



# DOCTOR'S DIGEST

A MONTHLY NEWSLETTER FOR ST. LOUIS CHILDREN'S HOSPITAL  
ATTENDING AND REFERRING MEDICAL STAFFS

APRIL/MAY 2015

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## [SLCH NEWS] SURGICAL SERVICES AT SPECIALTY CARE CENTER DESIGNED FOR CONVENIENT, FAMILY-FOCUSED CARE

In June, the expertise of Washington University pediatric surgeons is coming to West St. Louis County with the opening of the Children's Specialty Care Center at Mason Road and I-64. Surgical services at the new location include orthopedics, ophthalmology, otolaryngology, gastroenterology, general surgery, plastic and reconstructive surgery, urology and dental.

The Center features three state-of-the-art operating rooms to accommodate outpatient surgeries and a separate, dedicated room for less invasive procedures. In addition, the hospital's Pediatric Acute Wound Service (PAWS) will provide daily care at the new location. Surgical services will be easily accessed through a separate entrance, which offers free parking.

"A major advantage of the Specialty Care Center is the accessible services and health care this West County location makes available to our patients and their families," says Daniel Nieva, MD, Washington University anesthesiologist and co-director of the Center's perioperative and surgical services. "The traffic, parking challenges and size of Children's Hospital can be intimidating for families, especially those coming from outside the St. Louis area. The CSCC offers an excellent alternative while providing the same exceptional care that is the hallmark of Children's Hospital."

He adds, "Physicians will appreciate not only the Center's convenient location, but also the systems we are developing to ensure efficient scheduling

and pre- and postoperative patient care, allowing them to focus on the needs of their patients."

Dr. Nieva says the care provided will include the availability of Washington University pediatric anesthesia team members, whose responsibilities will extend beyond the surgical suites to providing sedation for children undergoing MRIs and PAWS procedures.

Beyond convenience, the Specialty Care Center's administrative group is focusing on establishing fast, efficient processes that are patient- and family-driven. Toward that end, a group visited Seattle Children's, which is a leader in integrating Lean Six Sigma principles of Toyota and other Japanese manufacturers into its operations.

"What impressed us was Seattle's commitment to establishing a new model of care and to running its day surgery center and outpatient clinic as efficiently as possible without compromising patient safety," says David Leonard, MBBCh, Washington University pediatric otolaryngologist and co-director of the Specialty Care Center's perioperative and surgical services. "Our commitment to the Center is similar—to develop efficient processes that enhance the experience of our surgeons and their patients and families."

Those efficiencies range from having dedicated surgery schedulers for the Center to streamlining how postoperative medications are delivered to families.

[continued on next page](#)

## SHARE YOUR IDEAS

Should you have ideas or suggestions you would like brought before the Children's Medical Executive Committee (CMEC), contact one of your CMEC private physician representatives:

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## DOCTOR'S DIGEST

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## [FACULTY UPDATE] KOHLBERG NAMED MEDICAL ETHICS COORDINATOR

Beth Kohlberg, RN, BSN, MS-HCE, has been named medical ethics coordinator for St. Louis Children's Hospital's Medical Ethics Committee. In this capacity, Kohlberg is responsible for developing medical ethics education presentations and seminars for units throughout the hospital and for those undergoing orientation training. To date, interdisciplinary discussions have centered on specific cases or on the types of medical ethics dilemmas medical professionals often face in a pediatric tertiary care environment.

"The rapid advance of medical technology has resulted in an increasing number of instances in which ethical dilemmas are involved in health care decision making," says Peter Michelson, MD, Washington University pediatric pulmonologist and co-director of the Medical Ethics Committee. "With her extensive background in neonatal intensive care and her advanced degree in health

care medical ethics, Beth is well suited to help facilitate our ability to address in a timely manner the ethical concerns that arise, as well as educate staff members about how to handle these sensitive situations."

Kohlberg has worked as a nurse in the Children's Hospital Newborn Intensive Care Unit (NICU) for 15 years and continues in that capacity on a part-time basis.

"My interest in medical ethics stems directly from the experiences I've had in the NICU and the heart-wrenching situations that arise and cause distress for both families and medical professionals," she says. "As medical ethics coordinator, my goal is to provide staff members with the tools they need to cope with these situations and to help families and caregivers arrive at the best decisions for each patient." 




