Preparing Medical Students to be Leaders in Innovative Care: Curriculum Redesign for Quality in Health Systems

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RATIONALE/NEED

Leaders In Innovative Care (LINC) Scholars, is a longitudinal program of advanced study in health systems science (HSS) to train physician leaders in patient safety (PS), quality improvement (QI), population health, and interprofessional team-based care (IPE). The LINC program serves as a learning laboratory to educate medical students in the HSS competencies to provide safe, high quality patient care.

METHODS/DESCRIPTION

The LINC Scholars Program was created to develop leaders in HSS through advanced coursework and practical application of concepts at the clinical systems level.

- 8-week summer immersion course with a combination of didactic, online, and experiential learning activities
- Longitudinal, mentored QI project throughout medical school
- Quarterly meetings on HSS topics or journal club
- Over 50 cross discipline faculty and clinical partners as teachers
- Taught advanced conceptual foundations and skill development through:
  - Interviews and panel discussions
  - Targeted readings
  - Small group facilitation and discussion
  - Enhanced clinical exposure and observation
- HSS topics include:
  - Quality Improvement
  - Patient Safety
  - Clinical Informatics
  - Team Science
  - Population Health
  - Leadership Development
  - Project Management
  - Health Policy & Economics

RESULTS

5 LINC Scholars successfully completed the 8-week immersion course during the summer of 2015 and 10 Scholars in 2016. Specific milestones include:

- Demonstrate understanding of competencies of leadership, interprofessionalism, data analysis, quality improvement, health care finance and policy, public health, and innovation
- Completion of Patient Shadowing Experience
- Health systems interviews with professionals at macro-, meso-, and micro- levels
- TeamSTEPPS observation experience in various clinical settings
- Incorporation of IHI Open School Modules into health systems learning
- Presented results of Patient Shadowing Experience and QI project work
- Legislative advocacy day
- Attendance at AMA Consortium Accelerating Change in Education Meeting in Chicago, IHI Annual Meeting in Orlando, and Health Equity & Community-Based Learning: Students as Advocates conference in Sacramento

Preliminary data demonstrated an average increase of 28 points (2015) and 13 points (2016) in a pre/post knowledge survey. Self assessment following the summer course showed an overall improved understanding of QI/PS, ability to identify outcome measures and data tools for change projects; financial impacts on health systems; leadership attributes; and ability to lead a small group of peers in process improvement using QI principles.15 program participants completed the IHI Basic Certificate in Quality and Safety, 9 participants completed TeamSTEPPS Master Trainer Certification (2016).

Scholarly Products:

- IHI Open School Chapter Storyboard Presentation at 2015 & 2016 IHI National Forum
- 1 podium (Awarded 1st Place) and 2 poster presentations at the 2nd Annual REACH QI Symposium
- 2 abstracts submitted for the AMA Medical Education Innovation Challenge, published in the 2016 Team Proposals Booklet
- 2 abstract poster presentations at the 5th Annual Emswiller Interprofessional Symposium
- 1 podium, 1 poster, and 1 student innovation challenge (Awarded 2nd Place) presentation at the 2017 Vidant- ECU Unified QI Symposium
- 1 podium presentation at the 3rd Annual REACH Medical Education Day
- Oral presentation at the 2017 Stanford Medicine X Conference

CURRENT CAPSTONE PROJECTS

- Use of a diabetic registry to identify patient care gaps
- Improving patient throughput in the ED using a novel simulation software
- Incorporation of a handover mnemonic into medical education to facilitate safe and effective patient handovers
- Using volume targeted ventilation to decrease hypoxic events in ELBW infants
- Decreasing sepsis-related mortality in adult patients

IMPACT/LESSONS LEARNED

- Students indicated a desire for enhanced clinical experiences.
- Observation of foundational learning applied in real world situations was critical
- Substantial faculty commitment is needed
- Insights gained have inform longitudinal HSS curriculum for all students
- The LINC model provides comprehensive HSS curriculum
- Longitudinal curriculum will continue until graduation using experiential learning project management and Capstone.
- Interprofessional education valuable component of curriculum

EVALUATION PLAN

The outcomes of the LINC Scholar training will be evaluated through successful completion of the Health Systems Transformation and Leadership Distinction Track, including summer immersion courses, M3 independent elective, and M4 Capstone Practicum.

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