Abdominal X-ray showing a large left side renal stone. See story on Page 2.
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  chw.org/refer

  When you want to contact a Children’s Hospital of Wisconsin specialist – for consultation, referral or transport – *one number is all you need to know*.

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  - Referral form.
  - Outpatient order and consent forms.
  - Patient handouts and teaching sheets.
  - Medical care guidelines.
  - CME information.

- **Family Accommodations Program**
  Toll-free (800) 556-8090

  We understand that traveling with a sick child to a new city can be stressful for families. To make a stay at our hospital as easy as possible, we have developed a program to help out-of-town families coordinate their travel and lodging arrangements in Milwaukee. Negotiated discounts are available.
The lifetime prevalence of developing kidney stones in the U.S. has been reported at between 10-15 percent\(^1,2\). Recent studies have suggested that the incidence of urinary stones in the pediatric population is increasing\(^3\). Although there continues to be some debate on this, urinary stones in children can cause significant morbidity and can be challenging for physicians to diagnose and treat.

Stones are formed in the urinary system by a series of events that lead to crystal formation and growth, which then proceed to stone development. Factors such as poor hydration, genitourinary anomalies, genetic factors and metabolic disorders can promote this process. In adults with urolithiasis, there is a male predominance. However, in children, boys and girls are affected equally.

For common symptoms of urinary stones see Table 1. Older children will demonstrate localizing symptoms of costovertebral angle tenderness or abdominal pain on the affected side. These symptoms can be less specific in younger children. Some renal stones are incidentally diagnosed on workup for urinary tract infections.

The majority of stones in children are composed of either calcium phosphate or calcium oxalate, independently or in combination. Other rare causes of stones in children include uric acid, cystine or struvite stones\(^4\).

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The initial workup for a child with renal colic symptoms should include a urinalysis and urine culture to assess for hematuria and infection. In certain situations, a basic metabolic panel and complete blood count is indicated to assess for infection and metabolic abnormalities. The diagnosis of renal stones is made from radiologic imaging – abdominal X-ray (KUB), renal ultrasonography or helical CT scan. The most sensitive and specific method for diagnosing a urinary stone is an unenhanced helical CT scan, which has a reported sensitivity and specificity greater than 96 percent\(^5\). In patients that are ill or present acutely and may require urgent treatment, a CT scan should be performed. At Children’s Hospital of Wisconsin, we routinely will obtain a low-dose-mode stone protocol CT scan that significantly reduces the radiation exposure without reducing the sensitivity of stone diagnosis in these patients.

After a stone has been diagnosed, it must be decided if it warrants emergent or urgent treatment. Stones 3-5 mm in size can spontaneously pass in children 60-85 percent of the time, and smaller stones have an even greater chance of passing\(^6\). Recent studies have demonstrated that \(\alpha\)-blockers both increase the incidence of spontaneous stone passage and provide symptomatic pain relief\(^7\). This has been studied extensively in adult patients with ureteral stones. Although not as extensively studied in children, there are several studies demonstrating the efficacy and safety of tamsulosin in the pediatric population.
For indications for treatment for urinary stones see Table 2. The surgical treatment options include extracorporeal shock wave lithotripsy (ESWL), ureteroscopy and holmium laser lithotripsy and percutaneous nephrolithotripsy (PCNL). The treatment used for urinary stones usually depends more on stone size, location and composition than the age of the patient. Because of advancements in technology, the treatment for urinary stones in pediatric patients has evolved from open procedures to the same endourologic and minimally invasive treatment options used in adults.

ESWL dramatically changed how renal stones were treated in adult patients in 1984. It has been shown to be both safe and effective in pediatric patients.

Due to the significant minimization of endourologic instruments, ureteroscopy with holmium laser lithotripsy has become more prevalent as the primary treatment for both ureteral and renal stones in children. This procedure has the added benefit of allowing the surgeon to directly treat the renal or ureteral stones along with removing the stone fragments during the same procedure. ESWL and ureteroscopy with laser lithotripsy routinely are performed as outpatient procedures unless there are unusual circumstances. (See Figure 1 on Page 4.)

PCNL is reserved for larger renal stones (typically greater than 2 cm) or patients with complex anatomy precluding ureteroscopy or passage of fragments. Access to the renal collecting system is

<table>
<thead>
<tr>
<th>Table 2 Reasons for treatment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary tract infection</td>
</tr>
<tr>
<td>Uncontrollable pain</td>
</tr>
<tr>
<td>Obstruction of a solitary kidney</td>
</tr>
<tr>
<td>Nonresolving nausea and vomiting</td>
</tr>
<tr>
<td>Failure to pass ureteral stone</td>
</tr>
</tbody>
</table>
performed percutaneously and then a rigid or flexible nephroscope is used. Patients that undergo PCNL are admitted to the hospital for treatment.

After treatment of urinary stones, children are evaluated for predisposing metabolic abnormalities with a basic chemistry panel and frequently with a 24-hour urine analysis along with assessment for anatomical abnormalities. Since children have a high lifetime recurrence rate for urinary stones, they are followed closely. This is done most commonly with renal ultrasounds and urine analysis assessing for hematuria to help to decrease radiation exposure.

References

For more information, visit chw.org/urology.

For outcomes from our Urology Program, visit chw.org/quality.

To refer a patient, visit chw.org/refer or call toll-free (800) 266-0366.
Ambulatory blood pressure monitoring:
Improving the evaluation of hypertension in children
by Priya Pais, MD

Priya Pais, MD, is a pediatric nephrologist at Children’s Hospital of Wisconsin. She also is an assistant professor of Pediatrics (Nephrology) at The Medical College of Wisconsin and a member of Children’s Specialty Group.

Hypertension is the leading cause of premature death in adults throughout the world. Previously, pediatric hypertension was thought to be rare and mostly secondary in origin. However, it now is established that the rates of hypertension in children and adolescents, particularly primary or essential hypertension, are rising. (See Table 1.) Analyses of trends in childhood blood pressure verified that the increase in blood pressure is primarily due to the increase in obesity.