## SPECIALTY CARE CENTER *continued from page 1*

"Our goal is to do as much as we can preoperatively to eliminate delays in care once patients arrive at the facility," says Vicki Rhomberg, RN, BSN, manager of surgical services at the Center. "Since we are doing elective surgeries, many times the surgeons know what medications they are going to prescribe for patients following surgery, unlike in emergent cases where that decision may be made in the operating room. For our surgical patients, we usually can order medications from our onsite pharmacy ahead of time and have them ready for families as soon as patients are discharged."

Rhomberg's core staff includes nurse practitioners

and nurses, an OR scrub tech and an anesthesia tech for surgical services.

"During the hiring process, we emphasized the patient- and family-driven culture we are striving to establish for the Specialty Care Center, which includes efficiencies as well as a comforting environment," she says. "All of us consider this an exciting opportunity to develop a new care model for our patients, and we are looking forward to implementing it."

Learn more about the St. Louis Specialty Children's Care Center at [StLouisChildrens.org/SpecialtyCare](http://StLouisChildrens.org/SpecialtyCare). To refer a patient, call Children's Direct at 800.678.HELP (4357). 



## [MEDICAL UPDATE] UPDATED SLCH BRONCHIOLITIS GUIDELINES INCORPORATE NEW AAP RECOMMENDATIONS

Each year, a multidisciplinary review group at St. Louis Children's Hospital (SLCH) reviews and, as needed, revises its guidelines for inpatient treatment of bronchiolitis. Last November, the review process was influenced by the American Academy of Pediatrics' (AAP) newly updated clinical practice guidelines for the diagnosis, management and prevention of bronchiolitis in children aged 1-23 months. Of particular interest to the review group were significant changes made by the AAP regarding treatment protocols.

"The previous AAP guidelines dated from 2006, and since that time there has been a substantial body of literature published in regard to treating bronchiolitis," says Christine Hrach, MD, Washington University pediatric hospitalist at SLCH. "Overall, these studies supported eliminating a number of routine treatments prescribed for children with bronchiolitis and instead adopting more of a watchful waiting and supportive care approach."

The AAP treatment recommendations for children diagnosed with bronchiolitis have three classifications: strong, moderate and weak. Among the strong recommendations are to:

- Not administer albuterol or salbutamol
- Not administer epinephrine
- Not administer systemic corticosteroids
- Not administer antibacterial medications unless there is a concomitant bacterial infection or strong suspicion of one
- Administer nasogastric or intravenous fluids for children who cannot maintain hydration orally


Recommendations for moderate bronchiolitis include:

- Routinely obtaining radiographic or laboratory studies when diagnosing bronchiolitis rather than relying on history and physical examination
- Refraining from administering nebulized hypertonic saline in the emergency department
- Refraining from using chest physiotherapy

"We have been proactive about keeping up with published literature, so we already had been reducing our use of albuterol and imaging and particularly discouraging the use of antibiotics," says Anne Borgmeyer, MSN, RN, CPNP, AE-C, pediatric nurse practitioner, Asthma Intervention Model (AIM) Project. "Instead we have concentrated on, as needed, supporting hydration with nasogastric or IV fluids, supplementing oxygen to prevent hypoxia, and giving a fever reducer to make patients more comfortable. Unless patients develop a complication, it's become a matter of letting the bronchiolitis run its course."

The new Children's Hospital guidelines were developed with input from SLCH hospitalists, pulmonologists and an infectious disease physician; AIM nurse practitioners; respiratory therapists; nurses and residents.

The AAP Clinical Practice Guideline for Bronchiolitis may be accessed at [StLouisChildrens.org/DD](http://StLouisChildrens.org/DD).

For a copy of the SLCH guideline, contact Anne Borgmeyer, [anneeb@bjc.org](mailto:anneeb@bjc.org) or Dr. Hrach at [hrach\\_c@wustl.edu](mailto:hrach_c@wustl.edu). For questions call Children's Direct at 800.678.HELP (4357). 

