

# The Med-Peds Perspective

The Official Newsletter of the National Med-Peds Residents' Association

## DC, Here we Come! NMPRA National Meeting

Kenneth Remy MD, NMPRA President-Elect

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NMPRA is excited to announce our 9<sup>th</sup> annual National Med-Peds Residents' Association National meeting held in trendy and political Washington, DC in conjunction with the American Academy of Pediatrics (AAP) national meeting. Last year's meeting was an overwhelming success with more than 80 people from across the United States attending the gathering in San Francisco.

The event will take place on October 8, 2005 from 7pm to 11 pm at Grillfish Restaurant. Grillfish is a hip spot with a variety of fabulous food and drink for every taste. Featured at the meeting will be the Med-Peds Clinical Case Competition winners, updates from NMPRA, networking with Med-Peds residents from around the country, Med-Peds

educational topics, and a full 3-course dinner with an open premium bar. This event is open to residents, medical students, attendings, and all those with an interest in med-

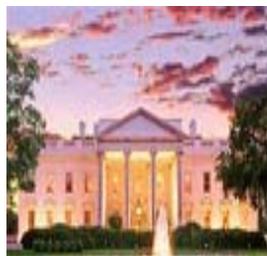
peds.

While in Washington, DC take advantage of free admission to the myriad Smithsonian museums and the National Zoo. See a piece of American history while viewing the National Mall and monuments. Roam through Georgetown, Adams Morgan or Dupont Circle to get a feel for the city's interesting neighborhoods. Want to see a bit of nature without leaving the city? Hike through Rock Creek Park to get a breath of fresh air. For more information check out [www.washington.org](http://www.washington.org).



Discounted airfares to the NMPRA National Meeting are available from Northwest Airlines. A special rate at the luxurious Beacon Hotel is also available for conference attendees. To RSVP for the conference, please go to [www.medpeds.org](http://www.medpeds.org) for more details or email [rsvp@medpeds.org](mailto:rsvp@medpeds.org).

We can't wait to see you there!



- *Dr. Jennie Howland tells NMPRA how she started the Malaika Project, an international aid organization, with a lot of thought and a little luck. See page 4.*
- *Interns, are you ready to make the switch from medicine to pediatrics (or vice versa)? See page 6 for survival tips!*

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## The Doctor In You

Tulane Resident Alla Comardelle MD on Hurricane Katrina

"We don't know where our son is, but he is probably alive. We saw on TV a guy looking just like him being lifted off the roof into a chopper."

Two weeks ago this man had a job that supported his family and a

house in Chalmette, an eastern suburb of New Orleans. His company laid off all the employees the day after the hurricane. His house is under water, too.

"I am going back to New Orleans tomorrow to join (Continued on Page 2)

**"We had to walk through that water, bodies and all. Can you give me a tetanus shot?"**

## The Doctor In You

the National Guard. We had to walk through that water, bodies and all. Can you give me a tetanus shot?"

What keeps people going?



Julien Comardelle, the author's son

A middle-aged woman is hugging a teddy bear. I get a glimpse of her being a happy five-year old catching a toy from a Mardi Gras parade.

"There was a lot of old folks on our street who did not leave. When the water started coming up we tried to get them to the higher ground. But we could not get everybody."

The patients are not looking for reassurance. They have a hard time contemplating reality, just like their doctors.

It is busy night shift at Louisiana State University's Pete Maravich Assembly Center (PMAC) in Baton Rouge. We are waiting for helicopters on route from New Orleans with an unknown number of patients. We probably wouldn't be able to sleep anyway – friends missing, homes damaged or destroyed. This is the time when it is easier to think of our patients than of ourselves.

A large Red Cross shelter in Alexandria, northern Louisiana: "Are you from Tulane? I know I've seen you before." A young woman brought her 6-day old daughter for a checkup. Little Star is a miracle that somehow happened in the midst of tragedy and chaos. Her mother was in labor, walking knee-deep in water pushing away dead bodies floating by. She was trying to get to a dry place to deliver her baby. She was picked up by an ambulance and brought to West Jefferson Hospital, the only

hospital still functioning in that area, just in time. Star and her mother

***"If you ever move to Austin, will you be my baby's doctor?"***

have no home, but they were able to get in touch with the rest of their family and it is all that matters for now.

"It is so good to see a familiar face. We will be heading to Austin soon. If you ever move to Austin, will you be my baby's doctor?"

"I'm wondering how you guys do it," said a FEMA coordinator. "But I guess that's when the doctor in you kicks in."

