Creating a Sensory-Friendly Pediatric Emergency Department

Authors: Elyssa B. Wood, PhD, RN, CPEN, Allyson Halverson, BS, CCLS, CTP, Gina Harrison, MSN, RN, NE-BC, CEN, CPEN, and Amanda Rosenkranz, PhD, MSN, RN, CPEN, CPN, Leesburg, VA

CE Earn Up to 7.5 Hours. See page 475.

Contribution to Emergency Nursing Practice

- Although resources exist in the literature to help nurses work with children with autism spectrum disorder and sensory-processing disorders in the health care setting, there are limited examples of the challenges and opportunities of modifying an emergency department to be a place where nurses can provide sensory-informed care.
- This article contributes an organized model on how to become a sensory-friendly emergency department where children can receive safe and atraumatic emergency care adapted to their sensory needs.
- Key implications for emergency nursing practice include how simple modifications made to the ED-care environment and patient flow can make visits less stressful for patients with sensory needs and their families. Emergency departments can tailor these strategies to become more sensory friendly.

Abstract

Introduction: For children with autism spectrum disorder (ASD) and sensory-processing disorder (SPD), an unexpected visit to the emergency department can be an overwhelming experience that creates intensifying behaviors and an unsafe clinical interaction for the child, nurses, and providers. Although resources exist to help nurses work with this specialized group, there are limited examples of the challenges and opportunities of modifying an emergency department to be a place where nurses can provide sensory-informed care.

Methods: Guided by Watson's Theory of Caring, nurses and child life specialists in our pediatric emergency department initiated a practice improvement (PI) project to create a sensory-friendly emergency department. The nurses (1) engaged with community members and families, (2) examined current practices, (3) modified the patient care environment, (4) collaborated in an interprofessional educational session, and (5) created a shared vision for the modified patient-care environment.

Results: This article describes the nurse-initiated PI process and the journey to create an evidence-based sensory-friendly pediatric emergency department. A model is presented so that other facilities can embark on their own initiative, and case studies are used to evaluate project outcomes.

Discussion: Integrating current evidence, staff suggestions, community input, and expert advice allowed us to find creative solutions to the unique sensory needs of children who visit our emergency department. Modifying both the patient-care environment and the patient-flow process to accommodate for the needs of children with ASD/SPD created a more peaceful and healing environment for children and their families and gave nurses the support they needed to provide sensory-informed care.

Key words: Sensory-processing disorder; Emergency department; Pediatric; Sensory-informed care; Sensory friendly

Introduction

Neurodiverse children, such as those with autism spectrum disorder (ASD) and sensory processing disorder (SPD), present to the emergency department more frequently than neurotypical children, owing to concurrent medical and psychological health needs, an increased rate of

Elyssa B. Wood is the Clinical Nurse Educator at Inova Children's Emergency Room at Loudoun Hospital, Leesburg, VA.

Allyson Halverson is a Certified Child Life Specialist at Inova Children's Emergency Room at Loudoun Hospital, Leesburg, VA.

Gina Harrison is the Clinical Director of Family Centered Care and NICU at Inova Loudoun Hospital, Leesburg, VA.

Amanda Rosenkranz is a registered nurse at Inova Children's Emergency Room at Loudoun Hospital, Leesburg, VA.

For correspondence, write: Elyssa B. Wood, PhD, RN, CPEN, Inova Loudoun Hospital, 44045 Riverside Parkway, Leesburg, VA 20176; E-mail: elyssa.wood@gmail.com.

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accidents and self-injurious behaviors, and because they may have limited access to effective primary healthcare.[1-3] It is vital that nurses and care providers are prepared to deliver sensory-informed care for neurodiverse children in the emergency department. Current research, anecdotal reports, clinical certifications, and media presented by ASD and SPD organizations provide a rich contextual background for health care professionals who want to improve their ability to clinically care for children with ASD/SPD. Coupling this specialized care with a facility that is sensory friendly would allow providers to create a practice environment in which neurodiverse children can receive effective, safe, and atraumatic care that facilitates positive coping during their ED visits.

