Improving Utilization of Moderate Sedation Services for Pediatric Imaging

Evan J. Zucker, MD1; Stephanie Wintch, RN1; Young Chang, RT1; Lindsey Commerford, RN1; Rizza-Belen Diaz, RT1; Trista H. Redfern, RN1; Tammy N. Wang, MD2; Linda Lam, BS3; Casey Carlson, RT, MBA1; Rebecca E. Claure, MD2; Donald P. Frush, MD1; Jake Mickelsen, MBA3; Marc H. Willis, DO, MMM1,3; David B. Larson, MD, MBA1,3

Departments of 1Radiology, 2Anesthesia, and 3Quality Improvement, Stanford Children’s Health

November 2019-March 2020
Team Members

Linda Lam
Tammy Wang
Evan Zucker
Don Frush
Trista Redfern
Young Chang
Rizza Diaz
Lindsey Commerford
Stephanie Wintch
Coach
Anesth.
Rad, Leader
Sponsor
RN
MRI Tech
NM Tech
RN
Sponsors not pictured:
Casey Carlson, Rad Admin Director
Rebecca Claure, Med Director of Periop Services
RN, Sedation Manager
Baseline average is 1.17 cases/week

SMART Goal:
Increase the number moderate sedation cases for pediatric imaging scheduled from a mean of 1.17 per week to a mean of 5 per week by RITE (Realizing Improvement Through Team Empowerment) course graduation day on 3/20/20.
Analysis

Issues Affecting Lack of Triage of Exam from GA to Moderate Sedation: December 2019 MRI/CT Schedule Audit

- "mod" not completed
- Not reviewed by child life
- Prior scan with GA
- Incorrect order of protocol routing
- Lack review by rad, tech, or RN
- Documented add-on sequences
- Multiple exams
- Exam time estimated >60 min

- 18 instances
- 18 instances
- 14 instances
- 2 instances
- 0 instances
- 1 instance
- 2 instances
- 3 instances

- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

- Cumulative % of whole
Key focus areas from fishbone/Pareto:
1. Lack of clear sedation candidacy criteria
2. Inconsistent protocol routing
3. RN not completing sedation screen
4. Lack of awareness by ordering providers

Need clear and consistent eligibility criteria for moderate sedation
Protocolling routing order must be consistent
RN must consistently apply sedation screening criteria (.mod) in protocol
Ordering providers must be aware of sedation program and not select GA by default
Results

• Constant sedation success rate at 85%
  ➢ 80% of failures in MRI (longer-than-anticipated exams)

• Sedation case distribution:
  ➢ 67.6% MRI, 25.0% CT, 7.4% NM (up from 0%)

• Direct MRI charges $2-20K lower for sedation compared to GA

• Wait times for 3rd next available GA MRI appt. trended downward to mean of 24 days from mean 36-40.5 days in preceding months
Sustain Plan
Key Learning Points

• Targeting most high-impact yet modifiable process deficiencies (RN screening) facilitated success exceeding expectations.

• Concentrated lower-level reliability interventions (standards, training, forecasting) helped gain momentum and cultural buy-in while awaiting higher-reliability process (EHR updates).

• Potential model for workflow change in the face of organizational resistance.
Next Steps

- Adapting to change:
  - COVID-19: exam volumes, GA limitations
  - MRI scanner downtimes

- Provider and service outreach

- Expansion of program capacity

- Culture of continuous improvement

THANK YOU!