Want to help? The NO RPR (The New Orleans Residents Program for Relief) is a non-profit foundation run by eight Tulane University Medical Center Internal Medicine Residents and led by Dr. Jeff Wiese, Program Director for Internal Medicine. Over the coming year it will be the mission of the NO RPR Foundation is to ensure that the underserved patients of New Orleans continue to receive the best possible care and support. Since there are no operating expenses for this foundation, all donations



Outside PMAC



Julien sees that no one is too young to lend a helping hand



The PMAC pharmacy—the most organized department right from the beginning

will go directly to the care of the indigent population within the New Orleans area. Tax-deductible contributions can be mailed directly to:  
NO RPR  
c/o Jeff Wiese, MD  
111 John Breaux Drive  
Breux Bridge, LA 70517

# Money Matters: If Only I Knew... Planning For A Disaster

Emery H. Chang, NMPRA Travel Advisor



As a refugee of Hurricane Katrina, I've been separated from my home and most of my belongings. Though I don't know the condition of everything, I've had to replace many important documents. With some advance planning, you can help yourself with recovery and replacement of important information and documents.

## Make Photocopies

Photocopy everything: medical licenses, certifications, diplomas, social security card, passports, birth certificates, ID, titles, medical files, etc.

## Safekeeping

With much of my medical paperwork, my residency program has everything on file, which is generally a good backup; however, all the files at Tulane are just as inaccessible as my files. So, give the copies that you make to someone you trust, preferably in a different city. My

parents had some things, but not enough.

## Digitalize

Much of our stuff can be replaced but not everything. Things that people miss tend to be photos of important people and events, letters from people such as grandparents, lovers and children. Given how easy it is to scan everything, DO IT! These records can be stored on websites, in email accounts and on discs.

## Photograph It

Insurance companies and FEMA will want to know what you lost and to prove it. Take digital photos and make a log of expensive items such as electronics, jewelry, artwork and musical instruments. Periodically appraise very expensive items. Take out specific insurance on specific items in addition to your renters or homeowners insurance.

## Know Your Insurance

Know what it covers and take out additional if needed. Do you need separate flood, wind or earthquake coverage? Are there special items that are adequately covered?

## Keep it Together

Keep your finances and documents in a safe, but easily accessed place or container. If you have some warning to evacuate, you can simply grab the few items that you need.

It's impossible to prepare for every possible problem, but a few simple steps can be done so that if something goes wrong, you can recover faster and with less hassle. GOOD LUCK!



## The Road To Nyamuswa

Jennie Howland, MD/MPH tells Rohini Harvey, MD how to start an international aid organization

One day during her one of her many trips to Africa, Dr. Jennie Howland set out on a four hour bus ride over bumpy Tanzanian roads to pick up an autoclave donated by an American surgeon. As she climbed into the bus she saw a local man speaking with some German tourists. The Tanzanian asked in English for Howland to sit next to him. She hesitated and then answered yes in Swahili, which she speaks fluently. The local man's name was Max Madoro. He asked and she told him about her experience as an American medical student working at the local district hospital. Madoro said, "I am trying to build a clinic in my community. We are trying to send children to school, to give them books and clothes." He asked for her help.

Howland, though, was skeptical. She had long since known that people in this community like to stretch the truth. "How do I know you are telling the truth?" she asked.

Madoro pulled a detailed proposal for the clinic out of his bag and showed it to Howland. In it were all the answers to the questions forming in Howland's mind: how to obtain supplies and medications, which nurses and clinical officers would be working there. Madoro had been working on this project with a Polish Catholic priest and some others for years, but the priest had recently died. Howland was impressed with Zinduca (Swahili for wake up), the group who had made plans for the clinic. Madoro invited her to Nyamuswa, a small remote town just west of the Serengeti National Park, to check it out. Though she was still skeptical, Howland made the trip the following week.



Students eager to learn smile for the camera

In Nyamuswa, Madoro introduced Howland to the local government leaders, the district medical officers and others so that she could learn their needs. She found that the one thing everyone wanted was volunteers to help projects get off the ground. "Nyamuswa is isolated and there were few outreach agencies there at that time," Howland explains. "Most places have no electricity and no plumbing. Water- which flows down a hill into 3 public spigots and 10 private- is available thirty minutes a day. But no one but the person controlling it knows *which* thirty minutes." By this time, Howland had spent a considerable amount of time in Tanzania.

The Tanzanians she knew were willing to share their experiences. Howland would be able to use this information to recruit needed volunteers. She was about to realize her goal of the past several years: to form a lasting connection with a Tanzanian community, so that the work she did there would continue even in her absence.

