

Milestones

April 2009
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Dear Colleagues,

It is a tradition for members of our Division to contribute to our professional community. On April 2009, California Chapter 1 of the American Academy of Pediatrics (AAP) will be holding annual elections. **John I. Takayama, MD, MPH**, HS Associate Professor of Pediatrics is a candidate for the At-Large Board Position. This position was previously held by **Cam Tran, MD**, HS Associate Professor of Pediatrics. If you are a member of AAP Chapter 1, please be sure to vote.

For more information, please visit: <http://www.aap-ca.org/>



*Michael Cabana, MD, MPH
Chief, Division of General Pediatrics, Core Faculty,
Institute for Health Policy Studies (IHPS)*

Inside this issue:

- Primary Care Case Review* 1, 7
- Congratulations/Community* 2, 3
- Faculty Job Postings* 4
- Education* 5
- Recently Published by Faculty* 6
- Meetings of Interest* 8

ID/General Pediatrics Fellow Selected as KL-2 Scholar



On March 12, 2009, **Adam Hersh, MD, PhD** was selected as a UCSF Clinical and Translational Science Institute (CTSI) KL2 Scholar, effective July 1, 2009. Seven UCSF CTSI Scholars are selected for a career development award and receive up to five years of salary support for 75% effort to pursue multidisciplinary clinical research with training and mentoring. (Continued on Page 2).

A 16-year-old boy with “red-colored urine” x1 day

Commentary by: **Luke Judge, MD, PhD**



A 16-year-old boy presents with ‘red-colored urine’ and inability to ‘pass urine’ for one day. He had recently undergone a neuro-surgical procedure and was discharged from the hospital two days prior. He was doing well post-operatively until one day ago, when he began to have severe abdominal pain. The pain was described as colicky in nature and mostly right sided. At one point he was “doubled over” with pain. He did not have any fever, vomiting, or diarrhea. He was initially treated with 17 grams of oral polyethylene glycol 3350 (Miralax) for possible constipation, which resulted in a bowel movement later in the day and some improvement in the abdominal pain that evening. However, on the morning of presentation he felt the urge to urinate but was unable to pass urine after several attempts. Later in the morning he was able to pass a small amount of red colored urine. He also had pain in his groin and testicles. He now presents for evaluation.

His past medical history was notable for extensive medical history including a long-standing seizure disorder treated with topiramate, levetiracetam, and oxcarbazepine. He had an appendectomy 10 years ago. His family history was positive for a maternal history of kidney stones.

On physical examination, he appeared to be in mild discomfort. He was afebrile with normal heart rate, respirations, and oxygen saturation. His blood pressure was slightly elevated at 137mmHg/80mmHg. He had a large well-healing midline craniotomy incision. Abdominal exam was notable for normal bowel sounds. His abdomen was soft and non-distended, but tender to palpation maximally in the right upper and right lower quadrants. He also had tenderness with percussion of the right costovertebral angles. Testes were descended bilaterally. He was Tanner stage 5 PH/G. Cremasteric reflex was normal.



Dipstick urinalysis revealed 1+ leukocyte esterase, negative nitrite, 3+ blood, and 2+ protein. Complete blood count (CBC) and serum chemistries were notable for a creatinine of 1.11 mg/dL, compared to 0.62 mg/dL four days prior. Abdominal films showed a normal gas pattern with a moderate amount of retained fecal matter in the right colon, but no evidence of obstruction or pneumoperitoneum. An abdominal computed tomogram was performed (picture) and a diagnosis was determined. (*Turn to page 7 for dénouement*)



Congratulations to...

Adam Hersh, MD, PhD (cont.)

The program emphasizes T1 translational research (basic science to clinical application studies) and T2 translational research (clinical application to improved health in the population). Criteria for selection include track record, proposed research plans, training plans, support from the candidate's home department and career potential to lead multidisciplinary teams and have an important impact on health.



Dr. Hersh received his MD and PhD in Evaluative Clinical Sciences from Dartmouth Medical School, as well as additional training as a post-doctoral fellow at the Stanford Prevention Research Center. He completed his internship and residency in pediatrics at UCSF. Dr. Hersh's research focuses on variation in physician prescribing behavior, particularly in relation to community-acquired methicillin resistant *Staphylococcus aureus* (CA-MRSA). He is a current third-year pediatric infectious disease and general pediatrics research fellow.

