The $10-million NYU Hospital for Joint Diseases Center for Children provides a multidisciplinary array of pediatric orthopedic services.

by Chris Wolski

Pediatric orthopedics has changed a lot since the 1950s when there were few childhood subspecialists and the most common treatments were for polio and traumatic injuries often in adult orthopedic wards. But that situation has changed, and the NYU Hospital for Joint Diseases Center for Children, New York, a brand-new, state-of-the-art facility is a symbol of both how far pediatric orthopedics has come and where it is headed.

Consisting of four specialty centers and sited on the third and fourth floors of the Hospital for Joint Diseases, the Center for Children fills a long recognized need in the hospital's pediatric orthopedic service. "After 1978, it was obvious that we should have a pediatric area, because we saw so many children with orthopedic problems, and you have to treat the children differently," says Wallace B. Lehman, MD, chief emeritus, pediatric orthopedic surgery, and the namesake of the Wallace B. Lehman, MD, Center for Pediatric Orthopaedic Surgery at the Center for Children.

"Our whole focus started to change, so we had to get a pediatric department, which we arranged in the general orthopedic hospital. It became obvious after a while that we were busier than that, and we needed a children's center; now we have a part of the hospital [that has] been dedicated to the treatment of children."

Lehman joined the staff of the Hospital for Joint Diseases, then a general hospital, in 1958 and has seen the transition of the service from the days when there was only one part-time pediatric orthopedist on staff to today when the center has seven full-time orthopedists. He has also witnessed the change in the hospital's pediatric orthopedic emphasis from polio to trauma and birth defects. "It's changed in volume and in what we do—it's not treating just polio—now it's injuries, trauma, much more into the problems of newborns who didn't survive before," he says. "Now we're seeing them and we have to treat them. Our focus is now on children born with all kinds of deformities and diseases like cerebral palsy, and injuries you couldn't do much about before. It's all changed [since 1958]."

Though an obvious need, selling the idea to administrators and other departments took work, says David S. Feldman, MD, chief of pediatric orthopedic surgery and director of the Center for Children. "You have to believe in the idea," he says. "We had to get permission from all the different departments.

From left: David S. Feldman, MD, chief of pediatric orthopedic surgery and director of the NYU Hospital for Joint Diseases Center for Children; Linda Roth, administrator; and Wallace B. Lehman, MD, chief emeritus, pediatric orthopedic surgery.
The $10-million Center for Children, which opened its doors in June 2003, provides an array of services to treat orthopedic injuries and diseases ranging from simple and complex fractures to clubfoot to bone and soft tissue tumors to scoliosis to juvenile rheumatoid arthritis to neuromuscular diseases to growth disorders to osteoporosis. When it was being created, the Center for Children was designed as a one-stop shop. "The Center for Children is a way of creating a center for [treating] complex orthopedic and neuromuscular problems in children using a university [arena] where you can do it [in a multidisciplinary setting]," says Feldman. "It is children friendly, but it also includes a neurologist, a neurosurgeon, a physiatrist, an occupational therapist, a speech therapist...as opposed to the physiatrist working in one institution and the neurologist working separately, we all work together for these complex issues under one roof."

But, as impressive as the breadth of services at the Center for Children and the one-stop-shop mentality underlying them are, what makes it stand out is more how it delivers its care.

**KID-FRIENDLY ENVIRONMENT**

The philosophy behind the center is the creation of a kid-friendly environment. The center has its own entrance and, instead of hospital white, the walls are colorful, covered with familiar cartoon characters. The center has three waiting areas, including a circular play area for younger kids. Older children have the opportunity to do their homework, with access to computers on site. In addition to the waiting areas, there are eight examination rooms and one treatment room. Though officially an outpatient facility, the center has a small 13-bed inpatient ward. The atmosphere in the center is decidedly different from its adult counterpart. "In the big play area we have volunteers and a child life specialist coming down throughout the week to do services for the kids, some therapeutic, some more entertainment in nature," says Linda Both, administrator, Ambulatory Care Services. "You have someone working with the child who is going to have a procedure to explain what the surgery is and what to expect—on their level—possibly taking a doll and putting a cast on it, so they can see what that looks like. Sometimes we have small groups where we might have a clown, we might be doing an arts and crafts activity, to try to decrease the anxiety that often accompanies a visit to a doctor. The kid-friendly atmosphere extends to the staff as well and includes the banning of white coats for doctors and clinical staff.

There is a practical, medical payoff for the kid-friendly approach to care as well. "The idea is to make it as friendly as possible for the kids and decrease their stress and make it easy for the family," says Both. "Also you're getting all these services in one facility." The design of the center lends itself to a lower stress level. The two consulting rooms are designed with families in mind with a couch, a child-sized table, and toys that make it more like a living room than a medical office.

Examination rooms have modified equipment—lower tables and chairs—to accommodate the pediatric patients. The ceiling tiles are painted with moons and stars.

Families are involved in treatment in other ways as well. "When I grew up, the family could come to the hospital only for an hour or two a week during visiting hours, and that's all changed now," says Lehman.

