

DOs and MDs take fresh look at venerable OMT techniques for children

CAROLYN SCHIERHORN

For the past 15 years, pediatricians and family physicians have exhorted parents to place infants to sleep on their backs, not their bellies, to prevent sudden infant death syndrome (SIDS). While the American Academy of Pediatrics (AAP) claims that this practice has reduced the number of SIDS deaths by more than 50%, supine sleeping has created a new problem: deformational plagiocephaly—specifically, flat heads.

Other modern trends, such as women delaying childbirth and undergoing fertility treatments, have contributed to the rise of plagiocephaly from intrauterine trauma, with more first-time mothers giving birth to twins and triplets, who can injure one another in the womb. In addition, skull asymmetry is a frequent consequence of birth trauma from prolonged labor and forceps-assisted delivery.

Stephen D. Blood, DO, a family physician from Alexandria, Va, observes that plagiocephaly is the main condition for which he performs osteopathic manipulative treatment on infants. While the usual medical solu-

tion to skull asymmetry involves fitting afflicted children with uncomfortable corrective helmets, notes Dr Blood, a former president of the American Academy of Osteopathy (AAO), he and others who perform OMT on children have found that cranial treatment can correct plagiocephaly.

With microbes becoming more resistant to antibiotics due to their overuse, ear infections are another affliction on the rise in kids. Indeed, acute otitis media—which can cause severe pain, behavioral problems and hearing impairment—is the leading illness for which parents seek medical attention for young children in the United States, points out Karen M. Steele, DO, the associate dean for osteopathic medical education at the West Virginia School of Osteopathic Medicine (WVSOM) in Lewisburg.

Otitis media is also the leading reason Dr Blood performs OMT on toddlers.

By age 3, between 50% and 70% of children have had at least one episode of acute middle-ear inflammation, while one-third have had more than three episodes, Dr Steele elaborates. In 70% of children with otitis media, fluid remains in the middle ear for two weeks or more after the onset of an ear infection. In 40% of these children, the fluid is still present at one month. Known as *effusion*, this persistence of fluid impairs the tympanic membrane's ability to vibrate and transmit sound, Dr Steele explains.

The most common medical intervention for acute otitis media is still to prescribe antibiotics, whether the inflammation is due to bacterial or viral infection. Children with recurrent inflammation or chronic effusion typically undergo surgery—myringotomy (also known as tympanostomy) with

Stephen D. Blood, DO, treats a 6 year old for a cerebral concussion and contusion of the skull incurred six months prior. (Photo courtesy of Dr Blood)



Otitis media study to measure OMT's effects on effusion

Karen M. Steele, DO, and Jane E. Carreiro, DO, are embarking on a randomized controlled study that could have significant implications for the profession, emphasizes Dr Carreiro, who chairs the Department of Osteopathic Manipulative Medicine at the University of New England College of Osteopathic Medicine (UNECOM) in Biddeford, Maine. Their study, which will begin enrolling subjects this fall, will measure the effects of osteopathic manipulative treatment on the duration of middle-ear effusion in infants and toddlers with acute otitis media.

"If we show that performing OMT on someone with an acute infection can change the course of the disease, that would have enormous significance," Dr Carreiro observes. She notes that previous OMT efficacy studies have demonstrated OMT's effectiveness in alleviating musculoskeletal problems, while small studies have suggested OMT's efficacy in combating visceral diseases.

Several pilot studies have indicated that OMT can reduce the recurrence of otitis media, but recurrence directly involves the musculoskeletal system. Children prone to middle-ear infections often have musculoskeletal dysfunction of the eustachian tube, the temporal bone, the pharynx and adjacent tissues, Dr Carreiro explains.

If OMT is shown to shorten the duration of an acute infection, that would indicate that OMT can be more than an adjunctive therapy in combating infections, she suggests.

Major health problem

Children stand to gain the most from the investigators' otitis media research.