Lisa Dana, MD

On March 19, 2009, Lisa Dana, MD appeared on KGO-TV ABC 7's: "The View From The Bay." Dr. Dana was interviewed about the latest news for parents on the topic of vaccines and autism.



Dr. Dana received her MD from Georgetown University and completed her residency in pediatrics at UCSF. She has been in private practice in San Francisco and Mill Valley, CA since 1999. She is an Assistant Clinical Professor of Pediatrics.

Please see: http://abclocal.go.com/kgo/story?section=view_from_the_bay/parenting_babies&id=6718776

John I. Takayama, MD, MPH

On March 2, 2009, John I. Takayama, MD, MPH presented a seminar entitled, "Adolescent Sexuality in Asia: Perspectives from Japan", as part of the Stanford University Undergraduate Residential House Seminar Series.

Dr. Takayama received his MD from New York University and completed his residency in pediatrics at Yale-New Haven Hospital, where he also served as Chief Resident. He completed a Preventive Medicine Residency and MPH at the University of Washington. From 1992 to 2003 he was a member of the UCSF faculty. From 2003 to 2008, Dr. Takayama served as Director of the Department of Interdisciplinary Medicine at National Children's Medical Center and the National Center for Child Health and Development (NCCHD) in Tokyo, Japan.

John I. Takayama, MD, MPH (cont)

He was the Principal Investigator for the Seiiku Birth Cohort Study, as well as the co-PI for the Pediatric Clinical Research Infrastructure Development Study funded by the Japan Ministry of Health, Labor and Welfare. In 2008 he re-joined the Division of General Pediatrics. Dr. Takayama currently attends at the Parnassus Outpatient Clinics. He is an HS Associate Clinical Professor of Pediatrics.

Carol Miller, MD

On March 12, 2009, Carol Miller, MD received the Jane Addams Award for Social Justice as part of the First Annual Ida M. Cannon Awards Ceremony, sponsored by the UCSF Department of Social Work. The Addams Award for Social Justice recognizes Dr. Miller's "many activities for social justice and peace in the community and world."



Dr. Miller received her MD at Stanford University and then completed her residency in pediatrics and fellowship in neonatology at Mt. Zion Hospital. After working at Mt. Zion Hospital, Dr. Miller joined the UCSF faculty in 1988. Her clinical interests include the care of term and near-term newborns and their families and primary care of graduates from the neonatal intensive care unit. Dr. Miller's community health interests include at-risk youth, breastfeeding promotion, child abuse prevention, health promotion, home health care, parenting education, physician education and youth violence prevention. Dr. Miller is a member of the Academy of Medical Educators and the Director of the Well Baby Nursery. She is an HS Clinical Professor of Pediatrics.

Chris Stewart, MD, MA

On March 2, 2009, Christopher Stewart, MD, MA was elected as a faculty member to the UCSF Chapter of Alpha Omega Alpha (AOA). AOA is a national medical honor society which was developed to recognize and enhance professionalism, academic excellence, service, and leadership within the medical profession. Each year approximately 3000 medical students are elected at the 124 chapters. In addition, each year a small number of medical school faculty and alumni members are elected.



Chris Stewart received his MD from Harvard and his MA in Asian History from Keio University (Tokyo, Japan). He completed his residency and Chief Residency at UCSF. He is Director of the Inpatient Service at SFGH and the Director of the Global Health Pathway to Discovery Program. He is an HS Clinical Assistant Professor of Pediatrics.



Elena Fuentes-Afflick, MD, MPH

Elena Fuentes-Afflick, MD, MPH was appointed to the Federal Advisory Board of the National Children's Study. She will assume her appointment on April 1, 2009. The National Children's Study is funded by the federal government and will examine the effects of environmental influences on the health and development of 100,000 children across the United States. Children will be followed from before birth until age 21. The goal of the Study is to improve the health and well-being of children.



Dr. Fuentes-Afflick received her MD at the University of Michigan. She completed her residency training at UCSF, where she also served as Chief Resident. She completed a Postdoctoral Fellowship at the Phillip R. Lee Institute for Health Policy Studies, as well as her MPH at the University of California, Berkeley. Dr. Fuentes-Afflick is the President for the Society for Pediatric Research. She attends at San Francisco General Hospital and is a Professor of Pediatrics, Epidemiology and Biostatistics.