Now a second year med-peds resident at Baystate Medical Center in Springfield, Massachusetts, Howland first traveled to Tanzania twelve years ago to study wildlife and had little interest in the local people. She was shy and quite apprehensive about staying with a local family through her cultural immersion program. But as the weeks wore on she found that the people she met were far more interesting than the animals she was there to study. "I originally thought that there were things about people- such as the need for privacy- that were human nature," Howland says. Instead she found that such values were uniquely American. "There was no privacy in Tanzania. People stare, kids try to touch you. If you showed a friend a picture, for example, strangers would gather to look, too." She quickly abandoned her deep shyness. "People there are very accepting of others." The attitude in Tanzania was "that's just how that person is." She noticed that people seemed to accept themselves as well, and this attitude was contagious. For once, Howland says, "I felt as if I belonged!"

***Instead of focusing on the enormous amount of work and thought that must have gone into the Malaika Project, Howland talks instead of the citizens she is helping.***

Though at the time she planned to study veterinary medicine, Howland couldn't help noticing the prevalence of basic, preventable health problems among the Tanzanian people. Her eyes flash as she recounts tales of people she once knew, her original interest in wildlife long since forgotten. One five-year old child came down with mumps and another was globally developmentally delayed after a severe bout of malaria. A man with severe hypertension died from a stroke. People asked Jennie for help because of where she came from, but she felt powerless to change anything. Her experience with the people there had opened a new world to her and Howland resolved never again to be simply a tourist in Tanzania. She wanted to work on preventing these serious illnesses and she vowed to return.

Howland returned to the United States to start her Masters in Public Health. During her degree she spent time in Kenya where she again felt helpless. Howland met an elderly, bent-over blind woman who spoke to her in a language she could not understand. A translator said, "She wants you to make her see." This made a deep impression on Howland, and she began to think that simply preventing disease was not enough. In order to really make a difference she needed to treat patients' illnesses. And so

## The Road to Nyamuswa

she prepared to start medical school.

While she trained in medicine, Howland continued to spend her vacation time abroad. She was able to return to Tanzania and spent time in Swaziland as well. In Swaziland ninety percent of the admissions to the urban hospital in which she worked were from AIDS, and she dealt with the horrible consequences of this. There were also patients with severe burns and advanced, untreated cancer. "Just gruesome, gruesome stuff," Howland says shaking her head. Her disbelief is still palpable despite the separation of a few years and several thousand miles. One day she came in to see a patient who had slit his wrist. "There was blood spurting everywhere." The nurse reached right into his arm and clamped off the culprit artery. As an American medical student she was often required to take call by herself. She remembers one call for a neonate in respiratory distress. "I just pulled out my *Harriet Lane* and kept my fingers crossed."

Howland, though, continued to feel the pull of Tanzania, even while she was at home in the United States. But studying medicine in a distant Northeastern American city, she felt too far removed to make a lasting impact in Tanzania. Her thoughts led her to the solution: to form a partnership with local Tanzanians. She could then fundraise for them and send equipment and supplies to a central location. She was already bringing equipment each time she went, but she had no reliable contact. Meeting Max Madoro and traveling to Nyamuswa changed everything for Howland.

Her trip to Nyamuswa was a success. Once back home in the United States, Howland submitted a proposal to the International Federation of Medical Students' Associations for a multi-disciplinary, student-run project that relied on local community involvement. The proposal was accepted and the Malaika ("Angel") Project is now up and running. Its scope is impressive, even more so since Howland conceived the project while still a student. Today local women's groups participate in microfinance projects taking small loans to start businesses and further their families' economic prospects. The project is gathering volunteers to build a new girls' dorm for students who have far to travel under often unsafe conditions. International medical students participate in Unite for Sight to provide basic eye care to the residents of Nyamuswa. Volunteers on the project have trained primary school teachers on HIV education and worked with a drama

group to enlist its teen members to enact HIV-related material. A study is ongoing to look at barriers to mosquito net use in the prevention of malaria. Despite the demands of her med-peds residency, Howland still manages to coordinate all of the people working on these and many other projects. She is modest when she describes her efforts. Instead of focusing on the enormous amount of work and thought that must have gone into the Malaika Project, she talks instead of the citizens she is helping. She thinks highly of Madoro and is proud that his community has recognized his efforts.

Med-peds or other residents who are interested in volunteering with the Malaika Project can expect to work in local clinics, bring medicines and equipment or provide education for local doctors or nurses, in addition to working on other existing projects as desired. If you would like to participate in the Malaika Project, check out <http://www.malaikaproject.org> or email Jennie at [jenniemalaika@yahoo.com](mailto:jenniemalaika@yahoo.com)



Malaika Project volunteers work with locals to haul boulders back to Mkongoro Secondary School



The Nyamuswa Drama Group discusses their acts.



