

# Pediatric Pain

*Helping sick children cope  
with medical pokes and probes*

By ROBERT N. LANGRETH

Pain dominated the last 21 months of Timmy Offsay's shortened life. Diagnosed with leukemia at age 3½, he underwent countless medical procedures ranging from finger pricks to dreaded bone-marrow aspirations, in which physicians would insert a needle into his hipbone to draw out a marrow sample.

"Timmy was very clear that these procedures were painful and should be avoided. He fought every one of these procedures every time," wrote his mother, Jan Offsay, in an editorial in the December 1989 *JOURNAL OF PAIN AND SYMPTOM MANAGEMENT*.

"Usually I wouldn't tell him [he was getting a bone-marrow aspiration] until we got there, because it would be so upsetting to him that he wouldn't want to leave the house," she told *SCIENCE NEWS*.

In addition, Timmy felt "pain from chemo side effects, terminal illness pain, immeasurable emotional pain," she says.

While physicians at the hospital provided "dedicated and knowledgeable [treatment]," Orsay wrote, "our own experience seemed to indicate that strong analgesics were rarely used in a nonterminal child." Not until his illness became advanced and his parents insisted on some unconventional measures for easing the pain of invasive procedures — such as giving Timmy general anesthesia before marrow samplings — did the boy's trauma become more manageable. He died in 1987 at age 6, after a month relatively free of pain.

Pediatric pain specialists say Timmy's experience highlights a widespread problem. Many physicians fail to give hospitalized children enough painkiller or to use techniques for distracting and calming them during painful procedures, these specialists contend. And while experts interviewed by *SCIENCE NEWS* agree that childhood pain management in North America has improved in the last few years, they say it still lags behind that of adults.

"Most places don't treat [children's pain] properly," says Patrick J. McGrath, a

psychologist at Dalhousie University in Halifax, Nova Scotia. "They don't have strategies, they don't have a plan. So it's chaotic."

That message comes through loud and clear in a report in last November's *PEDIATRICS*, summarizing the 1988 Consensus Conference on the Management of Pain in Childhood Cancer. "Inadequate management of pain is a significant problem in all aspects of pediatric care," the report states. "In every clinical situation which has been studied, children's pain receives far less attention than that of adults."

The conference, whose sponsors included the World Health Organization and Timmy Offsay's parents, brought together 19 pediatric pain experts to forge guidelines for managing pain in children with cancer. "Nowhere is this [undertreatment] situation more unfortunate . . . than in management of pain associated with childhood cancer," the specialists assert in their report. "Poorly controlled cancer pain validates the worst fears of parents and children that cancer is accompanied by inevitable and excruciating pain."

For the more than 6,000 children diagnosed in the United States each year with cancer, the barrage of medical procedures may bring as much pain as the disease itself. Researchers have difficulty determining exactly how much pain kids feel, but studies suggest that many children find invasive medical procedures very painful. In a 1982 survey published in the *JOURNAL OF PEDIATRICS*, children rated bone-marrow aspiration as 4.51 on a scale of 1 to 5, with 5 representing the worst pain imaginable. In a more recent survey involving 77 cancer patients at the Children's Hospital of Eastern Ontario, three-quarters of the children reported severe pain from bone-marrow aspirations, and half felt moderate to severe pain from other procedures, according to a report by McGrath and his colleagues in the Feb. 3, 1990 *JOURNAL OF PSYCHOSOCIAL ONCOLOGY*. Very few of the youngsters received painkilling medication during these procedures.

"Some people think kids with cancer

shouldn't get any analgesics," McGrath told *SCIENCE NEWS*. "Clearly that opinion is out there."

Pediatric pain management also appears lacking after surgery. Several studies conducted over the last decade suggest that children recovering from surgery — whether cancer-related or not — receive much smaller doses of painkillers (in relation to body size) than their adult counterparts.

"Children typically receive far fewer doses of narcotics than do adults with similar problems," says Neil L. Schechter, who directs the childhood pain service at the University of Connecticut Health Center in Hartford.

Two recent studies by Joseph P. Bush, a psychologist at Virginia Commonwealth University in Richmond, demonstrate the tendency to minimize painkiller doses for children. In one, he reviewed hospital charts for 114 postoperative children whose physicians had issued *pro re nata* (PRN) orders — instructions for nurses to give the amount of painkiller they deem appropriate, within certain limits. Bush's analysis revealed, however, that "nurses tended to interpret the PRN as meaning give the child as little medication as possible," he told *SCIENCE NEWS*. This defeats the purpose of a PRN order, he says, and "is very poor practice."

The research report appeared in 1989 in the *JOURNAL OF PEDIATRIC PSYCHOLOGY* (Vol. 14, No. 3). Bush says a second, unpublished study of several Virginia hospitals yielded similar results, except that a few nurses gave much more than the minimum dosage to patients with more serious conditions — who weren't necessarily the kids in the most pain.

Until recent years, most surgeons used little or no anesthesia when operating on newborns because they feared that the anesthesia might cause dangerous side effects and because they assumed that infants didn't feel as much pain as adults. While this practice is rapidly disappearing, it probably still occurs, Schechter says.

Scientists still aren't sure how much

pain children experience and how often it goes untreated. "I think the most unfortunate fact is that we don't know the magnitude of the problem," says Charles Cleeland, a neurologist at the University of Wisconsin School of Medicine in Madison. "Large-scale studies of the prevalence and severity of children's pain really ache to be done."