### Table 1

**Hypertension in children and adolescents.**

| **Epidemiology** |  
|---|---|
| • Prevalence of childhood hypertension has risen from 1 percent to 3.6 percent. |  
| • Prevalence of prehypertension in high school students is 15.7 percent. |  
| • Prevalence of hypertension or prehypertension in obese adolescents is 30 percent. |  

| **Etiology** |  
|---|---|
| • Between 30 and 55 percent of young children with hypertension have a secondary cause. |  
| • Primary/essential hypertension is the most common form in adolescents. Obesity and a family history of hypertension are more common in primary hypertension. |  

| **Importance of early diagnosis** |  
|---|---|
| • High blood pressure levels occurring during childhood persist into adulthood (blood pressure tracking). |  
| • Cardiovascular complications from hypertension and prehypertension (LVH, increased arterial stiffness and atherosclerosis) can occur during childhood. |  
| • Cognitive function is adversely affected in children with hypertension. |  

| **Nonpharmacologic therapy** |  
|---|---|
| • Reduction in body mass index by 10 percent in obese adolescents. |  
| • Aerobic exercise 4-5 times per week. |  
| • Reduction in dietary sodium intake by avoiding fast food. |  

| **Antihypertensive medications** |  
|---|---|
| • Severe, symptomatic or secondary hypertension is an indication for treatment. |  
| • Children with chronic kidney disease and type 1 or type 2 diabetes require strict blood pressure control with medications. |  
| • Pediatric guidelines for the best initial choice of antihypertensive medications are lacking. |  
| • Diuretics, ACE inhibitors, calcium channel blockers or beta-blockers are common first-line medications. |  

The definition of hypertension in adults is based on outcome data defining risk for adverse events. Such long-term data is not available for children. Therefore, the top percentiles of blood pressure distribution of pediatric normative data define hypertension. (See Table 2.)

### Table 2

**Classification of blood pressure in children.**

<table>
<thead>
<tr>
<th><strong>Normal</strong></th>
<th>SBP or DBP less than 90th percentile*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prehypertension</strong></td>
<td></td>
</tr>
<tr>
<td>Younger than 12 years</td>
<td>SBP or DBP between the 90th – 95th percentile</td>
</tr>
<tr>
<td>12 years and older</td>
<td>SBP greater than or equal to 120mm Hg or DBP greater than or equal to 80mm Hg</td>
</tr>
<tr>
<td><strong>Hypertension</strong></td>
<td>Average SBP or DBP greater than 95th percentile on three separate visits (If the blood pressure is severely elevated on the first visit, greater than 5 mm above the 99th percentile or the patient is symptomatic, blood pressure measurements need not be at separate visit.)</td>
</tr>
</tbody>
</table>

* Percentile tables may be found at www.nhlbi.nih.gov/guidelines/hypertension/child_tbl.pdf.
Ambulatory blood pressure monitoring

Ambulatory blood pressure monitoring is a noninvasive outpatient technique used to obtain multiple blood pressure measurements over a prolonged period of time, typically 24 hours. The monitors are fully automatic and programmed to measure and record blood pressure, usually every 20 minutes. The monitors are worn on a belt and are connected by a plastic tube to a sphygmomanometer cuff on the upper arm. Specialized software is used to edit the 95th percentile ambulatory blood pressure monitoring cutoffs and interpret the patient's data.

Usually 60-70 readings are obtained from a successful ambulatory blood pressure monitoring study. Hypertension is diagnosed by comparing the patient's mean daytime and nighttime ambulatory blood pressure values with pediatric ambulatory normative data.

Ambulatory blood pressure monitoring can be used to make the following diagnoses:

**White coat hypertension** – This is a common condition in which blood pressure in the clinic is elevated but ambulatory blood pressures are normal. The use of ambulatory blood pressure monitoring in the initial evaluation of suspected childhood hypertension is highly cost-effective and can avert excessive testing and unnecessary therapy.

**Masked hypertension** – This is the opposite of white coat hypertension. It is defined as normal blood pressure in the clinic but elevated ambulatory levels. Masked hypertension should be suspected when blood pressure is elevated in some settings, but is normal in the clinic, or in patients with left ventricular hypertrophy but a normal blood pressure in the clinic.
Nocturnal hypertension – The mean ambulatory blood pressure normally falls 10-20 percent during periods of sleep, referred to as the nocturnal dip. The lack of a nocturnal dip or a rise in blood pressure during sleep is characteristic of secondary forms of hypertension and chronic kidney disease.

Inadequate therapeutic response – Ambulatory blood pressure monitoring also is used to adjust antihypertensive medications to achieve better blood pressure control.

Ambulatory blood pressure monitoring consistently has proved its superiority versus casual blood pressure measurements for predicting morbidity and mortality in adults. The Working Group on High Blood Pressure in Children and Adolescents now recognizes ambulatory blood pressure monitoring as a useful tool in the evaluation of hypertension in children. School-age children (older than age 8) tolerate ambulatory blood pressure monitoring well with minimal interference with daily activities and sleep. (See Table 3.)

Hypertension Clinic
In response to the changing trends in childhood hypertension, a multidisciplinary clinic was created at Children’s Hospital of Wisconsin that is dedicated to the management of hypertension. The clinic is staffed by a nephrologist, a nurse practitioner, nurses and a renal dietitian.

New patients at least 8 years old are scheduled for their initial visit with the nurse practitioner. After obtaining a history and physical, an ambulatory blood pressure monitor is placed and

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Pediatric indications for use of ambulatory blood pressure monitoring.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>Benefit</td>
</tr>
<tr>
<td>Confirming the diagnosis of hypertension</td>
<td>Diagnose white coat hypertension Evaluate for masked hypertension</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Evaluate for nocturnal hypertension Assess adequacy of blood pressure control</td>
</tr>
<tr>
<td>Heart, liver and kidney transplant recipients</td>
<td>Evaluate for masked/nocturnal hypertension</td>
</tr>
<tr>
<td>Williams syndrome</td>
<td>Alterations in large arteries increase risk for hypertension</td>
</tr>
<tr>
<td>Turner syndrome</td>
<td>Tight control of blood pressure to reduce aortic root dilation with bicuspid aortic valve</td>
</tr>
<tr>
<td>Neurofibromatosis type 1</td>
<td>Identify masked hypertension to rule out renal artery stenosis</td>
</tr>
<tr>
<td>Polycystic ovary syndrome</td>
<td>Identify sustained hypertension early</td>
</tr>
</tbody>
</table>

Table adapted from the American Heart Association's scientific statement on ambulatory blood pressure monitoring in children.
arrangements are made for fasting labs to screen for kidney function and other comorbid conditions if the patient is overweight. The results of all testing are discussed with the patient’s family during a follow-up visit with the nephrologist. Evaluation for secondary causes of hypertension and for target organ damage will be recommended if hypertension is confirmed by ambulatory blood pressure monitoring.

Patients prescribed antihypertensive medications are scheduled for regular follow-up visits to the clinic to make dose adjustments until the desired blood pressure goal has been reached, to assess adherence to therapy and to monitor for medication-related side effects.

