THE JOURNEY OF ADOPTING THE ACUITY ADAPTABLE UNIT MODEL OF CARE AND IMPACT ON OUTCOMES

Center for Education and Professional Development
Stanford Health Care, Stanford, California

Erin H. McCalley, RN, MS, CNS, CCRN-K, CCNS, emccalley@stanfordhealthcare.org
Carole Wilson, MPH, MS, RN, CNS, FACHE, carolewilson@stanfordhealthcare.org
Nancy Becker, MSN, RN, CCRN-K, nbecker@stanfordhealthcare.org

Objective

Create a comprehensive, standardized, evidence-based, program to prepare nurses on medical-surgical (M/S) units to care for patients at an intermediate intensive care (IIC) level in preparation for adoption of the acuity adaptable unit (AAU) model of care. AAU is a unit that provides both M/S and IIC care.

Background

Stanford Health Care (SHC) is a not-for-profit academic medical center with 603 licensed beds, 103 ambulatory care/outpatient clinics, 25,000 admissions/year, and 58,000 emergency room visits/year in Palo Alto, California
Literature shows the adoption of the AAU model of care shows improved outcomes in operational, staff and patient metrics (Bonuel & Cesario, 2013):

- Decrease in patient transfers (Brown, 2007)
- Decrease in patient length of stay (Hennon et al., 2011)
- Improved patient outcomes (Chindhy et al., 2014)
- Stronger nurse-patient relations (Brown and Gallant, 2006)
- Increase in RN job satisfaction (Clark et al., 2004)
- Increase RN's competency (Ramson et al., 2013)
- Decrease in RN turnover (Hendrich et al., 2004)

Methods

Operational AAU Education Plan

- Sequential roll-out (~18 months to complete)
- Units were divided into 3 groups
- Individualized staff education. (~12 weeks) Online learning modules assigned based on basic knowledge assessment test (BKAT)
- Layered learning: didactic, clinical orientation, and on-line learning modules

Competencies

- IIC level of care competencies
- Recognize early deterioration to prevent failure to rescue
- Communication techniques include Situation-Background Assessment-Recommendation.
- Deliver compassionate care to patients and families

Education Plan: Staff Timeline

WEEK	TIME ESTIMATE	ACTIVITIES	GOALS
0	< 2 Hours	Knowledge Assessment	Complete Knowledge Assessment
1-4	>4 Hours/Week	Modules Assigned per Knowledge Assessment	Complete Modules Assigned Prior to First Class
5	8 Hours	Review Module Content Topics: Pulmonary, Diabetes, Stroke Case Studies Hands-On Review of Respiratory Equipment	Attend Class & Receive ECG Strip Handouts from AAU Coordinators
6	~4 Hours	ECCO: ECG Modules	Complete Modules, Post-Tests, and ECG Strip Handout Prior to Second Class
7	~ 4 Hours	ECCO: ECG Modules	
8	8 Hours	ECG Lecture Topics: Cardiac, GI, and Renal Hands-On "First 5 Minutes" Case Studies	Attend Class & Receive Orientation Handbook from AAU Coordinators
9	36 Hours (3 x 12)	1:1 Orientation on "Partner" Unit	Review Orientation Timeline & Evaluation Forms; Complete Daily Check-Ins with Weekly Goals (Use Form Provided)
10	36 Hours (3 x 12)	1:1 Orientation on "Partner" Unit	Continue Orientation
11	36 Hours (3 x 12)	1:2 Orientation on "Partner" Unit	Complete Arrhythmia Assessment
12	36 Hours (3 x 12)	1:2 Orientation on "Partner" Unit	Finish AAU/IICU Orientation Evaluation Packet
12+	Variable	Periodic Scheduling to "Partner" Unit to Maintain Skills	Identify Gaps in Knowledge to Address on These Shifts

