

Med-Peds Perspective



Official Newsletter of the National Med-Peds Residents' Association

Announcing NEW NMPRA Board Members



for 2005-2006

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REMINDER! NMPRA Annual National Meeting/AAP National Conference in Washington DC Oct. 8th! Keep looking for Med-Peds Cases to present!

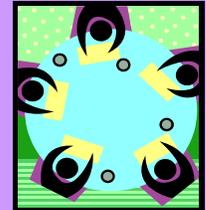
Feedback from the NE

Regional Meeting

By: Emery H. Chang, MD

Tulane University

MED-PEDS PGY4



The Harvard Combined Med-Peds Program in Boston hosted the 2005 Northeast Regional Meeting. Over 120 students and residents attended this one-day conference with people traveling as far West as Michigan and as South as Louisiana. An amazing array of speakers covered topics of International and Refugee Health, HIV through the Ages, Adult Congenital Heart Disease, Career Development, and many other exciting Med-Peds topics.

Dr Allen Friedland, the current President of the Med-Peds Program Directors Association and Program Director of the Christiana Care Med-Peds program, gave the keynote address. He presented an exciting overview of our field, curricular movements within Med-Peds programs, and the many opportunities that are available to Med-Peds graduates.

Next year's meeting is tentatively scheduled to be hosted by Newark Beth Israel Medical Center Program in Newark, New Jersey in the spring of 2006. This conference was sponsored in part by NMPRA. We are committed to promoting Med-Peds educational opportunities throughout the country and would like to help other areas create such experiences. If you and your program are interested in hosting a regional meeting, please contact NMPRA for more information.

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Palliative Care: A Resident's Role



By: Lise Taylor, MD
Medical College of Wisconsin
MED-PEDS PGY3

Case Scenario:

You are the intern on call and receive a page for your first admission of the day. Upon entering the room you encounter a middle-aged, well-tanned, healthy appearing man in no distress sitting on the bed. Before you have a chance to start taking the history he says, "They told me I have a clot in my leg and I need medicine...do you think I could get out early enough for my 8 am tee time tomorrow?" You are initially relieved that this will at least be a straightforward admission. However, later that evening he desaturates significantly. CT of the chest reveals a pulmonary embolism, and to your surprise, diffuse lung masses. Thankfully he improves enough to be sent home with anticoagulation, and an outpatient oncology and CT surgery appointment for a biopsy. He feels troubled by these new findings, but determined to keep up his active lifestyle as an attorney and a golfer.

Two weeks later, he's come back to your service, but seems a changed man. Quiet and solemn, he has a glazed look when you greet him in the mornings. His clot is malignant, his kidneys are failing because of malignant thrombi in his renal arteries, and he will need dialysis soon. One morning, in a defeated tone he says, "I'm done with this – no dialysis for me today." You clarify his wish with redundant questioning and then tell his son on the phone, "I don't think your father wants dialysis anymore." Two hours later, you are paged – MR G. SON HERE, V. UPSET. PLS. COME. His son meets you at the door, stating, "My dad wants dialysis now – right Dad? And please, call me right away if he ever starts talking crazy like that again."

What do you do next?

- A) Whisk the patient to dialysis. You haven't had time to call and cancel his slot yet anyway.
- B) Tell the son you just can't take his word for it. His dad is your patient, not him
- C) Help! Call your Palliative Care consult team-STAT. You don't have time to deal with this indecision.
- D) Say to the son in private: "It sounds like we need some time to sit down and talk about your father's goals of care for himself. Let me ask him who he'd like to be present. What time is best for all of you?"

Sound familiar?

But I went into residency to heal people, you say, why do I have to deal with all of this turmoil? If you've been in residency for more than one hectic call night, you realize that in addition to life-and-death decisions, life-and-death "decision making" is very much in our job description. All residents at one time or another in their training have encountered and even managed such difficult scenarios. They may have been lucky enough to witness attendings or senior residents beautifully conduct a family meeting, later to memorize their comforting phrases and explanation techniques. Or maybe to have been unlucky enough to be the resident left in a patient's room to answer the quizzical stares of family members who have just been told by an attending, "Well, I'm afraid there is nothing more we can do" before dashing out to answer a page.