## [LABORATORY NEWS] CHANGES TO TESTING FOR NEISSERIA GONORRHOEAE AND CHLAMYDIA TRACHOMATIS

In March, the Barnes-Jewish Hospital (BJH) Microbiology Laboratory began accepting pharyngeal (throat) and rectal swabs for nucleic acid amplification testing (NAAT) for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* (GC and CT). Although the assay is not FDA approved for these specimen types, the BJH Microbiology laboratory completed verification studies demonstrating adequate analytical performance characteristics. These specimen types are accepted in addition to those specimen types that are currently acceptable for GC and CT:


- Endocervical swabs
- Male urethral swabs
- Vaginal swabs (special collection kit)
- Urine (cup specimen)

The availability of NAAT testing for these specimen types is important for diagnosis of extra-genital infection.

The 2010 Centers for Disease Control and Prevention Sexually Transmitted Disease Guidelines recommend rectal and pharyngeal testing of *N. gonorrhoeae* and *C. trachomatis* for individuals at risk for infection ([www.cdc.gov/std/treatment/2010/std-treatment-2010](http://www.cdc.gov/std/treatment/2010/std-treatment-2010)).

While many methodologies exist for this testing, it has been well established that NAAT has superior sensitivity compared to culture for detecting these pathogens. NAAT for GC and CT for the specimen types noted above can be ordered in COMPASS, Allscripts and HMED. Pharyngeal and rectal swab specimens should be collected using the Gen-Probe endocervical swab collection kit. Other collection kits will not be accepted. For specific instructions regarding collection of specimens for *N. gonorrhoeae* and *C. trachomatis* NAAT testing please refer to the BJH Electronic Test Catalog at [bjhlab.testcatalog.org/show/M102](http://bjhlab.testcatalog.org/show/M102).

Although NAAT testing for GC and CT is more sensitive than culture for diagnosis of these agents, a limitation of NAAT is the absence of isolates for antimicrobial susceptibility testing of *N. gonorrhoeae*. If treatment failure secondary to antimicrobial resistance is suspected, *N. gonorrhoeae* culture can be ordered in parallel with NAAT using a second specimen collected in an appropriate collection device, such as the Eswab. Culture cannot be performed on the same specimen submitted for NAAT.

To speak with a representative from the laboratory call Children's Direct at 800.678.HELP (4357). 

## [SLCH NEWS] FAMILY RESOURCE CENTER SERVES AS COMMUNITYWIDE ASSET

The Family Resource Center (FRC) at St. Louis Children's Hospital, a pediatric consumer health library, functions as much more than a source of medical and family health information for inpatients and their families. Its wealth of material is available to families in the community who want to learn more about a particular illness or disorder or who have general questions about pediatric-related subjects.

"Our health education nurse specialists are trained in researching both print and online resources that help answer questions for those who either call the FRC or visit our location within Children's Hospital," says Alissa Haycraft, RN, MSN, CPNP, clinical lead for the FRC. "So much information is available through the Internet that it's difficult to determine which health resources are reliable. This can be especially daunting for parents who want to quickly find out as much as they can about a diagnosis their child receives. We can direct them to sites best suited to answering their questions and mail or email them printed materials and bibliographies. We also receive recommendations from pediatric subspecialists throughout Children's Hospital about websites that provide the best information for parents wanting to learn more about specific diagnoses. And for parents interested in finding families dealing with the same issues, we have information on local and national support groups and resources."

In addition to referring their patients to the FRC for information, community physicians may request packets of information on specific topics to give to their patients and families. Alison Nash, MD, a community physician practicing in North St. Louis, regularly hands out FRC-developed packets about nutrition, as well as the hospital pamphlets provided by the FRC about asthma and ADHD.

"I regularly talk with patients and their families about nutrition, and it's helpful to have a packet of information about healthy eating, exercise and how to choose snacks wisely that I can review with them," she says. "The Family Resource Center provides me with age-appropriate packets. Younger children learn about nutrition through illustrations and activities like coloring, while teenagers are given strategies for losing weight or eating well even with their busy schedules."

### EXPANDING SERVICES


For families with children in the hospital, the FRC offers a business

center that provides computer and Internet access, copying and faxing capabilities, phone chargers, iPads for inpatient loan, a videophone for hearing-impaired individuals, a notary public and guest services information.

"We are continually looking for ways to further support families both in the hospital and throughout the community, and we've launched several new programs for 2015," says Haycraft. "All of the services we offer are free and 100 percent funded by generous donations to the St. Louis Children's Hospital Foundation."