Otitis media affects two out of three children in the first three years of life. In 70% of these afflicted children, fluid remains in the middle ear for two weeks or more after the onset of an ear infection. Effusion interferes with the tympanic membrane's ability to vibrate and transmit sound, explains Dr Steele, the study's principal investigator and the associate dean for osteopathic medical education at the West Virginia School of Osteopathic

Family physician Stephen D. Blood, DO, of Alexandria, Va, performs osteopathic manipulative treatment on a patient with otitis media. (Photo courtesy of Dr Blood)



Medicine (WVSOM) in Lewisburg.

Children with acute or chronic otitis media often have hearing impairment and behavioral problems in addition to severe pain. Moreover, these children frequently undergo surgery—typically myringotomy (also known as tympanostomy) and drainage tube insertion. The surgery is invasive, costly and not always effective, notes Dr Steele, the 2005-06 president of the American Academy of Osteopathy (AAO). Sometimes performed multiple times on a child, the surgery can itself have side effects.

Study design

Funded with a \$100,000 grant from the AAO, the study will take place at two sites: WVSOM and UNECOM. To have at least 60 subjects complete the study, Dr Steele and Dr Carreiro plan to enroll 80 subjects between the ages of 6 months and 2 years. The prospective study is expected to conclude 12 months after the first subjects are enrolled.

Diagnosed with otitis media and referred by their primary care physicians, the subjects will be randomly assigned to either the intervention group receiving OMT or the control group not receiving OMT. Both groups will receive the standard of care for otitis media from their primary care physicians.

At the study sites, the researchers will use tympanometers and acoustic reflectometers to examine middle-ear func-

tioning. In addition, the subjects' parents will be given acoustic reflectometers so they can take daily measurements at home.

"We're enlisting help from the parents to get more precise measurements," explains Dr Carreiro, who serves on the AAO Board of Trustees. "By having parents measure ear pressure, we'll know exactly when the problem resolves."

The subjects in the intervention group will receive the same OMT protocol, which will consist of soft-tissue techniques appropriate for infants such as rib raising and suboccipital raising.

In the study, OMT providers will be blinded to the subjects' clinical courses, and referring primary care physicians will not know whether their patients are assigned to the intervention group or the control group.

"Many DOs feel that OMT can reduce the duration of fluid and the need for drainage tubes in children with recurrent otitis media," Dr Steele says. But the osteopathic medical profession needs additional scientific data to back up what many physicians who perform OMT on children have long observed.

And if Dr Steele and Dr Carreiro demonstrate scientifically that OMT shortens the course of acute ear infections, the ramifications may extend well beyond the care of children with otitis media, the investigators maintain.

—Carolyn Schierhorn

drainage-tube insertion—and often more than once.

Dr Blood, Dr Steele and others who practice osteopathic manipulative medicine have long observed that OMT reduces the need for antibiotics and surgical intervention for children with otitis media. Scientific research is beginning to confirm their observations.

Pilot studies have indicated that OMT can reduce the recurrence of otitis media, points out Jane E. Carreiro, DO, who serves on the AAO Board of Trustees and chairs the OMM department at the University of New England College of Osteopathic Medicine (UNECOM) in Biddeford, Maine. This is not surprising, she maintains, because musculoskeletal dysfunction—of the eustachian tube, the temporal bone, the pharynx and adjacent tissues—plays a significant role in both recurrent and chronic otitis media.

With \$100,000 in funding from the AAO, Dr Steele, the principal investigator, and Dr Carreiro, the co-investigator, are about to conduct a randomized, blinded study to evaluate whether OMT also affects the duration of effusion.

“If we can show that OMT can actually change the course of an acute infection, that will have huge implications,” emphasizes Dr Carreiro, the author of the book *An Osteopathic Approach to Children*, published by Elsevier in 2003. (For more on Dr Steele and Dr Carreiro’s otitis media study, see the accompanying article on Page 25.)