Some of us may be blessed to have at our institutions a palliative care team – that is, a consult service dedicated to providing interdisciplinary support to patients and families facing life-threatening diseases. These teams also support us, the residents on the front line, in managing these difficult encounters. However, every institution has "hidden" palliative care experts, such as: the unit secretary who knows all the "regulars" on the renal floor for years, the custodian who takes the time to chat with patients, the nurse's aide who sings to her patient in a coma while she bathes him, or the social worker who has an "in" with the local hospices. Do not be afraid to ask these wonderful resources for their help, and to share their wisdom.

Palliative care: a residents' role cont...

Regardless of our experiences, as Med-Peds residents we are called upon to provide comprehensive care to our patients and often, their families. This care is mainly “curative” or focused on preventing or curing disease. Inevitably, we will encounter patients with chronic, progressive disease, or life-threatening diagnoses. These are our opportunities to provide excellent palliative care – focused on maximizing the quality of life for patients and families faced with a life-threatening illness and the possibility of death.

Where to bring up the dreaded D-word.

While most of our exposure to patients’ dying and palliative care may be on the inpatient rotations, the outpatient adult clinic is a very good setting to begin discussing a patient’s wishes for the end of life as part of an adult health maintenance exam. Below are questions to ask yourself when seeing patients in both the outpatient and inpatient arenas, focusing on Internal Medicine.

Oupatient	Inpatient
<ul style="list-style-type: none"> Does your patient have a POAHC (Power of attorney for health care)? Have they expressed their wishes about the end of life in their family? Is your patient grieving a loss of their own? If a patient doesn't want to be hospitalized/aggressively managed for their chronic, progressive illness would they benefit from Hospice services? 	<ul style="list-style-type: none"> What is your patient's code status Who is your patient's POAHC, and who are the key decision makers in the family? Is there a Palliative Care Consult service and is there a role for them currently? What are the Hospices in your area (inpatient and outpatient), and what are their criteria for admission (ask your friendly social worker for this one!) Who are the patient champions/hidden palliative care experts on this floor/service?

On the Peds side

Is there a role for palliative care in pediatrics? Unfortunately, yes. A rotation in the NICU may have filled your mind with questions, such as “What will this infant’s quality of life be when and if they survive to be a child? How is this family coping? How do we know when to say when, and when to press on?

Be it in the NICU or on a children’s oncology ward where these questions arise (in our minds or during rounds), caring for children who are critically ill is extremely difficult. While principles of palliative care such as excellent communication with families and aggressive pain and symptom management remain the same, other tactics change depending on the age and diagnosis of the child, as well as their ability to communicate with you and their families. As in most adult cases, close involvement with a patient’s family is paramount, as you are truly treating a family and their loss in the event of a child’s illness and/or death. Few specialists in the field of pediatric palliative care exist, so often it is in the efforts of those such as NICU nurses, an experienced oncology social worker, or a child life specialists that these important issues are addressed. (See the review article “Pediatric Palliative Care” by Bruce Himelstein, MD in New England Journal of Medicine, April 22, 2004 for a more thorough review of this topic).

How am I supposed to know how to do all of this (remember, I'm busy!)

There is lots of help out there! Arm yourself with a set of skills which, be it 5 am on a busy call night, will help you lead an emergency family meeting, pronounce a patient’s death, convert oral pain meds to a PCA, and discuss code status with a patient who may not be conscious or decisional in the morning. **Fast Facts** is a resource that provides brief, instructional tidbits of knowledge regarding palliative care ranging from “Declaring Brain Death” to “Insomnia – Pharmacologic Therapies”. To find them, visit www.aahpm.org and click on Fast Facts for a complete listing.

Lastly, take care of yourself and your team. *Debrief* with your team after a family conference, just as you would give or receive feedback after a procedure. Ask your attending to debrief the morning following a patient’s death. Get support if dealing with a patient is too difficult for you at the time. With all deaths, we bring with us personal views regarding our own mortality and our experiences with death in our family. These help us become more empathetic, but it is also very normal to feel sadness or grief for a patient that seems hard to handle. Take five minutes to cry, to eat something, to call home if things are getting to be too much.

Palliative Care: A residents' role cont'd....

Back to the case – so what did I do?

C, then D. I was lucky to have a Palliative Care team to coach me about tactics to address the son without confronting him, and arrange a family meeting. This once strong, active man was then able to tell his family, all together, that he didn't want to live with dialysis. His family supported his wishes, and he died with them by his side eight days later.

