

Gil Liu-Back in the Midwest and Loving It!

I was born in Ames, Iowa. My dad emigrated from Taiwan for graduate school; my mom emigrated from China to work as a nurse. We moved to Clinton, Mississippi when I was 4 and my parents still live there in the same house where I and my two younger brothers grew up. I went to college and did my medical and fellowship training in North Carolina. So after a long stint in the Southlands, I'm finally finding myself back in the Midwest, and I'm loving it!

This is my first "real job." I can honestly say that I couldn't have asked for a better working situation. For an aspiring academic physician-scientist, the resources and support here at IU and Riley are amazing. I feel that most of the limiting factors to what I'll accomplish reside within myself. My main research interests revolve around neighborhood-level predictors of health and childhood obesity. I also highly value and enjoy staffing at Wishard in the Urgent Visit Center, in the Riley Resident's Continuity Clinic, and attending on the Riley Housestaff Inpatient Service. Also, a great perk to my job is getting to travel and present research findings in exotic places like Hawaii!

When I was searching for housing in Indy, I only looked within a 2-mile radius around Riley. I've settled in a home built in 1910 at the corner of 16th and Talbott St. Before closing on the

house, I convinced my parents to come and participate in the home inspection – about 45 minutes into the inspection, my mom left weeping and my dad told me they were 110% against me buying the home. I guess they got distracted by the crumbling plaster, termite damage, leaking roof, and out-dated plumbing; but I was irreversibly enchanted by the turn-of-the-century craftsmanship. After having lived

there almost 2 years now, I do admit that sometimes, I want to burn the place down and put a fiery end to the seemingly endless repair list. But all in all, it's a really terrific place – I can ride my bike to work, I'm across the street from Redeemer Presbyterian Church, where I worship on Sundays and I have tons of great

neighbors. So if any of you are considering living downtown in an old fixer-upper, I'd highly recommend it!

When I'm not slaving away at work (my boss, Steve Downs, is a real hard nose!), I enjoy exercising at NIFS, working on a '66 Mustang (yet another project), practicing guitar, and most of all, being with friends. This is perhaps what I've most enjoyed about Indy, the realization of the legendary friendliness of Hoosiers.



Pediatric Health Services Research

Mission, Values, Vision

Mission

We strive to improve the health and health care of children by developing and applying best scientific evidence and methods in health services research and informatics.

Values

We are guided by compassion for children, interdisciplinary and community partnerships, and scientific rigor.

Vision

We seek to become the nation's preeminent center for children's health services research and informatics.

We strive for excellence in research, education and service to children, their families, their communities and the professionals who serve them.

Areas of Focus

Community pediatrics and Medical Home

Disseminating research through health policy research, clinical policy analysis and advocacy

Research and service concentrating on vulnerable children: children with special health care needs, children in poverty, and children facing linguistic and cultural barriers.

The use of information and technology to improve knowledge of children's healthcare and quality of health services.

Child Health Improvement through Computer Automation: The CHICA System

There are many guidelines to help physicians and other health professionals provide better preventive health services and care for children with chronic diseases. These include everything from shots and vision screening to injury prevention and managing medications for asthma. Despite the availability of guidelines, many pediatricians and other healthcare providers don't use them, relying instead on memory and what they learned in residency. Computer based reminder systems are an effective way to help physicians use guidelines, but they are not widely used because they are costly and unacceptable to overworked physicians in busy clinics. What is needed is a computer system that integrates into clinical workflow with an interface for doctors that is inexpensive and flexible, like paper, but can track patient data, select appropriate, high priority reminders and capture clinical data so that reminders are timely and relevant.

Preliminary work by investigators in the Children's Health Services Research (CHSR) section have demonstrated the feasibility of using tailored scannable paper forms to provide patient specific reminders to physicians and capture data through optical scanning. A team of pediatricians, health services researchers, medical informaticists and computer engineers in the CHSR have expanded this model, using advances in Optical Character Recognition (OCR) technology and international standards for knowledge representation and data communication, to create a system that gives the healthcare provider the flexibility of paper while providing computer generated alerts and reminders and capturing structured clinical data.