Because obesity is so common in the hypertensive child, nonpharmacologic interventions also are discussed in detail with all patients. Patients meet with the dietitian to discuss weight loss and exercise goals and a healthy diet.
Metabolic liver disease can range from the very obscure to the fairly common. This article focuses on two common pediatric metabolic liver disorders – Wilson’s disease and alpha-1 antitrypsin deficiency. Specifically, we will discuss the epidemiology, pathophysiology, diagnosis and treatment of each of these disorders. We also will focus on some of the genetic markers currently available for each.

**Wilson’s disease**

Wilson’s disease results from the progressive accumulation of copper in the liver due to impaired biliary copper excretion. Wilson’s disease originally was described in the early nineteenth century as a degenerative disorder of the central nervous system associated with cirrhosis. However, it wasn’t until almost a half a century later that copper toxicity was identified as the offending etiology. Following this discovery, there has been significant progress in preventing disease progression as well as further delineation of the specific genetic defect resulting in the impaired biliary copper excretion.

Wilson’s disease is an autosomal recessive disorder that can be found in all ethnicities worldwide. It has a documented prevalence of 1 in 30,000 individuals. The heterozygote carrier state has been reported to be 1 in 90 people. The majority of individuals present in their teens with primarily hepatic manifestations, while the remainder present in their 20s or 30s with neurologic or psychiatric abnormalities. Rarely are clinical symptoms present before age 5 due to the lack of copper accumulation. Furthermore, although clinical symptoms of Wilson’s disease may start in childhood, the diagnosis often is not made for years or even decades due to lack of clinical suspicion. This frequently results in significant hepatic and/or neurological injury, which can be prevented if the disease is identified and treated early.

In 1993, mutations in the ATP7B gene on chromosome 13 were identified to result in Wilson’s disease. Additional studies have found that mutations in ATP7B gene result in defective incorporation of copper into ceruloplasmin. Ceruloplasmin is the primary carrier protein by which copper is secreted from the liver into the systemic circulation. Consequently, the unbound copper cannot be transported from the hepatocyte to the biliary canaliculus, which ultimately results in progressive accumulation of copper in the hepatocytes, leading to cellular injury and hepatocyte death. Serum levels of ceruloplasmin frequently are decreased in individuals with Wilson’s disease, however, this is thought to be the result of decreased synthesis rather than a direct consequence of the ATP7B mutation.

The liver is the major site for both the biochemical defect as well as the initial target of injury. Accordingly, individuals may present with a wide variety of liver dysfunction ranging from asymptomatic elevation of liver transaminases to fulminant liver failure.
Common symptoms may include fatigue, dark or "cola-colored" urine, easy bleeding or bruising, anorexia, change in mental status or decreased school performance. Exam findings may include jaundice, ascites, hepatomegaly, splenomegaly, hematомesis or cutaneous findings including digital clubbing, palmar erythema or spider hemangiomas. Kayser-Fleischer (K-F) rings (a greenish brown ring at the periphery of the cornea) frequently are associated with Wilson's disease but also may be seen in patients with other causes of prolonged cholestasis. K-F rings are virtually always present at the time neurologic or psychiatric symptoms develop, but they frequently are absent in children who present with mainly only hepatic symptoms.

Unfortunately, establishing the diagnosis of Wilson’s disease remains problematic in that there is no single laboratory test that can confirm the diagnosis. Frequently, laboratory evaluation demonstrates hyperbilirubinemia in association with elevated liver transaminases but with normal serum albumin and prothrombin time. Additional findings may include a mild hemolytic anemia and decreased serum phosphate and/or uric acid secondary to renal tubular losses. Once suspected, additional laboratory investigations would include serum ceruloplasmin, copper and 24-hour urine copper. Ultimately the diagnosis of Wilson’s disease is established in patients with low serum ceruloplasmin and one of the following – an elevated 24 hour urine copper excretion, the presence of K-F rings or elevated hepatic copper concentration on liver biopsy. More recently, genetic testing has become available for diagnosis under certain circumstances, specifically, the evaluation of those with relatives known to have Wilson’s disease.

Treatment of Wilson’s disease is characterized by chelation of the accumulated copper and prevention of further reaccumulation. This is accomplished by initiating a diet low in copper as well as one of several copper chelating agents such as D-Penicillamine, trientine or zinc acetate. Unfortunately, without treatment, Wilson’s disease remains uniformly fatal. Subsequently, for those individuals presenting with fulminant hepatic failure, liver transplant remains the only viable option for survival.

**Alpha-1 antitrypsin deficiency**

Alpha-1 antitrypsin is a glycol-protein synthesized by the liver. It acts as a protease inhibitor toward neutrophil proteases such as elastase, Cathepsin G or Proteinase 3. Alpha-1 antitrypsin is part of the "acute phase" inflammatory response and can be elevate in inflammation. The role of alpha-1 antitrypsin is to limit the extent of tissue injury during an inflammatory response.

Alpha-1 antitrypsin deficiency is the most common genetic disorder affecting the liver and is inherited in an autosomal recessive fashion. The most common phenotype leading to liver disease is ZZ phenotype. The prevalence of ZZ phenotype is 1 in 2,000, and there is increased prevalence among individuals of northern European ancestry. Several other phenotypes have been described, specifically SZ heterozygote phenotype, which also results in liver disease, but overall is a milder form of disease. SS phenotype usually is asymptomatic. MZ heterozygotes rarely develop clinically significant liver disease, however, there is increasing evidence that patients with MZ phenotype are more susceptible to liver damage induced by drug toxicity, viral infections or fatty liver.

Z mutant α₁-AT protein is abnormally folded, thus it is prone to polymerization inside the endoplasmic reticulum. Z mutant retained in endoplasmic reticulum of the liver leads to hepatotoxic effect. Liver disease is clinically significant in 10-20 percent of ZZ patients and can present as:

- Abnormal transaminases.
- Cirrhosis portal hypertension.
- Cholestatic liver disease.
- Liver cancer.
- Liver failure.
Grzegorz Telega, MD, is one of the specialists at Children’s Hospital of Wisconsin who sees patients with acute and chronic liver problems. The latest treatment options and surgical interventions, including liver transplantation, are available to our patients.

The majority (75-90 percent) of patients affected by alpha-1 antitrypsin deficiency have mild hepatic dysfunction characterized by elevated aminotransferases and mild cholestasis. The remaining 10-25 percent of patients progress to chronic liver disease with fibrosis and portal hypertension. In this group, 25-50 percent will progress to liver failure and will require liver transplant. Another 5-10 percent of patients with chronic liver disease with fibrosis or cirrhosis will develop hepatocellular carcinoma.