This experience in my training reminded me of what my mentor, Peter DeBlieux, said to me in preparation for residency, *“If you help to provide a good end of life experience for a patient, their family will never forget you. If you don't, and a patient dies in pain, alone, or with conflict, their family will never forget you.”*

No pressure, right? If you've ever been hugged or thanked by a patient's mother or son after their daughter or mother has **died** under your care, you know what a lasting impact a successful family meeting, time to say goodbyes, and quality symptom and pain management can make. There is a gift of opening up your humanness to a person and family in need of love, listening and compassion that tugs at our most basic desires as physicians. Palliative Care specialists don't have any more love, listening skills or compassion than we do, but they may have the luxury of fewer distractions from this focus. By keeping our focus as residents on our patients, their goals and what brings them meaning, we will provide excellent palliative care no matter what our rotation.



The Art of Professional Intelligence

Lori A. Porter DO

Medical College of Wisconsin

Med-Peds, PGY3

As I prepare to start my fourth and final year in Med-Peds residency, I am focused on refining my medical diagnostic skills and developing further my business and professional intelligence. The impetus for the latter is largely based on the reality that practicing medicine is like running a business, the unusual business of caring for human lives. In the business world efficiency and precision equates to success, and the inextricable variables of human error and sympathy make it especially difficult for physicians to master these skills. With this in mind, my peer physicians practicing in the so called “real world” continue to advise me to take advantage of those learning opportunities that will ripen my business savvy. Other advice includes: “learn how to code, it makes a difference in your earning potential”, “know and understand your work contract and its limitations”, “learn how to turn rooms efficiently (<20min) and still give optimal care”, “document well”, and finally “learn strategies on how not to get sued”. The last comment has always caught my attention because it addresses one of every physician's greatest fears and yet seems so vague and unnatural. So when the Medical College of Wisconsin sponsored a noon lecture titled “Risk Management for Graduate Medical Education”, I knew this was an opportunity for my professional growth.

As I looked around the conference room, I realized I am not alone with regards to my interests and concerns. There was the usual crowd of residents and medical students, however the degree of focus was intense. The speaker was Barbara Connelly, the “Risk Manager” of the Medical College of Wisconsin, who stated her job mission is to “preserve the financial integrity of the medical college by helping physicians avoid and/or minimize injuries to patients”. First she pointed out that residents must know WHO (i.e. the Risk Manager) to go to in the event a resident experiences any of the following:

The Art of Professional Intelligence Cont.....

- involved in a critical or sentinel event in the hospital
(Sentinel events are defined as unexpected occurrences involving death or serious physical or psychological injury, or risk thereof; events that signal need for immediate investigation and response... JCAHO definition)
- receive request for mediation
- receive summons or complaint
- receive inquiry from Medical Licensing Board
- receive a call from an attorney
- is requested to give a deposition

In addition, she pointed out that there are variable forms of malpractice insurance and it is imperative that the resident contract one to their advantage. She briefly touched on two specific types of insurance plans: an 'Occurrence Space Policy' vs. 'Claims Made Policy'. Of note is that an occurrence policy covers incidents that happen during the policy period without regard to when the claims are reported. This type of policy provides protection for each policy period *indefinitely*. In contrast, the 'claims made insurance policy' requires that the medical incident to be covered happen and be reported to the insurance company *while the policy is in force*. Once the policy is terminated you no longer have coverage, unless the purchase of a "tail" is made. A tail (Extended Reporting Endorsement) will cover for mis- happens even though coverage is terminated. So if you can, go with occurrence space policy! Another important point highlighted during the talk is that residents at MCW who are moonlighting outside of their respective training facility are not covered by their malpractice insurance. Although this may not be the national standard, the point is that physicians in training must practice medicine with significant vigilance in order to protect their medical license at all times.

Another critical learning point highlighted by the Risk Manager was to be aware of the "common elements to current open claims". In other words, "what are some of the most common pitfalls to getting sued".