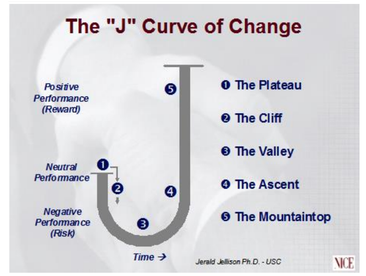
**ACLS Needs to be Completed within 6 Months

Conceptual Frameworks:
Benner's Stages of Clinical Competency, Donabedian's Structure Process Outcome Quality Framework and Jellison's J Curve of Change

P. Benner's Stages of Clinical Competence

Donabedian's Quality Framework

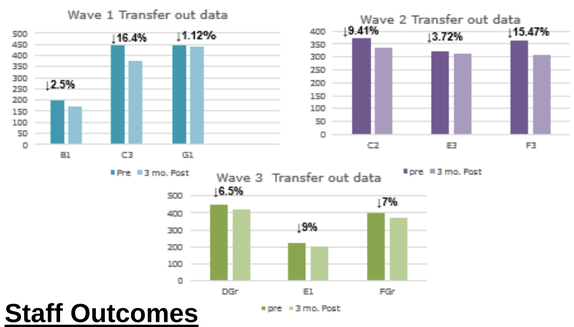
Jellison's J Curve of Change



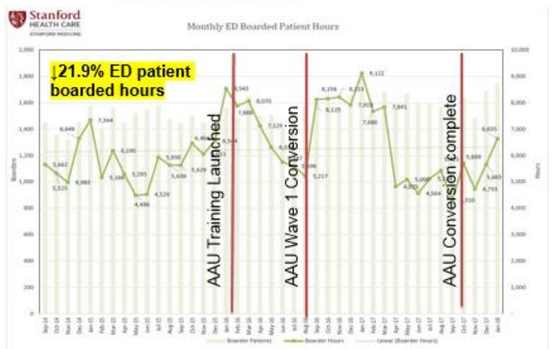
Results

Operational Outcomes:

Hypothesis: **AAU implementation will ↑ the number of IICU level beds → ↓ Unit to Unit transfers**

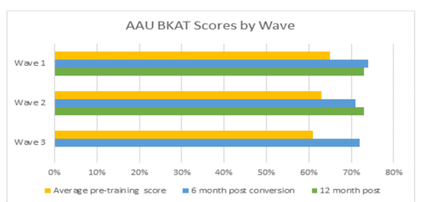


Hypothesis: **AAU implementation will ↑ the number of IICU level beds → ↓ED boarded hours**



Staff Outcomes

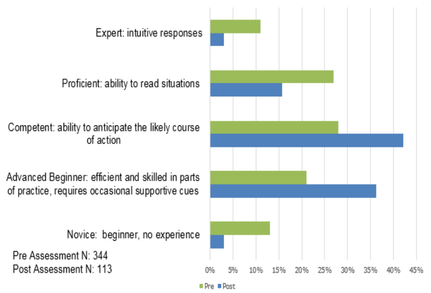
- Hypothesis: **AAU implementation will ↑ RN competency, as measured by dysrhythmia identification and recognition of clinical deterioration → ↑BKAT Scores**



	Wave 3	Wave 2	Wave 1
12 month post		73%	73%
6 month post conversion	72%	71%	74%
Average pre-training score	61%	63%	65%

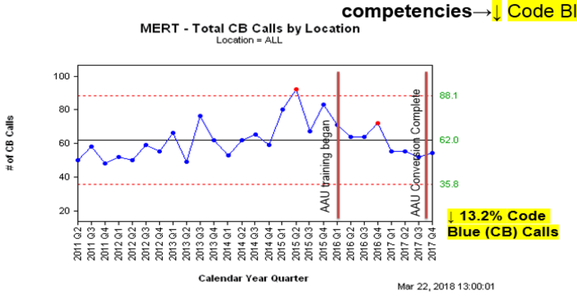
- **Hypotheses: AAU implementation will result in an increase the amount of time the RN spends with the patient and family**
- **Results:** Reported incidence of **missed care ↓ for every measure in every unit*** following AAU implementation (as measured by the National Database for Nursing Quality Indicators (NDNQI) 9/16-9/17
- *Missed care is defined as:
  - Number of activities reported left undone at the end of the shift
  - Inadequate time to prepare patient and their families for discharge
  - Inadequate time to teach/counsel patient and their families
  - Inadequate time to coordinate patient care