Due to high prevalence, clinicians should suspect alpha-1 antitrypsin deficiency in all children with cholestasis, cirrhosis/portal hypertension or persistently elevated aminotransferases. The diagnosis is established by protein immunoelectrophoresis phenotype (PI typing) genetic testing. However, the alpha-1 antitrypsin level is an acceptable test as long as the clinician remembers the level can be falsely in the normal range during any acute inflammatory phase.

Management of alpha-1 antitrypsin deficiency should focus on nutrition. Patients may need supplementation with fat-soluble vitamins and medium chain fatty acids. Clinicians should screen for evidence of portal hypertension (splenomegaly, thrombocytopenia) or hepatocellular carcinoma (alpha fetoprotein, liver ultrasound). Chaperone therapy (4 phenylbutyrate) remains experimental. Patients should avoid cigarette smoke and heavy air pollution since individuals with alpha-1 deficiency also are prone to premature development of lung emphysema.

References

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For outcomes from our Gastroenterology Program, visit chw.org/quality.

To refer a patient, visit chw.org/refer or call toll-free (800) 266-0366.
Adults with congenital heart disease: Patched but not cured
by Michael Earing, MD

Michael Earing, MD, is a cardiologist and program director of Adult Congenital Heart Disease at Children’s Hospital of Wisconsin. He also is an associate professor of Adult Cardiovascular Medicine and Pediatric Cardiology at The Medical College of Wisconsin and a member of Children’s Specialty Group.

Introduction
Congenital heart defects are the most common group of birth defects, occurring in approximately 9 in 1,000 live births. Without treatment, the majority of patients would die in infancy or childhood, with only 5-15 percent surviving into adulthood. The advent of surgical procedures such as ligation of patent ductus arteriosus, resection of coarctation of aorta and the legendary Blalock-Taussig shunt, as well as advances in diagnostic, interventional and critical care skills, have resulted in survival of approximately 90 percent of these children to adulthood. Now, for the first time in history, it is estimated that more adults than children are living with congenital heart disease in the U.S., with a 5 percent increase every year. This growth rate predicts that in the next decade, the number of adults with congenital heart disease living in the U.S. will reach 1 million. Unfortunately, the number of physicians formally trained to care for this complex group of patients is small. In the most recent study, published in 2006, it is estimated that only 31 physicians have received formalized training to care for adults with congenital heart disease in the U.S. in the last 10 years. As a result, many adults with congenital heart disease do not have access to appropriately trained physicians or required medical and surgical services.

Long-term medical considerations
About 25 percent of adults with congenital heart disease have a mild form that has allowed them to survive into adulthood without surgical or interventional cardiac catheterization. The most common lesions in this category include mild aortic valve stenosis (usually in setting of bicuspid aortic valve), small restrictive ventricular septal defects, mild pulmonary valve stenosis and mitral valve prolapse. (See Table 1.) These patients need less frequent followup to assess for progression of disease and to identify associated complications. The majority of adults with congenital heart disease now living in the U.S., however, are patients who have had previous intervention. (See Table 2.) Although the majority of children who undergo surgical intervention will survive to adulthood, with few exceptions, “total correction” is not the rule. The few exceptions include patent ductus arteriosus, atrial septal defects and atrial septal defects, and only if they are closed early before the development of irreversible cardiac or lung damage and no residual lesions exist.

Table 1
Congenital heart defects associated with survival into adulthood without surgery or interventional cardiac catheterization.

<table>
<thead>
<tr>
<th>Condition</th>
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</thead>
<tbody>
<tr>
<td>Mild pulmonary valve stenosis</td>
</tr>
<tr>
<td>Bicuspid aortic valve</td>
</tr>
<tr>
<td>Small to moderate size atrial septal defect</td>
</tr>
<tr>
<td>Small ventricular septal defect</td>
</tr>
<tr>
<td>Small patent ductus arteriosus</td>
</tr>
<tr>
<td>Mitral valve prolapse</td>
</tr>
<tr>
<td>Partial atrioventricular canal (ostium primum atrial septal defect and cleft mitral valve)</td>
</tr>
<tr>
<td>Marfan syndrome</td>
</tr>
<tr>
<td>Ebstein’s anomaly</td>
</tr>
<tr>
<td>Congenitally corrected transposition (atrio-ventricular and ventriculo-arterial discordance)</td>
</tr>
</tbody>
</table>
Michael Earing, MD, conducts a follow-up appointment with an adult patient at Children’s Hospital of Wisconsin. Dr. Earing is one of the few physicians in the U.S. who has received formalized training to care for adults with congenital heart disease.

Because adult patients with congenital heart disease now are surviving longer than ever before, it is becoming increasingly apparent that even the most simple lesions can be associated with long-term complications. These long-term complications include both cardiac and noncardiac problems. Cardiac complications include arrhythmias and conduction defects, ventricular dysfunction, residual shunts, valvular lesions (regurgitation and stenosis), hypertension and aneurysms. Noncardiac sequelae include developmental abnormalities such as developmental delay, somatic abnormalities such as facial dysmorphism (cleft palate/lip), central nervous abnormalities such as seizure disorders from

**Table 2**

Most common congenital heart defects surviving to adulthood after surgery or interventional catheterization.

<table>
<thead>
<tr>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aortic valve disease following balloon valvuloplasty or surgical valvotomy</td>
</tr>
<tr>
<td>Pulmonary valve stenosis following balloon valvuloplasty or surgical valvotomy</td>
</tr>
<tr>
<td>Tetralogy of Fallot</td>
</tr>
<tr>
<td>Ventricular septal defect</td>
</tr>
<tr>
<td>Complete atrioventricular canal</td>
</tr>
<tr>
<td>Transposition of the great arteries</td>
</tr>
<tr>
<td>Coarctation of the aorta</td>
</tr>
<tr>
<td>Complex single ventricles after the modified Fontan procedure</td>
</tr>
</tbody>
</table>

The Herma Heart Center Adult Congenital Heart Disease Program, established in 2004, is dedicated to advancing the care of adults with congenital heart disease. It offers all aspects of care for adults with congenital heart disease. In addition, the program is dedicated, through research and education, to improve the lives of all current and future patients with congenital heart disease. A collaboration between Children’s Hospital of Wisconsin and Froedtert Hospital, the program now serves more than 1,700 patients annually.
previous thromboembolic events or cerebrovascular accidents, disturbances of the senses such as hearing or vision loss and, finally, pulmonary sequelae such as restrictive and obstructive lung disease. In addition, psychosocial problems involving employment, life and health insurance, participation in sports, sexual activity and contraception are common. As a result of these long-term complications, the majority of adults with congenital heart disease need lifelong follow-up.