The first pitfall: *failure to assess and failure to diagnose*. A good example is when a resident gets called by the floor nurse with concerns that "Mrs. Jones" is having low blood pressure (95/50) and fever. Signout sheet reads 65 y/o female vasculopath, DMII admitted with pyelonephritis on abx. Instinctively, the resident gives a verbal order for 1 Liter NS fluid bolus with a working diagnosis of hypovolemia. Two hours later,

the resident assumes the patient must have responded appropriately since he/she did not get any calls back from the night nurse. To residents such a scenario does not seem so outlandish, especially when put in the circumstances of admitting 5-10 patients and doing cross-coverage. However, the Risk Manager identifies that when things go wrong (i.e. Mrs. Jones suffers a myocardial infarction that is not diagnosed until the morning when she is in florid heart failure) the failure to assess Mrs. Jones and consider other possible diagnosis becomes a obvious and major error. The audience silently thinks, "hindsight is 20/20". True but unacceptable when dealing with human lives!

The second pitfall: *failure to document actions*. This being familiar to residents in form of "if you didn't write it down, it never happened". Lets continue with the above scenario. Lets say the resident did go and evaluate Mrs. Jones and even after an exam and discussion with Mrs. Jones the resident still felt this was hypotension secondary to low grade sepsis. Had he/she documented his/her exam findings, and clinical thinking-it is likely that his/her error would be more likely perceived as novice human error rather than frank negligence. Interesting, although you get the same endpoint the process is perceived as completely different. In court, even though the residents clinical judgment was off his logical thought process could be verified with documentation. In reality, could we document notes on all cross-coverage concerns? No, but definitely on those that have any remote chance of occultly representing a medical catastrophe.

The third major pitfall: *failure to communicate significant findings or medical plans*. This one seems almost a surprise to people outside of the medical field. However, upon reflection it is very real. How many times have you been caught post call (with your senior or chief nagging you that you need to get out of the hospital by noon) and you haven't had a chance to personally discuss with Mrs. Jones the reality of what occurred overnight and its implications (e.g. transfer MICU service, etc.). With other patients sometimes we get wrapped up in the daily details and forget to give notice that discharge is planned for 2 days. Or that your patient has a new diagnosis of ovarian cancer; however, you fail to disclose immediately hoping the consult oncologist may give more thorough information with regards to diagnosis and prognosis.

The Art of Professional Intelligence Cont.....

In the outpatient setting, a more common scenario is a radiograph reading suggestive of cancer that does not get communicated to the patient for months. The best place to start good habits is in residency.

The final topic addressed was "Risk Avoidance", which addressed other techniques to avoid potential injury to patients. What can we do as residents to avoid the above pitfalls and others that herald litigation. Again, always communicate significant findings and concerns to your patients, even when a working diagnosis is in process. Always use the chain of command and document this. Continue to incorporate safety measures into practice (e.g when giving verbal orders have the nurse read back to you the verbal order, review medication lists and dosages on your patients frequently, and always double check your prescriptions).

In closing, I hope you feel the same way I do as I walked away from the lecture. Rather than leaving more fearful of the future, I left embracing the idea that to heal and cure to the best of my ability is to practice more conscientious medicine. The same type of medicine I would want practiced on me and my loved ones. I know the art of medicine will never be flawless; however, being more conscientious with regards to my actions will serve as a good form of preventative medicine and hopefully reduce injury and even save lives.

HENOCH-SCHONLEIN PURPURA: NOT JUST FOR KIDS! NES

Sarah D. Corathers, MD
University of Cincinnati
MED/PEDS PGY 3



An 84 year old woman presented after a fall with chief complaint of bloody diarrhea. She had no injuries from her fall and an extensive workup for bloody diarrhea including colonoscopy with biopsy, endomysial and antigliadin antibodies and stool studies. The above were negative and she was discharged.

Subsequently, one week later she developed a purpuric rash on the dorsal aspects of her feet that migrated proximally towards her upper legs and ultimately spread to include her torso, arms, palms and soles. In addition she developed generalized edema, diffuse arthralgias with synovitis of hands and the right ankle and acute renal failure. She was readmitted to the hospital at this time. Her laboratory values were significant for a doubling of her creatinine in one week and a spot urine protein to creatinine ratio greater than 7. The medical service was stumped, when the third year medical student on the team, fresh off a peds rotation suggested, "That rash looks like HSP." Initially the student was rebuked given the age of the patient. However, skin biopsy revealed a leucocytoclastic vasculitis with IgA deposition, highly suggestive of Henoch-Schonlein Purpura. The patient was treated with prednisone for her joint pain and demonstrated partial resolution of all of her symptoms at time of discharge. The student was given honors for the rotation and recommended for med-peds residency training.

