

# Computer automation system improves autism screening rate

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An automated system developed by researchers from the Regenstrief Institute and Indiana University to help pediatricians focus on the specific health needs of each patient in the short time allotted for preventive care improves autism screening rates by identifying at-risk children at the 24-month visit. Nationwide children typically are not diagnosed with autism until age 4½ or 5 years.

"Computer Decision Support to Improve Autism Screening and Care in Community Pediatric Clinics" appears in the October-December issue of the journal *Infants & Young Children*.

By personalizing and automating the patient screening process and then alerting the physician to the results, the Child Health Improvement through Computer Automation system, or CHICA, prompts the pediatrician to follow up in needed areas. Open-source CHICA can potentially interface with any electronic medical record system.

CHICA has supported the care of more than 36,000 patients since its 2004 implementation for pediatric preventive care and disease management at community clinics associated with Wishard-Eskenazi Health in Indianapolis. Half of the families served by CHICA are black, and a third are Hispanic. More than two-thirds of the families have Medicaid.

At each visit, CHICA produces a 20-question prescreening form (in English or Spanish) personalized to the patient, linked to the child's

electronic medical record and completed by parents in the waiting room. At the 24-month visit, CHICA produces a standard autism screening instrument that is automatically scored. If concerns are raised, the physician receives an alert to verify and make a referral for further work-up and/or early intervention. If the electronic medical record indicates higher risk for autism (for example an autistic sibling), CHICA bypasses formal screening and alerts the physician to refer the child for further evaluation.

Approximately 1 in 88 children has been identified with an autism spectrum disorder, according to estimates from the CDC's Autism and Developmental Disabilities Monitoring Network. Once an autism diagnosis is made, it is easier for a family to obtain needed services, including early intervention to gain developmental skills.

"It is natural to worry about your child's development. Parents bring concerns to the pediatrician, and while pediatricians know how children should be developing, visits are brief—and there is a tremendous amount to cover and juggle during that visit," said Regenstrief Institute affiliated scientist Nerissa Bauer, M.D., assistant professor of pediatrics at the Indiana University School of Medicine, where she is part of the Children's Health Services Research group.

"Autism isn't like strep throat where you can do a quick throat swab and then have a diagnosis. Autism is a behavioral diagnosis and can look very different depending on the child. Some behaviors are subtle, especially early on. CHICA prompts parents to think about whether they have concerns about certain health risks, such as autism, which makes it easier for the doctor to focus on key issues during a hectic visit."

Dr. Bauer, the study's first author, is a behavioral [pediatrician](#) and health services researcher.

National guidelines call for pediatricians to screen children for autism at 18 and at 24 months, but many physicians find it difficult to fit this into a busy appointment that also calls for vaccinations and other screenings. Screening allows pediatricians to then refer the child for further evaluation to clarify the diagnosis and to community providers who can work with the child and family when a child has delays in development.

"What's important here is that CHICA will help pediatricians identify autism earlier when treatment is more likely to be effective," said Stephen M. Downs, M.D., M.S., Jean and Jerry Bepko Professor of Pediatrics and director of Children's Health Services Research at the IU School of Medicine. "Because physicians are busy juggling guidelines for preventive care and need to address concerns brought up by parents during the child's visit—concerns which can supplant routine care—CHICA helps them also address important screening and prevention.

"Even with CHICA, we find physicians sometimes miss opportunities to screen. So we hope CHICA can go beyond alerting the physician to positive responses to [autism](#) prescreening and create alerts directed to a nurse or developmental specialist for support and follow-up."

Provided by Indiana University

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