Max Madoro, get ready to move boulders to the Mkongoro Secondary School

## Surviving the Intern Switch

Rohini Harvey, MD NMPRA Secretary

It is September 28th of your intern year, and you are just getting comfortable with the fact that you are now an actual med-peds intern. You know where the medicine resident lounge is, and on most days you can remember the code to get in. By running all over the hospital to care for your patients you have managed to find the MICU, CCU, radiology, cafeteria and bathrooms. You've met your medicine colleagues, and think they

**Somehow you haven't yet come across the Children's Hospital... Don't Panic!**

are pretty cool. But there is something bothering you. You're about to start pediatrics in a week. You had a tour when you started, but somehow you haven't yet come across

the Children's Hospital- even though it is attached to the very building you thought you knew inside out and backwards. You're looking forward to working with hospitalized children, but so far have managed to deny that you will be more than just their video game partner this time around.

Don't panic! We all have to do it. Here is what you need to know about surviving the dreaded intern switch.

### 1) Get organized

First thing, try to find that other hospital. If you are really feeling motivated, take a look around to feel out where you are supposed to be. Ask someone where the resident lounge is, and how to get in. Figure out where and what time you are supposed to be there in the morning, and who you meet.

### 2) Empty out your coat pockets

Your *Harriet Lane* will do you little good on medicine. Likewise, your medicine handbook probably won't be of much use on peds. Save yourself some back strain, and safely put away what you won't need for the next few months.

### 3) Recalibrate

One fourth year resident remembers her first few days of NICU: "There was a tiny baby who needed oxygen, so I said, 'just give him two liters.' Everyone looked at me like I was crazy." You'll get similar looks if you give your COPD patient 0.25 liters or order up him up 121.5 cc/hr of fluids. Weight based dosing isn't usually necessary on adults, but don't ignore a child's weight when ordering her meds!

### 4) It has been *how* long?

So you haven't been on the pediatric (medicine) wards in a while. You have been seeing children (or adults) though as a resident. Remember your clinics? Yes, you have seen both adults and children over the past few months. It may not be exactly what you have to do in the hospital, but at least your

stethoscope has touched the whole spectrum of ages.

### 5) Understand cultural differences

Internists may have different expectations than pediatricians. At our hospital, for example the pediatricians want to be updated about everything that happens to their kids in the hospital. After daily rounds, the internists prefer to be called only when you have a question. Feel this out early on. Also, I

remember wearing my white coat once on pediatrics- what a great solution to provide a layer of extra warmth and some pockets for all of my stuff. I couldn't figure out what people were calling me *Doctor Harvey*, emphasized just like that. But then I remembered: no one in the pediatric hospital wears a white coat. Oh, well.

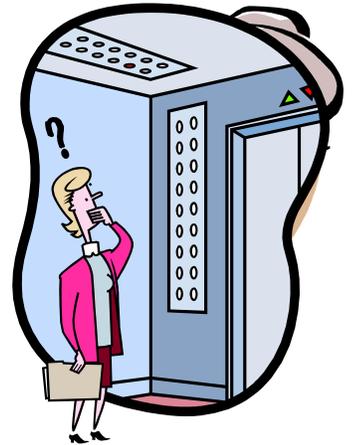
### 6) You are smarter than you think

You have been an intern for a few months now, and some of the stuff you just learned will actually be useful in the other discipline. You are better at interpreting chest x-rays and labs than you were a year ago, for example. And even if your knowledge base feels perilously weak, don't discount the efficiency and general interning skills that you have learned since July. Those skills will get you far.

### 7) You are not alone

Meet up with your classmates who are doing the opposite switch and get the scoop from them. Introduce yourself to your fellow pediatric (medicine) interns and residents. Finally,

if you can, talk to your seniors to see that they did survive the first switch and stayed on for the second and third... and then came back for more!



## Meet The New NMPRA Board

**Kenneth E. Remy, MD**  
**President-Elect**

**PGY2 Rainbow Babies and Children's Hospital/  
University Hospitals of Cleveland**

Ken is the second youngest of four children in an Irish-Italian Roman Catholic family from Stormville, NY. His tight knit family taught him altruism and service to others which set his desire to become a physician in the future. In high school his interests included everything from music groups, theater, varsity sports, life guarding, community service activities, and altar serving at his local church. He graduated from Carmel High School to an early medical and Honors program at the University of Delaware and Jefferson Medical College.

In college Ken founded the national organization Clowns for Medicine and participated in a host of other activities including college Democrats and Republicans, musical groups,

theater, basketball, and community service. He performed research as a National Society of Science and Engineering Scholar and completed his senior research project in medical ethics. He graduated from the University of Delaware with an Advanced Honors certificate, a Bachelor of Arts in Biology with a minor in chemistry, and a Bachelor of Arts degree in Liberal Studies with a minor in medical humanities. Ken was also named the University's Volunteer of the Year and the City of Newark's Volunteer of the Year for his work as

National President of Clowns for Medicine.