Among the services available are:

- Pediatric Life Savers, CPR training for families with infants aged birth to 12 months admitted to the hospital. The training is held biweekly and conducted by Washington University medical students. When admitting infants to the hospital, community physicians are encouraged to recommend the training to parents.
- FRC kiosks or health information stations located within Barnes-Jewish Hospital's mothers-infants area, the Julia Davis branch of the St. Louis Public Library, and the soon-to-open St. Louis Children's Specialty Care Center in West County. Those using the stations may navigate the SLCH Kid Care app and explore the hospital's website.
- Translated SLCH teaching tools. The FRC is working with BJC interpretive services to increase awareness of materials translated into Spanish and Bosnian, including the Toolkit for Your Hospital Stay, Ready Reference Guide, Discharge Checklist, Hospital Orientation Guide, Family and Guest Participation Guide, and SLCH Directory. Select teaching tools also are available in Arabic, Hungarian, Korean, Polish and Portuguese; Chinese and Arabic translations are due this year.
- Health information material or resources via 454.KIDS (5437). Callers now have the option to be routed to the FRC if they would like to receive general health information materials or resources.

The Family Resource Center is located within the hospital in Room 3S-12. It is open Monday through Thursday, 8:30 a.m. to 7 p.m.; Friday 8:30 a.m. to 4:30 p.m.; and Saturday 10 a.m. to 2 p.m. To talk with a health education nurse specialist or request information, call 314.454.2350. 

## [FACULTY UPDATE] CHIEF RESIDENT AWARD




Kyle McNerney, MD

Each month, St. Louis Children's Hospital's Chief Residents honor a resident who shows exceptional dedication to his or her patients, colleagues or profession. In December, the SLCH Chief Resident Award was presented to Kyle McNerney, MD, a first-year pediatric resident. Dr. McNerney was recognized for his positive attitude, commitment to teamwork and delivery of superior patient care.



Aly Bokshan, MD

In March, the award was presented to Aly Bokshan, MD, a third-year pediatric resident. Dr. Bokshan was recognized for her teamwork and dedication to patient care when, during a night shift on the 12th floor, she came to the ER to care for patients who had a prolonged wait time. 



## [PSYCHIATRISTS NOTEBOOK] DEPRESSION, OVERWHELMING GUILT IN PRESCHOOL YEARS LINKED TO BRAIN CHANGES

In school-age children previously diagnosed with depression as preschoolers, a key brain region involved in emotion is smaller than in their peers who were not depressed, scientists have shown.

The research, by a team at Washington University School of Medicine, also suggests that the size of the brain's right anterior insula may predict the risk of future bouts of depression, potentially giving researchers an anatomical marker to identify those at high risk for recurrence.

The study is published in the journal *JAMA Psychiatry*.

There is one insula on each side of the brain, and they are thought to be involved in emotion, perception, self-awareness and cognitive function.

The insula also is smaller in depressed adults compared with those of their peers who are not depressed. By using MRI scans and focusing on brain anatomy, the researchers hope to find clues to better diagnose and treat depression and to identify individuals at higher risk for recurrent episodes.

As part of the study, the investigators also found the same brain structure is smaller in kids diagnosed with pathological guilt during their preschool years, providing evidence that excessive guilt is a symptom of depression related to the size of the insula.

"That's not a complete surprise because for many years now, excessive guilt has consistently been a predictor of depression and a major outcome related to being depressed," said first author Andrew C. Belden, PhD.

Pathological guilt can be a symptom of clinical depression, as well as other psychiatric disorders including anxiety, obsessive-compulsive disorder and bipolar disorder. Dr. Belden, an assistant professor of child psychiatry, said it's relatively easy to spot the problem in children because they excessively blame themselves for things they've done—and haven't done.

"A child with pathological guilt can walk into a room and see a broken lamp, for example, and even if the child didn't break it, he or she will start apologizing," Dr. Belden explained. "Even after being told he or she is not at fault, the child will continue to apologize and feel bad."

The "million-dollar question," he said, is whether depressed children become more prone to guilt or guilt-prone children are more likely to become depressed. Either way, Dr. Belden said, the discovery that pathological guilt is related to changes in the brain that increase the risk for recurrent depression could be a major step in better understanding the trajectory of depression.