It is estimated that, in some regions, between 5% and 16% of children live with SPD, a neurological disorder in which a child's central and peripheral nervous systems have difficulty interpreting incoming sensory input—for example, sound, light, touch, proprioception—and creating an appropriate behavioral response.[4,5] In the majority of cases, people with SPD have systems that are overresponsive to sensory input.[6] To cope with this constant overstimulation, children may exhibit communication disorders, behavioral problems, inability to meet developmental milestones, or difficulty engaging in everyday functions.[7] Children and adults who have difficulty processing sensory information may have concurrent developmental behavioral disorders including ASD, attention-deficit/hyperactivity disorder (ADHD), developmental coordination disorders, and childhood anxiety disorders.[8] For these individuals and their families, engaging with health care providers can be fraught with difficulty and miscommunication.[9]

From the moment children enter the front door of the emergency department, they are bombarded with sensory overload in the form of bright lights, loud and unusual sounds and smells, and new tactile and interpersonal experiences; routine changes, strangers, and physical interactions with clinicians can quickly make them feel overstimulated.[10] This creates an uncomfortable and stressful experience for the child and family, which can lead to escalating behaviors and an unsafe clinical interaction for the child and ED nurses.[11] Despite their best intentions, providers report that they have difficulty accommodating the needs of children with ASD/SPD in the busy ED environment.[12] Recent literature suggests that health care facilities can reduce challenging behaviors among children with ASD with advanced preparation such as environmental adaptations, parent collaboration, appropriate communication strategies, and an enhanced understanding of what creates challenging behaviors among this specialized population.[9]

The purpose of this article is to describe the PI process our facility went through on a journey to create an evidence-based sensory-friendly pediatric emergency department and to present a model that other facilities can follow to embark on their own initiative. Our facility is a suburban hospital with a level III trauma center, where we serve approximately 16,000 pediatric patients per year. It is our hope that, by describing the process of undertaking PI for this specialized group, we can share best practices with other pediatric emergency departments and continue to add to the national conversation about providing health care to the growing number of children, adolescents and adults with ASD/SPD.

THEORETICAL MODEL

Watson's Theory of Caring Model guided the development and philosophy of this PI project.[13] The model provided the theoretical support to create a healing environment in which children with ASD/SPD could engage with health care providers and use their coping strategies positively. The goal was to create a peaceful and comfortable environment where nurses and child-life specialists had the resources and support they needed to be present for the patient and the family and attend creatively to the unique needs of each child with ASD/SPD.[14] The intention was to produce a shared vision for the care of these children that could be communicated to our interprofessional team and was grounded in both theory and evidence.[13]

The process of creating change in the health care environment was guided by our institution's Quality Improvement Model, the A3 structural approach to problem solving.[15] This model outlined the steps needed to create sustainable and effective change, including defining the problem; creating a problem-solving team; determining the root cause of the problem and creating a hypothesis; implementing an action plan; and, finally, verifying cause and effect and adjusting actions as needed. As we worked through the A3 model, we modified and renamed the steps to clarify the process specific to creating a sensory-friendly facility using the terms *Prepare*, *Plan*, *Implement,* and *Evaluate*. Because this was characterized as a unit-based PI project, Institutional Review Board (IRB) approval was not required.

Methods

PREPARE: IDENTIFY TEAM, ENGAGE WITH LOCAL COMMUNITY, REVIEW CURRENT EVIDENCE

With the aim of producing a shared vision for the care of children with ASD/SPD that could be communicated to our interprofessional staff, we created a collaborative team

that included staff nurses and patient-care technicians, child-life specialists, the clinical director for the pediatric emergency department, an occupational therapist, and the medical director for pediatrics. The overarching goal of this work group was to create an emergency department that was sensory friendly by providing the accommodations children and families needed to modify sensory input during the visit. Further, the team wanted to ensure that emergency care providers at all levels were prepared to provide sensory-informed care, which we defined as a state of mind in which the interaction between the provider and the patient allows for the acknowledgment of—and accommodation for—sensory needs. The guiding principles of sensory-informed care are that all patients with ASD/SPD are persons with unique sensory needs, that patients and their families are the best authority to provide staff with information on how to meet their sensory needs, patience and flexibility are essential components to care, and that we approach all patients without judgment or criticism. The team agreed that the specific aims of this PI project were to (1) engage with our community members and families to understand their perceptions of the ED sensory experience, (2) examine our current practices when caring for children with ASD /SPD, (3) modify the patient-care environment to make the ED visit easier for children with sensory needs, (4) collaborate in an interprofessional educational session to update our knowledge about ASD/SPD, and (5) create a shared vision for the new sensory-friendly environment. In line with Watson's Theory of Caring Model, the team used a recent patient scenario to stimulate discussion and align the vision for the project:

