Re-Engineering an Inpatient Clinical Learning Environment to Optimize Interprofessional Collaborative Care and Education

Thomas E. Van der Kloot MD, Christyna McCormack, Sarah Hallen MD, Kalli Varaklis MD, Robert Bing-You MD MEd MBA
Maine Medical Center

Introduction

As a recipient of the ACGME Pursuing Excellence in Innovation grant, Maine Medical Center sought to analyze, deconstruct, and re-engineer an inpatient clinical learning environment (CLE), with the goal of optimizing interprofessional collaborative care and education, patient and family experience, quality and safety of care, and provider experience (Quadruple Aim)

Methods

A formal healthcare systems engineering analysis was undertaken, in collaboration with the Northeastern University Healthcare Systems Engineering Institute (HySE). Using this analysis, an inter-professional team redesigned the team structure and functionality around the principle of 'ONE':

ONE inter-professional team, working and learning together, to provide ONE plan, with a single coherent and cohesive message centered around ONE patient and their family

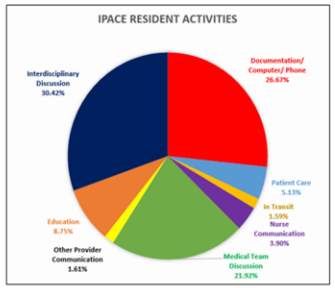
iPACE is……

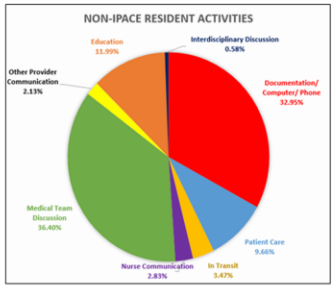
- **Team-based, patient-centered care *at the bedside***
- **Structured, intentional daily practice**
  - Scheduled rounding, huddles, education, time to work and think
- **Full care team involvement in care planning**
- **All team members working at top of their license**
- **Team learning**:
  - planned by and for the inter-professional group
- **Patient and care team cohorting**
- **Rapid cycle PDSA with full team engagement**
- **'Learning laboratory'** on new 12-bed IM unit

iPACE
CONTINUOUS One Patient 1 One team IMPROVEMENT
Round Note Message Plan Aim
Interprofessional Partnership to Advance Care and Education

Results

Results: Increased inter-professional communication





- iPACE residents spend **35.9%** of time communicating in-person with healthcare providers outside of the medical team
- Non-iPACE spend only **5.5%** of their day communicating in-person with healthcare providers outside of the medical team

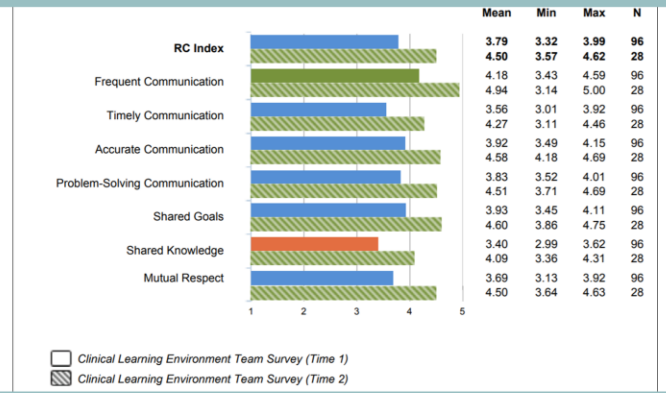
Results: Decreased Length of Stay (LOS) Decreased Cost of Care

DRG - Diagnosis	iPACE unit LOS (days)	Control LOS (days)
871: Septicemia w/o MV	5.33	6.54
193: Pneumonia	3.05	3.81
All DRGs (average CMI 1.46 for iPACE; 1.40 for control unit)	4.76	5.29
Cost of Care	**iPACE unit ($)**	**Control ($)**
All DRGs (average CMI 1.46 for iPACE; 1.40 for control unit)	10,662	12,268

Results

Team functionality, as measured by Relational Coordination, improved significantly post intervention. Patient and family satisfaction has been overwhelmingly positive. Non-physician learners and providers have uniformly favored the model. Some resident physicians have, at times, struggled with adapting to the model, in comparison with the familiar models of care in other settings, although acknowledging the benefit of learning in an inter-professional team.

Results: Improved relational Coordination in 7 Dimensions



Conclusions and Future Directions

- Deliberate re-engineering of an inpatient CLE can result in improvement in patient/family/provider satisfaction, as well as efficiency of care. Resident physician learners do not consistently identify the educational value of learning to work in high-functioning interprofessional teams.

- MMC is a recipient of the AMA "Re-imagining Residency" grant to spread the iPACE principles to additional inpatient CLEs, to outpatient clinical settings, rural settings and to create a fourth-year Acting Internship based on the iPACE principles to prepare medical students to work in future inter-professional teams