The researchers followed a group of children in the Preschool Depression Study, conducted by investigators led by Joan L. Luby, MD, director of Washington University School of Medicine's Early Emotional Development Program. The children were assessed for depression and guilt each year from ages 3-6.

There were 47 diagnosed with depression as preschoolers and

82 who had not been depressed. Some 55 percent of those with depression had displayed pathological guilt as preschoolers, while 20 percent of the nondepressed group had excessive guilt.

All of the children also had MRI brain scans about every 18 months from ages 7-13.


The researchers found that children with a smaller insula in the right hemisphere of the brain—related either to depression or excessive guilt—were more likely to have recurrent episodes of clinical depression as they got older.

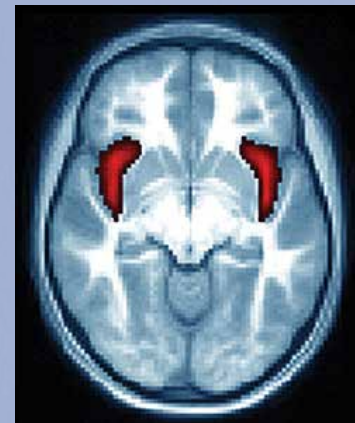
"Arguably, our findings would suggest that guilt early in life predicts insula shrinkage," Dr. Belden said. "I think the story is beginning to emerge that depression may predict changes in the brain, and these brain changes predict risk for recurrence."

The research suggests that excessive guilt and depression may put preschoolers on a developmental trajectory that contributes to problems with depression later in childhood and even throughout life. Some children experience depression, recover and never have another episode, but others experience a chronic and relapsing course. Dr. Belden said it is important to identify those who are at risk for chronic and relapsing depression.

A previous study from the same group found that children diagnosed with depression as preschoolers were 2.5 times more likely to be clinically depressed in elementary and middle school than kids who were not depressed in preschool.

The research team would like to continue the study for at least five more years. During that time frame, study subjects will pass through the high-risk period of adolescence.

"We're hoping to follow these children for several more years, perhaps even into adulthood," Dr. Belden said. "On the immediate horizon is a look at the effects of some things that become more common during adolescent years as kids hit a high-risk time for substance and alcohol abuse and other problems that often co-exist with clinical depression. We want to see how those sorts of issues affect these children we've been following since preschool." 



*The anterior insula on each side of the brain (red) is smaller in children diagnosed with depression as preschoolers and kids who experienced excessive guilt as very young children. A research team found that those with a smaller insula in the brain's right hemisphere were more likely to have recurrent episodes of depression as they got older.*

Funded by the National Institute of Mental Health (NIMH) of the National Institutes of Health (NIH). NIH grant numbers: 2R01 MH064769-06A1, PA-07-070NIMH R01 and 5K01MH090515-04.

Belden AC, Barch DM, Oakberg TJ, April LM, Harms MP, Botteron KN, Luby JL. Anterior insula volume and guilt: neurobehavioral markers of recurrence after early

## [RESEARCH UPDATE] NEW APPROACH TO CHILDHOOD MALNUTRITION MAY REDUCE RELAPSES, DEATHS

Children treated for moderate acute malnutrition—a condition suffered by an estimated 35 million children worldwide—experience a disturbingly high rate of relapse and even death in the year following treatment and recovery.

But without clear evidence that any one feeding regimen trumps another, the global health community has been divided on how best to treat these children and reduce the 37 percent rate of relapse.

A new study led by researchers at Washington University School of Medicine in St. Louis indicates that

supplementary feeding for a set time period—12 weeks—makes an impact but may not be as important as treating children until they reach target weights and measures of arm circumference. The latter is a strategy recommended by the World Health Organization (WHO).

However, to the researchers' surprise, they found that the WHO targets are insufficient and that raising the weight and arm thresholds could significantly lower the rate of relapse.

The study is available online in the *Journal of Pediatric Gastroenterology and Nutrition*. It is accompanied by an editorial that stresses the importance of the findings and recommends they be implemented.

“These findings support a more sustainable recovery for malnourished children and move us another step closer to improving their care and long-term health,” said senior author Mark J. Manary, MD, the Helene B. Roberson Professor of Pediatrics and pediatric emergency medicine physician at St. Louis Children's Hospital. “While relapse rates remain a challenge we still need to overcome, this evidence should help us trim those rates. As it stands, far too many malnourished children relapse.”

