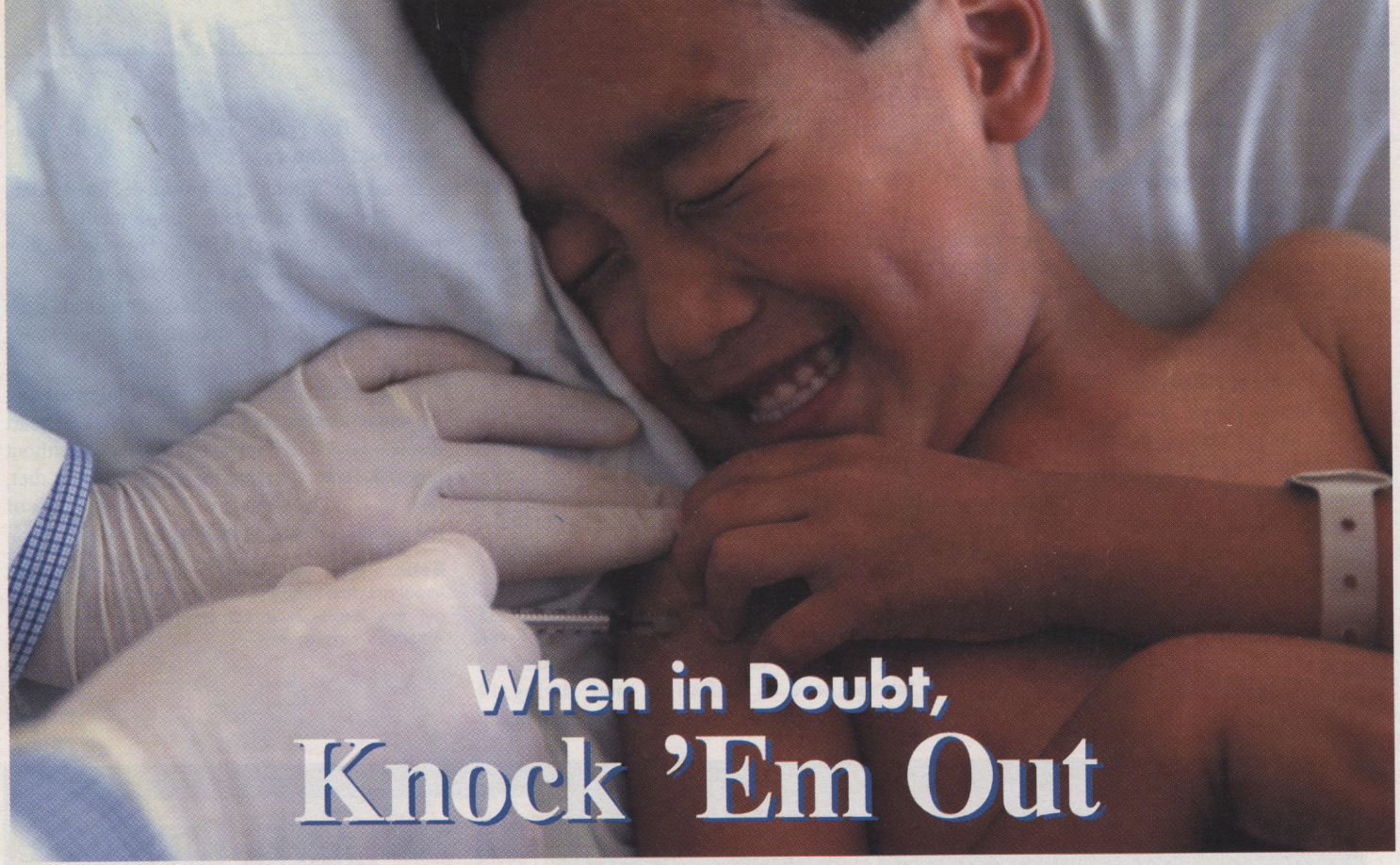

When in Doubt, Knock 'Em Out

Is your pediatric patient facing the perils of a painful ED procedure? Conscious sedation to the rescue!