> Preimplementation Patient Scenario: An adolescent male patient and his mother arrived at the emergency department in the middle of the night, when the child-life specialist was not available. The child was nonverbal, in considerable pain, and his self-soothing behaviors were causing him further discomfort and injury. Because of the emergent nature of his situation, his mother did not bring any comfort items to help soothe him. As he waited for results of his lab work, he became progressively agitated and became a danger to his mother and staff members. Although he received effective and efficient medical and nursing care during his visit, the nurse was left feeling as though she could have done more to meet her patient's emotional and communication needs during the visit and better support his mother who said that she was anxious, exhausted, and overwhelmed.

The team partnered with the hospital's community outreach office and media relations experts to assess the needs of families who have children with ASD/SPD. We advertised with a local ASD/SPD organization and on a social-media platform to gather small groups of local parents and friends of children with sensory needs. We conducted informal discussions with them about their experiences with the emergency department and gathered their ideas of what a truly excellent sensory ED experience would look like for their children. A highlight of these small-group discussions was a young man with autism who gave us a firsthand account of how it feels to have sensory needs and be unable to communicate them to health care providers. He explained that it was the escalating feeling of vulnerability that drove his anxiety and behavioral response. It was a powerful moment for the team and further motivated them to create a strong and sustainable program.

As a second form of community engagement, the media relations department collaborated with the team to create an anonymous informal questionnaire that was distributed to parents of children with ASD/SPD through social-media platforms. Parents were asked to describe what resources would be beneficial during their visit and suggest ways to make clinical procedures easier for their children. More than 300 parents responded to the questionnaire, indicating a high local interest in this project. Caregivers described the ED experience as stressful, bright, overwhelming, long, and scary. Notably, parents and caregivers responded that, if possible, they would be willing to travel up to 60 miles away from home to visit an emergency department that had a well-trained staff and considered their child's sensory needs. When asked about what resources were needed to make their visits easier, tablet computers, fidget toys, and weighted blankets were the most requested items. To make procedures calmer for children with ASD/SPD, respondents indicated that a low-stimulating environment—including dimmed lights, low noise, calm and understanding staff, and distraction during the procedure—would be the most beneficial for their children. Overwhelmingly, parent and caregiver comments within the questionnaire expressed gratitude and excitement about the project.

The team next examined published literature for evidence supporting best clinical practices for working with the ASD/SPD population including research articles, clinical reviews, case studies, and PI projects. Relevant literature was organized using an evidence hierarchy tool, and the team met to discuss findings and emerging themes. We also examined similar projects that were presented on Web sites or documents produced by national and local organizations that support children and families with ASD/SPD. In several cases, we reached out to authors and clinicians to get further information about their initiatives and

TABLE
Sensory-friendly emergency department: challenges and solutions

Challenges	Evidence	Solutions
Waiting room is overwhelming: loud, bright, smelly!	References 10,15,16 + Community insights	- Developed a sensory resource box for ED registration staff to give to families including noise-cancelling headphones, fidget and sensory toys, storyboard about ED visit - Charge nurse expedites care/wait time - Moved to quiet waiting area or treatment room immediately - Triage and registration can occur in the treatment room - Developed a pamphlet listing all of the distraction tools and toys available with images for patient to point to
Patient experiences "sensory overload" during exam and procedures.	References 10,17,18 + Expert suggestions + Community insights	- Reduce the number of staff in the child's room - The nurse places an "FYI" sticker on the door to alert hospital staff that they need to stop and ask the nurse before entering - Provide a private (quiet) room - Dim lights as needed - Remove wires/machine/instruments - Lock cabinets for safety - Cover light switches if needed - A "white noise" machine is available to create a noise-cancelling system - Offer noise-cancelling headphones - Provide sensory toys - Provide alternative seating options (mat, ball, stretcher mattress on floor) - A "STOP" sign visual is placed on the door to remind children who are accustomed to responding to visual cues to stay in the room. - To reduce stimulation during transitions, tests done at the bedside so the child does not have to leave the room
Staff wanted to improve their ability to communicate with patients who have ASD/SPD.	References 18-25 + Expert suggestions + Community insights	Staff education session was created to teach concrete techniques for distraction, communication, procedures, de-escalation, emphasizing the importance of individual assessment of communication needs and sensory differences. For example: - The use of praise and encouragement, calm body language, motivators, and the therapeutic use of pauses have all been identified as useful techniques for practitioners - Staff members were taught to assess the child's baseline communication techniques and adapt to their needs by using storyboards, computer apps, a mix of verbal and nonverbal communication - Storyboards depicting common procedures such as vitals/physical exam, administration of nasal medication, placement of IV lines, bedside x-ray, and strep and flu tests were created for staff - Tablet computers with communication applications available

