



Children's Health Services Research

# The Pediatric Examiner

Dept. of Pediatrics, Indiana University School of Medicine

Dec. 2003



## Welcome! Dr. Carroll and Family

*Dr. Aaron Carroll is one of the newest faculty to join Children's Health Services Research. He comes to us from the University of Washington in Seattle. We are pleased to welcome this talented investigator.*

Although I had always wanted to be a doctor, I never imagined myself doing what I do today. I always thought that I would practice as a physician much like my father had - a surgeon in private practice. I had a passing interest in computers, but never more than as a game platform. While at Amherst College, I took a number of classes in com-

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puter science, but again I never really took it seriously.

I was excited to return home to Philadelphia to go to medical school at the University of Pennsylvania. Unfortunately, I was not nearly as excited once school started. While others reveled in anatomy, biochemistry, or pharmacology, I continually questioned the antiquated nature of medical school education. From my father, I had a sense of

what was involved in the practice of medicine today, and I could not understand how what I was being taught would apply outside of passing exams. This concern became heightened in my clinical rotations as I found that succeeding on the wards had little to do with the knowledge I'd just spent two years amassing. Too much time was spent trying to work the system - time that should have been spent with patients. Medical school ended happily, though, as it was there I met my wife Aimee, who was earning her master's degree to become a nurse practitioner.

I love kids, and I thought that I would be happy as a pediatrician. I looked forward to beginning residency at the University of Washington in Seattle. Again, however, my excitement was short-lived. I found myself continually questioning the nature of both the education we were receiving and of the care we were providing. Every day, I was frustrated with the inefficiency of the system, both for physicians and their patients. This frustration culminated in my second year of residency, when I seriously *continued on page 6*

### In Short...

Paul Biondich was awarded the 2003 Homer Warner Award at this year's AMIA conference for *Using Adaptive Turnaround Documents to Electronically Acquire Structured Data in Clinical Settings*. Vibha Anand, Steve Downs and Clement McDonald co-authored.

Aaron Carroll's article *Pediatricians' Use of and Attitudes About Personal Digital Assistants* has been published in the Feb. 2004 edition of *Pediatrics*.

Congratulations to Dr. and Mrs. Aaron Carroll! They are the proud new parents of Noah Benjamin, born on January 11th. He weighed in at 7 lbs. 5 oz. and 21 3/4 inches long.

### Works in Progress

Children's Health Services Research Works in Progress sessions are now held every Tuesday in RR 339 at 11:30 a.m. *If you are interested in presenting at an upcoming session please contact Chris Bonner at 278-0552 or cmbonner@iupui.edu*

Visit us at [www.ichsr.org](http://www.ichsr.org)

## Continuous Quality Improvement in Resident Education

Indiana University Department of Pediatrics, as part of the Dyson project within residency education, has recently initiated a learning tool for its pediatrics residents in Continuous Quality Improvement (CQI).

This is based in part on assessing the ACGME competency of Practice-Based Learning and Improvement. Many residency programs across the country have struggled with assessing Practice-Based Learning and Improvement, but after some initial changes with the curriculum, have put into place a rather unique way of teaching this material and applying it to the learning for the residents.

The education of CQI principles is done during the Community II rotation required of all the Pediatrics residents at our institution. We have created a small-group lecture, which includes an interactive group discussion about the principles of CQI. In this, we explore some background in CQI, and focus on the PDSA (Plan-Do-Study-Act) cycle, which is the cornerstone of learning quality improvement techniques. We provide the residents with examples of CQI in practice, and highlight the fact that many of the “problems” in health care are not due to the fault of individuals, but rather due to barriers within the “system” of health care around which direct patient care operates.

Each resident is given a brief pre-test on the material, and then learns the concepts of CQI during this didactic lecture led by Dr. Alex Djuricich. Then the group discusses how system problems affect our residents in their daily lives, with many examples of system breakdown that could lead to problems in providing the highest quality care. The residents are asked to provide several examples of problems they noted within their own clinical care, whether during inpatient rotations, or in ambulatory-based

clinic care.

After this interactive session, the residents are asked to design project ideas that specifically address ways to improve care. They highlight a clinical problem, including references to the literature, and then design ways to “fix” that problem, based on their own concepts of quality improvement. They have to “write” the project in the format of the PDSA cycle, in order to show that they have mastered the concept of the CQI.

