

Computer Automated Developmental Surveillance and Screening

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Organization:	Indiana University- Purdue University at Indianapolis
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Target Population: Pediatric*, Persons with Disabilities*

Summary: Developmental disabilities affect between 12 and 16 percent of the pediatric population in the United States. “Best practices” guidelines require that children receive appropriate and timely screening and treatment for these disabilities. Electronic computer decision support strategies (CDSS) offer a promising aid for implementing a standardized approach to developmental surveillance and screening.

Researchers at Indiana University have developed an electronic CDSS for pediatric practices called CHICA (Child Health Improvement Through Computer Automation) to deliver appropriate guidelines to physicians during the patient visit. CHICA will be modified to incorporate developmental surveillance and screening within the existing practice workflow without requiring additional time of the physician or other office staff. The CHICA CDSS system includes elements such as: 1) pediatric guidelines encoded in Arden Syntax, a common computer language representing medical conditions and recommendations; 2) a dynamic, scan form interface for the user; and 3) a Health Level 7-compliant interface to existing medical record systems.

The proposed work extends the CHICA software by incorporating the 2006 American Academy of Pediatrics (AAP) guidelines into the surveillance and screening algorithm, and evaluates the effect of the CHICA system on developmental surveillance, screening, referral, and early intervention and early childhood services. This evaluation follows a cohort of children with developmental disabilities to compare the proportion of children who undergo developmental screening at 9-, 18-, and 30-month visits at four practice sites, two of which have implemented the CDSS system and two of which have not. This evaluation will identify how implementation of the AAP recommendations into CHICA affects adherence to clinical guidelines. In addition, documentation of long-term outcomes will contribute to knowledge about the impact of early surveillance and screening on child health. Qualitative aspects of child screening surveillance will also be explored. These include elements of the child’s management plan, such as family involvement in treatment decisions and planning, treatment that is based on the initial assessment versus treatment that is continuously modified using data-driven decisionmaking, and whether management strategies build on the strengths of the child.

Specific Aims:

- Expand and modify an existing computer-based decision support system (CHICA) to include the 2006 AAP developmental surveillance and screening algorithm. **(Ongoing)**
- Evaluate the effect of the CHICA system on the developmental surveillance and screening practices of four pediatric clinics. **(Ongoing)**

- Evaluate the effect of the CHICA system on referrals for developmental and medical evaluations, and for early developmental intervention and early childhood services. **(Ongoing)**
- Develop and follow a cohort of children with identified developmental disabilities to look at the end results and effects of developmental screening. **(Upcoming)**

2010 Activities: The intervention using the CHICA system to facilitate screening for developmental delay at 9-, 18-, and 30-month well-child visits was initiated in 2010. At the technical level, the team made the Ages and Stages questionnaire (ASQ) into a scan document that could be fed into CHICA and scored. The two intervention and two control practices began in July 2010. The grant team collected baseline information on the participating practices, partially through chart review. These practices began surveillance at acute care visits as well as well-child visits. This type of surveillance is a significant change in process for providers. They are used to screening at regular intervals but the concept of screening at any age is new for them. Families typically self-administer the ASQ in the physicians' waiting rooms. Screening using the ASQ has required some changes in physician workflow. If a family is positively screened, a form is auto-filled to support the referral process to further care and treatment with specialists and other services. The research team has begun the evaluation phase and has started to pull and review clinical charts to assess each practice's screening and diagnosis practices. In 2011 they will begin giving providers feedback on their screening rates through report cards. The team is also preparing sessions for families when a child receives a diagnosis. The team currently plans to begin publishing the research findings in 2012.

The team is concurrently working on the AAP guidelines for general developmental screening and autism. These guidelines call for a comprehensive screening at the 18-month well-child visit. CHICA was designed to encourage integration and avoid duplication. Because there is need for screening of multiple conditions, there is currently a discussion weighing the various benefits of screening for autism versus general developmental screening.

Grantee's Most Recent Self-Reported Quarterly Status (as of December 2010): The team is mostly on track with all project milestones. The one area that is somewhat behind the original schedule is the chart review process. Budget spending is on target.

Preliminary Impact and Findings: The team originally planned auto scanning and scoring of the ASQ but found that providers prefer to score the screening tool themselves. Qualitatively, they have been looking at the factors that contribute to use of the CHICA system, such as practice type, and provider characteristics. In general they are finding that younger physicians are quicker to adopt the system.

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

Business Goal: Knowledge Creation

* AHRQ Priority Population