Duke Center for Autism and Brain Development
Duke University School of Medicine

Understanding End-user Contexts and Identifying Design Preferences of an AI-based Clinical Decision Support Tool for Early Autism Detection

Why We Did This Study

Early identification of autism can help children and families access evaluation, services, and support sooner. Pediatricians routinely screen toddlers for autism during 18- and 24-month well-child visits using a caregiver questionnaire called the Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R/F). While this screening tool is helpful, researchers are developing new digital approaches to improve the consistency and accuracy of early autism identification.

As part of Duke's NIH Autism Center of Excellence research program, Duke researchers are developing one such approach: an artificial intelligence (AI)-based tool that uses information already collected in a child's electronic medical record to estimate the likelihood of autism. Before tools like this can be used in pediatric primary care, it is important to understand how clinicians and caregivers want the information presented and used. This study explored those perspectives to inform the design of the tool and how it could ultimately be integrated into clinical care.

Questions? Contact us at autismresearch@duke.edu.

WHO PARTICIPATED IN THIS STUDY?

We observed a total of 17 well-child visits for children ages 18- to 24-months at Duke Health primary care clinics to better understand how autism screening is conducted. We then interviewed eight clinicians and 20 caregivers after the visits. We asked about:

- how autism screening fits into routine well-child visits
- how technology is currently used in the clinic
- challenges with current autism screening
- what information and design features would make a digital autism detection tool more useful for clinicians and families

WHAT WERE THE RESULTS?

We identified key points during 18- and 24-month well-child visits where a digital autism detection tool could support clinicians and families. Clinicians and caregivers wanted the tool to provide clear, easy-to-understand information about a child's likelihood of autism, along with practical guidance about what to do next when concerns were identified.

Participants also emphasized that timing matters. Information should be available when it can support conversations between the clinicians and caregivers during the visit. Caregivers wanted simple summaries of the results and educational resources they could review after the appointment. The tool must display information about the likelihood of an autism diagnosis according to the "5 Rights": right information, right person, right format, right channel, and right time. In other words, the tool should provide the right information to the right people, in a way that is easy to understand and at a time when it can help guide care.

WHAT DO THESE RESULTS MEAN?

These findings will help researchers design AI-based tools that fit naturally into pediatric care and support conversations between clinicians and families. By incorporating feedback from both caregivers and clinicians, these tools can provide clear, understandable information and practical guidance about next steps when developmental concerns are identified. Thoughtful design may help families better understand screening results and connect with evaluation and services sooner when needed.

The results of this study are published in the August 2026 issue of *JAMIA Open*.

Read more about this study: https://duke.is/r/rgvk