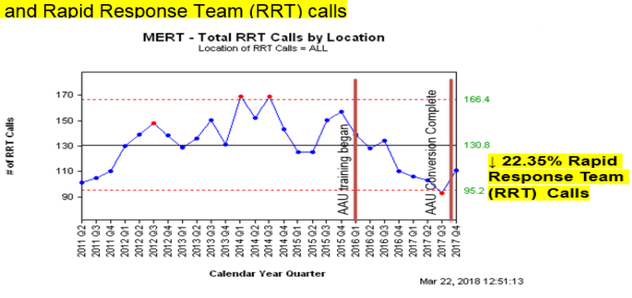
- Staff's self-assessment of Benner's Stages of Clinical Competence Pre and Post AAU Model Adoption



Patient Outcomes

- **Hypothesis: AAU implementation will ↑ RN competency, as measured by dysrhythmia identification and recognition of clinical deterioration competencies→↓ Code Blue (CB) and Rapid Response Team (RRT) calls**





Conclusion

Lessons Learned

- Partner with unit leadership to support the adoption of the new model of care (Managers, Assistant Managers, Unit Educators, Case Management, Unit Clinical Nurse Specialists, unit based Medical Directors)
- Communicate to the staff through multiple methods about the model of care, education plan and support.
- Change in the care model led to ~ 3-5% attrition due to multiple factors.
- Allocate resources dedicated to education and implementation

Future AAU Education Plans

- Additional Skills: ETCO2 monitoring, moderate sedation, long-term ventilator management
- Maintenance of existing skills taught: ECG analysis and intervention, early recognition of clinical deterioration

References

- Benner, P. (1984). From novice to expert: Excellence and power in clinical nursing practice. Menlo Park, CA: Addison-Wesley.
- Bonuel, N., & Cesario, S. (2013). Review of literature: acuity-adaptable patient room. Critical Care Nursing Quarterly, 36(2).
- Brown, K. (2007). The universal bed care delivery model: facility design & operation impact patient care experience, Patient Safety & Quality Healthcare.
- Brown, K., & Gallant, D., (2006). Impacting patient outcomes through design: acuity adaptable care/universal room design. Critical Care Nursing Quarterly, 29(4).
- Clark, E., Roberts, C., & Traylor, K. (2004). Cardiovascular single-unit stay: a case for change. American Journal of Critical Care, 13(4).
- Chindhy, S., Edwards, N., Rajamanickam, V., et al (2014). Acuity adaptable patient care unit system shortens length of stay and improves outcomes in adult cardiac surgery: University of Wisconsin experience. European Journal of Cardio-Thoracic Surgery, 46
- Donabedian, A. (2005). Evaluating the quality of medical care. The Millbank Quarterly, 83 (4), 691-729.
- Hennon, M., Kothari, A., Maloney, J., & Weigel, T. (2011). Implementation of an acuity adaptable patient care unit is associated with improved Outcomes after major pulmonary resections. Journal of Surgical Research, 170(1).
- Hendrich, A., Fay, J., & Sorrells, A. (2004). Effects of acuity-adaptable rooms on flow of patients and delivery of care. American Journal of Critical Care, 13(1),
- Jellison, J., (2006). Managing the dynamics of change: the fastest path to creating an engaged and productive workplace. New York, NY: McGraw Hill Education.

Acknowledgements

Acknowledgement and gratitude for the support and encouragement from nurse leaders and mentors at SHC of the AAU program:
Carole Kulik, DNP, RN, ACNP
Gretchen Brown, MSN, RN, NEA-BC, EDAC, Executive Director, Patient Care Services.
Garrett Chan, PhD, APRN, FAEN, FPCN, FNAP, FAAN, Director of Education