For more information, please visit: <http://www.nationalchildrensstudy.gov/Pages/default.aspx>

Development School for Youth Reception

On Thursday, May 7, 2009, from 5:30 pm to 7:30 pm the Development School for Youth (DSY) Program will be hosting a reception to celebrate the start of student recruitment for the inaugural DSY class in the Bay Area. The DSY is a leadership-training program for young people between 16 and 21 years of age.

Business leaders and corporate professionals partner with the program, and introduce students from inner cities to potential opportunities and careers in finance, culture, communications and other leading industries.

For more information, please contact Ms. Jeannie Lee at jeannie.lee@lw.com or Joyce Dattner at jdattner@allstars.org.

The Development School for Youth is a program of the All Stars Project of the San Francisco Bay Area. Since 2004, the All Stars Project has been supporting children and adolescents from under-resourced families, teaching them skills needed to engage in a broader range of constructive environments and thereby encouraging the adoption of healthier lifestyles and improved performance in school. For more information, please see: www.allstars.org.

Sweet Syndrome Redux

Last month's (March 2009) 'Primary Care Case Presentation' by Chris Stewart, MD, MA featured a case of suspected child abuse. The final diagnosis was Sweet Syndrome, a rare febrile neutrophilic dermatosis seen mainly in adults, with infrequent reports in children. The pathogenesis of Sweet syndrome remains unclear but is thought to be a hypersensitivity reaction due to its association with infections, drugs, malignancy, autoimmune diseases, and inflammatory bowel disease.

Although a rare entity, the first pediatric case of Sweet Syndrome at the University of California, San Francisco was actually first described by John Klock, MD and Rick Oken, MD. The patient was from Dr. Moses Grossman's practice and according to Dr. Oken, the patient, "presented on the ward at Moffitt and had at least 10 consultations in 1971." The case was published in 1976 and highlights the association of Sweet Syndrome with malignancy.¹ At the time Dr. Klock was a Hematology Fellow and Dr. Oken was serving as Chief Resident in Pediatrics at San Francisco General Hospital.



Dr. Oken received his MD from UCSF where he also completed his residency in pediatrics and was Chief Resident at San Francisco General Hospital. He is Board Certified by the American Board of Pediatrics and a Fellow of the American Academy of Pediatrics. Dr. Oken has served as Chairman of the Department of Pediatrics at Alta Bates Hospital, President of the Medical Staff at Alta Bates Hospital, and Chairman of the Board of Trustees of Alta Bates-Herrick Hospital. Dr. Oken has been a teaching attending physician at Children's Hospital Oakland and San Francisco General Hospital. He is a Clinical Professor of Pediatrics at UCSF.

1. Klock JC, Oken RL. Febrile neutrophilic dermatosis in acute myelogenous leukemia. *Cancer* : 37 , No. 2, Feb., 1976, 922-27.





Current Postings

OPEN SEARCH ASSISTANT/ASSOCIATE PROFESSOR OF PEDIATRICS-UCSF

The Department of Pediatrics, University of California San Francisco (UCSF), seeks an experienced, board-certified pediatrician at the Assistant/Associate Clinical Professor level who demonstrates excellence in clinical pediatrics as well as clinical education. Clinical focus will include urgent care general pediatrics and some primary care in an academic hospital setting. UCSF seeks candidates whose experience, teaching, research and community service has prepared them to contribute to our commitment to diversity and excellence. General pediatrics fellowship training, or four years of equivalent clinical experience is required. Pediatric emergency medicine experience and training is desired, but not required. The University of California is an Equal Opportunity/Affirmative Action Employer. The University undertakes affirmative action to assume equal employment opportunity for underutilized minorities and women, for persons with disability, and for Vietnam-era veterans and special disabled persons.

Please send CV to:
Chair, Search Committee
Division of General Pediatrics,
University of California, San Francisco
3333 California Street, Suite # 245,
San Francisco, CA 94118
(415) 476-5473

OPEN SEARCH CLINICIAN-INVESTIGATOR UCSF CHILDREN'S HOSPITAL

The Division of General Pediatrics at the University of California, San Francisco (UCSF) is accepting applications for a faculty position. Successful candidates will have Board-Certification in pediatrics with fellowship training in health services research or academic general pediatrics. A demonstrated record of productivity and history of independent grant support is required. UCSF seeks candidates whose experience, teaching, research and community service has prepared them to contribute to our commitment to diversity and excellence.