References

practical PEDIATRICS

Webcast

Adult congenital heart disease CME webcast
Practical Pediatrics Grand Rounds CME webcasts provide lectures on recent advances and current knowledge in pediatrics. Each lecture is available on demand, allowing you to earn CME credit when it is convenient for you.

“Congenital Heart Disease in Adults” by Michael Earing, MD

Objectives
• Discuss common medical issues that affect adults with congenital heart disease.
• Prevent current psychosocial challenges faced by adults with congenital heart disease.
• Discuss current research projects in progress to address medical issues and psychosocial issues.

This lecture is available online at chw.org/practicalpediatrics.

See Page 19 for CME information.
The Blood and Marrow Transplant Program at Children’s Hospital of Wisconsin is one of the largest in the U.S. using unrelated individuals or mismatched family members as donors. The program, which is part of The Medical College of Wisconsin’s BMT Program at Children’s Hospital and Froedtert Hospital, recently was reaccredited by the Foundation for the Accreditation of Cellular Therapy for pediatric and adult autologous and allogeneic transplantation. Visit chw.org/BMT for more information.

**DERMATOLOGY**

Children’s Hospital offers a Complex Dermatology Clinic for children who have skin manifestations of systemic disease. Conditions treated include rheumatologic disorders such as cutaneous lupus erythematosus, juvenile dermatomyositis, morphea (localized scleroderma) or psoriasis with psoriatic arthritis; and skin manifestations of other diseases, such as inflammatory bowel disease (pyoderma gangrenosum or hidradenitis suppurativa). Clinic physicians also serve as a resource on severe pediatric cases of common dermatologic diagnoses such as atopic dermatitis or psoriasis. Visit chw.org/dermatology for more information.

**FETAL CONCERNS**

Patients who are referred to the Fetal Concerns Center of Wisconsin are no longer required to have a Maternal and Fetal Medicine consult with a Medical College of Wisconsin specialist. However, these specialists remain available to meet patients, consult, accept a referral or provide a second opinion as needed. Visit chw.org/fetalconcerns for more information. To make a referral, call (414) 805-4776 or toll-free (855) 338-2594 (FETALWI).

**GYNECOLOGY**

The staff in the Adolescent Medicine Program at Children’s Hospital is specially trained to treat children and teens with unique gynecological concerns. While providing evidence-based medical treatment, the staff also educates patients about ways to stay healthy and motivates each patient to reduce risky behaviors and make wise choices. Our staff has expertise in treating adolescents and teens with developmental disabilities and complex medical conditions. Visit chw.org/adolescent for more information.

To make an appointment in these programs, except where noted, call Central Scheduling at (414) 607-5280 or toll-free at (877) 607-5280.
CONCUSSION CLINIC

Children’s Hospital of Wisconsin offers the only Concussion Clinic in the state for young athletes, up to age 22. Our pediatric sports medicine specialists evaluate children’s injuries and offer guidance and education to ensure it’s safe to return to regular activities.

Based on American Academy of Pediatrics guidelines, we suggest a baseline concussion test for all young athletes, especially those involved in contact sports. Baseline concussion tests are given before a concussion happens. After an injury, another test is done. The results then can be compared to measure the athlete’s brain function before and after the injury.

Children’s Hospital uses ImPACT™ and Axon Sports computerized concussion evaluation tests, which are commonly used in organized high school sports, by the National Collegiate Athletic Association and by the National Football League.

These tests measure:
• Verbal and visual memory.
• Attention span.
• Brain processing speed.
• Reaction time.

Gino Mueller, 15, attempted to head a soccer ball and collided head-to-head with another player during a high school game. He was transported by ambulance to Children’s Hospital of Wisconsin for emergency care. He benefited from nearly eight weeks of follow-up care from Children’s Hospital Sports Medicine specialists, who helped the family work through school restrictions while Gino’s memory and concentration returned to normal. Gino also underwent physical and occupational therapy to help reduce dizziness and regain balance.
If a child is injured with a concussion, a pediatric sports medicine specialist will evaluate him or her. This includes a complete review of the child’s injuries and symptoms, along with a thorough physical exam. During each follow-up visit, we will evaluate the treatment plan and offer help with managing symptoms. We also will provide a timeline for returning to regular activities, such as school, driving, physical activity or sports.

Some children and adolescents also may need an MRI or to be seen by a pediatric neurologist or neuropsychologist. Our pediatric sports medicine specialists provide referrals as needed.

For more information, including patient family education videos, visit chw.org/sportsmedicine.

ACCESS
Appointments are available at Children’s Hospital of Wisconsin clinics in Greenfield, Wis., and New Berlin, Wis.

REFER A PATIENT
To speak with a member of our team, call our Orthopedic Clinic Nurse Line at (414) 266-2411 or the Children’s Hospital of Wisconsin Physician Referral Center at (800) 266-0366.

CALL FOR AN APPOINTMENT
To make an appointment, call Central Scheduling at (414) 607-5280 or toll-free (877) 607-5280.
REGISTER NOW for the Best Practices in Pediatrics winter 2012 conference

Our Best Practices in Pediatrics conference will provide the latest information about common problems encountered in pediatric practice and will benefit all health care providers who work with children, including pediatricians, family practice physicians, nurse practitioners and physician assistants.

When: Friday, March 9, and Saturday, March 10
Location: Glacier Canyon Lodge, Wisconsin Dells, Wis.
Cost: Register before Feb. 9 – $125 attending both days; $55 for Friday only or $70 for Saturday only. Registered after Feb. 9 – $150 attending both days; $65 for Friday only or $85 for Saturday only. For those not claiming credit there is no cost to attend. The Medical College of Wisconsin and Children’s Hospital and Health System providers are not required to pay a registration fee to earn credit.

There is a $25 cancellation fee for paid registrations if cancelled by Feb. 24. No registration fees will be refunded after Feb. 24.

Registration information and conference details can be found online at chw.org/bestpractices.

Early registration is recommended.

Friday, March 9
Registration: Noon – 12:50 p.m.
Lectures: 12:50 p.m. – 4:15 p.m.
Reception: 4:15 p.m. – 6:30 p.m.
• “The Menstrual Cycle: Is It Really a Vital Sign in Adolescents?”
• ”Sexuality on Facebook: Educating the Parent, Counseling the Teen”
• ”Adolescent Skin: Unique Pearls and Generalizable Tips”
• ”The New Kids on the Block: Current Trends in Adolescent Drugs of Abuse”

Saturday, March 10
Registration: 7 a.m. – 7:30 a.m.
Lectures: 7:30 a.m. – 2:45 p.m.
• ”Hot Topics in Pediatrics”
• ”Common Apophyseal Conditions”
• ”Treatment of Seizures: Side Effects, Noncompliance and Drug Resistance”
• ”Spasticity Management and Pearls for the Primary Care Provider”
• ”Nonsurgical Management of Neurogenic Bladder and Bowel Disorders in Children”
• ”Secrets of the Late Preterm Infant”
• ”Chronic Childhood Bellyaches: Understanding the Disorder and Treatment”
• ”Chest Pain in the Pediatric Young Adult Patient: When Should I Worry?”

