

Y A L E

pediatric UPDATE

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The Yale-New Haven Children's Hospital Physician Letter

Welcome new faculty

Fredric Daum, MD, joins the department as professor and medical director of the YNHCH subspecialty clinics at Greenwich. Dr. Daum is a graduate of Harvard University and the Tufts School



of Medicine. He served his internship and residency at the Bronx Municipal Hospital Center. He is board certified in pediatric gastroenterology. Dr. Daum will attend on the inpatient service at YNHCH and conduct outpatient clinics in New Haven, Bridgeport and Greenwich.

Karen Nead, MD, has joined the section of general pediatrics as an assistant professor. Dr. Nead obtained her undergraduate degree from Middlebury College in Vermont and her medical



degree from the University of Rochester School of Medicine. She completed her internal medicine/pediatric residency at the University of Rochester and obtained a master's degree in public health there as well. Dr. Nead codirects the Primary Care Center (PCC) at YNHCH.

David Spiro, MD, has joined the section of pediatric emergency medicine as an assistant professor. Dr. Spiro graduated

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Yale-New Haven Children's Hospital's toxicology service

Carl Baum, MD, a board-certified medical toxicologist, provides consulting services at Yale-New Haven Children's Hospital (YNHCH). He is available to help physicians determine whether patients who are suspected of exposure to toxins should be brought to the Pediatric Emergency Department. He also serves as a resource for health care providers who have general questions about toxicology.

TO TALK TO OUR PEDIATRIC TOXICOLOGIST, CALL DR. BAUM AT 203-641-TOXI OR EMAIL: CARL.BAUM@YALE.EDU

"In addition, I help manage inpatients who may have been exposed to toxins, including drugs, chemicals or environmental hazards," Dr. Baum said. For the first three quarters of 2003, he logged 256 calls from physicians and others. In addition to his service at the Children's Hospital, Dr. Baum serves as a medical backup specialist for the Connecticut Poison Control Center.

Children age five and under comprise more than half the 1.2 million children reported as toxic exposure cases to poison control centers each year. Their natural curiosity leads them to put things in their mouth; they also metabolize toxic substances faster than adults. Many poisonings can be treated by caregivers at home by calling poison control centers and following instructions; others require a trip to the emergency department.

"The poison control center program does a very effective job at triaging who needs to be seen at a hospital and who can be treated at home," he said.

Last year, 2,380,028 exposure cases were reported by poison centers in the U.S. Some experts estimate this is only 50 percent of the actual number of exposures. Most poisonings occur in the home and involve medications or household items. The largest percentage of substances involved in toxic exposures among children under six years old are cosmetic and personal care products. Cleaning substances, analgesics and cough and cold preparations are other common culprits.

Deadly in a dose

Some common substances are so dangerous that even very small amounts can kill a small child. "As little as 4 milliliters (ml) of a methyl salicylate preparation, such as Ben Gay, can be fatal to a 10-kilogram toddler, as can 2 ml of a teething gel that contains 10 percent benzocaine. Children's physiology makes them vulnerable. They have limited stores of glycogen and immature enzyme activity—both result in potentially dangerous reactions to ingesting alcohol or common over-the-counter preparations."

Other dangerous medications for small children include: beta-blockers; camphor, found in cold preparations and deep heating rubs; clonidine, used to treat attention-deficit hyperactivity

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Environmental toxins—clearing the confusion

“There’s a lot of misinformation, panic and confusion about which environmental toxins actually pose risks to kids,” said Dr. Baum, “which is why I established the Center for Children’s Environmental Toxicology website with the generous support of the Friends of Yale-New Haven Children’s Hospital.

“Environmental toxins pose a great number of hazards to humans, but the risk of any particular toxin may vary depending on the age of the person, his or her health and developmental stage. Developmental differences may make a child unusually sensitive to a toxin. Also, the typical child has more years of life ahead than the average adult, a fact that is important in cases of toxins with long latencies.”

Environmental toxins are everywhere, and their effects are less well understood than other kinds of toxic exposures we see, according to Dr. Baum. “Some of them present a serious hazard such as lead, others, such as mold, may be a problem for a very small percentage of people.”

Mold

How dangerous is mold? “Unless you’re immuno-compromised, mold is not a

serious health hazard. There are some very specific mold-related conditions, but for the vast number of children, mold is more of a perceived problem than an actual risk.”

Mercury

The relationship between autism and mercury is another area of confusion. “People confuse association with causality,” said Dr. Baum. “Because a mercury-containing compound is used as a fixative in children’s vaccines, and because autism is diagnosed in children who are at an age where they receive a lot of vaccinations, people suspect mercury as the cause.

“Autism is a very complex disease. Also, there are 26 different known mercury compounds, each with its own toxic profile. In addition, mercury exposure is a difficult phenomenon to measure accurately,” said Dr. Baum. “There is little scientific evidence linking mercury and autism, but many parents of autistic children are convinced there’s a relationship.”



POISON CONTROL CENTER
800-222-1222

Meet the pediatric toxicologist

Carl Baum, MD, heads the Center for Children’s Environmental Toxicology at the Yale-New Haven Children’s Hospital. Dr. Baum who is an assistant professor of pediatrics at the Yale University School of Medicine directs the medical toxicology program there.