Plagiocephaly and otitis media are just two of the many pediatric problems observed to respond well to OMT. Other such conditions include infant latching and sucking problems, colic, torticollis (wryneck), gastroesophageal reflux, asthma, migraine headaches, sensory integration dysfunction, developmental delays, scoliosis, cerebral palsy, anxiety and some symptoms of autism.

OMT can also play a role in pediatric palliative care, says pediatric psychiatrist Jimmie P. Leszi, DO, an asso-

Dr Frymann’s articles explore palpation, OMT in pediatric populations

The demand for evidence-based medicine in the 21st century has spurred calls for more research on the efficacy of osteopathic principles and practice, particularly osteopathic manipulative treatment. But more than 40 years ago, Viola M. Frymann, DO, the founder of the Osteopathic Center for Children & Families in San Diego, began pioneering evidence-based research on OMT and palpatory diagnosis. Much of her work was published in *JAOA—The Journal of the American Osteopathic Association* and other publications.

A former president of the American Academy of Osteopathy (AAO) and The Cranial Academy, Dr Frymann, conducted research correlating disturbances in craniosacral mechanisms to such newborn symptoms as vomiting, hyperactive peristalsis and irritability. She demonstrated that skeletal distortion due to birth trauma plays a role in the development of learning problems. And she documented that OMT can improve children’s neurologic development.

Dr Frymann also spearheaded research on palpation and OMT’s impact on cardiac and pulmonary problems. Her published articles and other writings have been gathered in *The Collected Papers of Viola M. Frymann, DO—Legacy of Osteopathy to Children*, which the AAO published in 1998.

Passion for children

“Dr Frymann produced significant clinical research,” wrote Hollis H. King, PhD, DO, the associate executive director of the professionwide Osteopathic Research Center, in the “Editor’s Foreword” to *The Collected Papers*. “This research is cited in virtually every book on osteopathy in the cranial field published since the 1960s.”

“The great passion of Dr Frymann’s life has been her work with children,” continued Dr King, who is also an associate professor of osteopathic manipulative medicine at the University of North Texas Health Science Center—Texas College of Osteopathic Medicine in Fort Worth. “This passion was in part prompted by the loss of her first child [who had a cone-shaped skull] and the subsequent realization that osteopathic manipulative medicine, particularly in the cranial field, might have prevented this loss.”

Icon

Many members of the AAO revere Dr Frymann as a pioneer in the field of OMM.

“We members of the AAO all aspire to accomplish a portion of what Viola has accomplished in her long career,” emphasizes Stephen D. Blood, DO, a family physician from Alexandria, Va, who served as the AAO’s 2004-05 president.

“Dr Frymann is considered an icon,” adds Karen M. Steele, DO, the AAO’s 2005-06 president and the associate dean for osteopathic medical education at the West Virginia School of Osteopathic Medicine in Lewisburg. “Her innovative approach to patient care combines OMT with homeopathy, music therapy and other complementary therapies.”

Members of the profession can order *The Collected Papers* by visiting the AAO’s Web site at www.academyofosteopathy.org and clicking on the “Publications” link on the home page followed by the link titled “AAO Book Catalogue.”

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ciate professor of psychiatry and behavioral neurosciences at the Wayne State University School of Medicine in Detroit.

While members of the AAO and many traditional DO pediatricians have always been convinced of OMT's benefits for young children, pediatricians trained in the past 20 years—MDs as well as DOs—are increasingly looking toward manual medicine as a way to relieve these ever-common, vexing, sometimes tragic childhood maladies.

Most important, contends Ali M. Carine, DO, a Columbus, Ohio, pediatrician and OMM specialist, the pediatric profession as a whole has started to appreciate OMM's ability to enhance the overall well-being of children.

MDs show interest

UNECOM's Dr Carreiro reports that most referrals to her Maine OMM specialty practice come from MD pediatricians. In addition, more and more allopathic pediatricians are performing manual medicine, observes Shawn K. Centers, DO, the clinical director and staff pediatrician for the Osteopathic Center for Children & Families, founded by Viola M. Frymann, DO, in San Diego.