The Department of Pediatrics at UCSF will provide facilities and support including protected time for research, mentoring, and access to world-class faculty. Clinical and teaching opportunities are available at UCSF Children's Hospital and the general pediatrics outpatient clinics. UCSF is an Equal Opportunity/Affirmative Action employer.

Please forward curriculum vitae and letter of interest to:
Chair, Search Committee
University of California, San Francisco
3333 California Street, Laurel Heights Campus #245
San Francisco, CA 94143-0503

PEDIATRIC PHYSICAL MEDICINE AND REHABILITATION SPECIALIST

The Department of Pediatrics at the University of California, San Francisco, seeks a board certified/board eligible pediatric physiatrist. Eligible training includes PM&R residency followed by a pediatric rehabilitation fellowship or dual training in Pediatrics and PM&R, with or without a pediatric rehabilitation fellowship. The clinical focus will be consultation coverage for a four-bed comprehensive pediatric rehabilitation program at the UCSF Children's Hospital and pediatric rehabilitation outpatient clinics. Clinical education of residents and medical students is expected. Those individuals with specific interest in pediatric sports medicine and/or pain management are especially encouraged to apply. Individuals interested in programmatic development and/or research are also strongly encouraged to apply. Preference will be given to those with strong academic backgrounds and the desire to work with interdisciplinary teams.

The University of California is an Equal Opportunity/Affirmative Action Employer. The University undertakes affirmative action to assure equal employment opportunity for underutilized minorities and women, for persons with disabilities, and for Vietnam-era veterans and special disabled veterans. UCSF seeks candidates whose experience, teaching, research, or community service has prepared them to contribute to our commitment to diversity and excellence.

Please forward letter of interest and curriculum vitae to:
Amy Houtrow, MD, MPH
Medical Director of Pediatric Rehabilitation
Department of Pediatrics
University of California, San Francisco
500 Parnassus Ave, Box 0136
San Francisco, CA 94143
E-mail: houtrowa@peds.ucsf.edu

Another Exciting UCSF Pediatric Match

On March 19, 2009, Tim Kelly, MD, Director of Intern Selection, announced the results of the 2009 National Residency Match Program (NRMP) Pediatric Match. Twenty-nine new interns will start this summer. Once again the UCSF Department of Pediatrics attracted a talented and diverse group of new residents.

Medical schools represented included: UCSF, UCLA, U of Washington, Harvard, Yale, Columbia, Penn, Cornell, Boston U, U of Chicago, Tulane, U of Illinois, U of Virginia, Medical College of Virginia, Oregon Health Sciences, St. Louis University, NYU, Jefferson, New York Medical College, UMD New Jersey and Florida State.

The NRMP provides a mechanism for matching applicants' preferences for residency positions with program directors' preferences for applicants. Since 1952, the NRMP conducts a residency match that is designed to optimize the rank ordered choices of students and program directors. In the third week of March, the results of the match are simultaneously announced around the country.

Many UCSF faculty contribute to our annual recruitment by helping interview applicants, leading tours, attending applicant events, teaching visiting students on elective, answering correspondence from interested applicants, or participating in the final intern selection meeting. The successful match is a reflection of the dedication and contributions from UCSF faculty, resident and staff contributions to this process.



Tim Kelly, MD received his MD from Northwestern University. He completed his residency in pediatrics at the University of Connecticut and served as Chief Resident at Hartford Hospital. From 1986 to 1999 he was a member of the University of Connecticut faculty. He joined the UCSF faculty in 1999 and has served as the Director of the Pediatric Core Clerkship and Intern Selection. He was named the Vice Chair for Educational Programs in 2002. He attends on the inpatient service and is an HS Clinical Professor of Pediatrics.

Incoming UCSF Pediatric Interns (June 2009)

Last Name	First Name	Medical School
Acuna	Christy	Boston University
Bailey	Jennifer	Boston University
Catenacci	Melissa	Florida State University
Chang	Carolyn	New York Medical College
Channing	Alexandra	UMD New Jersey
Chen	Nancy	Columbia University
Chen	Grace	University of Illinois
Choi	Mimi	Harvard
Gould	Meghan	UC San Francisco
Gregg	Kate	UC San Francisco
Horak	Robin	Jefferson Medical College
Krizan	Katey	UC San Francisco
Laves	Ellen	Columbia University
Martin	Holly	Columbia University
Mendoza	Megan	University of Washington