Scott DeBoer, RN, MSN, and Craig Felty, RN, BSN

IF YOU WERE THREE YEARS OLD and had occasion to be seen in the ED, how do you think you'd feel about that nurse coming toward you with those objects that look suspiciously like the things your mom uses to sew the tears in the knees of your pants? How do you think your mom or dad would feel about it? Imagine, on the other hand, that you're that nurse. Chances are, you consider yourself a nice person, someone who likes children and who would never intentionally frighten or hurt them. But let's face it — you're no Barney, and you've got sutures in your hands.

No one wants to see a child in pain, least of all nurses. Fortunately, we've come a long way when it comes to sedating children and managing their pain, especially in the ED. Medications that were once exclusively administered in the OR have made their way to the ED with great results, if given safely and with proper preparations for emergencies. And now, thankfully, it's been proven that even the smallest infants feel pain. We can finally throw away past theories that children's pain receptors are immature and, therefore, unable to transmit painful stimuli to the brain. Forget it — immature or not, little brains are quite capable of receiving pain signals and acting on them. Gone, too, thanks to current research, should be the antiquated notion that children are "too young to remember it anyway." They feel pain — that should be all we need to know.

But there's a lot, actually, that nurses can learn about pediatric sedation and pain management. Spend a few minutes here mastering the whys and hows of conscious sedation for children, and you'll likely be remembered more as a friendly purple dinosaur than a nasty purple fiend.

Why Sedate Children?

Two schools of thought have surfaced dur ing the years concerning pediatric procedures On one side, some healthcare professionals believe children should experience absolutely no pain during any procedure, while the othe camp maintains that the risks of sedation out weigh the benefits on most occasions. In ou practice, we like to shoot for a happy medium with safe sedation as our optimal goal. Whe properly used, pain management technique can lead to what we call "better, better, an best" results. If children are sedated and a pain-free as possible during procedures, thre things happen:

- Children fare better. They typically don' flail about on the cart, rip out IVs, o scream. Repeat visits are likely to be bette as well, since a pain-free child probabl won't freak out at the sight of anyone o anything associated with an ED on his o her next visit.
- Parents do better. Their children do not fla about on the cart or rip out IVs, tubes, o their parents' hearts.
- Nurses feel best of all when children ar sedated and comfortable. We feel muc more humane when we do all that we can t alleviate pain and create the best experienc for all concerned. If a nurse can take a pa ent aside and explain, "I gave your chil some medicine so that she will be aslee and free of pain — she shouldn't remembe anything," that nurse has just made a diff cult situation much easier for everyone.

What's the Difference?

It's not hard to understand why we pref our littlest patients quiet and comfortable, b the hows of getting there are another matte It's important to know, first of all, the diffe ences between conscious sedation and dee sedation (general anesthesia is typicall reserved for other settings, such as the OR

Understanding these differences can make all the difference in the care of your pediatric patient, chiefly because if enough sedatives or analgesics are administered, you might wind up achieving an undesirable state of general anesthesia in your patient.

According to the American Academy of Pediatrics, conscious sedation amounts to "a minimally depressed level of consciousness that retains a patient's ability to maintain a patent airway independently and continuously, while still responding to physical stimulation and/or verbal command." Deep sedation, on the other hand, is "a state of depressed consciousness or unconsciousness from which the patient is not easily aroused. It may be accompanied by partial or complete loss of protective airway reflexes and includes the inability to maintain a patent airway independently and respond purposefully to physical stimulation or verbal commands."

The key contrasts between the two forms of sedation involve the protection of airway reflexes and the ability to respond to stimulation or commands. As you might imagine, additional resources, more intensive monitoring, and frequent assessments must occur during deep sedation. With conscious sedation, however, it's most important that nurses remember to administer only those drugs with which they are comfortable (knowing beyond doubt, for example, dosages, indications, contraindications, reversal, onset/duration, etc.). Today's conscious sedation cart stocks many drugs, and most of them can be administered safely. Trouble comes quickly, however, when nurses mix and match drugs, especially sedatives and analgesics.