Henoch-Schonlein Purpura, (HSP) is a systemic vasculitis involving the skin, gastrointestinal tract, joints and kidneys that is slightly more common in males. The majority of cases in children younger than 7 years of age, although it may present at any age. Children will often have self limited illness but adults are more likely to develop severe and potentially long term renal disease and have a higher risk of malignancy. The condition was first reported by Heberden in 1801:

Another boy, five years old, was seized with pains and swellings in various parts and the penis in particular was so distended, though not discoloured, that he could hardly make water. He had sometimes pains in his belly, with vomiting, and at the time some streaks of blood were perceived in his stools, and the urine was tinged with blood. When the pain attacked his leg, he was unable to walk; and presently the skin of his leg was all over full of bloody points.

In 1837, Schonlein described an association between joint pain and purpura. In 1874, Henoch, a student of Schonlein further described the gastrointestinal involvement and later the renal involvement in the disease. Interestingly, it is thought that Mozart may have died of HSP as his constellation of symptoms included fevers, polyarthritis, vomiting, exanthem and anasarca.

HSP: Not just for kids Cont...

The American College of Rheumatology Diagnostic Criteria for HSP written in 1990 requires at least 2 of the following 4 conditions:

- Palpable Purpura- *slightly raised hemorrhagic skin lesions not related to thrombocytopenia*
- Age less than 20 years
- Bowel Angina- *diffuse abdominal pain, worse after meals or diagnosis or bowel ischemia, usually including bloody diarrhea*
- Wall granulocytes on biopsy of arterioles or venules

The annual incidence of HSP is about 13-20 cases per 100,000. The etiology of HSP is unclear, but it is often associated with a preceding illness. Case reports include descriptions of respiratory illness with Group A beta hemolytic streptococcus, parvovirus, adenovirus, mycoplasma, rheumatic fever, mononucleosis and tuberculosis. Pathogenesis is thought to be immune mediated involving elevated levels of IgA. Most cases are self limiting lasting an average of 4 weeks, but recurrences are reported in 1/3 of cases.

HSP is usually a mild vasculitis in children. In over half the cases it presents with a typical petechial or purpuric rash distributed over the buttocks and lower extremities, typically sparing the trunk, face, palms and soles. Arthritis or arthralgia develops in a majority of patients most commonly involving the knees and ankles. Non-pitting edema may be present; extensive edema is often in children less than 2 years or those with significant renal involvement. Priapism has been noted in several case reports. The most common gastrointestinal manifestation is dull, periumbilical abdominal pain. There is a wide spectrum of renal manifestations associated with HSP including microscopic hematuria, proteinuria, hypertension, renal insufficiency, nephritic syndrome or rapidly progressive glomerulonephritis. Cerebral and pulmonary hemorrhagic complications are rare but have been reported.

Adults tend to have more severe renal and extrarenal manifestations of the disease as compared to children. One third of adults will progress to renal failure and half of those will have permanent end stage renal disease.

A retrospective French study of 250 adults with HSP noted a surprisingly high mortality from malignancy (27%) compared to age matched general population, (9%).

Treatment with steroids or immunosuppressive drugs is typically reserved for individuals with severe renal involvement. Although most frequently considered a pediatric diagnosis, the case of an 84 year old female with bloody diarrhea, characteristic rash, arthritis, acute renal failure with nephrotic range proteinuria and biopsy demonstrating leukocytoclastic vasculitis with IgA deposition reminds us that HSP can present at any age.

References:

Ballinger, Susan. Henoch-Schonlein Purpura. Current Opinions in Rheumatology 2003;15:591-594.

Kassutto, Sigall and Wolf, Marshall. A Wrinkle in Time, Clinical Problem Solving. NEJM August 7, 2003. 349;6:597-601.

Robson, William and Leung, Alexander. Henoch-Schonlein Purpura. Advances in Pediatrics Vol. 41 1994. 163-195.



