

IU, Regenstrief automated system aims to improve child health

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Researchers from Indiana University and the Regenstrief Institute have developed an automated system to help enable pediatricians to focus on the specific health needs of each patient in the short time allotted for preventive care.

A new study, "Automated [Primary Care](#) Screening in Pediatric Waiting Rooms," in the May 2012 issue of *Pediatrics* found that by personalizing and automating the patient screening process and then alerting the physician to positive results of risk factors, the [Child Health Improvement](#) through Computer [Automation System](#) (CHICA) enables physicians to direct attention to the particular needs of the individual child and the child's family.

"Research has shown that what is recommended for well-child pediatric visits greatly exceeds what is practical to accomplish," said senior study author Stephen Downs, M.D., IU School of Medicine associate professor of pediatrics and a Regenstrief Institute investigator. "CHICA prescreens so the physician can focus on what needs to be done for each individual child. The computer picks 20 questions to be answered by the family based on what's known about that family — for example someone living in the household smokes or the child has previously been diagnosed with asthma."

CHICA uses information acquired from a child's parent or other family member in the waiting room — along with pre-existing data from the Regenstrief [Medical Record](#) System, the nation's oldest continually

operational electronic medical record system — to provide critical information and clinical reminders to pediatricians.

Family members use a pencil and paper to answer targeted questions, and responses are scanned into the electronic medical record before the pediatrician sees the child. If the parent has indicated that the child lives with a smoker, for example, CHICA will prompt the pediatrician to discuss smoking cessation programs as well as dangers of second-hand smoke.

CHICA is an open-source system and could interface with any electronic medical record system. CHICA solves both information overload and cost problems while helping the pediatrician focus on the specifics of the patient in the examination room according to the study authors. Since the system uses paper, it can be implemented with little or no staff training.

The new study also provides estimates of the prevalence of various risk factors for things often not covered in well-child visits such as smoking in the home, misuse of child car seats and teenage depression.

"In our study of nearly 17,000 patients, over 408,000 questions were asked and we had an impressive response rate of 89 percent," said study first author Vibha Anand, Ph.D., IU School of Medicine assistant professor of pediatrics and a Regenstrief Institute affiliated scientist.

"One in 10 answers indicated a risk factor, so on average CHICA identified two areas needing targeted physician focus per clinic visit for each child."

Among the [risk factors](#) identified by the study:

- 57 percent of the teenagers who indicated they were sexually active did not use any birth control method.
- 40 percent of children did not use a helmet when riding a tricycle

or bicycle.

- 20 percent of children lived with smokers.
- 16 percent of babies slept with a bottle.
- 9 percent of children were not meeting developmental milestones.
- 9 percent of teenagers were depressed.
- 4 percent of mothers had symptoms of depression.

The study was conducted in pediatric clinics at Wishard Health Services, a large public health care system in Indianapolis. Fifty-two percent of the children who participated in the study were African-American, 33 percent were Latino, and 9 percent were white. Approximately 85 percent received health insurance coverage from Medicaid.

The third study co-author, in addition to Drs. Downs and Anand, is Aaron Carroll, M.D., IU School of Medicine associate professor of pediatrics, director of the IU Center for Health Policy and Professionalism Research and a Regenstrief Institute affiliated scientist. All authors are with the Children's [Health](#) Services Research Division, which Dr. Downs directs, of the Department of Pediatrics.

Provided by Indiana University School of Medicine

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