continued

TABLE
Continued

Challenges	Evidence	Solutions
Limited distraction techniques/resources available.	Expert suggestions + Community insights	- Additional resources were purchased to facilitate coping and positive, safe experiences for children with ASD/SPD. Every room in our pediatric emergency department is equipped with computer tablets, so funding for this project was focused on purchasing specialty sensory items such as fidget toys, sensory balls, sensory brushes, beaded necklaces, liquid motion relaxation toys, tactile squishy shapes, and chewy tubes. A 20-lb twin size vinyl weighted blanket was also purchased and has been highly used; however, lead radiology vests have been used in the past and are a good alternative if a weighted blanket is not available. Items such as fiberoptic lights, a bubble tube, and soothing music were small, inexpensive purchases, which drastically helped to destimulate the busy environment of the emergency department. Conversely, sensory stimulating items such as a mini-trampoline, bosu balance ball, and vibrating snake were also purchased to meet the needs of children who required additional sensory stimulation and input.
Parents need to communicate their children's sensory requirements to providers.	Reference 9	- Parents' intake form was created to help parents communicate the child's specific sensory needs and adapt care whenever possible. For example, parents can identify that their children require deep sensory stimulation before or after procedures. This allows the nurse to make the extra time, prepare other staff, and gather the tools needed to modify the procedure to meet the child's needs. This tool is available online for parents to fill out before their children are seen in the emergency department, if possible, and becomes part of the child's permanent medical record, to be used or modified during future visits.

discuss best practices. It became clear that there was abundant evidence to support the concept of sensory-informed care and adapting the care environment to support children with ASD/SPD. With this strong foundation, and a robust body of resources to choose from, the team recognized that what was absent was a model for creating a sensory-friendly facility that tied together these diverse resources and made accommodating ASD/SPD patients more manageable for health care facilities.

PLAN: SEEK EXPERT CONSULTATION, DEFINE CHALLENGES, AND DESIGN SOLUTIONS

To examine how the child with ASD/SPD experiences their visit to our emergency department thoughtfully, we partnered with expert teachers from a local school for children with ASD. In addition to providing us with more background on the sensory and communication needs of children with ASD/SPD, they also toured our facility and explained points in the patient-care flow that could add stress to the visit. It was an eye-opening experience to stand with them in one of our patient-care rooms and have them describe how the room would pose a challenge for children with ASD/SPD. Small sensory stimulants (such as humming electrical sounds or bright lights) that nurses ignore can overwhelm children with overactive sensory systems.[10] The teachers pointed out how the markers and erasers for the patient education whiteboards could become projectiles for an agitated child and that a child with obsessive-compulsive disorder could become distracted and upset when some light switches were on and some were off. We documented their insights and strategized with them to create solutions to the challenges they identified.

After meeting to discuss the information gathered through the community outreach, team discussions, literature and resource review, and expert consultation, a master list was created of things that made our emergency department a challenging place for children with ASD/SPD. Then we gathered the evidence that supported the design of a reasonable solution to each challenge. We established a formal plan for creating a healing environment that included obtaining needed resources and crafting strategies to modify the patient flow and physical environment for children with ASD/SPD. Not all the solutions were ideal, but they offered children and families options to modify the

sensory experience during their visit. Some of these challenges and the evidence used to design a solution to the challenge are described in the Table.[16-24] For example, with insights from community members, staff, and the expert consultants, the team purchased new sensory items to help children cope with their experiences. A visual "menu" was created with the supplies offered, so nonverbal children can point to the toys they would like to use (Figure).

