

# ADVANCE FOR NURSES

Committed to Comfort

## Nurse-driven initiative provides a more relaxed experience for patients and families

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By Barbara Mercer

When trying to effect change in healthcare quality, whether on one unit or throughout an organization, it all starts with a culture conducive to transformation. It also helps if your nurse manager is a supportive proponent of evidence-based practice. And it certainly doesn't hurt if your medical director exudes warmth and sincerity and expects the same from her staff. Add in a team who have worked together successfully and share the same goals, and you have the day medicine-sedation unit at Nemours/Alfred I. duPont Hospital for Children, Wilmington, DE.

"The turning point was about 6 years ago, when shared governance was first implemented; it was the impetus for all of us to start moving toward a more evidence-based practice," recalled Roger W. Meece, BSN, RN, CPN, medical imaging charge nurse on the unit.

While day medicine-sedation has been involved with myriad quality improvement projects in the meantime, their work with managing pain and implementing alternative sedation methods has had a significant impact on patient satisfaction, quality of care and throughput.

"One of the overarching things we've worked on has been pain control," explained Keith Fishlock, PCNS-BC, pediatric clinical nurse specialist. "Needlesticks and IV starts are the most feared things kids deal with in the hospital."

To meet that fear and alleviate it, the team created its Commitment to Comfort initiative that uses a combination of nonpharmacological and pharmacological alternatives for children faced with distressing or fear-provoking procedures.

### Alternative Pain Relief



Keith Fishlock, PCNS-BC, sedates a patient.

Among the nonpharmacological alternatives being employed is sucrose, which has been shown to offer comfort and analgesic effects to infants and young toddlers. It is approved by Nemours for automatic use by nurses in children under age 2. When children require additional pain relief, one of the considerations when investigating the most appropriate products is time.

"We previously used [a numbing cream] that took about 60 minutes to work," Fishlock said. "When you're working in a fast-paced ambulatory environment with kids coming at you from every side, 60 minutes is an eternity."

He's not exaggerating about being flanked by children - last year, day medicine assisted in the sedation and

treatment of approximately 5,000 patients at duPont Hospital for Children.

"Some research turned up another topical cream with 4 percent lidocaine that achieves efficacy in about 30 minutes," Fishlock continued. "We created and obtained approval for a protocol in which, as long as children are over the age of 2 and have no relevant allergies or broken skin, the nurse can preemptively apply the [faster-acting lidocaine cream] to two areas such as the back of the hand or the antecubital space, whichever looks like the best prospect for a successful IV start."

Another popular alternative is a vibrating cold pack device that looks like a bee. The device, which costs less than \$30 and features cold packs that can be sanitized and reused, is placed onto the child's skin above the injection site. The simple machine both numbs and confuses the nerves to intercept the pain response before it reaches the brain.

With the successful implementation of these interventions, much of the team's recent focus has involved the use of nitrous oxide as an alternative to, or in conjunction with, other sedation techniques.



A simple busy bee both numbs and confuses the nerves in a child's arm to intercept the pain response before it reaches the brain.



Daniel Horton, MD, (left) performs arthrocentesis while Michelle Rhoads, MSN, APRN-BC, CPN, and Lauren Welling, RN, monitor the patient on nitrous oxide. Photo by Cindy Brodoway, Nemours/Alfred I. duPont Hospital for Children. Other photos by Jeffrey Leaser.

### Why?

"Well, deep sedation is inherently more risky than moderate. Children have smaller, more anteriorly placed airways as compared to adults. So there are physiological differences, and there's also the recovery time," Fishlock added.

While Nemours historically used phenobarbital for deep sedation, its IV dose-based administration would occasionally result in a child waking up in the middle of an MRI study. They have now switched to an all-propofol model. Fishlock explained propofol's continuous infusion makes it a more predictable drug. "The recovery is beautiful, they wake up refreshed and seldom irritable at all. There's a very low incidence of nausea with it," he added.

While "the best sedation overall is no sedation at all," much depends on the child and the study or procedure the patient is having performed. "If we can get away with a pacifier dipped in sucrose we'll do that, but we have to weigh other factors," Fishlock said. "If we're performing a motion-sensitive study ... we don't want to expose the child to excessive radiation. You have to choose the lesser of two evils: some sedation versus an additional run through the CT scanner."

### It's All in the Mask

Along with Fishlock, Erin Levitsky, BSN, CPN, Christina Russell, RN, nurse manager, and Michelle Rhoads, CRNP, visited Children's of Minnesota and attended a conference about nitrous oxide administration in pediatrics. The fact that nitrous oxide provides excellent pain control, rapid recovery and anxiety reduction made it an attractive alternative to some of the medications the day medicine-sedation staff often relied on.

Fishlock, Russell and Suzanne Kost, MD, medical director of the unit, researched the equipment and crafted a proposal for administration that included equipment costs.

In the beginning, Nemours used a nasal hood, similar to what's used in a dental office. Further research uncovered that switching to a full-face mask would help ensure the compliance of younger children with breathing properly through the mask, and enable its use with children who have cerebral palsy or problems with oral motor skills.

"The onset and the quality of sedation were much better with the mask as opposed to the hood," Fishlock said. In addition, the better fit of the full-face mask mitigates the release of nitrous oxide into the room.

"[As long as an allergy doesn't preclude it], we also have flavored lip balms we can apply to the mask," Fishlock said. "Offering a mask with a chocolate chip cookie dough scent first thing in the morning to a child is really intriguing to them. We try to make it fun and interactive, and that garners more acceptance."

Some children do require combination therapy, and may receive a reduced dose of midazolam to take the edge off - then they're more amenable to accepting the mask.

### Families at the Center

Overall, nitrous oxide has received high marks from patients and their families. "To give a kid nitrous oxide and have a recovery time of 2 minutes after which they can go to the Nemours playground, as opposed to an hour and a half recovery from ketamine and restrictions on the entire day, is like night and day," Fishlock said.

Fishlock shared a story about a 5-year-old patient with osteogenesis imperfecta who visits Nemours every 6 weeks for a 3-day infusion. "He has a very tough time with his IV starts," Fishlock said. "I had spoken to his mother previously about trying the nitrous oxide, and we went ahead and did that [during his last visit]. Instead of crying, he was singing, smiling and laughing through the entire IV start experience. That, to me, speaks volumes, and the look of relief on the parent's face really makes this

worthwhile every day."

It is often parents who inform change at Nemours.

"We're a family-centered organization and, as such, input from our parents is very important to us," Meece explained. For example, as a result of parent feedback related to voiding cystourethrograms (VCUG), for which many patients need to return annually, a process was recently changed.

"We were hearing from parents what a traumatic procedure they perceived it to be for their children, so we approached administration about offering sedation [for this procedure]," Meece said. After citing a number of studies that supported the parents' perspective, the process change was approved so when an appointment is made for a VCUG, sedation may be offered as an option. It is one of the most frequent procedures for which nitrous oxide is used, Meece said.

### **The Savings of Better Throughput**

Increased throughput can't be understated when day medicine performs about 80 percent of the sedation needs within the hospital.

"Last year, we saved several hundred minutes of time in recovery, which enables us to turn over beds much more quickly, and to serve more patients internally and externally," Fishlock said.

In addition to benefits for small children for procedures such as VCUGs and IV starts, about 100 adolescents received nitrous oxide in 2011. Primary procedures with this slightly older population included arthrograms, arthrocentesis, PICC lines and cast room procedures. Day medicine-sedation services will also be expanding their reach to assist the hematology/oncology department with lumbar punctures.

Barbara Mercer is managing editor at *ADVANCE*.

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