Accreditation
The Medical College of Wisconsin is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Designation of credit
The Medical College of Wisconsin designates this Live activity for a maximum of 9.25 AMA PRA Category 1 Credits™. Physicians should only claim the credit commensurate with the extent of their participation in the activity.

Application for CME credit has been filed with the American Academy of Family Physicians. Determination of credit is pending.

Hours of participation for allied health professionals: The Medical College of Wisconsin designates this activity for up to 9.25 hours of participation for continuing education for allied health professionals.

Children’s Specialty Group fully intends to comply with the legal requirements of the Americans with Disabilities Act. If any participant is in need of accommodation, please call (414) 266-8617.
TUNE IN to Practical Pediatrics CME webcasts

Lectures on recent advances and current knowledge in pediatrics and pediatric specialties now are easy to access, interactive and available when you are. Each month a new lecture is added online.

To view on demand, visit chw.org/practicalpediatrics. You can view these presentations from your computer when it’s convenient for you and earn continuing medical education credits.

Current lectures available for CME credit

• “Pediatric Musculoskeletal Exam: Shoulder, Knee and Ankle” by Kevin Walter, MD, FAAP
• “Overview of Primary Immunodeficiencies” by John Routes, MD
• “The What and the Why of the WHO Growth Charts” by Praveen Goday, MD
• “Distraction Osteogenesis in Pediatric Patients” by Arlen Denny, MD
• “Genetic Screening: What Should I Offer My Patients?” by David Bick, MD
• “Updates on Recent Advancements in Pediatric Image Guided Therapy” by Craig Johnson, DO
• “Congenital Heart Disease in Adults” by Michael G. Earing, MD
• “Chronic Pain in Children and Adolescents: A Multidisciplinary Approach to Neuropathic Pain” by Steven Weisman, MD
• “Pediatric Nuclear Medicine: What the Pediatrician Should Know” by Carla Quijano, MD

Upcoming lectures

• Assessment and management of anemia.
• Atopic dermatitis.
• Autoimmune liver diseases.
• Brain tumors.
• Cardiac sudden death in children and adolescents.
• Chronic abdominal pain.
• Concussion.
• Hemangiomas.
• Pediatric surgery.
• Scoliosis.

Accreditation

The Medical College of Wisconsin is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Designation of credit statement

The Medical College of Wisconsin designates this enduring material for a maximum of 1.0 AMA PRA Category 1 Credit™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

The Medical College of Wisconsin designates this activity for up to 1.0 credit hour of continuing education for allied health professionals.
New hires

ADOLESCENT MEDICINE

Sadhana K. Dharmapuri, MD, is an adolescent medicine specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics ( Adolescent Medicine) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Poznan University of Medical Sciences, Poland.

Residency: University of Illinois College of Medicine, Pediatrics.

Fellowship: Children's National Medical Center, Washington, D.C., Adolescent Medicine.

Meara E. Peterson, MSN, APNP, is an adolescent medicine nurse practitioner at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Science: University of Mary Washington, Fredericksburg, Va., Biology.

Master of Science: Marquette University, Milwaukee, Nursing.

Board certification: Certified Pediatric Nurse Practitioner-Primary Care.

ANESTHESIOLOGY

Lindsey M. Loveland Baptist, MD, is a pediatric anesthesiologist at Children's Hospital of Wisconsin, an assistant professor of Anesthesiology at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Wisconsin-Madison, School of Medicine and Public Health.

Residency: University of Chicago Hospitals, Anesthesiology.

Fellowship: The Medical College of Wisconsin, Milwaukee, Pediatric Anesthesiology.

Board certification: Anesthesiology.

William R. Clarke, MD, is a pediatric anesthesiologist at Children's Hospital of Wisconsin, an associate professor of Anesthesiology at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Duke University School of Medicine, Durham, N.C.

Residency: The Medical College of Wisconsin, Milwaukee, Anesthesiology.

Fellowships: Children's Hospital of Philadelphia and Children's Hospital of Wisconsin, Pediatric Anesthesiology.

Board certification: Pediatrics, Anesthesiology and Critical Care Medicine.

Roger A. Fons, MD, is a pediatric anesthesiologist at Children's Hospital of Wisconsin, an assistant professor of Anesthesiology at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Wisconsin-Madison, School of Medicine and Public Health.

Residency: The Medical College of Wisconsin, Milwaukee, Family Medicine and Anesthesiology.

Fellowships: The Medical College of Wisconsin, Pediatric Anesthesiology.

Board certification: Family Medicine.

Rachel M. Haake, MD, is a pediatric anesthesiologist at Children's Hospital of Wisconsin, an assistant professor of Anesthesiology at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Wisconsin-Madison, School of Medicine and Public Health.

Residency: The Medical College of Wisconsin, Milwaukee, Anesthesiology.

Fellowships: The Medical College of Wisconsin, Pediatric Anesthesiology.

Board certification: Anesthesiology.

CARDIOLOGY

Amy K. Bouressa, MSN, APNP, is a pediatric cardiology nurse practitioner at Children's Hospital of Wisconsin Fox Valley Clinic and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Science: Viterbo University, La Crosse, Wis., Nursing.

Master of Science: University of Wisconsin-Oshkosh, Nursing.

Board certification: Family Nurse Practitioner.

Julie Schmidt, MSN, APNP, is a pediatric cardiology nurse practitioner at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Science: Carroll University, Waukesha, Wis., Nursing.

Master of Science: Marquette University, Milwaukee, Nursing.

Board certification: Certified Pediatric Nurse Practitioner-Primary Care.
Ann E. Scott, MSN, APNP, is a pediatric cardiology nurse practitioner at Children’s Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children’s Specialty Group.

Bachelor of Science: Marquette University, Milwaukee, Nursing.
Master of Science: University of Wisconsin-Madison, Nursing.
Board certification: Certified Pediatric Nurse Practitioner-Primary Care.

Jena B. Tanem, MSN, RN, is a pediatric cardiology nurse practitioner at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Science: University of Rochester, N.Y., Nursing.
Master of Science: University of Wisconsin-Milwaukee, Nursing.
Board certification: Family Nurse Practitioner.