IMPLEMENT: TRAIN STAFF, MODIFY ENVIRONMENT, AND ADD RESOURCES

An educational program was developed that included both lecture and a hands-on components to introduce the concept of sensory-informed care and the sensory-friendly emergency department to staff. Continuing education credits were offered to attendees, and the educational program was video-recorded to ensure that all of our staff was able to receive the education. Because we envisioned an educational session that would enhance our collaboration as an interprofessional team, we opened the training up to nurses, physicians, advanced practice providers, patient-care technicians, community emergency medical technicians, paramedics, and child-life therapists in our health care system. The day included an update on the biology and emerging science of ASD/SPD taught by a neurobiologist. A hands-on session on how to approach and communicate with ASD/SPD children was taught by an autism education specialist, along with techniques for de-escalation and behavior management; an ED physician discussed alternatives to traditional sedation medications for this specialized group of children. We concluded with case scenarios of what a typical visit to the emergency department would look like for a patient after our PI project was implemented. Participants had the opportunity to handle the new equipment and sensory-friendly toys. An informal pre- and posteducation assessment survey was completed by all attendees, and it demonstrated that knowledge was gained from the educational session. At the conclusion of the staff training, the team initiated the planned environmental modifications and introduced the new toys and resources onto the unit.

Results

EVALUATE: MONITOR OUTCOMES

Since the initiation of our sensory-friendly pediatric ED project, we have been reviewing individual cases and adjusting processes as needed. In some cases, gaps in the process have been identified by nurses on the unit or by the child-life specialists, and parents have also provided us with feedback on the parental intake form and extra resources we should consider. Beyond the implementation of the program at our facility, our team has shared our "lessons learned" with other departments in our health system that want to create the same type of sensory-friendly initiative. We have created a step-by-step manual to guide providers through the process and consider this to be a significant outcome of the PI project. The manual is being used to create a similar program in the surgical center, where their patient population includes children and adults with ASD/SPD. A sensory-friendly initiative is also being designed and widely distributed in the larger children's hospital within our hospital system. As we have shared ideas with their child-life department, we have added innovations such as a sensory-friendly cart with all the needed supplies and resources that can be wheeled through the unit and created consistent signs that can be used throughout the health system, so families and children can identify places where staff is providing sensory-informed care and supplies are available. Finally, patient-centered outcomes can be determined through discussion of a patient case.

POSTIMPLEMENTATION CASE REVIEW

Shortly after the launch of the sensory-friendly ED program, an adolescent male patient with ASD came to the pediatric emergency department by ambulance from school. The emergency medical services staff had attended the educational seminar that we provided on sensory-informed care and identified that our facility and staff were prepared to provide care for this patient. His special-education teachers explained the patient's sensory and communication needs and how to minimize the young man's anxiety and triggers. Because the patient's caregivers said that the patient likes to watch new procedures be demonstrated on someone else before they are done on him, we performed all procedures on his teacher first. Knowing that armbands tended to be anxiety provoking, the allergy band was secured to the patient's identification band so it appeared that only 1 band was on his arm. The teacher examined our box of sensory tools and toys and provided guidance on what to offer. The patient was in a great deal of pain related due to his extremity injury, and the clinician chose to treat him with intranasal fentanyl, to avoid the stress of starting an intravenous line. Although application of ice is part of our extremity injury treatment protocol, for this patient the application of ice would have caused more distress. When his parents arrived, they remarked on how surprised they were to see his relaxed state. The ASD/SPD intake form was reviewed

and filled out, and the form was added to his permanent medical record. The parents indicated that this would be useful for future ED visits. While the patient was waiting to go to the operating room for his surgical repair, we kept the lights dim in his room and had soft music playing. The patient was also comforted by familiar items that his parents had brought from home.

Discussion

This project represents a nurse-initiated project to improve care to the growing number of children who present to the emergency department with ASD/SPD. By examining current practice, we identified opportunities to modify our care environment and address the educational needs of our staff. Eliciting feedback from the community and local experts allowed us to find creative solutions to these challenges that worked for the unique needs of the children who visit our emergency department. Modifying both the patient care environment and the patient flow process to accommodate for the specialized needs of children with ASD/SPD (Table) created a more peaceful and healing environment for children and their families and gave nurses the support they needed to communicate with the patient and provide safe and atraumatic care. The educational component of the project allowed us to communicate a shared vision with staff and practitioners in the community that has led to some creative solutions to the unique needs of children with ASD/SPD who visit our emergency department.