"While many osteopathic medical students seem to be embarrassed by OMT, many MDs are intrigued by it," observes Dr Leleszi, who has twice served as the president of the American College of Osteopathic Neurologists and Psychiatrists.

A case in point, Miriam V. Mills, MD, a pediatrician from Tulsa, Okla, is a vocal proponent and enthusiastic practitioner of OMT techniques, including cranial treatment. Her personal experience with receiving OMT converted her to an osteopathic medical mind-set after several years of practicing allopathic pediatric medicine.

Suffering musculoskeletal trauma from a car accident, Dr Mills sought treatment 20 years ago from Kenneth E. Graham, DO, today an associate clinical professor of OMM at the Okla-

homa State University Center for Health Sciences (OSU-CHS) in Tulsa. "I felt better the moment I got off the table," Dr Mills recounts. "Dr Graham continued to treat me for several years, and he encouraged me to further my knowledge of osteopathic manipulative medicine."

In 1991, Dr Mills took an OMT course offered by the Sutherland Cranial Teaching Foundation. Since then, she has obtained additional training in OMT through the AAO and The Cranial Academy, and she has taken courses with first- and second-year OSU-COM students.

Today a clinical professor of OMM at OSU-CHS, Dr Mills has conducted research on pediatric OMT. She served as the principal investigator of a study that assessed the efficacy of OMT as a treatment for children with recurrent otitis media—research that added to earlier pilot studies conducted by Dr Steele. Published in the September 2003 issue of *Archives of Pediatric & Adolescent Medicine*, Dr Mills' study helped inspire Drs Steele and Carreiro to undertake additional research.

Dr Mills, who has a certificate of proficiency from The Cranial Academy, has also studied the effects of OMT on colicky infants, building on research that Dr Frymann conducted in the 1960s.

Convergence

Historically, OMT has been integral to the osteopathic medical profession's care of children. After all, Andrew Taylor Still, MD, DO, established osteopathic medicine due to his disenchantment with 19th-century mainstream medicine after losing three of his pre-teen children to spinal meningitis and a 1-year-old daughter to pneumonia, all in one month in 1864.

Veteran osteopathic pediatricians, such as Arnold Melnick, DO, tend to view OMT as an important modality in osteopathic pediatrics. "In my 30 years of pediatric practice, I found OMT to be quite valuable," says the

1952-53 president of the American College of Osteopathic Pediatricians (ACOP) and the founding dean of what is now the Nova Southeastern University College of Osteopathic Medicine in Fort Lauderdale, Fla.

"But determining how and when to use OMT requires the hands—and brain—of a competent osteopathic physician," cautions Dr Melnick, a columnist for *The DO*. "Some children will need OMT as their sole treatment. Some will need OMT in combination with other treatments, such as medication, physical therapy and psychological guidance. And many may not need OMT at all."

Dr Leleszi concurs that the decision to perform OMT should be based on the needs of the individual patient.

In the second half of the 20th century—as immunization and antibiotics conquered the most deadly and virulent childhood illnesses and as DOs strove to gain parity with MDs—the OMT techniques developed by A.T. Still and other pioneers in the profession largely fell into an adjunctive role in osteopathic pediatrics.

Today, however, the pendulum is swinging back toward the basics of OMM, points out ACOP President Robert W. Hostoffer Jr, DO. But many DO pediatricians lack sufficient training in palpatory diagnosis and OMT. As more DO graduates serve pediatric residencies accredited solely by the Accreditation Council for Graduate Medical Education (ACGME), they do not develop the skills needed to become proficient and confident in performing OMT, observes Dr Hostoffer, who practices pediatric allergy and immunology in Euclid, Ohio.