Ken attended Jefferson Medical College where he continued his diverse interests while learning how to heal. During his acting stint in the film *Killing Emmett Young* he hung out with Gabriel Byrne, Tim Roth, and Scott Wolf. At Camp Amerikids he taught underprivileged children with HIV how to swim. Ken ran multiple chapters of Clowns for Medicine and lectured on Humor and Medicine nationally. Also during medical school he did research in cocaine addiction and participated in the Christiana Care Hospital Ethics committee. In 2000 he was a National Hero in Health Care Award Recipient. During his third year of medical school he met Dr. Allen Friedland who encouraged his interest in med-peds. In fact, Ken then started the Philadelphia Med-Peds Society. His favorite activity in medical school, though, was traveling to Peru and living in the jungle to study infectious disease. There he woke up with monkeys and anacondas and culminated his trip atop Machu Picchu.

Ken is now a second year med-peds resident at Rainbow Babies and Children's Hospital/University Hospitals of

Cleveland. He sits on both the adult and pediatrics ethics committees, teaches at the School of Medicine, helped to start a med-peds interest group, serves on the Resident Advisory Committee for Pediatrics and... studies, eats, and sleeps in that order. In the future he hopes to become a med-peds program director after pursuing either a general medicine-pediatrics academic fellowship or a combined fellowship in critical care. His research interests include humor and medicine, medical ethics, renal transplantation and sleep apnea, and critical care issues. Ken continues to sing and play the saxophone and guitar. Most of all though, he enjoys traveling to New York to visit his family.

**Scott Oberhoff, MD**

**Treasurer**

**PGY3 Tulane University Medical Center**

Scott Oberhoff hails from Sugar Land, Texas a rural town near Houston. He and his family raised animals there, which ultimately led to his interest in medicine. An honor graduate I.H. Kemper High School, he went on to attend Texas A&M University. Scott was the recipient of many honors there including the American Legion Academic Scholarship. He was named a Distinguished Student twice in his four years, and was on the Dean's Honor Roll. He did basic science research on circadian rhythms in *Syneococcus* and cell to cell communication. Scott developed his interest in medicine by participating in the Michael E. DeBakey Summer Surgery Program where he learned the art of physical examination, and by volunteering at a local hospital. Scott graduated with a Bachelor of Science in Microbiology.

After graduation Scott worked with patients as a clinical assistant at Seton Medical Center, a large acute care hospital in Austin, Texas. He started medical school at the University of Texas Health Science Center at Houston one year later. In Houston Scott was selected to participate in the General Internal Medicine Statewide Preceptorship Program through the Texas Academy of Internal Medicine and the Texas Statewide Family Practice Preceptorship Program where he was able to sharpen his clinical skills before his third year. As he progressed through his training, Scott grew to love the complexity of his medicine patients, but also valued the emphasis on prevention in pediatrics. He did not see how he could practice one without the other, and so he decided to pursue a residency in med-peds.

Scott and his wife moved to Metairie, LA, a small community outside of New Orleans, where he started his med-peds residency at Tulane University Medical Center in 2003. In New Orleans Scott is a volunteer with Communities in Schools, a program designed to keep kids in school using local resources, and has been an active NMPRA member throughout his residency.

Now in his third year, he is considering pursuing a fellowship in Allergy/Immunology after graduation. In his free



*Ken Remy, NMPRA President-Elect*

## Meet The New NMPRA Board

time, Scott enjoys fishing, music and singing. Scott and his wife are expecting their first child in November. He is currently one of the many New Orleans residents displaced by Hurricane Katrina and is looking forward to helping rebuild the city and its community.

**Rohini Harvey, MD**  
**Secretary**  
**PGY3 Baystate Medical Center**

Rohini was born outside of Buffalo, NY where she spent her childhood. During high school she was a gymnast and played the flute. She was selected to be in several regional and state-wide orchestras. Rohini was also chosen to undertake a basic science research project with the Roswell Park Cancer Institute Research Participation program. Here she learned that though she loved the science, she missed applying her knowledge to people. She began to contemplate medicine as a career.

Rohini matriculated at Amherst College where she studied anthropology. She felt that the study of people and their culture was vital to her interest in medicine. While at Amherst she regularly tutored economically disadvantaged high school students and was an illustrator for the *Amherst Student* newspaper. Rohini continued to play the flute and had many solo and group performances. She was awarded the Jeffrey Gutcheon music scholarship for her interest in performing. During the summers Rohini spent her time teaching children, first in a creativity class of her own design at a day camp, and then in a camp for exceptional high school students. She graduated with a Bachelor of Arts cum laude with distinction in Anthropology. Rohini completed a thesis in medical anthropology for her degree.