The CHICA (Child Health Improvement through Computer Automation) system consists of a computer database of healthcare guidelines stored as rules. CHICA also has access to the Regenstrief Medical Record System, one of the largest and longest running electronic medical record systems in the world. Each time a child visits a clinic running CHICA, CHICA evaluates the child's electronic data to determine which guideline rules apply. Following the guideline rules, CHICA assembles and prints two tailored scannable paper forms. The first form, the "pre-screener," has a 20 question survey for the parents or the child to complete before they see the



The CHICA team, standing left to right Paul Biondich, Stephen Downs, Vibha Anand, Gilbert Liu; seated Marc Rosenman

physician. The nurse also records data like height, weight and blood pressure on this form. When the pre-screener is scanned, CHICA analyzes the data from the nurse and assesses the patient's concerns or risk factors. With this information, CHICA generates the second form, the "provider worksheet." The provider worksheet provides reminders and collects data from the physician, based on information from the pre-screener and the medical record. The provider worksheet doubles as a clinic note and a guideline, tailored to the individual child, that the pediatrician can take into the exam room. It ensures that parental concerns and important risk factors are not overlooked, and it makes documenting the visit easier for the doctor. Because the paper forms are scanned into the computer, CHICA can collect more relevant data and give smarter advice at later visits.

CHICA has Client-Server architecture, meaning one computer, the server, can maintain the databases and the logic, while supporting many clients, computers running printers and scanners, in different clinics. The client computers display a "grease board" with a list of the patients to be seen, medical record number, and physician assigned so clinic staff can monitor workflow. CHICA also uses medical informatics industry standards for representing medical rules (Arden Syntax) and for communicating health information with other computers (HL7). This makes it easier to use components of CHICA with other computer systems.

CHICA combines the power of computer-based, patient-specific guidelines with modern OCR technologies to create an effective real world clinical decision support system. The hallmarks of the system are: 1) a rule based expert system,

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Dyson Initiative Partner Hispanic Education Center

In March, 2002, the Hispanic Education Center was pleased to be invited to collaborate with the IU School of Medicine residency program to develop and provide culturally effective communication models and identify systems of healthcare offered in the community.

The Hispanic Education Center is a not-for-profit community based organization incorporated in 1987. The mission of the Center is to serve and provide educational programs for the Hispanic/Latino population of Indianapolis.



Hispanic Education Center

A staff person from the Hispanic Education Center and the residents collect data and tour two geographic areas of high concentration of Hispanic persons. They also interview families and service providers, determining significant needs for the community. They then plan, organize, execute and evaluate a longitudinal service learning project.

“Being a member of the Dyson, Partnerships for Children, Community Pediatrics Training Initiative has been a rich and broadening experience,” says Sister Therese Whitsett, executive director of the Hispanic Education Center. “I have been inspired by the dedication and enthusiasm of the team of physicians and community leaders who are involved with the project. It is quite rewarding and uplifting, also, to witness the willingness and openness of the resident doctors as they listen and learn more about the Hispanic community and its needs. The Hispanic families are eager to share their stories and consider it a privilege to have the doctors visit their homes.

“I feel the meaningful partnerships evolving among the pediatricians, families, and community-based agencies will continue to enrich and enhance the lives of everyone involved, especially the children.”

Erythromycin and Pyloric Stenosis

At the Regenstrief Institute, Dr. Clem McDonald advises the fellows to be on the lookout for questions—perhaps epidemiologic associations observed elsewhere in small but tantalizing studies—that might be addressed using large Regenstrief Medical Records System (RMRS) cohorts. In 2000-2001, Marc Rosenman (now of Children’s Health Services Research) and colleagues did just that.

Such a question developed during two weeks in March 1999, when pediatric surgeons in Knoxville, Tennessee operated on seven infants with pyloric stenosis. This unusual cluster of infants was born at the same community hospital. A few weeks earlier, because of exposure to pertussis in the nursery, newborns in that hospital were given a course of oral erythromycin prophylaxis. This situation prompted a study by local health officials and the CDC. The results, reported by Dr. Honein et al. (Honein MA, et al. *Lancet* 1999; 354:2101-5), showed that 7 (4.5%) of 157 infants exposed to oral erythromycin prophylaxis developed pyloric stenosis. In a comparison group of 125 infants who did not receive oral erythromycin prophylaxis, there were no cases of pyloric stenosis.

