Background:
Sleep disturbances in children with neurodevelopmental disorders (NDD) are a common complaint impacting many facets of daily life including behavior, growth and seizure activity.
In a specialty clinic managing the primary care of children with complex medical conditions including a neurodevelopmental disorder, management of sleep disturbance varies amongst providers but frequently include use of Melatonin. Current evidence advises discussion of sleep hygiene prior to Melatonin use. Currently, there is no standard practice for use of sleep hygiene prior to prescribing Melatonin in this clinic.

Details of Innovation:
The purpose of the QI project was to determine if completion of the adapted BEARS sleep screening tool and use of SmartPhrase technology embedded in the electronic medical record would improve consistency in healthcare providers addressing and documenting management of sleep disturbances in patients in the Complex Healthcare Clinic (CHC). The tool was completed by the caregiver who answered questions on problems with sleep. Implementation of these strategies occurred over a 12-week period. This was followed by an additional review of the EMR for comparison of documentation post-implementation.

Outcome:
Documentation of sleep hygiene during the visit where Melatonin was initiated increased by fifty-five percent following project implementation. An overall increase of forty-two percent increase in sleep hygiene documentation was noted. This project was successful in increasing documentation of sleep hygiene in this specialty clinic. Providers involved acknowledged use of the sleep screening tool assisted in heightening their awareness of the need to discuss sleep during the visit.

Implications:
Sleep disturbance can have a significant impact on the life of the child with NDD as well as their family. The use of the adapted BEARS survey was successful in increasing the provider’s consistency in screening for sleep disturbance and discussion of evidence-based sleep hygiene practices with the family. The team will continue to monitor provider consistency intermittently and make changes in clinic policy based on the ongoing data.

Open-ended question:
It is undetermined if the improvement in provider consistency in documentation is due to the information obtained from the tool or the visual cue of the tool itself.
- What do you perceive to be other unanswered questions from the data?
- How would embedding the tool within the EMR affect the impact of the information?

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Introduction/Background
Children with neurodevelopmental disorders (NDD) have an underlying neurologic condition affecting their development. Examples of children with NDD include those with cerebral palsy, autism spectrum disorder, traumatic brain injury and multiple congenital syndromes including Rett, Angelman and Williams.1 Their increased medical complexity often involves multisystem health problems. Children with medical complexity comprise 0.4 – 0.7% of the US population, but account for 15 – 33% of annual health care spending.2

Sleep disturbances in children with NDD are a common complaint with estimates ranging from 30 – 80% of the population.3 Sleep is a complex process that requires a normally functioning central nervous system. Thus, children with NDD are at a higher risk for sleep disturbances. Sleep disturbances in these children can impact many facets of daily life.4

Purpose
In a specialty clinic managing the primary care of medically complex children with NDD, management of sleep disturbances varies amongst providers but frequently includes Melatonin use as first line treatment. No standardized tool or process to guide management of sleep disturbance existed thus, there was a need for practice change.

The purpose of the QI project was to determine if completion of the adapted BEARS sleep screening tool and use of SmartPhrase technology embedded in the electronic medical record would improve consistency in healthcare providers addressing and documenting management of sleep disturbances in patients in the Complex Healthcare Clinic (CHC).

Evidence-Based Practice Framework

Design of QI Project
1. Pre-implementation medical record inquiry for documentation of sleep hygiene
2. Introduction of adapted BEARS sleep screening tool and SmartPhrase technology to staff
3. Twelve-week implementation period
4. Post-implementation medical record inquiry for documentation of sleep hygiene and Melatonin use

Practice Setting
• Setting: A Complex Healthcare Clinic (CHC) that serves as a medical home to children with NDD
• Children have multiple chronic conditions one of which must be a neurodevelopmental disorder
• Approximately 2700 patient visits annually
• Interprofessional staff including physicians, nurse practitioners, nurses, clinical pharmacy, registered dietitians and social work

Results

Pre-Implementation Phase
• Sleep disturbance documented in 44 children
• 64% of those identified with sleep disturbance had Melatonin in their medication profile
• 40% were started on their Melatonin on the day of their visit
• Of that 40% only 45% had documented sleep hygiene

Post-implementation Phase
• Sleep disturbance documented in 53 children.
• 65% of those identified with sleep disturbance had Melatonin in their medication profile.
• 19% were started on Melatonin on the day of their visit.
• Of that 19% prescribed Melatonin for the first time 100% had a documented discussion on sleep hygiene

Discussion
Sleep disturbance was reported in 37% of families surveyed, which is consistent with literature but lower than anticipated.6 It is possible that parents view sleep disturbance as part of their child’s diagnosis and not as a problem, also consistent with the literature.7 The documented increases in sleep hygiene support success of this initial practice change and demonstrates increased discussion with and education of our families on the importance of sleep hygiene. The 55% increase in sleep hygiene with the initial Melatonin prescription is inline with recommendations that sleep hygiene should be the first line of treatment for sleep disturbance.

During pre-implementation, 44 patients with diagnoses of sleep disturbance were identified during a six-month period. During post-implementation, 49 patients were identified in only a three-month period. This increased number in a shorter period of time supports significant improvement in documentation of sleep disturbance.

Implications for Practice
This QI project has shown improvement in provider’s consistency in screening for sleep disturbance and discussion of evidence-based sleep hygiene practices with the family. Although the results are significant for this clinic, it is important to note these results may not be generalizable to other clinics with different patient populations.

References