Last Name	First Name	Medical School
Miller	Shannon	Medical College of Virginia
Miyar	Maria	University of Illinois
Moorman	Allison	University of Virginia
Morsheimer	Megan	UC Los Angeles
Nair	Alison	University of Chicago
Namvargolian	Yaser	Saint Louis University
Oh	Judy	UC San Francisco
Riley	Christy	New York University
Schumer	Jessica	Tulane University
Stoicescu	Mona	University of Illinois
Triche	Elizabeth	Cornell University
Wattier	Rachel	Yale University
Williams	Amy	University of Pennsylvania
Williams	Seth	Oregon Health Sciences

Recently Published By Faculty



Abbott MB, First LR. Report of Colloquium III: Challenges for Pediatric Graduate Medical Education and How to Meet Them—A Quality Improvement Approach to Innovation in Pediatric Graduate Medical Education. *Pediatrics*. 2009; 123:s22-25.

Participants of the third colloquium of the Residency Review and Redesign in Pediatrics (R³P) Project concluded that pediatricians who practice ambulatory, hospital-based, a combination of ambulatory and hospital-based, and subspecialty pediatrics are sufficiently different to justify differences in general pediatric residency training. This conclusion along with others of previous colloquia led to the creation of a list of goals for innovative change in residency education and a draft of a quality improvement process by which they might be achieved.

Abbott MB. Guidelines for Pediatric Home Health Care: 2nd Edition. Book Review. *JAMA* March 11, 2009.



Naqvi M, Tcheurekdjian H, DeBoard JA, Williams KL, Navarro D, Castro RA, Rodriguez-Santa JR, Chapela R, Watson HG, Meade K, Rodriguez-Cintron W, LeNoir, **Thyne SM**, Avila PC, Choudry S, Burchard EG. Inhaled corticosteroids and augmented bronchodilator responsiveness in Latino and African American asthmatic patients. *Ann Allergy Asthma Immunol*. 2008;100(6):551-7.

National asthma guidelines recommend that patients with persistent asthma regularly use an inhaled corticosteroid (ICS) in addition to as-needed albuterol, yet recent debates question whether this combination is equally efficacious in all ethnicities. **OBJECTIVE:** To examine the effect of ICS use on bronchodilator responsiveness to albuterol in 3 different ethnic populations. **METHODS:** A cross-sectional study of 106 Mexican Americans, 246 Puerto Ricans, and 163 African Americans with physician-diagnosed persistent asthma. Asthma severity, ethnicity, and medication use were evaluated using spirometry and questionnaires. Percentage change in forced expiratory volume in 1 second (FEV) was compared in patients who used ICSs vs those who used a short-acting beta2-agonist as their only asthma medication. **RESULTS:** Inhaled corticosteroid use was associated with improvements in the percentage change in FEV1 after albuterol administration in Mexican Americans (21.7%, $P = .01$) and Puerto Ricans (18.5%, $P = .02$) but not in African Americans (3.0%, $P = .73$). Inhaled corticosteroid use is associated with augmented bronchodilator responsiveness to albuterol in Mexican Americans and Puerto Ricans, but not in African Americans, with persistent asthma. This underscores the need for an improved understanding of ethnic-specific drug-drug interactions, particularly in those subgroups experiencing the highest burden of asthma morbidity and mortality in the United States.



Inokuchi M, Matsuo N, **Takayama JI**, Hasegawa T. Official Japanese reports significantly underestimate prevalence of overweight in school children: Inappropriate definition of standard weight and calculation of excess weight. *Ann Hum Biol*. 2009 Feb

4:1-7.

BACKGROUND: The obesity epidemic in Japan continues to increase. However, the prevalence and trends of obesity have not explicitly been determined in Japanese children. **Aim:** The study estimated the trend and prevalence of overweight in Japanese school children, 1980-2001. **Subjects and methods:** The 2001 cross-sectional national survey on 334,939 boys and 335,204 girls, 5-18 years of age was studied, using the 1978-1981 references. **Main outcome measures** were proportion of children with BMI \geq 95th centile and those with \geq + 20% excess body weight. **Results:** The prevalence of overweight increased 2.6 times (5.0% to 12.9%) in Japanese boys and 2.5 times (5.0% to 12.5%) in Japanese girls during the last two decades as assessed by using BMI, whereas the Japanese Ministry of Education, Culture, Sports and Science and Technology reported a much smaller increment in prevalence (5.8% to 9.2% in boys, 5.6% to 8.0% in girls, respectively) using the same data but based on a cut-off value of \geq + 20% excess body weight. **Conclusion:** Official governmental reports significantly underestimate the current epidemic of obesity in Japan.