The study, in rural Malawi in sub-Saharan Africa, involved 2,349 moderately malnourished children ages 6 months to 5 years who were fed nutritious, soy-based supplements and evaluated for 12 months following treatment. The researchers evaluated two feeding regimens. In the first, 1,967 children were treated until they met weight-for-height and arm circumference targets set by WHO, and in the other, 382 children were treated for 12 weeks.

The researchers found that when moderately malnourished children were treated to the WHO targets, 62 percent remained well-nourished. This compares with 71 percent of children fed nutritional supplements for 12 weeks. “When you're talking about a disease that affects more than 30 million children a year, a nearly 9 percent increase in kids who remain well-nourished becomes a pretty significant improvement,” said first author Indi Trehan, MD, assistant professor of pediatrics.



*Indi Trehan, MD, measures the height of a young girl in Malawi as part of a malnutrition study. The research was aimed at reducing the high rate of relapse in children previously considered recovered after having been treated for moderate acute malnutrition.*

But when they parsed the data, they found other factors at play.

When the researchers tried to pinpoint just what it was about the children who did better after having been treated for 12 weeks, they zeroed in on a compelling detail: that the greater a child's weight-for-height score (WHZ) and the bigger the child's mid-upper arm circumference (MUAC), the more likely it was that he or she would not suffer a relapse.

“Even kids who weren't treated for that long but quickly recovered their weight-for-height score or mid-upper arm circumference did

just as well as the kids who were treated longer,” Dr. Trehan said. “That made us realize that the problem wasn't so much that we weren't treating kids long enough—it was that we weren't treating them to the correct weight and MUAC targets. Both targets currently being used are insufficient. We need to adjust them higher.”

According to WHO standards, a child with moderate acute malnutrition is treated until he or she reaches a weight-for-height measurement of two standard deviations below the mean. But given the high rates of relapse, many programs instead prefer a specified duration of treatment, generally 12 weeks.

However, Drs. Manary and Trehan—both Washington University pediatricians at St. Louis Children's Hospital—found that raising the WHZ levels to 1.5 or 1.75 standard deviations below the mean from the current WHZ level of 2 standard deviations below the mean could significantly lower relapse rates. Likewise, raising the target upper-arm circumference of 13 centimeters from the current standard of 12.5 centimeters could shrink relapse rates.

“Establishing a higher threshold appears to be a better way to prevent relapse rather than treating all children for 12 weeks,” Dr. Trehan said. “A higher threshold could provide a more optimal balance between conserving costs of treatment and scarce food resources and ensuring that as many children as possible don't relapse following treatment.”

Dr. Trehan, who collaborated with colleagues at the University of Malawi for the study, said it would be preferable if the research could be tested with a randomized control trial but that such an undertaking is unlikely because of the resources it would require.

Noting that there has been a paucity of quality studies to guide management of childhood malnutrition, the accompanying editorial called the study a welcome and important addition.

“This is crucial information for donor agencies and health ministries running supplementary feeding and other nutritional rehabilitation

*continued on next page*



## [RESEARCH UPDATE] DIFFICULT BEHAVIOR IN YOUNG CHILDREN MAY POINT TO LATER PROBLEMS

It's normal for a young child to have tantrums and be otherwise disruptive, but researchers have found that if such behavior is prolonged or especially intense, the child may have conduct disorder, a childhood psychiatric problem that could be a harbinger of antisocial behavior.

Researchers at Washington University School of Medicine in St. Louis found that certain symptoms of conduct disorder indicate problems are likely to continue as kids reach school age. They recommend that children who exhibit these symptoms—among them, high-intensity defiant behavior, aggression and destruction of property—be referred to mental health professionals for evaluation and possible intervention.

Their findings were published Jan. 15 in *The Journal of Pediatrics*.

“Previously, we did not understand the empirical differences between normal disruptive behaviors in preschoolers—like temper tantrums, for example—and behaviors that signal problems,” said senior investigator Joan L. Luby, MD, professor of child psychiatry. “If you went to your pediatrician and said, ‘My 3-year-old is having tantrums,’ the pediatrician wouldn’t tell you to see a psychiatrist.”