"The families are here all the time, day and night, outpatient or inpatient. The mothers and fathers go to the operating room with the children. They're in the recovery room. Without the family we wouldn't be as successful, which we really didn't realize in 1958. We thought the family was interfering with us, but you really need them to continue the care. These kids don't just have a crack in their bone, a cast, and you're finished. They need treatment all their lives. You have to get this system where the family is involved, physical therapists are involved, a psychiatrist is involved, the geneticists are involved, all the people needed to keep this kid going.

Treatment at the center involves more than treating just the orthopedic side of the patient's injury or condition. The multidisciplinary treatment team includes psychologists and social workers. The orthopedic clinical team is rounded out with neurologists and physical therapists.

"Every Wednesday afternoon there's a team conference and representatives from all the disciplines are there—you have your neurologist, you have your pediatrician, you have a representative from occupational therapy, physical therapy, everybody's there to discuss the child's progress," says Both. These meetings may cover topics not directly related to the young patient's treatment, including housing and social needs.

The kid-friendly approach has been a hit with patients and their parents. According to Lehman, many of the young patients look forward to coming to the center.

Parents' reactions have been more intense. "I've known some of the families for years, and they've been coming back for years because of the complex nature of their children's disease; they get off the elevator and they can't believe it," says Both. "Their mouths are open as they walk through the hall. One [mother] said to me, 'This is cool.' They were being seen previously in an environment that was absolutely medically appropriate for them, but it was an adult outpatient area trying to meet the needs of kids, and now this is kids for kids."

Patients come from all over the New York Tri-State area and are garnered from both referrals and word-of-mouth recommendations from satisfied parents. All insurance programs from Medicaid to third-party payors are accepted. If the program cannot meet the needs of its patients, the center will take the extra step and assist patients in finding resources that do. "For instance, we don't have a dentist on site, but if we know there's a need, we have arrangements with someone that we call and make the referral, and they'll make the appointment," says Both.

Care, however, is not just dependent on brightly colored walls or clowns. It is tied to state-of-the-art technology and procedures that are part of what the seven orthopedic surgeons are doing.

**STATE-OF-THE-ART CARE**

Among the 1,000 procedures the center's orthopedists perform annually, Feldman and his colleagues use state-of-the-art equipment—computers and other navigation equipment—to reconstruct and repair damaged and deformed limbs. "Where we used to just eyeball it...now we can get it down to the degree we want, and really move ahead with all the technology as well, for instance using rods to lengthen bones," he says. "I think treating limb deformity as a true science is what we've really been about, and that's one definite direction we've taken. Treating spine deformity is
The center, it continues to evolve and grow clinically to meet the needs of the patients.

The next addition to the center's service menu will be an x-ray suite, which will also be fitted into the kid-friendly décor. Both says the initial designs have suggested a spaceship theme, but other ideas are also being explored.

As for the far future, Lehman does not see the center in its present form as the end, but only the transition to its eventual next step—a freestanding children's pediatric hospital.

Chris Wolski is associate editor of Orthopedic Technology Review.

Jessica Marus plays video games with staff member Willie Wolfe in the "kid-friendly" waiting room.

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Lehman adds that the center is an innovator in pediatric orthopedic care in other ways as well. "One is treating clubfoot with the Iowa technique—we're one of three centers in the United States that does it—and it's an amazing, wonderful technique for treating clubfoot," he says. "We're [also] doing reconstruction procedures around the hip joint in children with great success. In the past we were limited in what we could do to reconstruct the hip joint."

In addition, Lehman says, the center leads the way in training residents and fellows. "The resident staff—the four residents who come through the orthopedic department at the Hospital for Joint Diseases—have to spend at least 6 months with us on children's orthopedics, so that when they're finished, they have experience with children," he says. "And then we have a fellowship program. Someone who is finished with their residency training who wants to do what I do and just wants to be a pediatric orthopedic surgeon would come here and spend an extra year or two and become a pediatric orthopedic surgeon, not a general orthopedic surgeon. During this training period with residents and fellows, a certain amount of writing and publishing has to be done. It's part of the program. There are textbooks coming out of this department, and chapters being written all the time."

Because of its ties to New York University (NYU), the center is a site of both outcome and general basic research.

SCHOOL OF RESEARCH

In addition to its residents and fellows, NYU also has research pediatricians at the center. Basic research is carried out in laboratories in the hospital.

The staff also performs outcome studies of the various procedures performed at the center. "We do clinical research regarding outcome measures to see how our patients are doing," says Feldman. "We've assessed a lot of new technology that we're using; for instance, we're writing a number of articles on the spatial frame. Part of assessing the outcomes is good clinical medicine as well."

But research does not stop just with children. There are some patients with chronic conditions and diseases that will be seen by Lehman, Feldman, and their colleagues for decades. Following these patients throughout their lives is helpful in treating future patients. "What happens when these kids are no longer children?" says Feldman. "That seems to be an ignored concept. Some of these children—we've made superfunctional, but where do they go next? How do we make them productive members of society, not just walking members of society?"

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