Upon graduation from college Rohini moved to Boston, MA where she worked on the Health Evaluation and Linkage to Primary Care (HELP) Project, which linked substance abusers to primary care while they were in a detoxification facility. She continued to tutor high school students during this time.

Rohini started medical school at the University of Rochester in 1999. She was attracted to this program for its emphasis on the George Engel's biopsychosocial model of medicine- a perfect use of her anthropology background. After her first year, Rohini was awarded the General Internal Medicine/ Substance Abuse Medical Student Fellowship at Boston Univer-



*Rohini Harvey, NMPRA Secretary*

sity to continue her research on the HELP Project. Back in Rochester, she performed in No Shame, a medical student dance group, and created the Community Birth Control Education Project to teach to adults in the local community. She was also the editor of *Clinically Oriented*, an anthology of student essays. While in medical school, Rohini was taught by outstanding med-peds residents and mentors who helped solidify her decision to do a med-peds residency.

Now a third year resident at Baystate Medical Center, Rohini actively teaches medical students and residents and hopes to pass on her enthusiasm for med-peds! She recently experienced the serious illness of a close family member, which has influenced how she interacts with her patients and their families.

Rohini was just married to her long time boyfriend Andrew, and the couple live with their cat Mina not five miles from where they met at Amherst College eleven years ago. Together they enjoy hiking, cooking and cross-country skiing. In the future Rohini hopes to pursue general med-peds, with a continued commitment to teaching and working with the underserved.

### NMPRA Board of Directors

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## Case Presentation: Palpable Purpura in a Pregnant Woman with Hyperthyroidism

Holly Faber MD, NMPRA Member-at-Large

Mrs. K.C. is a 30 year-old Caucasian woman with hyperthyroidism who was referred to the inpatient Rheumatology service on day number one post-partum for purpuric skin lesions. These lesions had begun when the patient was at approximately five months' gestation; they consisted of dark, raised macules which became "blood blisters" that "burned and popped." They first appeared on the patient's ears and then spread in crops to the thighs, buttocks, and arms. A skin biopsy performed at about seven months' gestation revealed "leukocytoclastic vasculitis with fibrin thrombi." Accordingly, her gynecologist prescribed Prednisone 50 mg by mouth daily; however, the lesions recurred once the Prednisone was tapered off. Steroids were restarted at 30 mg daily with complete resolution until the day prior to this uncomplicated vaginal delivery, when a single new lesion appeared on the patient's left knee.

Mrs. K.C.'s past medical history consisted of hyperthyroidism for the prior five years. She had been treated with Propylthiouracil only, tolerating it well through two previous pregnancies. As she had never seen an endocrinologist nor had any imaging performed, the exact nature of her hyperthyroidism was unknown. Mrs. K.C. did smoke cigarettes (approximately half a pack per day), and had no family history of any rheumatologic disease. Her medications at home were PTU 150 mg three times daily and Prednisone 30 mg once daily. Her review of systems was entirely negative for rheumatologic or systemic symptoms: there was no fever, photosensitivity, skin tightness, Raynaud's phenomenon, mouth sores or dryness, nasal congestion, dry eyes, arthritis or arthralgia, easy bleeding or bruising, or hair changes. There were also no pulmonary, GI, GU, or neurological symptoms.

On exam, Mrs. K.C. was a thin Caucasian woman in no distress, afebrile, with a heart rate of 86, blood pressure of 116/62, oxygen saturation of 99%, and respiratory rate of 16 breaths per minute. Her HEENT exam was normal, with no exophthalmos, lid lag, oral ulcers, or mucous membrane dryness. There was a palpable fullness over the thyroid gland, without any discrete nodules. The lung and heart exams were normal, while the abdominal exam revealed a protuberant, soft abdomen with mild tenderness to palpation, but no guarding or rebound. Examination of the skin showed two palpable, purpuric lesions over the left knee, non-blanching to pressure. They were tender with irregular margins and measured approximately two centimeters in diameter; one lesion had a shiny center. There were older-appearing purpura with eschars over the left buttock, right and left triceps area, and the right knee, as well as brownish lesions of one centimeter in diameter scattered over the limbs, which the patient called "scars" from prior lesions.

The laboratory work-up for Mrs. K.C.'s lesions presented a confusing picture. Her ANA was 1:320 and speckled; ANCA was positive at 1:320, in a P-ANCA pattern; anti-myeloperoxidase antibodies were 0.39 (0-0.9 normal range); anti-proteinase-3 antibodies were 0.11 (0-0.9 normal range); anti-DS DNA was 3; and anti-RNP was positive. The ESR was 40. Anti-Sm, anti-Ro, and anti-La were all negative. Her C3 was normal at 87, and C4 slightly low at 14. Hepatitis B and C, HIV, and cryoglobulins were all negative. Her thyroid studies were normal (TSH 1.12, free T4 0.8), and thyroid-stimulating immunoglobulin for Grave's Disease was negative at 81 (normal 0-129). Her CBC, LFTs, Chem-8, and urinalysis were all essentially normal. In conjunction with an Endocrine consult, PTU was discontinued and Atenolol begun.