Responding to increased interest from its members, the ACOP recently developed a nine-module, CD-ROM titled "Pediatric Osteopathic Manipulative Treatment" (POMT). Spearheaded by Dr Hostoffer, this training program has separate modules on sinus drainage, cervical techniques, thoracic techniques, scoliosis, osteopathic struc-

tural examinations, lumbar techniques, knee problems, neonatal OMT, and lower-extremity problems in infants. The modules are designed to be used by residents in ACGME-accredited, AOA-approved, dually approved and parallel pediatric residency programs.

“We’re trying to provide basic training, practical OMT for residents,” Dr Hostoffer explains. “For example, all pediatricians should be able to perform osteopathic structural examinations on young children.

“Our hope is that POMT will be integrated into allopathic, as well as osteopathic, pediatric residency programs.”

The ACOP introduced POMT at its conference held June 28 to July 1 in Orlando, Fla—the first major meeting the ACOP has conducted jointly with the AAP. “The AAP has a DO subcommittee that is trying to bridge the gap between DO and MD pediatricians,” Dr Hostoffer explains. “Sensing increased interest in osteopathic principles and practice on the part of MDs, the AAP contacted us about holding a joint meeting. We’ve agreed to meet with the AAP every other year.”

At the maiden ACOP-AAP meeting in Orlando, Dr Carine led an OMT workshop that attracted approximately 160 participants. “It was the best-attended session at the meeting,” notes Dr Hostoffer, who estimates that MDs made up 20% of the physicians who took part in the workshop.

While some osteopathic physicians who perform OMT on children welcome the increased interest in OMT by both DO and MD pediatricians, others are worried that physicians with insufficient training could cause harm to children by trying to perform difficult techniques.

To perform cranial manipulative techniques, for example, physicians need training and practice, warns Dr Blood, a former president of The Cranial Academy.

What’s more, physicians shouldn’t be led into thinking that OMT is a

A fellow of the American Academy of Osteopathy, Stephen D. Blood, DO, performs osteopathic manipulative treatment on twins who have torticollis (wryneck) and plagiocephaly. Twins and other multiples frequently sustain intrauterine trauma because they injure one another in the womb. (Photo courtesy of Dr Blood)



panacea, admonishes Stanley E. Grogg, DO, a former ACOP president and a professor of pediatrics at OSU-CHS. “Usually OMT is an adjuvant therapy and may not be a cure-all,” he says. “For instance, one may use OMT to reduce stress in children with attention-deficit hyperactivity disorder (ADHD), but these patients will still need other modalities as part of their treatment regimen.”

But Dr Blood, Dr Centers and many other physicians who perform cranial manipulation view OMT as more than an adjunctive therapy for children with ADHD.

“In my practice, I have hundreds of patients who have been diagnosed with ADHD and other developmental issues,” Dr Centers points out. “In the majority of these patients, we have seen marked improvement in ADHD symptoms in those children who have undergone OMT. For children with ADHD who have significant structural dys-

function, OMT may play a key role in their improvement.”

Osteopathic structural examination

Whether or not they perform OMT, pediatricians and other primary care physicians who treat children should learn how to conduct osteopathic structural examinations, contends Kenneth J. Lossing, DO, a family physician from San Rafael, Calif, who is AOA board-certified in both family medicine and neuromusculoskeletal medicine. “All osteopathic pediatricians and family physicians should be doing well-child osteopathic structural examinations as part of their well-child checkups,” Dr Lossing emphasizes.

Dr Carreiro stresses that conducting osteopathic structural exams on newborns is particularly important. “Every newborn should be evaluated to find out whether he or she needs to be treated,” she says.

“Every newborn should be given an

osteopathic structural examination,” agrees Dr Centers, the lead author of the “General Pediatrics” chapter of the second edition of the AOA’s *Foundations for Osteopathic Medicine* textbook, published in 2002 by Lippincott Williams & Wilkins. “Birth itself can be traumatic.

“As a consequence of the birth process, the newborn’s muscles can be stretched. Connective tissue can be pulled. Often the newborn’s neck gets hyperextended as the obstetrician tries to get the baby out of the mother as quickly as possible.”