Residents are evaluated on the project by assessing adherence to the cycle, feasibility, affordability, relevance (perceived need), and ability to measure outcomes. We are looking for them to construct ideas for improving processes of care that are real within our own system of care. Each resident is given feedback during the rotation, and at the end of the rotation. At the end of the month, after a brief post-test, we discuss each resident’s project individually, and look at



barriers to implementation, as well as ways of making the project work. Each resident is encouraged to continue to work on his/her own project after the Community II rotation is complete.

What we have received, so far, is nothing less than spectacular. The ideas the residents have are quite diverse, and reflect issues in our patient care and education that clearly could be improved upon. Some of the projects are specific to a specialty (NICU, for example), while others reflect problems that occur within the office (such as improving office flow). What we have learned so far is that residents are clearly a gold mine of resources for learning about ways to improve care and education. By tapping into this vast resource and learning how they see problems, we are better able to find ways to educate future pediatricians, as well

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# Current Research and Development

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## Willingness to Take Medical Risks

In making difficult medical decisions, people must consider both length of life and quality of life. In addition, they must consider their willingness to take risks to improve quality and length of life. Think of the individual, afflicted with a heart condition, which impairs her daily activities and will shorten her life expectancy. She may choose to have surgery to improve her quality and length of life, but if the surgery were dangerous, what risk of death would she be willing to take?

Clearly people vary in their willingness to take risks, but how might this variation affect medical decisions? And how do different kinds of people differ in their willingness to take risks in order to improve their quality or length of life?

Investigators in the Children's Health Services Research section are interested in what degree of risk individuals are willing to face. CHSR director, Stephen Downs, and colleagues from Harvard University co-authored a publication to appear in a recent issue of the journal, *Medical Decision Making*. They measured how atti-

tudes toward taking medical risks varied by age, race, gender and education.

The researchers asked patients coming to clinic to make hypothetical decisions in a series of health scenarios that were designed to capture that patient's willingness to take risk. Individuals were asked to imagine they had any one of a number of disabling health conditions. Then they were asked what kinds of trade-offs in length of life or risk of death they would be willing to face to be cured. By analyzing the data, Downs and colleagues could see how tolerance of risk varied among groups of people.

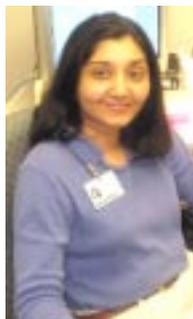
They found that race, gender and education all had a relationship to risk aversion. On average, white race and female gender were each associated with avoiding risk. Independent of race and gender, lower education was associated with lower tolerance of risk. Although it is not yet clear how these tendencies translate into the health choices people make, Downs says that a better understanding of how patients feel about risk will help physicians and health policy makers to better help patients make decisions.

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## Era of Fusion is Motivating

Vibha Anand started working with the Children's Health Services Research program at Indiana over a year ago when her family moved here from Connecticut. Vibha comes to CHSR with a non-health related background and is thrilled to be part of this multi-disciplinary team. She has a Bachelor's degree in Electrical Engineering from India and a Master's in Computer Sciences from University of New Haven, CT.

At CHSR, Vibha along with others (Drs. Downs, Biondich, Liu, Rosenman and Carroll) on the CHICA team, is responsible for developing the technical pieces of a very innovative program called Child Health Improvement through Computer Automation (CHICA). CHICA is aimed at identifying risk factors and then de-



livering optimal care through the use of physician reminders at the point of care in a pediatric well care clinic. Vibha is very excited at the opportunity to make a difference in young children's and adolescent's lives through this system.

Before CHSR, Vibha worked for a number of years for various private sector companies in the area of data and telecommunications software design and development. She has worked for an international corporation like Honeywell to a more recent startup company. She started working as a hardware designer out of college in the PC era and moved on to doing system and application software as the industry progressed and the PC revolution changed the way we work, live

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## Resident Spotlight John Kunzer

My interest in engaging fathers stems from my continuity clinic and newborn nursery experiences where I was often left asking “Where is the dad?” Worse, I have seen fathers completely ignored as healthcare professionals deliver their “mom talks” on newborn care. Children who do not have contact with their fathers are more likely to live in poverty, abuse alcohol or drugs, drop out of school, be abused, become pregnant teenagers, or commit a crime.



