Abstract
Surgical management of adolescent idiopathic scoliosis (AIS) with posterior spinal fusion (PSF) is one of the most costly and resource intensive surgical procedures performed in pediatric medicine. We hypothesized that we could improve and sustain intraoperative efficiency for PSF cases using quality improvement (QI) methodology and a dedicated model. We developed our team based model over successive summer pilots in 2014 and 2015. Using team based QI methodology, implementation of a dedicated team for caring for AIS patients undergoing PSF resulted in improved intraoperative efficiency which has been sustained following team expansion.

Background
- Treating AIS with PSF tends to be one of the most costly and resource intensive procedures in pediatric medicine.
- Optimizing operating room (OR) efficiency can help to reduce anesthesia and operating time
- Developing a dedicated team model involving parallel processing and active communication

Methods
- 2014 Pilot
  - Goal: perform two spine fusions or one fusion followed by a non-fusion case in the same room over 10 days
  - Team structure: poorly organized, no meetings amongst surgical, anesthesiology, and OR or preoperative nurses
  - Efficiency Strategy: early starts either in the OR or an induction room
- 2015 Pilot
  - Goal: perform two spine fusions in one room over 5 days
  - Team structure: clearly defined team leaders from each OR discipline with weekly meeting and planning
  - Efficiency Strategy: regular starts in OR with emphasis on parallel processing and active communication

Results
- Anesthesia Start to Anesthesia Ready (min)
  - 2014: 33 ± 28
  - 2015: 23 ± 6
- Anesthesia Start to Surgery Start (min)
  - 2014: 74 ± 11
  - 2015: 46 ± 6
- Surgery Start to Surgery Finish (min)
  - 2014: 237 ± 32
  - 2015: 162 ± 21
- Surgery Finish to Patient Out of Room (min)
  - 2014: 18 ± 10
  - 2015: 13 ± 7
- Total Case Time (min)
  - 2014: 330 ± 18
  - 2015: 222 ± 20
- Turn Around Time (min)
  - 2014: 57 ± 8
  - 2015: 49 ± 7

Operating room times for each summer pilot (shown as average (minutes) with standard deviation)

Discussion
- Development and implementation of a dedicated team resulted in improved OR efficiency
- Clearly defined roles and responsibilities for each team member are vital to ensure success
- By defining roles clearly, team members were able to function at an optimum level of efficiency while still working within their scope of practice

Conclusions
- Dedicated surgical teams and improving operating room efficiency for pediatric spine fusion
- More investigation is needed to determine if this efficiency results in measurable improvement of the quality care
- Dedication of time and resources are required to ensure program success

References

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