Although musculoskeletal problems from vaginal birth trauma are usually more obvious to the eye, delivery by cesarean section can cause significant trauma to newborns, Dr Centers maintains. A C-section delivery doesn’t allow a newborn’s cranium to go through the natural molding process of compression and expansion, he explains.

“As a result of a C-section, abnormal pressures can occur on one side of the skull, whereas vaginal delivery can be pressure-equalizing,” Dr Centers observes.

The “General Pediatrics” chapter in *Foundations* offers the following general guidelines for evaluating infants and older children for structural problems:

- Examine each child’s range of motion regionally rather than examining individual vertebral units segmentally.
- Build rapport with a child before beginning the examination by being playful and smiling often.
- Depending on a child’s age, observe him or her lying on the examination table, nursing, sitting, crawling and walking—to gain useful information about the patient’s structural and functional status.
- Assess the cranium visually first, checking for signs of gross structural asymmetry. Then assess the cranium

manually for asymmetry and restriction of motion.

- Examine the patient’s sacrum for interosseous and lumbosacral compression and torsion patterns.

“Pediatric palpatory diagnosis isn’t easy,” Dr Blood observes, “especially when you have a squirming infant who doesn’t want to be held down on the table.” Physicians need to be flexible and patient, as well as playful, and not force infants into compliance, he says.

Gentle techniques

For children up to age 6, Dr Blood generally uses direct OMT techniques. “We engage the barriers directly and try to establish symmetry in motion and function,” he says. “Indirect techniques can be used on older children.”

Only gentle techniques should be used on young children, Dr Centers adds. “High-velocity, low-amplitude techniques should never be used with infants, whose bodies consist largely of soft tissue,” he says. “For infants, use gentle soft-tissue techniques, such as myofascial release and rib raising.”

Although they agree that it is especially important to be gentle when performing OMT on young children, physicians may differ on their approaches and techniques.

A member of the AAO Board, Dr Lossing observes that osteopathic physicians can take advantage of the natural movement of infants and toddlers during treatment. “With most young children, try to engage them in a way that allows them to move around and not feel controlled,” he advises. “Whether they’re kicking or turning their heads, use their movement to help them heal themselves.”

For newborns and other infants, Dr Lossing uses articulatory techniques. “I find an area that is restricted and move it through the restriction,” he explains. “With children, the forces are so much lighter and the restrictions disappear more easily.”

A technique known as Galbreath mandibular drainage helps drain middle ear structures via the eustachian tube and lymphatic system. And rib raising, which assists lymph drainage, can be used to treat children who have otitis media, sinusitis, influenza, pneumonia and asthma.

“In my experience, one of the best indications for OMT in children is asthma,” Dr Melnick relates. “Almost all children will improve—and many times recover—with the application of the lymphatic pump.”

“Some of these youngsters will also require medication—epinephrine, corticosteroids or inhalants,” Dr Melnick emphasizes. “But every osteopathic physician can report cases that totally respond to the lymphatic pump without anything else.”

Dr Melnick notes that he has taught the parents of children with asthma to apply the lymphatic pump technique at home. “This way, children can get treatment several times a day—without having to wait for the next doctor’s visit,” he says.

Dr Lossing has trained parents of children with long-term respiratory problems to perform the pedal pump technique, a relatively simple OMT technique involving moving an infant’s or toddler’s feet.

Dr Steele, an OMM specialist whose practice at WVSOM is based on referrals, notes that many childhood conditions can be resolved with just a few applications of OMT. For infants with colic, for example, three treatments may be all that is needed, she says, whereas torticollis typically requires four to eight treatments and plagiocephaly approximately eight treatments.

Promoting lifelong health

An increasingly prevalent problem, autism is a developmental disability that can leave its sufferers unable to communicate or form relationships. Dr Carine has 30 patients with autism, all of whom were symptomatic before she became their pediatrician. She

reports that by performing cranial and other OMT techniques on these patients, she has been able to reduce self-stimulating behavior and other symptoms of autism.