Jeremy T. Affolter, MD, is a pediatric critical care specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Critical Care) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Kansas School of Medicine.
Residency: Children's Mercy Hospital, Kansas City, Mo., Medicine-Pediatrics.
Fellowship: University of Texas Southwestern Medical School, Dallas, Pediatric Critical Care and Pediatric Cardiology.
Board certification: Internal Medicine, Pediatrics and Pediatric Critical Care Medicine.

Anna Pesok, MD, is a pediatric critical care specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Critical Care) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Rosalind Franklin University of Medicine and Science, North Chicago, Ill.
Residency: St. Louis University School of Medicine, Mo., Pediatrics.
Board certification: Pediatrics.

Fasiha M. Saeed, MD, is a pediatric critical care specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Critical Care) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Army Medical College, Rawalpindi, Pakistan.
Residency: University of Illinois College of Medicine, Pediatrics.

Nathan J. Schloemer, MD, is a pediatric hospital medicine specialist in Critical Care at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Critical Care) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Wisconsin Madison, School of Medicine and Public Health.

Lisa M. Joerres, MD, is a pediatric emergency medicine specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Emergency Medicine) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: The Medical College of Wisconsin, Milwaukee.
Residency: The Medical College of Wisconsin, Pediatrics.

Rebecca L. Koo, MS, APNP, is a pediatric emergency medicine nurse practitioner at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Science: Olivet Nazarene University, Bourbonnais, Ill., Nursing.
Master of Science: University of Illinois at Chicago, Nursing.
Board certification: Certified Pediatric Nurse Practitioner-Primary Care.

Michael N. Levas, MD, is a pediatric emergency medicine specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Emergency Medicine) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: The Medical College of Wisconsin, Milwaukee.
Residency: University of Missouri-Kansas City School of Medicine, Pediatrics.
Fellowship: University of Missouri-Kansas City School of Medicine, Pediatric Emergency Medicine.
Board certification: Pediatrics.
Tara M. Webb, MD, is a pediatric emergency medicine specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Emergency Medicine) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Wisconsin-Madison, School of Medicine and Public Health.
Residency: The Medical College of Wisconsin, Milwaukee, Pediatrics.
Fellowships: The Medical College of Wisconsin, Pediatric Emergency Medicine.
Board certification: Pediatrics.

Allison L. Grady, MSN, APNP, is a pediatric blood and marrow transplant nurse practitioner at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Arts: Smith College, Northampton, Mass., Religion and Biblical Literature.
Master of Science: Yale University, New Haven, Conn., Nursing.
Board certification: Pediatric Nurse Practitioner.

Leslie J. Mortland, MD, is a pediatric hematologist/oncologist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Hematology/Oncology) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Ross University School of Medicine, Commonwealth of Dominica, West Indies.
Residency: University of Florida College of Medicine, Gainesville, Pediatrics.
Fellowship: University of Minnesota Medical School, Minneapolis, Pediatric Hematology/Oncology.
Board certification: Pediatrics.

Sridhar Rao, MD, PhD, is a pediatric blood and marrow transplant specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Hematology/Oncology) at The Medical College of Wisconsin and member of Children's Specialty Group.

Doctorate: University of Chicago, Pathology.
Medical degree: University of Chicago, Pritzker School of Medicine.
Residency: Children's Hospital Boston, Pediatrics.
Fellowship: Children's Hospital Boston, Pediatric Hematology/Oncology.
Board certifications: Pediatric Hematology/Oncology and Pediatrics.

Laura E. Norton, MD, is a pediatric hospital medicine specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Hospital Medicine) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Minnesota Medical School, Minneapolis.
Residency: The Medical College of Wisconsin, Milwaukee, Pediatrics.

Patwari Pariksha, MD, is a pediatric hospital medicine specialist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Hospital Medicine) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Lady Hardinge Medical College, New Delhi, India.
Residency: Albany Medical Center, N.Y., Pediatrics.

Arthur B. Meyers, MD, is a pediatric radiologist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Hematology/Oncology) at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: Pennsylvania State University College of Medicine, Hershey.
Residency: Yale New Haven Hospital, Conn., Diagnostic Radiology.
Fellowships: Cincinnati Children's Hospital Medical Center, Pediatric Radiology and Pediatric Musculoskeletal MRI.
Board certification: Diagnostic Radiology.

Christopher G. Peske, PA-C, is a pediatric radiology physician assistant at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

Bachelor of Science: University of Wisconsin-Madison, Physician Assistant Studies.
Board certification: Physician Assistant.
Heather L. Stack, PA-C, is a pediatric radiology physician assistant at Children's Hospital of Wisconsin and The Medical College of Wisconsin, and a member of Children's Specialty Group.

**Bachelor of Science:** Concordia University Wisconsin, Mequon, Biology.

**Bachelor of Science:** George Washington University, Washington, D.C., Physician Assistant Studies.

**Board certification:** Physician Assistant.

Susan S. Cohen, MD, is a neonatologist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Neonatology) at The Medical College of Wisconsin and a member of Children's Specialty Group.

**Medical degree:** Virginia Commonwealth School of Medicine, Richmond.

**Residency:** Rhode Island Hospital, Providence, R.I., Pediatrics.

**Fellowship:** Women and Infants Hospital of Rhode Island, Providence, Neonatal-Perinatal Medicine.

**Board certification:** Pediatrics.

Vijender R. Karody, MD, is a neonatologist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Neonatology) at The Medical College of Wisconsin and a member of Children's Specialty Group.

**Medical degree:** Osmania University, Hyderabad, India.

**Residency:** Metro Health Medical Center, Cleveland, Ohio, Pediatrics.

**Fellowship:** The Medical College of Wisconsin, Milwaukee, Neonatal-Perinatal Medicine.

**Board certification:** Pediatrics.

Navin Kumar, MD, is a neonatologist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Neonatology) at The Medical College of Wisconsin and a member of Children's Specialty Group.

**Medical degree:** Patna Medical College, Bihar, India.

**Residency:** William Beaumont Hospital, Detroit, Pediatrics.

**Fellowship:** The Medical College of Wisconsin, Milwaukee, Neonatal-Perinatal Medicine.

**Board certification:** Pediatrics.

Christopher M. Inglese, MD, is a pediatric neurologist at Children's Hospital of Wisconsin, an associate professor of Pediatric Neurology at The Medical College of Wisconsin and member of Children's Specialty Group.