Above: p84 y/o patient with HSP. Below: Closer look at purpuric rash that developed in the lower trunk. (Taken with permission)



MONEY MATTERS

BY: EMERY H. CHANG, MD

TULANE

UNIVERSITY

MED-PEDS PGY4



Lung Consolidation?? NO, *LOAN* CONSOLIDATION

I'm quite sure that you have received dozens of offers for loan consolidation in the mail and as SPAM. So what's the skinny? There are many cool things about loan consolidation for your federal loans (such as Stafford, PLUS, Perkins, Direct, etc).

***Lock-in the Lowest Rates Ever:** Our interest rates change each year on July 1st. So hurry as often the paperwork takes time! The interest rate becomes fixed as the weighted average of all your loans at the current rates, instead of the variable rate that you started out with (e.g. you have a \$10,000 loan at 2% and a \$30,000 loan at 4% → \$40,000 loan at 3.5%).

***One Bill:** You can lump all your federal debt (undergrad, med school, flight school) as well as your spouse's, into one loan. Therefore you pay only bill, have one company manage that loan and only make one phone call to change addresses.

***You Might Pay More Interest:** This depends on how you set up your loan. The terms of the new loan maybe over a longer period of time (e.g. 20-30 years instead of 10). Since you'll take longer to pay the money off, you'll pay more interest. There are many options of payment schedules and length of

time available.

***Deferment/Forbearance:** I'm told by lenders that the terms of deferment (e.g. financial hardship, full time student, when the government pays the interest on subsidized loans) and forbearance (e.g. residency, when you are responsible for the interest) still apply for your consolidated loans. So if you become a full-time student (say MPH), stop working, enter into a fellowship or have other issues, you can still enter a deferment or forbearance with the new consolidated loan.

***With Whom?** There is a standard application form that dozens of companies that can process your consolidation. Some companies offer discounts (e.g. 0.25% off for direct withdrawal, 1% off after 36 months of on-time payments) which you have to ask about. Make sure you get the promo in writing just in case.

***INTERNS:** Consider locking in your loans before the 6-month grace period is over. During your grace period/deferment period, the interest rate is lower. This will lock in a lower interest rate.

***Interest May Be Tax-Deductible:** Student loan interest may be deducted on your federal income taxes. For 2004, you can deduct up to \$2,500 in interest even if you don't itemize. The only exception is those who make significantly over \$50,000 single or \$100,000 jointly.

As always, NMPRA and the author are NOT tax, accounting nor finance professionals. Please consult your tax, accounting and financial experts before making any decisions. We are not responsible for any errors or advice given in this column.

Need trusted answers at the point of care?



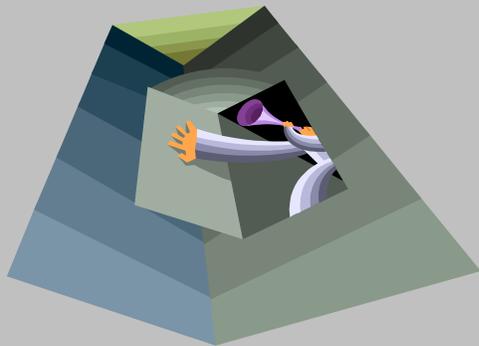
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The Medical School Without Med-Peds: What Can We Do to Get The Word Out?



By: Allen Friedland, MD, FACP, FAAP

President, Med-Peds Program Directors Association

It would seem logical that those medical schools without med-peds programs nearby would have significantly fewer applicants applying to med-peds residencies? Local student interest groups at medical schools which house med-peds training programs are a source of information and encouragement for students within those schools. ERAS data (unpublished) over the past 3 years demonstrates the disparity of applicants from schools with versus without med-peds residency programs. Although 131 of 161 schools had at least one applicant to the 2005 med-peds match, approximately 50 schools have had cumulatively less than 5 applicants total over the prior 3 year period and most were remote to our residency programs. Robbins et al¹, surveyed med-peds applicants in 2003 and concluded that med-peds mentors were a significant influence as advisors to those students who applied to med-peds and most applicants (79%) had a med-peds program affiliated with their medical school. MPPDA, NMPRA and AAP have created efforts to coordinate discussions at medical schools without existing med-peds programs. These school visits have typically been arranged to coincide with the yearly program directors' meetings.