EDUCATION

A.B., Dartmouth College
M. Sc, geological sciences, Brown University
M.D., University of Pennsylvania

POSTDOCTORAL TRAINING

Intern and resident in pediatrics, Children’s Hospital of Pennsylvania
Fellow, emergency medicine/pharmacology and toxicology, Children’s Hospital in Boston.

ACADEMIC APPOINTMENTS

Clinical fellow and instructor in pediatrics, Harvard Medical School
Assistant professor of pediatrics, Northwestern University Medical School in Chicago
Assistant professor of pediatrics, Yale University School of Medicine
Clinical instructor in emergency medicine, University of Connecticut School of Medicine

Food

There are some mixed health messages that drive people nuts, particularly in relation to food. In order to avoid consuming pathogenic bacteria, we’re told to cook meat at high temperatures, but grilling at high temperatures also results in an increase in heterocyclic amines (HCAs), a known carcinogen. What to do? Precooking meat in the microwave and marinating food before cooking reduces DNA damage from HCAs, according to Dr. Baum.

How about fish? Nutritionists say eating fish is healthy, but they also warn that levels of mercury and polychlorinated biphenyls (PCBs) in certain fish may be dangerous. Experts suggest eating smaller fish that are lower on the food chain and likely to have lower concentrations of mercury compared to bigger fish. Connecticut posts information about local fish on its web site (www.state.ct.us/dph). Information about mercury and fish is also available on the Yale-New Haven Hospital’s web site at <http://www.ynhh.org/online/nutrition/advisor/mercury.html>.

Underplayed environmental toxins

Radon gas is a legitimate concern for children, particularly for those who share a home with a smoker. Radon is a cancer-causing, radioactive gas that comes from the natural breakdown of uranium in soil, rock and water. These radioactive particles are released into the air and trapped in the lungs, which may lead to lung damage and eventually to lung cancer. Not all persons exposed to elevated radon levels will develop lung cancer, and the amount of time between exposure and onset of disease may be years. “Everyone should have their homes tested for radon and take remediation measures, if necessary,” advised Dr. Baum.

FOR MORE INFORMATION ABOUT ENVIRONMENTAL TOXINS AND CHILDREN, PLEASE CONTACT DR. BAUM AT 203-641-TOXI OR VISIT HIS WEBSITE AT WWW.TOXIKID.ORG.

Toxicology Service, continued

disorder and hypertension; iron nutritional supplements; lindane, used to treat scabies and lice; oxymetazoline, found in nose sprays and eye drops; sulfonyleureas, blood-sugar-lowering medicines for type 2 diabetes; theophylline, used to treat breathing problems, and tricyclic antidepressants.

YNHCH case studies

“We frequently see toxic exposures to bleach and ammonia, as well as ingestion of prescription and OTC medications,” said Dr. Baum. Some illustrations include:

☠ Four-month-old infant brought in for an evaluation of poor feeding and

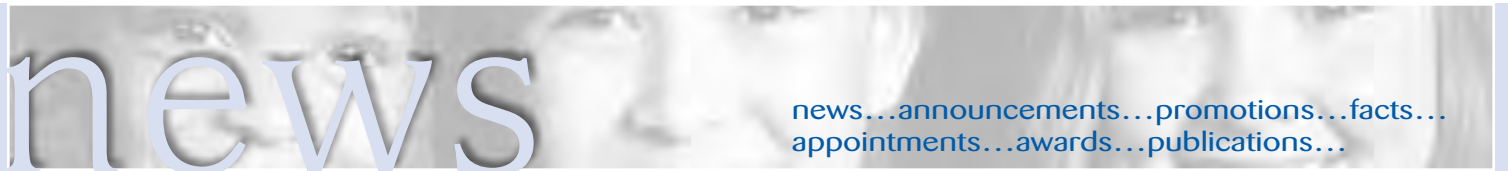
teething problems. The baby was dusky in appearance and was having difficulty breathing. Supplemental oxygen was not effective. The culprit—repeated doses of a teething gel with a high percentage of benzocaine.

☠ A five-month old baby brought to the ED by a babysitter who reported the child became unresponsive after being given formula. The infant was lethargic and slightly hypothermic. The toxin—leftover white Russian cocktails that resembled baby formula.

The above examples had happy endings, unlike the case of a 15-year-old

girl who came to the ED after ingesting a weight-reducing product she had ordered over the Internet. The product was dinitrophenol, a highly toxic chemical used in dyes and fertilizers that accelerates cell metabolism and can result in overheating. All efforts to bring down her temperature were unsuccessful. She died within 11 hours of coming to the ED.

“Fortunately we have many effective ways to treat toxic exposures. Charcoal can be very effective if it’s administered within a couple of hours and whole bowel irrigation is useful for exposure to slow-release substances.”



Now I Know Better tapes and books available



Copies of the award-winning stories are available for your office. In *Now I Know Better*, 70 children recount examples of accidents that happened to them or to someone they know, and they share advice on how similar accidents could be avoided. From bee stings to bike accidents, foolish dares to falls down stairs, the essays were written by kids between 5 and 19 and offer readers valuable safety tips that were learned the hard way. Advice from emergency physicians is also included.

