

## Background

Developmental disabilities (DD) are at an all time high affecting 1 in 6 children within the United States, with observed spikes in multiple diagnoses that fall under that umbrella including attention deficit hyperactivity disorder (ADHD), autism, and sensory impairments (CDC, 2020). If unaddressed, ongoing procedural delays due to patient non-cooperativity can lead to the utilization of restraints. It has become common practice to perform procedural sedation and analgesia (PSA) in the acute care setting for this specialized population which can lead to psychological trauma (Meredith, O'Keefe, and Galwankar, 2008). Furthermore, time wasted for procedures can lead to large financial impacts to healthcare facilities averaging about \$100 per minute which easily adds up to millions of dollars in losses annually (Bauer et al., 2016). In consideration of the ongoing growth in the number of cases of DD pediatric patients, it is even more evident that proper interventions must be implemented to provide appropriate specialized care for this patient population.

## Literature Review

- Social stories have been associated with improved outcomes and are more effective for addressing inappropriate behaviors than teaching social skills (Kokina and Kern, 2010)
- Attending an educational in-service on emergency situations, de-escalation techniques, encouragement of family involvement, and opportunities for community outreach reportedly increased a provider's confidence and knowledge (Lutman, 2017)
- The implementation of early contact with patient, family, and/or caregivers can result in a better understanding of patient needs. Caregiver input also encourages effective individualized care for the patient (Selvey et al., 2019)
- Premedication and avoiding prolonged waiting prior to medical procedures have been determined to optimize patient outcomes (Van Der Walt et al., 2001)
- Conducting standardized treatment plans based on caregiver input from pre- and post-surgery can be beneficial for managing a variety of behavioral issues (Thompson and Goddard, 2013)

## PICO Question

Among pediatric patients undergoing MRI procedures (P), how does promoting repetitive exposure via diverse informational resources to patients and families as well as the implementation of staff mindfulness educational trainings (I) compare to similar patients who lack tools for early exposure and healthcare staff trained in providing individualized care (C) affect the frequency of delays within the MRI suite workflow due to behavioral complications (O)?

## Plan of Action



## Implementation



### Ben Gets an MRI: Picture & Activity Book

- Patient directed resource offered to promote repetitive exposure, better preparing children for their visit to the MRI suite.

### MRI Toolkit Guide for Parents

- Resource provided to caregivers of patients undergoing anesthesia prior to a MRI procedure.
- Guide includes: Pre-visit expectations, "A Day in the MRI" visual map, FAQs, and additional resources



### Staff In-Service: Pediatric Situational Tactics

- Educating staff on common de-escalation techniques, alternative patient approaches, and evidence based preventative strategies for managing pediatric behavioral challenges across multiple microsystems within the MRI suite.



### Social Story Video

- Synthesis of a publicly accessible step-by-step video guide, depicting the sensory experiences across the MRI experience from the perspective of the patient.

## Results

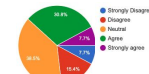


Figure 1a. Staff believe time de-stimulating patients take away from other patients

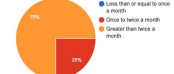
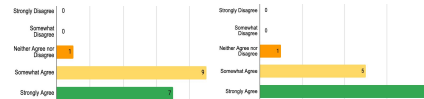


Figure 1b. Frequency of patients with behavioral issues, DD, or diagnosed with ADHD or ASD

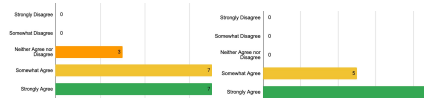
**Figure 2a Pre-in-service vs 2b Post-in-service.**  
16% of nurses reported feeling more prepared to care for children with sensory disorders.

**I feel prepared to adequately care for a child with a behavioral issue, developmental delay, ADHD, or ASD.**



**Figure 3a Pre-in-service vs 3b post-in-service.**  
Observed a 23% increase in nurses who felt comfortable with managing challenging behaviors.

**I have adequate knowledge on how to effectively manage a behavioral situation within the pediatric population.**



## Future Direction & Conclusions

- Draft and propose a potential system for the incorporation of a de-escalation team and build awareness among staff to promote its utilization and practices
- Staff-to-parents communication: Standardize pre-op education - phone check-ins and follow-up evaluation of handout resources
- Staff to staff communication: Standardize surgical handoff interactions between preop, MRI, and PACU care teams

## References

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