Successful visits over the past 2 years have been conducted with interested medical students and directors at institutions such as University of Washington, University of California at San Francisco, Howard University, George Washington University, New York Medical College, Boston University, Lake Erie College of Osteopathic Medicine, Dartmouth, NOVA Southeastern College of Osteopathic Medicine, University of Colorado, Philadelphia College of Osteopathic Medicine, Temple, Drexel, Johns Hopkins & Stanford University. In addition to individual school visits, MPPDA has co-sponsored booths at AMSA, ACP and SNMA meetings in the past year. Regional interest groups that include schools with and without affiliated med-peds residencies have also proved successful. Overall, at least 34 student meetings have been held in the past academic year with hundreds of students in attendance.

At the MPPDA meeting in May 2005, there was discussion about further mechanisms to support the medical school without a med-peds program. Suggestions included identifying more local mentors at these remote schools, making available educational materials that deliver the right message to faculty at these institutions, making contact with and sending materials to deans of medical schools, sponsoring further regional meetings and sending representatives to schools during primary care week. MPPDA intends to continue work with the AAP Med-Peds section and the National Med-Peds Residency Association on these activities.

¹Robbins B, Ostrovsky DA, Melgar T: Factors in Medical Students' Selection and ranking of Combined Medicine-Pediatrics Programs; *Academic Medicine*; 80 (2) 2005

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and

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Clinicians' Corner....

**An Intro to Infections
after International
Travel**

By: Gitanjali Srivastava, MD
Mount Sinai Hospital, NYC
Med-Peds PGY 2



Case 1: A 63 year-old woman with NIDDM presents with low-grade fever, RUQ pain, and chronic diarrhea for one month after travel to Pakistan.

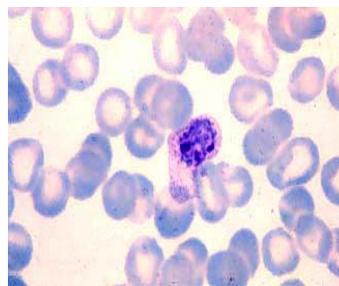
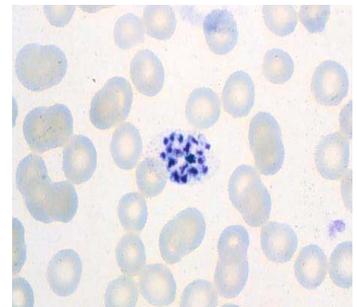
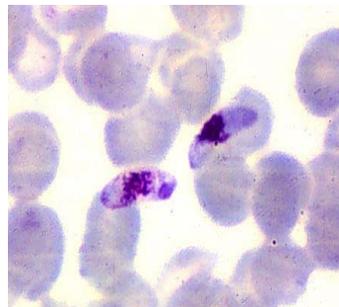
Case 2: A 15 year old teenager returns from having traveled to India with non-cyclic fevers of 104. A complete blood count reveals leucopenia

Case 3: A 41 year old woman returns from a trip to Egypt. She presents to the clinic with unilateral lymphoedema and redness.

What are the diagnoses in the above three cases? More than 50% of people who travel to the developing world report a travel-associated illness. Adventurer travelers and those who visit rural parts of third-world areas are at increased risk for becoming ill. The initial evaluation by the primary care physician should focus on life-threatening, treatable, or transmissible illnesses. History should include questions pertinent to travel location, likely incubation period, exposure history, associated symptoms, duration of fever, immunization status, and use or non-use of antimalarial prophylaxis. This article will focus on the clinical presentation and the diagnosis of some selected and interesting infectious diseases prevalent among international travelers.

MALARIA is the most important cause of fever in travelers. Interestingly, 40% are afebrile upon initial evaluation by the primary care physician. Malaria can present with headache, cough, and/or gastrointestinal manifestations. Fevers sometime start one month to one

year after travel and tend to be cyclic, usually 24-48 hours. Of note, antimalarial drugs do not guarantee protection. The most fatal infection is caused by *Plasmodium falciparum*, prevalent in Africa. Unpredictable complications of *P. falciparum* can include hypoglycemia, renal failure, respiratory distress, altered mental status, and shock. As a result, immediate close monitoring as an inpatient is recommended. *Plasmodium vivax*, more common in Asia and Latin America, can present up to one year after travel in 2% of the cases. Thrombocytopenia without leukocytosis and splenomegaly are common findings. The peripheral smear must be evaluated.