But she wishes she could do more. "When I see kids with autism for the first time at age 5 or older, I wonder how much I could have helped them at a younger age," she reflects.

Dr Carine believes that by providing OMT to infants and toddlers, she may be preventing some of them from developing autism and other neurological disorders. "I can't tell you how many kids are prevented from having neurological disorders due to regular osteopathic structural exams and OMT," she says, "but I do know that I haven't diagnosed any new cases among those patients I've been treating since early infancy.

"I'd like to do a prospective study of children who've been receiving osteopathic structural exams and OMT since birth."

Dr Carine believes strongly that children benefit from regular OMT and that they will become healthier adults because of it.

"Osteopathic medicine optimizes people's ability to live well," she observes. "While modern allopathic medicine is good at preventing death, what traditional osteopathic medicine brings to healthcare is its focus on improving the quality of life and its success in enhancing the health and functioning of individual patients.

"I'm very proud of what I do. It's wonderful to see increasing interest in pediatric OMT. Our patients will only benefit—throughout their lives." *AOA*

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Learn more about pediatric OMT

During the 112th Annual AOA Convention and Scientific Seminar, which will be held Sept 30 to Oct 4 in San Diego, the American College of Osteopathic Pediatricians (ACOP) will conduct a pediatric osteopathic manipulative treatment workshop and laboratory on Wednesday, Oct 3, at the San Diego Convention Center.

The OMT workshop will take place from 1 pm to 2 pm and the laboratory from 2 pm to 3 pm. They will be led by Shawn K. Centers, DO, the clinical director and staff pediatrician for The Osteopathic Center for Children & Families in San Diego.

Members of the osteopathic medical profession can register for the AOA convention by visiting DO-Online, located at www.do-online.org, and clicking on the "AOA Convention" link on the home page.

November course for pediatricians

On Nov 5-9, the Osteopathic Center for Children & Families will conduct a course in San Diego titled "Dispelling Some of the Myths of Osteopathy in the Pediatric Field." The course will address using OMT to treat children with such conditions as cerebral palsy, plagiocephaly, torticollis, scoliosis, fetal alcohol syndrome, Down's syndrome, autism and epilepsy.

For more information, members of the profession can visit the center's Web site, located at www.osteopathiccenter.org, and click on the "Courses" link on the home page.

Other resources

Readers who would like to learn more about performing OMT on children can also consult the following resources:

- *An Osteopathic Approach to Children*, a textbook written by Jane E. Carreiro, DO, and published in 2003 by Elsevier.
- "General Pediatrics," a chapter in the second edition of the AOA's textbook *Foundations for Osteopathic Medicine*, published in 2002 by Lippincott Williams & Wilkins. Dr Centers served as the lead author of this chapter.



Shawn K. Centers, DO, performs osteopathic manipulative treatment on a 5-year-old boy at the Osteopathic Center for Children & Families in San Diego. (Photo courtesy of Dr Centers)

- Pediatric Osteopathic Manipulative Treatment (POMT), a nine-module CD-ROM program created by the ACOP. For more information on POMT, readers can visit the ACOP's Web site at www.ACOPeds.org.

- *The Collected Papers of Viola M. Frymann, DO—Legacy of Osteopathy to Children*, published in 1998 by the American Academy of Osteopathy (AAO). This book can be ordered through the AAO's Web site at www.academyofosteopathy.org. (See the accompanying article on Page 26.)

- The Cranial Academy's pediatric brochures, including "Osteopathic Treatment for Children With Down Syndrome," "Osteopathic Treatment for Digestive Problems," "Osteopathic Treatment for Ear Infection," "Osteopathic Treatment for Orthodontia," "Osteopathic Treatment for Orthopedic Problems," "An Osteopathic Treatment of the Newborn" and "Respiratory Health Through Osteopathic Treatment." These brochures can be ordered through The Cranial Academy's Web site by logging onto www.cranialacademy.org and clicking on the "Books" link on the home page.