Flaherman V, Ferrara A, Newman TB. Predicting significant hyperbilirubinaemia using birth weight. *Arch Dis Child Fetal Neonat Ed*. 2008;93:F307-9.

BACKGROUND: A recent study proposed a risk factor scoring system for prediction of hyperbilirubinaemia that assigned increased risk to infants of higher birth weight. **OBJECTIVE:** To investigate this novel finding in a large, retrospective cohort analysis. **METHODS:** 105 384 newborns (\geq or \approx 2000 g and \geq or \approx 36 weeks) were analysed, and the effect of higher birth weight on total serum bilirubin (TSB) \geq or \approx 342 micromol/l was reported using logistic regression to control for gestational age, scalp injury diagnosis, maternal diabetes, method of delivery and other confounders. **RESULTS:** The odds ratio for the effect of an additional 500 g of birth weight on TSB \geq or \approx 342 micromol/l declined with increasing gestational age from 1.55 (95% CI 1.28 to 1.87) at 36 weeks to 1.30 (95% CI 1.12 to 1.50) at 37 weeks and 1.14 (95% CI 1.01 to 1.29) at 38 weeks. There was no association for infants \geq or \approx 39 weeks. **CONCLUSION:** Higher birth weight predicts TSB \geq or \approx 342 micromol/l in 36-38 week infants, but not in infants \geq or \approx 39 weeks. Further research should explore the causal mechanism for the association in less-mature infants.

Dénouement

A 16-year-old boy with “red-colored urine” x1 day

(continued from page 1...)

Abdominal CT showed two obstructing calculi (both approximately 3mm) in the distal right ureter near the ureterovesicular junction (picture), with minimal right hydronephrosis. There was another tiny calculus in the lower pole calyx of the left kidney (not shown).

Stone disease, or *urolithiasis*, is less frequent in children than in adults. Stones are relatively rare in North America and Western Europe, but higher prevalence is reported in regions such as Turkey, Pakistan, South Asia, Africa, and South America.¹ Most stones in the North American and European populations are in the upper urinary tract (kidneys and ureters), while bladder stones (related to infection) are more common in the developing world.¹⁻⁴

The most common presenting symptom in children with urolithiasis is abdominal or flank pain. Gross or microscopic hematuria is somewhat less common.¹⁻⁵ Young children who are unable to precisely communicate or localize pain may present with symptoms such as nausea, vomiting, or irritability.¹ Stones may also be asymptomatic and found as incidental findings on imaging obtained for other reasons.² Imaging to confirm clinically suspected stones can include plain radiographs, ultrasound, and CT scan. Plain radiographs can detect many stones. However, as in this case, plain radiographs are often not sensitive enough to detect smaller stones and compositions that are less radio-opaque.¹ Renal ultrasonography is effective and may be desirable to minimize radiation exposure in young patients. However, non-contrast helical CT scan is likely the most effective imaging modality (up to 97% sensitive and 96% specific).¹

Predisposing factors and further evaluation

Some factors that increase the risk of urolithiasis include urinary tract infections, genitourinary tract anomalies, metabolic abnormalities, medications, family history, dietary factors, and dehydration.⁵ Struvite stones are caused by infections with bacteria that synthesize the enzyme urease.¹ Anatomic abnormalities of the genitourinary tract that lead to urinary stasis can predispose to formation of this type of stone. On the other hand, urinary tract infections can also occur secondary to stone formation as a result of obstruction and stasis. Medications, including the diuretics furosemide and acetazolamide, and the antiepileptics topiramate and zonisamide increase the rate of calcium stone formation.^{3,6,7} Inhibitors of carbonic anhydrase such as acetazolamide and topiramate increase the risk of kidney stones by reducing urinary citrate excretion (an inhibitor of stone formation by

binding to calcium in the urine) and increasing urinary pH. Metabolic abnormalities that increase the concentration of calcium, oxalate, uric acid, cystine or decrease the concentration of citrate in the urine predispose toward formation of stones.