In short, this is a case of recurrent palpable purpuric rash in an otherwise asymptomatic 30 year-old pregnant woman on PTU for hyperthyroidism, with data remarkable for positive ANA, p-ANCA, and anti-RNP, slightly low C4, and leukocytoclastic vasculitis on biopsy. This case provides a good opportunity to review the differential diagnosis and evaluation of small vessel vasculitis. Classically, SVV is divided into three categories: ANCA-associated, immune-complex-mediated, and miscellaneous. First, the group of ANCA-associated SVV includes Wegener's granulomatosis, Churg-Strauss syndrome, microscopic polyangiitis, and drug-induced ANCA-associated vasculitis. Second, immune-complex-mediated SVV consists of cutaneous leukocytoclastic angiitis, Henoch-Schonlein purpura, cryoglobulinemia, SLE, rheumatoid vasculitis, Sjogren's syndrome vasculitis, urticarial vasculitis, and Goodpasture's syndrome. Third, the miscellaneous group is comprised of Behcet's disease, paraneoplastic vasculitides, infectious vasculitides (Hepatitis B and C, HIV, CMV, EBV, Parvovirus), and IBD-related vasculitis. Some of these entities frequently cause a pulmonary-renal syndrome, such as Wegener's, microscopic polyangiitis, and Goodpasture's, while others produce a dermal-renal syndrome (cryoglobulins and Henoch-Schonlein purpura).

For Mrs. K.C. specifically, given her ANCA positivity, lack of systemic symptoms, and largely negative remaining laboratory work-up, drug-induced vasculitis stands out as the most likely diagnosis (part of the ANCA-associated first subgroup of SVV). Propylthiouracil is in fact considered a prototypical offending agent for drug-induced vasculitis, although the long list of other culprits includes hydralazine, minocycline, procainamide, sulfasalazine, ciprofloxacin, phenytoin, allopurinol, and many others. The clinical spectrum of drug-induced vasculitis is very wide: it may be confined to the skin or involve multiple organ systems, mimicking Wegener's, Churg-Strauss, or PAN. Symptoms may include arthralgias and arthritis, glomerulonephritis (in up to 40%),

## Palpable Purpura

hepatic disease, or even alveolar hemorrhage.

No laboratory studies are truly diagnostic for drug-induced vasculitis, although ANCA positivity is considered a necessary criterion. Eosinophilia may be present in 79% of cases, but less commonly in cutaneous forms. ESR and CRP are neither sensitive nor specific. Autoantibodies should be assessed, mostly to exclude other causes of vasculitis. On skin biopsy, the most common finding is leukocytoclastic vasculitis, as Mrs. K.C. had.

Propylthiouracil-associated vasculitis in particular was first reported by Dolman et al. in six female patients, in *Lancet*, 1993. In 1999, a review article of anti-thyroid-associated vasculitis (involving PTU, methimazole, carbimazole, and thiamazole) summarized the 27 cases reported in the literature. Of these, 88% were associated with PTU exposure. Symptoms in order of frequency were renal involvement (66.7%), arthralgia (48%), fever (37%), skin involvement (29.6%), respiratory tract involvement (25.9%), myalgia (22.2%), scleritis (14.8%), and other manifestations (18.5%). The average age was 46.6 years, with a range of eight to 82 years. P-ANCA was positive in 81.5%, undifferentiated positive ANCA in a further 14.8%, and c-ANCA pos in 11%. Most patients were treated by withdrawal of the drug, while others received steroids, cyclophosphamide, or plasmapheresis. 85.2% of patients improved as a result.

Anti-neutrophil cytoplasmic antibodies were first described in 1982, and were linked to Wegener's granulomatosis by 1985. These antibodies target various different antigens within the neutrophil. Two of the main targets are myeloperoxidase and proteinase-3, both of which are found in the azurophilic granules of neutrophils and lysosomes of monocytes. Other chemicals within the neutrophil that can become targets for ANCA formation include lactoferrin, elastase, cathepsin G, catalase, lysozyme, and others.

