIP-1	LHS-1	CI-1	LHS-2	CI-2	LHS-3	WIP-7	CI-3	LHS-4	CI-4	CI-5		WIP-11	QIPS-1	LHS-5	CI-6	LHS-6	CI-7	WIP-17	LHS-7	CI-8	QIPS-2	CI-9
Quality Safety Academy (QSA) Three sessions @ 1-5p (Fall) or 8-12p (Spring)																								
IHQSE Certificate Training Program (CTP) 2nd & 4th Tuesdays @ 1-5p																								
Mentorship Meetings Quarterly (during Year 2)																								
Track-specific Experiences																								
Total Hours		2	2	2	2	2	6	2	6	2	6	2	0	2	2	2	2	2	2	2	2	2	2	2

		LnQS Fellowship Year 2																						Total Hours	
		BLOCK 3											BLOCK 4												
		Jul-2022	Aug-2022	Sep-2022	Oct-2022	Nov-2022	Dec-2022	Jan-2023	Feb-2023	Mar-2023	Apr-2023	May-2023	Jun-2023												
LnQS Fellowship Core Meetings 1st & 3rd Wednesdays @ 3-5p	Work-In-Progress (WIP) Updates - 1st hour		WIP-2	WIP-3	WIP-4	WIP-5	WIP-6		WIP-8	WIP-9	WIP-10			WIP-12	WIP-13	WIP-14	WIP-15	WIP-16		WIP-18	WIP-19	WIP-20	WIP-21	40hrs	
	Didactic Lectures (LHS & CI) - 2nd hour	WIP-1	LHS-1	CI-1	LHS-2	CI-2	LHS-3	WIP-7	CI-3	LHS-4	CI-4	CI-5		WIP-11	QIPS-1	LHS-5	CI-6	LHS-6	CI-7	WIP-17	LHS-7	CI-8	QIPS-2	CI-9	WIP-22
Quality Safety Academy (QSA) Three sessions @ 1-5p (Fall) or 8-12p (Spring)																								12hrs	
IHQSE Certificate Training Program (CTP) 2nd & 4th Tuesdays @ 1-5p			CTP-1	CTP-2	CTP-3	CTP-4	CTP-5	CTP-6	CTP-7	CTP-8	CTP-9	CTP-10	CTP-11	CTP-12	CTP-13	CTP-14	CTP-15	CTP-16	CTP-17	CTP-18	CTP-19	CTP-20	CTP-21	CTP-22	88hrs
Mentorship Meetings Quarterly (during Year 2)																									
Track-specific Experiences																								TBD	
		2	5	5	5	5	5	5	5	5	5	5	4	6	5	5	5	5	5	6	5	5	5	5	2

- Participants will attend LinQS Fellowship Core Meetings beginning July 2021 and twice a month through June 2023. Learning Health System (LHS), Quality Improvement & Patient Safety (QIPS) and Clinical Informatics (CI) lectures will repeat annually; participants will only attend Year 1. The lectures will alternate between LHS and CI. All lectures will be recorded and available in the LinQS library for participants to view as needed. **[20 hours over year 1]**
- Work-In-Progress (WIP) meetings have a structured schedule outlined in a separate document. WIP's should be attended for the full 2-year program. WIP discussions will have specific questions for discussion and 4 milestone presentations.
- QSA offers up to 6 sessions in the fall and spring. Fellows may choose the specific QSA workshop they wish to attend and may choose 2-3 total. **[12 hours over year 1]**
- The CTP program repeats annually and includes 2 sessions each month lasting 4 hours each (8 hours total per month) beginning July 2022 through June 2023. **[88 hours over year 2]**
- Track-specific experiences will begin in year 2 (but may begin in year 1 as opportunities arise) and will vary based on the participants chosen track. The 3 track options are:
1) Clinical informatics, 2) Quality improvement & patient safety and 3) Systems research and learning health systems. **[Hours vary based on track]**
- Beginning your 2nd year, you will have mentorship team meetings with the LinQS director/manager, your LinQS mentor, DOM Division mentor and a clinical informaticist on a quarterly basis to discuss your project offline. These meetings will be scheduled by the LinQS manager quarterly.

LInQS Syllabus Outline – Experiential Activities

Informatics Committee Memberships	Quality & Safety / Learning Health Systems Committee Memberships	General Activities
Interprofessional Informatics Advisory Council (IIAC) <ul style="list-style-type: none"> 3rd Mondays @ 11-12:30p 	Data Science 2 Patient Value (D2V) Nav Lab Group Meeting <ul style="list-style-type: none"> Weekly on Tuesdays @ 2-3p 	Carry out innovative quality improvement project for full 2 years (required)
Clinical Content Build Out Joint Informatics Group (CCBO/JIG) <ul style="list-style-type: none"> Tuesdays @ 1-1:30p 	DOM Quality & Patient Safety Leadership Committee <ul style="list-style-type: none"> 1st Thursdays @ 11-12p 	Facilitate a DOM M&M Conference (required)
My Health Connection (MHC) Committee <ul style="list-style-type: none"> 2nd Tuesdays @ 11-12p 	DOM Quality Improvement, Morbidity & Mortality Steering (QIMMS) Committee <ul style="list-style-type: none"> 3rd Fridays @ 12-1p 	Present at the DOM Research & Innovation Conference
Epic Medication Management Group (EMMS) <ul style="list-style-type: none"> 2nd Mondays @ 8:30-9:30a 		Apply for an intramural grant: CEPS, CCTSI ACCORDS, D2V Scholars
Chart Review Team Meeting (CRTM) <ul style="list-style-type: none"> 4th Mondays @ 4-5p 		Submit proposal for the DOM Shark Tank Competition
Ambulatory Governance Meeting (PROM) <ul style="list-style-type: none"> Thursdays @ 1-3p 		Participate in Epic SRRINT event w/ individual clinics (x2wks)
Clinical Decision Support (CDS) Steering Committee <ul style="list-style-type: none"> 4th Thursdays @ 4-5p 		Epic Physician Builder Course (x3 days)
Clinical Decision Support (CDS) Governance <ul style="list-style-type: none"> 1st & 3rd Tuesdays @ 11-11:30a 		
Clinical Decision Support (CDS) Working Groups: <ul style="list-style-type: none"> Best Practice Alerts (BPAs) 1st & 3rd Mondays @ 3-4p Medication warnings 1st Tuesdays @ 3-4p Agile MD Pathways Varies 		

LInQS Syllabus Outline – Deliverables

Requirements for Fellowship Completion:

- Carry out quality improvement project for full 2 year
- Share A3 at milestone presentations 1-5
- Present work at local/national conference
- Attend 60% of LInQS Core Didactics / WIPs
- Attend 60% of IHQSE Certificate Training Program and Quality Safety Academy
- Participate in any committee for 1 year (may change committee quarterly)
- Facilitate 1 DOM Morbidity, Mortality & Systems Improvement Conference
- Complete 1 additional general activity