**Medical degree:** University of Bologna, Italy.

**Residency:** Bridgeport Hospital, Conn., Pediatrics; Kings County Hospital, Brooklyn, N.Y., Child Neurology.

**Board certification:** Neurology with Special Qualifications in Child Neurology.

Michael W. Lawlor, MD, PhD, is a pediatric pathologist at Children's Hospital of Wisconsin, an assistant professor of Pediatric Pathology at The Medical College of Wisconsin and member of Children's Specialty Group.

**Doctorate:** Loyola University Chicago, Neuroscience.

**Medical degree:** Loyola University of Chicago-Stritch School of Medicine.

**Residency:** Massachusetts General Hospital, Boston, Anatomic/Clinical Pathology.

**Fellowship:** Massachusetts General Hospital, Neuropathology.

**Research fellowship:** Children's Hospital Boston, Pediatrics.

**Board certifications:** Anatomic Pathology and Neuropathology.

Farrah N. Fang, MD, is a pediatric psychiatrist at Children's Hospital of Wisconsin, an assistant professor of Pediatric Psychiatry at The Medical College of Wisconsin and member of Children's Specialty Group.

**Medical degree:** Alpert Medical School at Brown University, Providence, R.I.

**Residency:** McGaw Medical Center of Northwestern University, Chicago, Psychiatry.

**Fellowship:** McGaw Medical Center of Northwestern University, Child and Adolescent Psychiatry.

**Board certifications:** Child and Adolescent Psychiatry and Psychiatry.

Juan P. Ruiz, MD, is a pediatric pulmonologist at Children's Hospital of Wisconsin, an assistant professor of Pediatrics (Pulmonary) at The Medical College of Wisconsin and member of Children's Specialty Group.

**Medical degree:** Escuela Colombiana de Medicina, Bogota, Colombia.

**Residency:** University of Wisconsin-Madison, School of Medicine and Public Health, Family Medicine; Grand Rapids Medical Education and Research Center, Michigan, Pediatrics.

**Fellowship:** The Medical College of Wisconsin, Milwaukee, Pediatric Pulmonary.

**Board certification:** Family Medicine.
Mary M. McCord, MD, MPH, is a pediatric special needs specialist at Children's Hospital of Wisconsin, an associate professor of Pediatrics (Special Needs) at The Medical College of Wisconsin and member of Children's Specialty Group.

Medical degree: Columbia University College of Physicians and Surgeons, New York.
Residency: Columbia Presbyterian Medical Center, New York, Pediatrics.
Master of Public Health: Columbia University School of Public Health, New York.
Board certification: Family Medicine.

Alexander L. Okun, MD, is a pediatric special needs specialist at Children's Hospital of Wisconsin, an associate professor of Pediatrics (Special Needs) at The Medical College of Wisconsin and member of Children's Specialty Group.

Medical degree: Columbia University College of Physicians and Surgeons, New York.
Residency: Columbia Presbyterian Medical Center, New York, Pediatrics.
Fellowship: Bronx Municipal Hospital Center, New York, Mental Health Research in Primary Care.
Board certifications: Pediatrics; Hospice and Palliative Medicine; Developmental-Behavioral Pediatrics.

John V. Kryger, MD, is a pediatric urologist at Children's Hospital of Wisconsin, a professor and chief of Pediatric Urology at The Medical College of Wisconsin and a member of Children's Specialty Group.

Medical degree: University of Wisconsin-Madison, School of Medicine and Public Health.
Residency: University of Wisconsin Hospital and Clinics, Madison, Urology.
Fellowship: Children's Hospital of Michigan, Detroit, Pediatric Urology.
Board certifications: Pediatric Urology and Urology.

Departures

Children's Hospital of Wisconsin and The Medical College of Wisconsin would like to thank the following individuals for their contributions and wishes them well in future endeavors:

Catherine M. Amlie-Lefond, MD, Pediatric Neurology.
Gina C. Bane, MD, Pediatrics (Critical Care).
Jeffrey C. Benson, MD, Pediatrics (Critical Care).
Vincent F. Biank, MD, Pediatrics (Gastroenterology).
Joseph R. Block, MD, Pediatrics (Critical Care).
Sherri Butler, MD, Pediatrics (Emergency Medicine).
Maria S. Chico, MSN, APNP, Pediatric Neurology.
Jenny M. Dente, MD, Pediatrics (Emergency Medicine).
Sylvia M. Hillmann, MD, Pediatrics (Downtown Health Center).
Kristen Humpal, PA-C, Pediatric Radiology.
Teresa E. Kovas, MD, Pediatrics (Critical Care).
Mary Jo Kupst, PhD, Pediatrics (Hematology/Oncology).
Paola A. Palma Sisto, MD, Pediatrics (Endocrinology).
Stephen P. Pontus, MD, Pediatric Anesthesiology.
Shaun S. Summerhill, MD, Pediatrics (Emergency Medicine).
John P. Thomas, MD, Pediatrics (Cardiology).
Neellesh A. Tipnis, MD, Pediatrics (Gastroenterology).
Sajani M. Tipnis, MD, Pediatrics (Neonatology).
Shihtien Wang, MD, Pediatrics (Critical Care).
Kenneth Yen, MD, Pediatrics (Emergency Medicine).
Rebecca D. Yuan, MSN, NNP-BC, Pediatrics (Critical Care).
One of the BEST

Nursing excellence
For the second time, Children’s Hospital of Wisconsin has been awarded the prestigious Magnet Recognition Award from the American Nurses Credentialing Center. Magnet designation is given to health care organizations that are able to demonstrate excellence in nursing.

ECMO Program designated a Center of Excellence
The Extracorporeal Life Support Organization has named the Extracorporeal Membrane Oxygenation Program at Children’s Hospital of Wisconsin a Designated Center of Excellence. Children’s Hospital first received this award for Excellence in Life Support in 2006. The hospital now is designated through September 2012.

Best Doctors in America
More than 40 percent of Children’s Specialty Group physicians are listed in the 2010-2011 Best Doctors in America® database. This group practice is jointly owned by Children’s Hospital and Health System and The Medical College of Wisconsin. The 40,000 U.S. physicians listed in the Best Doctors in America® database represent only about 3 to 5 percent of the nation’s practicing physicians. The listing is a singular honor. Best Doctors in America® is a registered trademark of Best Doctors, Inc., in the U.S. and other countries.

The information presented in this publication is intended for educational purposes only, providing suggestions for helpful interventions in primary care settings. Each patient is different and these suggestions may not apply. This is not a substitute for professional medical or mental health advice or services, particularly in acutely ill individuals who warrant immediate evaluation in an emergency setting. Consult appropriate specialty providers with specific questions regarding your patients.