In 2000-2001, Dr. Barbara E. Mahon, Dr. Martin B. Kleiman, and Dr. Marc B. Rosenman analyzed RMRS data for almost 15,000 infants born at Wishard Hospital between 1993 and 1999. The investigators used two separate automated queries of the data. One query found the subset of infants born at Wishard who had pyloric stenosis; the other found the subset of infants born at Wishard who had received a course of oral erythromycin. Then they drew a 2x2 table. It showed that, in the six-and-a-half year study period, pyloric stenosis developed in 5 (2.7%) of 182 infants who had been prescribed oral erythromycin during the first week of life. In contrast, pyloric stenosis developed in 38 (0.26%) of 14,694 infants who had not been prescribed oral erythromycin in the first week of life. This absolute risk increase was approximately 2.5% (NNH=40). Their findings (Mahon BE, Rosenman MB, Kleiman MB. maternal and infant use of erythromycin and other macrolide antibiotics as risk factors for infantile hypertrophic pyloric stenosis. *J Pediatr* 2001; 139:380-4) were that the most common reason why infants were prescribed oral erythromycin was exposure to chlamydia at delivery. The investigators also found that infants prescribed a course of erythromycin ophthalmic ointment did not have a higher-than-normal risk of pyloric stenosis.

Subsequently, other investigators found similar results in a large Tennessee Medicaid database. Their results were published in (Cooper WO, et al. Very early exposure to erythromycin and infantile hypertrophic pyloric stenosis. *Arch. Pediatr. Adolesc. Med.* 2002; 156:647-50).



Resident Spotlight-Jeremy Roscoe

As a resident looking forward to a future in primary care, I am interested in child advocacy. On my recent Community II rotation through the IU Pediatrics Residency Program, I became intrigued by the legislative advocacy opportunities pediatricians enjoy. I feel it is our duty to help propose and amend new laws in congress to aid our patients' and kids' welfare. I have been able to take advantage of some wonderful opportunities in the past few months.

First, I went to the Indiana Chapter of the American Academy of Pediatrics meeting which was attended by members of our congress interested in Child Advocacy. We learned the issues important to them and they listened to our most significant concerns. It was a wonderful chance to see how much our advice and expertise affects our legislators.

A one day seminar on state legislative advocacy followed in February. There we discovered the major issues of debate at the State House. We were taught how to get in touch with members of congress and how to make our point in order to have an impact. We then went to the Capitol Building and had the chance to call our individual representatives out of the chamber to talk to them about current issues. I have been amazed at how members of congress are interested to have pediatricians and other physicians as resources in the community. Overall, it was a great opportunity to see and better

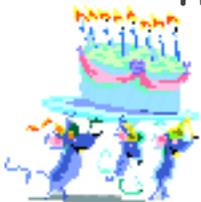
understand how our government works and how I can make a difference.

Most recently, I was able to attend a legislative advocacy day in Washington D.C. sponsored in part by the Dyson Initiative and also by the American Academy of Pediatrics. The Indiana Chapter was gracious enough to send a colleague and me to benefit from this wonderful experience. About twenty residents attended from Dyson-funded sites across the country. We had a great time getting to know each other and an even better time meeting our legislators on Capitol Hill where we discussed current bills related to children's healthcare. We were given a one page handout and taught different ways to get our point across. We also learned about various programs and interest groups we could join to keep updated on current pediatric issues. Again, I was struck by how eager the staff members were to start a relationship with local pediatricians to collaborate on the future of children's healthcare.

As a general consensus, Dyson residents wished this event could have been longer, but we all plan to share our experiences with our programs back home. We discussed making legislative advocacy one of the small groups at the Dyson meeting, next fall.

We are all very excited to be Dyson residents and hope to enhance our programs through opportunities like these. I plan to run for Congress some day, so these meetings have been invaluable to my education. I feel like I am well on my way to becoming an important government voice for our children.

Happy Birthday to you...



- May 4 - Nancy Swigonski
- May 8 - Marc Rosenman
- May 20 - Cathy Luthman
- June 6 - Janet Shultz

Congratulations

Marc Rosenman has been awarded a Riley Memorial Association Grant entitled "The Immunization Status of Children at Wishard Hospital: Does the Latino Paradox Hold True?"

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2) a tailored scannable paper interface that provides point of care reminders and structured clinical data entry, and 3) the use of medical informatics industry standards that facilitate links to existing electronic medical records. CHICA is in the last phase of development and will be operating in pediatric clinics of the IU Medical group in the summer of 2003. Keep an eye out for updates as the system "goes live."

2003 Works-in-Progress Sessions

May 13, 27	Sep 9, 23
Jun 10, 24	Oct 14, 28
Jul 8, 22	Nov 4, 18
Aug 12, 26	Dec 2, 16

*Open dates are now available for presenting
For information about WIP, please call 278-0552
or email cmbonner@iupui.edu*