Underlying metabolic abnormalities are reported relatively frequently in studies of urolithiasis in the pediatric population, with reports varying from 16-95%.¹⁻⁵ These children are also most likely to have recurrent stone formation. For this reason metabolic evaluation is generally recommended for all children presenting with kidney stones.^{1-3,5}

Complete metabolic evaluation includes stone analysis for composition, CBC, serum electrolytes including calcium and phosphorous, BUN/creatinine, alkaline phosphatase, albumin, total protein, urinalysis and urine culture¹. Spot ratios of calcium, uric acid, oxalate, cystine, citrate, and magnesium to creatinine and/or 24 hour urine collection are also recommended.^{1,5} Referral to a pediatric nephrologist should be considered, particularly for children in whom an underlying metabolic abnormality is detected.

Management and outcome

The likelihood that a stone will pass spontaneously is affected by multiple factors including size and age of the child, size of the stone, and locations in the urinary tract (renal vs. ureteral).³ Larger stones, stones in younger children, and renal stones are less likely to pass. The likelihood of a stone to pass spontaneously decreases significantly at a size of 3-5mm.³ Interventions available in consultation with a urologist include extracorporeal shock-wave lithotripsy, ureteroscopy, percutaneous nephrolithotomy, and open surgical removal.¹⁻⁵ Indications for intervention include large stone size, evidence of infection, severe pain, and renal dysfunction.³ In the absence of these factors, observation for a defined period may be considered for stones less than 4-5mm to allow possible spontaneous passage.

References:

1. Dogan HS and Tekgul S. Management of pediatric stone disease. *Curr Urol Rep* 8, 2007.
2. Coward RJM et al. Epidemiology of paediatric renal stone disease in the UK. *Arch Dis Child* 88, 2003.
3. Pietrow PK et al. Clinical outcome of pediatric stone disease. *J Urol* 167, 2002.
4. Sternberg K et al. Pediatric stone disease: an evolving experience. *J Urol* 174, 2005.
5. VanDervoort et al. Urolithiasis in pediatric patients: A single center study of incidence, clinical presentation, and outcome. *J Urol* 177, 2007.
6. Sheth RD. Metabolic concerns associated with antiepileptic medications. *Neurology* 63 (S4), 2004.
7. Welch BJ et al. Biochemical and stone-risk profiles with topiramate treatment. *Am J Kidney Dis* 48, 2006.



About the Author: Judge Luke, MD PhD received his MD from the University of Washington and a PhD in Molecular and Cell Biology, also from the University of Washington. He is currently a first year Pediatric Resident at UCSF.



Upcoming Meetings of Interest

- April 1, 2009** **Work-In-Progress Sessions:** Presenter: Naomi Bardach, MD Topic: “The ecology of medical care for hospitalized children in CA: Do community hospitals admit only bread and butter, or complex medical diseases?” Location: LHTS Room 263 from 11:00am to 12:00pm. Lunch is provided. CME credited.
- April 8, 2009** **Work-In-Progress Sessions:** Presenter: Kate Schoen Topic: “Speaking to the Press about your Published Study” Location: LHTS Room 263 from 11:00am to 12:00pm. Lunch is provided.
- April 22, 2009** **PAS Meeting Practice Session:** Location: LHTS Room 262 from 11:00am to 12:00pm. Lunch is provided.
- April 29, 2009** **PAS Meeting Practice Session:** Location: LHTS Room 262 from 11:00am to 12:00pm. Lunch is provided.
- May 2-5, 2009** **Pediatric Academic Societies’ Annual Meeting:** Location: Baltimore, Maryland. Information: <http://www.pas-meeting.org/2009Baltimore/default.asp>
- May 13, 2009** **Work-In Progress Session:** Presenter: Arpi Bekmezian, MD Topic: “Staff-Only Pediatric Hospitalist Care of Patients with Medically Complex Subspecialty Conditions in a Major Teaching Hospital” Location: LHTS Room 262 from 11:00am to 12:00pm. Lunch is provided.
- May 20, 2009** **Work-In-Progress Sessions:** Presenter: Brian Wu, MD Topic: TBA Location: LHTS Room 262 from 11:00am to 12:00pm. Lunch is provided.
- May 27, 2009** **Work-In-Progress Sessions:** Presenter: Valerie Flaherman, MD MPH Topic: “Improving Breastfeeding Outcomes for Infants at Risk” Location: LHTS Room 262 from 11:00am to 12:00pm. Lunch is provided.
- May 28-30, 2009** **42nd Annual Advances and Controversies in Pediatrics Conference** Westin Hotel, San Francisco. For more information or to register, please visit: www.ucsfpediatricadvances.com



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