Who Should Get It?

In the ED, nurses seldom encounter the ideal preparation found in elective preoperative patients. Most emergency patients, for instance, have not been NPO for any period of time before they find themselves on an ED gurney (although this is not a contraindication for conscious sedation). Then, too, patients rarely come to the ED with their complete medical history in hand; nurses must evaluate their preexisting mental and physical conditions. Most practitioners believe that conscious sedation should be administered only to anesthesia ASA class I patients (normal, healthy individuals) or class II patients (individuals with mild systemic disease), unless consultation with an anesthesiologist or certified registered nurse anesthetist (CRNA) is made. Typical procedures for which conscious or deep sedation may be used in the ED include —

- CT scans or MRIs
- laceration repairs
- lumbar punctures
- gynecological exams
- fracture reductions

Sedation isn't for everyone all the time, but there are healthcare professionals who believe, as we do, that when it comes to painful procedures, drugs are good for people. Alternative techniques to reduce pain and enhance calm, such as hypnosis, imagery, cold/warm therapies, parental support, and distraction, instead of or in conjunction with sedation, can be effective tools. But for painful procedures in children, we ascribe to a different platform —"Take the pain away!"

> For painful procedures in children, "take the pain away!"

While it's true that administering medications may, and probably will, lengthen the stay of a child on whom a procedure has been performed in the ED, consider this: Nurses must monitor the child's status during the procedure, with or without medication. A comfortable and asleep or mellow versus screaming child, the feelings of the child's parents, the quality of the information obtained (poor quality CT scans due to motion, for example), or difficulty in performing the procedure (for instance, a spinal tap) — all will affect the outcome of the procedure. In determining whether sedation is right for your pediatric patient, ask yourself these questions —

- Will it take longer to do the procedure with or without sedation?
- If I administer the right medications, in the right amounts, will the child really be in the ED that much longer?
- If I were a two-year-old about to undergo a procedure — painful or not — would I like to be held down? Shouldn't there be a better way?

Which Drugs, When, and Why?

To determine which drugs to give and by which route, you'll have to ask yourself a few more questions. What is really needed? Analgesia? Sedation? Amnesia? Immobility? Not all procedures are painful; only a sedative may be necessary in some cases. Bear in mind that painful or "nasty" procedures require both sedatives and analgesics because sedatives, contrary to popular belief, do not take away pain. They only do as their name states — sedate. When you're performing painful procedures on children, try to take away as much of their pain as you safely can and sedate as needed. An ideal agent is one that —

- has a rapid central nervous system effect
- doesn't depress respirations
- lasts for the entire procedure
- is promptly eliminated for a quick and safe discharge from the ED
- doesn't require a shot

This last characteristic — the shot — represents one of the most significant changes in the area of pediatric conscious sedation in recent years. Sedation without shots is no longer a novel concept. Today, many drugs can be administered intranasally, orally, sublingually, rectally, or transdermally. The only safe method of reaching deep sedation, however, remains the IV route. Hopefully, this route will require merely a single "shot." Once an IV is placed, normally all medications can be given via the IV.

Who Does What?

Although nurses typically are not responsible for determining which medications should be administered, a basic understanding of the common agents used in sedation is crucial to ensure safe patient care. Preparations for conscious sedation must include teaching of the patient in age-appropriate ways, as well as education of the parents or caregivers. In the ED, nurses have additional, specific responsibilities, including —

- administration of medications
- monitoring patients' level of sedation
- monitoring patients' overall hemodynamic status

Because most complications associated with sedation are of a respiratory nature, preparations for possible respiratory depression should

focus on this fact. Pulse oximetry is considered the minimum standard, as it allows for concurrent monitoring of the oxygen saturation and heart rate. Some practitioners believe that, in addition to pulse oximetry, cardiac/respiratory monitors should be applied if available. Cardiac dysrhythmias, however, are relatively rare in healthy children; and pulse oximetry with heart rate, in conjunction with regular visual assessments of the child's respiratory rate and depth, will suffice in many cases.