There are two main techniques to assay for ANCA: the indirect immunofluorescence assay is more sensitive, while ELISA for actual titers of MPO and pr-3 is more specific. To perform immunofluorescence, the patient's serum is mixed with ethanol-fixed human neutrophils, yielding either a diffuse staining pattern throughout the cytoplasm, called c-ANCA, or a ring stained around the nucleus, known as p-ANCA. C-ANCA is usually caused by ANCA against pr-3 specifically, while p-ANCA results from ANCA against myeloperoxidase. C-ANCA is classically associated with Wegener's granulomatosis (90% of patients with active WG have ANCA, of which 80-95% is c-ANCA). P-ANCA, on the other hand, typically corresponds to microscopic polyangiitis or drug-induced vasculitis. Patients with DIV frequently also have a very high titer ELISA for ANCA against MPO.

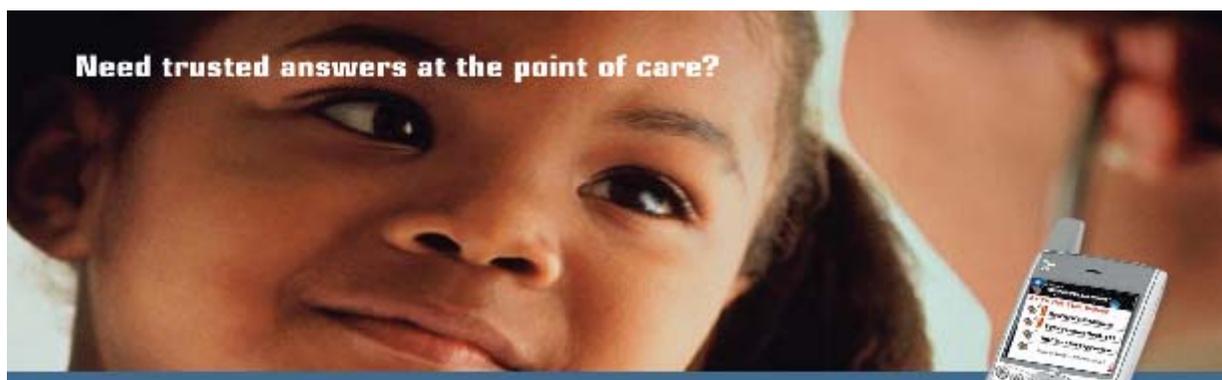
Interpretation of ANCA results is not so straightforward in practice, however, due to the subjective component of staining interpretation. The reliability of any given result relies heavily on the experience of the person reading the staining pattern. Furthermore, p-ANCA, while usually due to anti-MPO-ANCA, may also be caused by ANCA to the other neutrophil components listed above. Furthermore, a false positive ANCA can result from a positive ANA (due to confusion between ANA pattern and p-ANCA pattern). This interference can be avoided by the use of formalin-fixed neutrophils, rather than ethanol-fixed). Theories about how ANCA may cause drug-induced vasculitis are wide-ranging. Some focus on the fact that PTU has been shown to accumulate in neutrophils, and is metabolized at least in part by myeloperoxidase, while others involve ANCA-facilitated neutrophil adhesion to blood vessel walls.

Returning to Mrs. K.C., to wrap up her diagnosis as PTU-associated vasculitis, one would like to make five clinical points in the affirmative, as well as explain her lab result pattern. First of all, her clinical picture of vasculitis confined to the skin is in fact consistent with DIV. Second, she was taking no other medications officially, although supplements or other illegal substances may not have been disclosed. (For example, both methamphetamines and MDMA, or "ecstasy," have been associated with the development of vasculitis). Third, the five-year delay from initiation of PTU to lesion onset in her case is consistent with causality for PTU, as latency from a few weeks to up to seven years has been noted in the literature. Fourth, the published evidence for PTU causing vasculitis is strong indeed, as PTU is essentially the prototype drug for DIV. The only point which is difficult to assess is whether discontinuation of the suspected agent truly yielded improvement, since the lesions continued off PTU for at least a month after the initial consult. After this single appointment with Rheumatology, the patient was unfortunately lost to follow-up.

Some questions still linger regarding the lab results. Mrs. K.C.'s anti-MPO ANCA and anti-Pr-3 ANCA titers were both normal on ELISA testing, despite her positive p-ANCA immunofluorescence pattern. This apparent contradiction raises the question of whether her p-ANCA could result from antibodies against a different neutrophil antigen, such as lactoferrin, elastase, or others. Another possibility could be a false-positive due to her positive ANA. Furthermore, the patient's positive anti-RNP, which is usually the hallmark antibody of mixed connective tissue disease, does not fit clearly into her DIV diagnosis. It is certainly possible that Mrs. K.C. was caught at a single moment during an evolving picture of another auto-immune disease, and that serial lab testing might reveal a more declared syndrome. As she was lost to follow-up, these intriguing questions will have to remain unanswered, and PTU-associated vasculitis the provisional diagnosis. (*See Page 10 for References*)

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***The Med-Peds Perspective***

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