While supplies last, free videos and books are available. Call 203-688-2488 to order copies.

Hats off to our “cover doc”

Joseph Zelson, MD, YNHCH’s associate chief of pediatrics, appeared on the cover of *Connecticut* magazine’s “Top Docs” issue. The annual feature highlights physicians identified by a survey of Connecticut doctors when asked to name whom they’d send a loved one to for medical care.

The magazine surveyed 1,800 Connecticut doctors in five specialties: allergy and immunology, family medicine, internal medicine, orthopedic surgery and pediatrics. In addition to Dr. Zelson, the responses yielded the names of 21 pediatricians, nine of whom are associated with YNHCH.

Dr. Zelson, whose father was a pediatrician, is now treating a second generation of patients, of whom one practices with him at Orange



Pediatrics. “Taking care of second-generation families is an added bonus and doubly thrilling,” Dr. Zelson said. A swimmer who competes in senior international events, Dr. Zelson received his medical degree at New York University School of Medicine, completed his internship and residency at YNHCH, and his fellowship at the Yale School of Medicine.

Latest HealthLINK focuses on development improvements in preemies

Infants who weigh two pounds or less face a tough start in life. They tend to have a high prevalence of cognitive and other disabilities during their earliest years. Past studies have shown 20 to 50 percent of preemies develop significant disabilities by age eight, but a new study suggests the developing brain may compensate for these early setbacks. A majority of very low birthweight children studied by Yale researchers had improvements in verbal and IQ test scores throughout early and middle childhood. A recent edition of Yale-New Haven Hospital’s Pediatric HealthLINK addresses the implications of this important study.

What the news means to you
Laura R. Ment, MD

Preemies improve over time

A majority of very low birthweight children studied had improvements in verbal and IQ test scores throughout early and middle childhood.

Enrolled hours after birth
For this study, the children were

News this month
Preemies show gains over time

Very low birthweight infants—those weighing about two pounds or less—face a tough start in life. Unable to mature fully in the womb, they tend to have a high prevalence of cognitive and other disabilities during the first several years of life. Past studies have shown that anywhere from 20 to 50 percent develop significant disabilities by age eight.

A majority of very low birthweight children studied had improvements in verbal and IQ test scores throughout early and middle childhood.

Enrolled hours after birth
For this study, the children were

What we began the prevention trial.
we had always planned to follow these children for several years. But even before the results were in, one mother kept saying to me that she had noticed her triplets were getting smarter as they got older.

in the 1980s, only about one-third of very small premature newborns survived. These days, the percentage has doubled to about 63 percent, or about 25,000 children per year. Given the likelihood of developmental difficulties in these children, it's in everyone's best interest to track their progress over time.

The children were all born at 28 weeks from 1989 to 1995 and on average weighed just over two pounds. Within hours of birth, the children were placed in the multicenter Randomized Indomethacin Hemorrhage Prevention Trial. To see whether their abilities would improve as they got older, they were evaluated using a variety of developmental tests at age three, four and a half, six and finally at age eight.

Researchers at Yale University, Brown University and Maine Medical Center followed 250 children from infancy through middle childhood at three hospitals. Dr. Laura Ment of Yale was the lead author.

The American Medical Association (AMA) in February, showed that a majority of very low birthweight children studied had improvements in verbal and IQ test scores throughout early and middle childhood.

www.ynhh.org/healthlink



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203-785-KIDS (5437)

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203-688-2000 (local)

Infants & Children (PICU)
203-688-2323

Patient Referral Assistance
888-700-6543 (toll-free)
203-688-2000 (local)

New faculty, continued

from the University of Virginia and earned his medical degree from the University of California, San Francisco.



Upon completion of a pediatric residency at the University of Colorado, he obtained a master's degree in public health and completed a fellowship in pediatric

emergency medicine at the University of Alabama in Birmingham. His emphasis on appropriate antibiotic use is an important force in reducing the development of resistant organisms in children.

Liliana Simon, MD, has joined the



section of pediatric critical care as an assistant professor. Dr. Simon received her medical degree from the University of São Paulo, Brazil, and she served as a

pediatric resident in Brazil and Montreal. Her fellowship in critical care occurred at Children's Medical Center in Dallas. Dr. Simon has organized a training program, together with Dr. Rachel Chapman of the Newborn Special Care Unit (NBSCU), to launch a joint program in ECMO for the NBSCU and Pediatric ICU.

Saqib Lakhani, MD, has joined the



section of critical care as an associate research scientist. Dr. Lakhani received both his undergraduate and medical degrees from the University of Virginia

in Charlottesville and completed his pediatric residency at Washington University in St. Louis. He came to Yale for his clinical fellowship.



Call for free kids' growth charts

Yale-New Haven Children's Hospital is offering free supplies of colorful growth charts for your patients. Illustrated with Jim Henson's endearing bear characters, the charts provide a handy record of growth from 36 to 62 inches.

Call 203-688-2488 for copies for your office.