Although there was overlap between healthy young children and their peers who had conduct disorder, the researchers found that those who exhibited high-intensity defiant behavior, aggression toward people or animals, high-intensity destruction of property, peer problems and deceitfulness, including stealing, were likely to have conduct disorder. Having those symptoms also made it more likely they would carry the disorder into elementary school.

“We characterize a symptom as high-intensity when it’s really ‘high-pitched’—so just how severe the anger is,” Dr. Luby said. “Other factors that would qualify a symptom as high-intensity would hinge on how frequently the behavior occurs and the context in which it occurs. A high-intensity symptom is one that is very acute or severe, occurs over a long duration of time and happens in a number of different contexts.”

“Children who had high-intensity symptoms as preschoolers were likely to have conduct disorder,” said first author Ji Su Hong, MD, who now works as a mental health provider for children treated at Grace Hill Health Centers in St. Louis. “And those symptoms also tended to predict conduct disorder when they reached school age.”


Grace Hill operates neighborhood-based health centers and a community health program in the St. Louis region.

Although healthy preschoolers also engage in disruptive behaviors—including losing their tempers, throwing toys and being untruthful—about one in 20 preschoolers has conduct disorder.

“That’s about one child per preschool class,” Dr. Hong said. “And conduct disorder is a serious problem when it affects a child under 10 because early-onset problems are more likely to persist as the child grows up.”

Kids with conduct disorder often have other disadvantages, too. Many children with school-age conduct disorder in the study were from homes with low incomes, with almost half from families with incomes of \$20,000 a year or less. Further, about half had a history of abuse or neglect; 43 percent came from intact families, meaning more than half were either from single-parent homes or didn’t live with either parent; and more than half had been diagnosed with preschool depression.

Drs. Hong and Luby believe that the best chance young children have to avoid recurring problems is early diagnosis and treatment.

“In young children, violent and destructive behavior that’s deliberate really seems to be a key warning sign,” Dr. Luby said. 


Funded by the National Institute of Mental Health (NIMH) of the National Institutes of Health (NIH). NIH grant number R01 021187.

Hong JS, Tillman R, Luby JL. Disruptive behavior in preschool children: distinguishing normal misbehavior from markers of current and later childhood conduct disorder. *Pediatrics*, Jan. 15, 2015.



*Child psychiatrist Joan L. Luby, MD (left), directs Washington University’s Early Emotional Development Program. In a study of young children, Luby and first author Ji Su Hong, MD, identified several types of misbehavior that may signal conduct disorder and that could predict problems for the children as they get older.*

## CHILDHOOD MALNUTRITION *continued from page 6*

programmes,” wrote David A. Forbes, MBBS, of the University of Western Australia School of Paediatrics & Child Health, and David R. Brewster, MD, PhD, of the Hospital Nacional Guido Valadares in the Democratic Republic of Timor-Leste. “We now have evidence that children with even moderate degrees of wasting should be supplemented until they reach higher WHZ and MUAC endpoints than those currently recommended by WHO.” 

This work was supported by the Office of Health, Infectious Diseases and Nutrition, Bureau of Health, and the Office of Food for Peace, Bureau for Democracy, Conflict and Humanitarian Assistance, of the U.S. Agency for International Development, grant numbers GHN-A-00-08-00001-00 and AID-OAA-A-11-00014 through the Food and Nutrition Technical Assistance II project; a National Institutes of Health (NIH) training grant, T32-HD049338; and the Children’s Discovery Institute at Washington University School of Medicine and St. Louis Children’s Hospital.

Trehan I, Banerjee S, Murray E, Ryan KN, Thakwalakwa C, Maleta KM, Manary

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**[CONTINUING EDUCATION] SAVE THE DATE**

**PEDIATRIC CODING CONFERENCE**

**Friday, July 10, 2015**

**Eric P. Newman Education Center  
St. Louis, Missouri**

Donelle Holle brings over 30 years of expertise in pediatric practice management, billing and coding services to her coding and reimbursement seminars.

**FALL 2015 CLINICAL PEDIATRIC UPDATE**

**Saturday, October 3, 2015**

**The Westin-St. Louis**

This program is designed to offer the primary care provider clinical approaches to problems common in pediatric and adolescent practice.

Visit [StLouisChildrens.org/Med\\_Ed](http://StLouisChildrens.org/Med_Ed) or call 800.678.HELP (4357) for more information.