Doctor Dad™, a program developed by the National Fatherhood Initiative, delivers an interactive learning experience to help fathers learn new skills to care for their children. I am working to adapt Doctor Dad™ to emphasize newborn care and to create a collaborative effort in which pediatric residents provide culturally

sensitive parental education to young, low-income, minority fathers. Parental education classes in the Wishard newborn nursery or in resident’s continuity clinics will serve as a gateway to connect at-risk fathers to community-based organizations that provide comprehensive life strategies to help strengthen the father-child bond that is integral for overall child well being. I applied for a grant from the American Academy of Pediatrics for the Doctor Dad™ project and a poster was presented at a recent Dyson Initiative National Symposium. I have taught three Doctor Dad™ classes at the Fatherhood Resource/Research Center and I have used these sessions as focus groups to refine the curriculum. The positive feedback from these sessions has been very encouraging. Along with other residents, we are also implementing parenting classes at Forest Manor Community Clinic.

In December I completed a Dyson Advanced Competency elective focusing on the Doctor Dad™ program. I began a list of resources for fathers, identified other residents to teach Doctor Dad™ classes, and continued discussions with community-based organizations on how to best serve fathers. I also identified incentives for dads to participate in the program.

*Motivation, continued from page 3*

and play today. Vibha believes this is the era of fusion of multiple disciplines, from health care to information technology and engineering. This has motivated her to pursue health informatics as a career choice. To get more aligned in this upcoming field, she is doing some health policies related coursework and plans on pursuing a graduate degree in the future.

On a personal note, Vibha enjoys spending time with her family and loves to travel. Some of her interests include reading, music, theater, and arts and crafts.

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*Quality, continued from page 2*

as ways of improving care that we might not have thought of.

We have managed to combine the rotation with a similar one for the Department of Medicine, placing both groups of residents into the room at the same time. This has helped the residents realize that problems they see are not necessarily unique to Pediatrics. Many problems exist on multiple fronts, and by working together, we can get a start on solving these problems. CQI is just one method to do this, but our residents have clearly taken the bull by the horns, and have done a fantastic job in creating projects that are rich, worthwhile, and clearly important in helping to improve processes.

For the medicine residents, in fact, we were able to present this at the Midwest section of the Society for General Internal Medicine, and were delighted to receive “Best Presentation for Innovation in Medical Education” at the recent September, 2003 meeting. We hope to continue with this and present more data at both internal medicine and pediatric society meetings in the future.

Other plans for the future include attempting to actually implement the project ideas. Our hope is that the residents will help implement the ideas. In fact, we may be offering a senior elective, for those who are interested in really delving into their projects. We hope to show how we can harness the potential of our residents to improve and be the best in caring for patients.

## Dyson Partner - Mary Beth Riner, DNS, RN IU School of Nursing

My early years were spent in the flatlands of western Kansas. I grew up in a community-service oriented family, as my mother had been the county welfare director prior to marriage and four babies. Growing up I learned to value the power of collective action on behalf of vulnerable families and groups. This shaped my life choices and led me to choose community health as a specialty of nursing practice. My passion for working with individuals to strengthen community life led me through a career path that has included community mental health in the northwest corner of Kansas, occupational health in a large suburban hospital in Kansas City, public health nurse consultant for two state health departments, and executive director of a state nurses' association.

In order to continue preparing myself to impact community health, I completed my doctorate of nursing science in community health policy at Indiana University. My academic public health career goal is to strengthen the preparation of health professionals to work at the population level.

Currently, I am enjoying my role as interdisciplinary faculty on the Dyson Partnerships for Change grant. My area of focus is to engage Community II residents to using the Social Assets and Vulnerabilities Indicators



(SAVI) program to profile the population served by their continuity clinic. SAVI is a geographic information system (GIS) that maps a variety of indicators, including census, education, crime, and vital statistics, to name just a few. I have found that the old adage is true "a picture is worth a thousand words." In addition to visual displays, GIS software has statistical analysis capabilities. I believe GIS programs are well positioned to take us to the next stage of understanding what influences health. We have demonstrated great progress in identifying individual biological influences in health, now we need to understand with comparable depth, the social and physical environmental influences. GIS is an approach that is just beginning to help with this exploration.

Another area of my focus is to explore the connection between academic pediatrics and public health. I believe the work being encouraged by the Dyson Foundation in this area comes at a crucial time. The health risks of children are influenced by their physical and social environments, an area of traditional public concern. It takes public will and collective action, by all health professionals in partnership with community residents, to influence the containment of second-hand smoke, the reduction in the amount of fat in a child's diet, and the creation of fitness trails for inter-generational use.

*The Pediatric Examiner is a publication of Children's Health Services Research, Department of Pediatrics, Indiana University School of Medicine.*

*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, partnerships with others, 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.*

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considered abandoning medicine for good.