An automatic blood pressure cuff should be applied before the procedure is started, with measurement intervals at every five to 15 minutes, depending on the level of sedation. Some practitioners advocate more frequent measurements, but many patients become agitated with the inflation of the cuff, possibly requiring additional medications to return to the desired sedation level. Pulse oximetry, skin color, and peripheral pulse status can serve just as well as frequent blood pressure readings.

Besides pulse oximetry or other monitoring equipment, the following equipment and medications — at minimum — should be ready at the bedside before any sedatives or analgesics are administered:

- oxygen with age-appropriate bag-valve mask
- rigid suction tip device
- physical immobilization device (i.e., papoose)
- reversal medications, including Narcan (naloxone) for analgesics and Romazicon (flumafenil) for Benzodiazepine sedatives.

It is neither necessary to have the medications physically drawn into syringes, nor cost effective. If you have unopened medications at the bedside, however, you'll do yourself a great favor by ensuring, at minimum, doses for reversal agents in mg's and cc's are calculated for use if needed.

Resuscitation medications and airway management equipment should be readily available in the department. Most children with respiratory depression will respond to supplemental oxygen and, if needed, "ambuing" until the reversal agents can be administered. At the very least, the team conducting sedation should include the practitioner who will perform the procedure and one nurse to assess and monitor the child, as well as to administer medications.

Administration of reversal agents is indicated for respiratory depression or the quick return to a baseline level of consciousness. Nurses must remember to provide supplemental oxygen and "ambu" as needed until the reversal agent has resulted in acceptable respiratory function. It is crucial to be aware of the duration of reversal agents versus that of the medication to be reversed. Occasionally, one can outlast the other, potentially resulting in unwanted and dangerous resedation.

A nurse, along with appropriate monitoring and airway management equipment, resuscitation and reversal medications, and the ability to quickly obtain airway control, should accompany sedated children on any transfer outside the ED. Ideally, a physician or CRNA should be included in the transport if the patient is deeply sedated or intubated.

Discharge from the ED may be appropriate for sedated children when several criteria are met:

- Airway reflexes are intact.
- The child has returned to a presedation level of consciousness.
- There are no concerns of resedation, cardiorespiratory compromise, or food aspiration.
- The child has adequate hydration status and is able to tolerate liquids.
- A reliable parent or other caregiver has been given written discharge instructions and the ED telephone number in case he or she has questions.

With conscious sedation, we're making real progress in caring for kids in the ED. They don't have to feel pain, their parents need not be as anxious, and you don't have to be the one to make anyone feel badly. Think again — you're three years old and that nice nurse has given you something tasty to drink. You don't feel your boo boo any more; you don't need to cry. Mommy's here, the nice nurse is here, and you're not afraid. While they make your boo-boo better, you'll just take a little nap...

Scott DeBoer, RN, MSN, and Craig Felty, RN, BSN, are flight nurses with the University of Chicago Aeromedical Network.

Bibliography

Krauss B, Shannon M, Damian F, Fleisher G. *Guidelines for Pediatric Sedation*. Dallas, TX: American College of Emergency Physicians; 1995.

Yaster M, Krane E, Kaplan R, Cote C, Lappe D. *Pediatric Pain Management & Sedation Handbook*. St. Louis, MO: Mosby Year Book; 1997.

EDITOR'S NOTE *In our next issue, Scott DeBoer, RN, MSN, shares his extensive knowledge of sedation and analgesics in some easy-to-use notes on common drugs. Don't miss this opportunity to learn the real ins and outs of conscious sedation, along with DeBoer's unique tips for sedating children.*