Top Left: *Plasmodium falciparum* male gametocytes
Top Right: Mature schizont of *Plasmodium vivax*
Bottom Left: Immature schizont of *Plasmodium vivax*
Source: Ohio State graphic image collection.

TYPHOID FEVER is most prevalent after travel to India, the Philippines, or Latin America where it can be spread by contaminated food, drink, or water. Following ingestion, the bacteria spread from the intestine to the intestinal lymph nodes, liver, and spleen where they multiply. The bacteria may also infect the gallbladder via the hepatic duct and spread directly to the bloodstream. Typhoid fever has an insidious onset, often accompanied by high fevers, headache, abdominal pain, diarrhea. "Rose spots," small red spots, can also appear on the abdomen and chest. Children have milder disease and fewer complications than adults. The complete blood count is characteristic for leucopenia with thrombocytopenia.

An Intro to Infections after International Travel Cont.

Blood cultures are positive for *Salmonella typhi*. Patients are treated with a fluoroquinolone or a third-generation cephalosporin. Of note, some patients can become carriers of *S. typhi* and shed the bacteria in their feces for years.

DIARRHEA following travel usually resolves during or shortly after travel. The causative agents of diarrhea can usually be identified within the first two weeks. If the duration of the diarrhea surpasses two weeks, a parasitic infection should be considered. Initial labs include a peripheral smear, CBC, LFTS, urinalysis, stool culture, ova & parasites, and serologic assays. These include *Giardia lamblia*, *Cryptosporidium parvum*, *Entamoeba histolytica*, and *Cyclospora cayetanensis*. Patients presenting with fever, bloody stools, and leukocytosis, dysentery or inflammatory enteropathy should be suspected. Complications of parasitic infections include Guillain-Barre syndrome associated with *Campylobacter jejuni*, hepatic abscess formation from *E. histolytica* infection, and IgA deficiency and hypogammaglobinemia associated with giardiasis. A prolonged course of diarrhea with malabsorption should warrant further evaluation for *G. lamblia* and tropical sprue. Tropical sprue, in contrast to nontropical sprue (gluten-sensitive enteropathy or celiac disease) is not associated with anti-tigliadin and antiendomysial serum antibodies, and the removal of gluten from the diet does not affect tropical sprue. However, treatment with tetracycline and folate causes resolution of symptoms in tropical sprue.

HELMINTH Infections (hookworm, ascaris, strongyloides, schistosomiasis, filariasis, trichinosis) are rarely associated with traveler's diarrhea. Patients are usually infected with a heavy parasite burden. Eosinophilia is pathognomonic of worm infections. Hookworm infections are associated with iron-deficiency anemia, while tapeworm infections can cause swelling, edema, inflammation, and necrosis associated with migrating larva. Travelers who swim in or bathe with fresh water where poor sanitation and appropriate snail hosts are present are at risk for contracting schistosomiasis. Infection can occur within 2-3 weeks of exposure to the cercariae-infested water, the most common acute syndrome being Katayama fever at the time of initial egg release.

Symptoms can include fever, loss of appetite, abdominal pain, hematuria, weakness, headaches, myalgias, and cough. If a helminth infection is suspected, serologic testing and microscopic examination of stool for eggs can confirm the diagnosis. Filariasis is caused by parasitic filarial worms, *Wuchereria bancrofti* and *Brugia malayi*, found exclusively in humans. Filarial worms are notorious for obstructing the lymphatic system where they live for several years, producing immature microfilariae. These microfilariae are then picked up by mosquitoes, thus spreading the infection with mosquito bites.



Top Left: Microfilaria in blood; Top Right: Lymphoedema of a patient with filariasis (source: WHO image library)

Back to the Cases:

In Case 1, the patient's work-up for the traveler-associated diarrhea was negative. Stool studies were normal. Instead, she was found to have hypothyroidism and was started on synthroid therapy. The patient returned one month later with resolution of her symptoms. An important consideration when evaluating a returning traveler is to not exclude common diagnoses in the differential. In Case 2, blood cultures were found positive for *Salmonella*, and the patient was treated with ceftriaxone for typhoid fever. The patient's leucopenia ultimately resolved. In Case 3, it was essential to rule out filariasis, although the work-up has been negative to date.

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(The views expressed in this newsletter are those of the authors and not necessarily those of NMPRA)

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