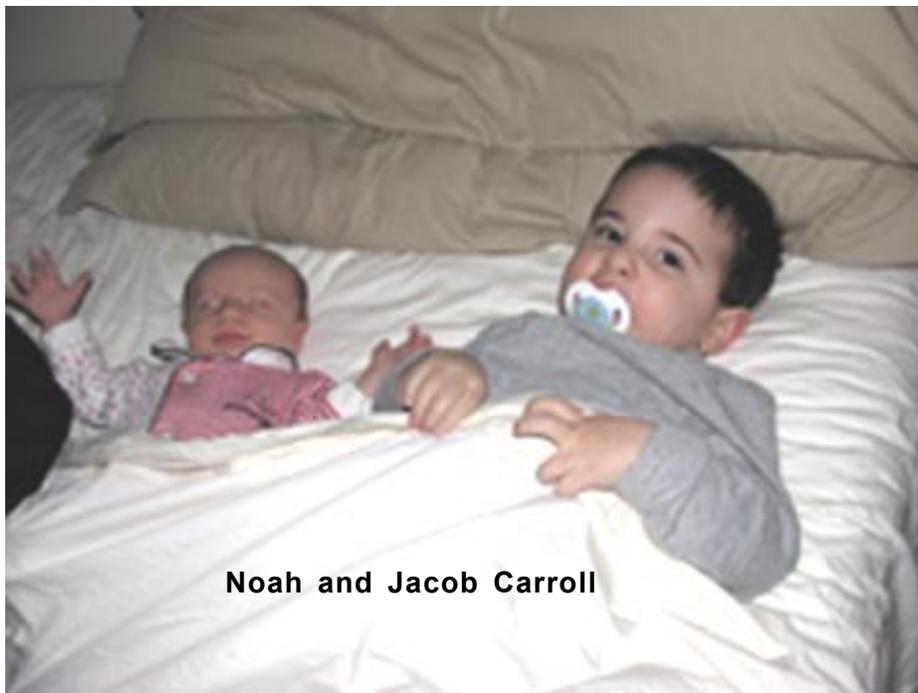
Luckily, I had mentors who both truly cared about me and helped me to harness my “indignation” to achieve positive results. In Seattle, there was a very strong tradition of health services research. Although many have tried to define this area of work (and no one can agree on any definition), I like to think of health services research as an attempt to understand and fix the system. Since almost all of my gripes were with the health care system as a whole, I felt like I had finally found my calling.

Almost simultaneously, I was introduced to the field of informatics. I had felt for some time that technology, especially information technology, could improve many of the areas of health care that were lacking. I was again lucky to find mentors at The University of Washington who were able to steer me on a path to augment my programming skills with a real world understanding of the field.

I was privileged to be a Robert Wood Johnson Clinical Scholar at The University of Washington after residency. This fellowship was an amazing opportunity to become a capable health services researcher and gain a broad understanding of the health care system as a whole. This amazing experience was coupled with an education in which I earned a Master’s Degree in Health Services, as well as a certificate in Public Health Informatics. During fellowship I was able to engage in research in a number of areas including a controlled trial of a Personal Digital Assistant (PDA) based

client/server patient record and charting system (of my own design) in a NICU, a national survey of pediatricians and their use of PDAs, and a national survey of physician’s view on financing national health insurance.

In fellowship, I was also lucky enough to become a father. Our son, Jacob was born in January, 2002. Aimee is originally from the Midwest, and when the opportunity came up to join the faculty here at Indiana University, we jumped at it. I have decided to focus my research on the use of information technology to improve healthcare on a number of fronts. I am developing a course of study to see if adolescents with diabetes can use mobile technology to improve



**Noah and Jacob Carroll**

the management of their disease; I am joining the CHICA team to help build and study the use of a novel computer based well-care system in our clinics; I am working on a number of studies based on investigating systems of care both locally and nationally; and I am hoping

to continue work on physician knowledge, attitudes, and beliefs about national health insurance.

I feel lucky to be at Indiana University, joining the new Children’s Health Services Research Program. It is exciting to be a part of a new and relatively young group, and I have high hopes for our success. I am also fortunate to be joining a long-standing group like the Regenstrief Institute which has bridged the gap between medical informatics and health services research for some time.

Aimee, Jacob, and I (as well as our newest addition, Noah) have felt so welcome since we arrived. We’re happy to be here!