When we engaged with the parents and caregivers of children with ASD/SPD in our community and with local experts, we found that many of their suggestions about the care environment mirrored those described in the literature.[9,22,25] These findings drove the development of the new patient-care flow and environmental modifications for our project. The similarities we found highlight the need for initiatives such as this one to be expanded and available in more communities. Guidance and standardization of these efforts from a nationally recognized nursing organization would be a first step in making the journey to becoming sensory friendly more attainable for facilities.

Throughout this process, we found that providing individualized care is key to a successful ED visit for children with ASD/SPD.[20,25,26] ED staff should look to caregivers and parents as guides for this individualized care and be ready with supplementary resources and an enhanced nursing skill set. The creation of a parental-intake form is a critical communication tool for obtaining this individualized information. Adding the form to the medical record is an important part of identifying children with sensory needs and adjusting the care plan over time.

There are several strengths to this PI project. First, it represents a true interprofessional collaboration among various disciplines in our facility. This motivated team contributed a wide variety of input and championed this project throughout its development, which ultimately added to the success and comprehensiveness of the project. We also had the sustained support of the leadership in our facility and an engaged and informed community of parents and caregivers who wanted to see this project succeed. With their help, we were able to create a program that was very specific to the needs of the kids in our community. Ultimately, although our project focused on the needs of children who identify as having ASD/SPD, the initiatives we implemented work well for a wide range of children, which makes this project useful to our unit on a wider scale.

Limitations

This project represented a considerable amount of time and energy from the interprofessional team, which may not be feasible for staff on other units. Cost is also a potential barrier for other units engaging in this type of project. We were supported through a generous donation from our hospital foundation, which offset the costs of new equipment, paying staff to attend the session, and recording it for online viewing. Although the initial investment in this project was high, we are now able to use the recording to train new staff members and the majority of the purchased resources and toys are reusable.

Another limitation to this project was our restricted ability to obtain outcome data. It is empirically impractical to measure the sensory experience children have when they receive care in the emergency department to compare outcomes before and after the start of the PI project. Because families do not often have clear diagnoses of ASD/SPD, or the diagnosis may not be documented in the child's medical history, it would be challenging to examine charts retrospectively for indicators of program success. Part of this project involved working with our facility technology experts to find a way to chart sensory needs of patients in the electronic medical record to examine outcome data in the future. Anecdotally, we have received e-mails and letters from parents, thanking us for our sensory-informed approach and detailing how our interventions improved their visit.

Implications for Emergency Nursing

Creating an environment in which providers and parents have a shared vision of sensory- informed care is a valuable addition to the care emergency nurses provide and can make

FIGURE

Sensory-friendly emergency department: visual menu of speciality resources.

the ED visit safer and more comfortable for patients with ASD/SPD. Although children present to emergency departments with unique sensory needs, there are simple modifications for the care environment to improve their ED experiences. This article describes a structured process for becoming a sensory-friendly unit and can serve as a jumping-off point for nurses interested in embarking on a similar journey. In initiating a project to create a sensory-friendly unit for nurses who take care of children with ASD/SPD outside the emergency department, adopting some (but not all) of these environmental changes may be adequate to meet the needs of those patients.

Conclusions

This PI project adds to the growing body of evidence that being attentive to the sensory needs of children while they are in emergency departments is a critical part of their health care experience. The results of this project potentially can be transferred not only to pediatric emergency departments but also emergency departments that anticipate caring for the growing population of neurodiverse adolescents and adults in the future. To sustain this project, we intend to have the interdisciplinary team continue to champion the project and update it as needed, train incoming staff on the initiative, and add ASD/SPD education to our yearly staff competencies. With the success of this project within our pediatric emergency department, we are working on creating similar programs in other emergency departments within our health care system. Our hope is that this work will highlight the need to create a national sensory-friendly designation for pediatric emergency departments that seek to develop a specialized process with resources for children with ASD/SPD. This PI initiative presents a useful guide for facilities looking to undertake a similar project.

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