But pain specialists aren't waiting for definitive studies before trying to convince doctors and nurses to give children more liberal doses of painkillers and to use new techniques for managing pediatric pain.

"Children's pain . . . is a topic that has grown by leaps and bounds in terms of interest, concern and scientific base. It cannot move fast enough, however," says Judith E. Beyer of the University of Colorado Nursing School in Denver.

Several factors complicate the issue. For one, researchers are only beginning to understand the multifaceted experience we call pain. From a neurological standpoint, pain involves signals from nerve fibers that tell the brain that a knee is bruised or a mass is pressing against delicate internal tissue. But an individual's perception of pain is also subject to emotional and psychological influences.

While the interrelationship of neurological, emotional and psychological influences remains poorly understood, scientists believe that factors such as a person's mood or state of relaxation can activate nerve signals that either suppress or augment pain. "Like an adult, a child's pain is complex. . . . Many environmental factors can modify the strength and unpleasantness of children's pain," writes Patricia A. McGrath, a pediatric psychologist at the University of Western Ontario in London, in *Advances in Pain Research and Therapy* (1990, Raven Press).

Distinguishing emotional factors from the physical hurt itself can be difficult. "Looking at cancer pain [in adults], the rule of thumb is that psychological factors have been overinvoked as reasons why people have pain," Cleeland says.



And with children, who often fuss over small problems, it's easy to assume that complaints result primarily from stress or anxiety rather than physical pain.

"We're not very interested in listening to young children. We don't take children's point of view seriously enough," Patrick McGrath says.

The fact that young children, lacking verbal skills, often can't adequately explain their level of pain adds to the problem. And many kids would rather endure the steady pain of illness than complain and get a needle — the thing many youngsters fear most. "Kids think, 'If I say I'm in pain, I'm going to get a shot,'" Bush notes.

Several misconceptions have hampered management of pediatric pain, Schechter and others say. For one, many physicians worry that children given narcotics run a serious risk of becoming addicted. But Schechter says children almost never develop psychological cravings for painkillers, and although they do face a slight chance of experiencing physical withdrawal symptoms, physicians can manage this problem by reducing the dosage gradually.

"There's a certain amount of hysteria about narcotics among doctors," Bush maintains. In many instances, he says, doctors and nurses have "grossly overestimated chances of addiction."

The long-standing assumption that children feel less pain than adults was fueled by a handful of poorly controlled studies conducted decades ago, Schechter says. One widely cited 1931 experiment, for example, showed that some newborns displayed little or no behavioral response when pricked with a pin. Some physicians interpreted such findings as evidence that newborns lack the nerve development to experience pain.

But more recent experiments indicate that the full complex of pain-transmitting nerves develops before birth. "By the 25th to 26th week of gestation, all the pathways responsible for transmission of pain from the outer periphery [of the body] to the cerebral cortex . . . are being produced," writes K.J.S. Anand in the Nov. 19, 1987 *NEW ENGLAND JOURNAL OF MEDICINE*. Anand, a physician at Children's Hospital in Boston, surveyed many studies of neurological development in his report and attacked the belief that newborns do not perceive pain.

If anything, he says, infants and children may be more sensitive to painful stimuli than adults. While pain-transmitting nerves develop relatively early, Anand cites several studies indicating that certain microscopic nerve fibers that can blunt pain perception may take a decade to develop fully.

**D**espite the apparent shortfalls in pediatric pain management, many specialists express opti-

mism for the future. By all accounts, research into children's pain is booming.

Among the recent advances are new techniques for getting children to describe their pain more accurately. In one promising approach, developed by Beyer's team and called the "Oucher," patients aged 3 to 12 look at depictions of six children's faces, each displaying a different expression. Kids pick the face that best reflects their level of pain.

Researchers are also exploring new ways of distracting and relaxing young patients during painful procedures (SN: 4/7/90, p.221). In December 1982, for instance, physician Lonnie K. Zeltzer of the University of California, Los Angeles, reported in the *JOURNAL OF PEDIATRICS* that many children tolerate bone-marrow aspirations and other procedures better if a psychologist helps them fantasize about some pleasant, faraway situation such as a vacation.

Such techniques may take considerable time to catch on in everyday medical practice. Patricia McGrath, noting that clinicians haven't rushed to adopt the recent advances, says, "I think it's the usual slowness in the application of new scientific knowledge to clinical practice."

But pain specialists hope for wider medical recognition of the undertreatment problem as more articles on children's pain show up in pediatric publications. In the past, such reports appeared almost exclusively in journals that focus on pain rather than pediatric practice. And until recently, up-to-date reference books on children's pain have been scarce or nonexistent; at least four have come out in the last two years.

**P**articipants in the 1988 consensus conference—including Schechter, Cleeland, Beyer, Patricia McGrath, Patrick McGrath and others—anticipate that their newly released guidelines, offering specific measures for easing the suffering of young cancer patients, will help draw physicians' attention to the needs of kids in pain.

For each medical procedure and each age group, the consensus report indicates appropriate painkilling medications, recommends techniques for relaxation or distraction and notes whether anesthesia might prove useful. "It makes much, much more aggressive recommendations [for painkiller dosages] than have been used typically," Patrick McGrath says.

The report also advises physicians to draw up a "pain problem list" for each child, detailing all the places where the child hurts and cataloging all emotional and psychological side effects related to the pain.

"For the first time," says Patrick McGrath, "it puts together a rational set of strategies to deal with these children's pain." □