

# Promoting Routine Use of Developmental and Autism-Specific Screening Tools by Pediatric Primary Care Clinicians

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## ABSTRACT

**Introduction:** In 2006, the American Academy of Pediatrics published a policy statement recommending routine developmental screening for all children. Most clinicians at that time were using informal methods to monitor child development.

**Methods:** Outreach to Wisconsin primary care clinicians designed to promote use of validated developmental screening tools began in 2006. A survey of 157 Wisconsin primary care clinicians was conducted in late 2012 to assess routine use of developmental and autism-specific tools.

**Results:** As compared with a similar survey conducted in 2007, where only 25% of clinicians reported use of a validated developmental screening tool, over 55% of clinicians in this survey reported routine use of validated developmental and autism-specific screening tools within well-child care.

**Conclusion:** Outreach to clinicians and their care teams, in conjunction with policy statements from national professional organizations and supporting evidence, can contribute to quality improvement in well-child care delivery.

## INTRODUCTION

The American Academy of Pediatrics (AAP) published a policy statement on developmental screening and surveillance in July 2006.<sup>1</sup> In this statement, AAP recommends that all children receive screening of their development with a formal, validated tool at 9 months, 18 months, and 24 or 30 months of age. In addition, AAP recommends children receive screening with a validated tool any time developmental surveillance elicits concerns.

In 2007, AAP published a policy statement on screening for autism spectrum disorders.<sup>2</sup> Similar to the policy statement on

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developmental screening, AAP recommends universal screening for autism spectrum disorders. It is recommended that all children receive screening with a validated, autism-specific instrument at 18 months and 24 months. Early identification of delays that result in timely access to high-quality, developmentally appropriate services assists children in achieving their full developmental potential.<sup>3,4,5</sup>

At the time the AAP policy statements were released, most pediatric primary care clinicians in Wisconsin and across the country were not using validated tools to monitor children's development.<sup>6</sup> A survey conducted in 2007 of 173 Wisconsin pediatricians and family physicians found that

nearly 74% never used a validated developmental screening tool as part of well-child care delivery.<sup>7</sup> Clinicians commonly used non-validated checklists, often composed of individual items from the Denver II Developmental Screening Test (Denver Developmental Materials, Inc, Denver, Colorado).

Integrating routine developmental screening for all children within a practice setting is a significant undertaking. As with many other quality improvement efforts, those clinics taking an office-systems approach to screening are more successful at implementing screening and sustaining it over time.<sup>8</sup> In addition, an academic detailing model of educational outreach to clinicians conducted at their site has been shown to be an effective way to promote both understanding and behavior change on a variety of topics, including developmental screening.<sup>9</sup>

Outreach to Wisconsin primary care clinicians designed to promote routine use of validated developmental and autism-specific screening tools began in the fall of 2006 and continues currently. Over the past 7 years, funding for this outreach has come from several publicly funded grants. This survey was conducted to determine if rates of routine use of developmental and

**Table 1.** Respondent Demographics

Distribution of survey respondents by professional role (n = 155)	
	Respondent number
Family physicians	83 (53.5%)
Pediatricians	63 (40.6%)
Other primary care clinicians	9 (5.9%)
Distribution of survey respondents by length of time in practice (n = 156)	
0-5 years	30 (19.2%)
6-10 years	24 (15.4%)
11-15 years	25 (16.0%)
16+ years	77 (49.4%)
Distribution of survey respondents by practice location (n = 140)	
Northern region	15 (10.7%)
Northeast region	24 (17.1%)
Southern region	54 (38.6%)
Southeast region	32 (22.9%)
Western region	15 (10.7%)

autism-specific screening tools had changed following outreach to clinicians.

## METHODS

From September 2006 to February 2013, primary care clinicians and care team members from 138 primary care clinics across Wisconsin participated in voluntary trainings designed to promote routine use of validated developmental and autism-specific screening tools within well-child care. Training availability was promoted through the Wisconsin Academy of Family Physicians (WAFP), the Wisconsin Chapter of the AAP, and informally by word of mouth. Clinics contacted project staff to arrange a training at their site. Prior to each training, clinicians were asked to complete a brief 10-question pre-assessment describing their current use of developmental and autism-specific screening tools, as well as their awareness of community resources for children with concerning screening results. A similar postassessment was conducted 9 to 12 months following the training. The results of those assessments are not discussed in this article.

The 60- to 90-minute training was delivered onsite at clinics, at a time convenient for clinicians and care team members, generally before clinic hours or over the lunch hour. Clinicians and care team members (such as nurses, medical assistants, and receptionists) were encouraged to attend, so that all team members understood the importance of screening and their role in the process.

The presentation outlined AAP recommendations for developmental and autism-specific screening, as well as literature supporting routine use of validated tools to refine risk of delay. Information was shared on the Ages and Stages Questionnaire, 3rd Edition (ASQ-3 or ASQ),<sup>10</sup> a validated, parent-completed developmental screening instrument, as well as the Modified Checklist for Autism in Toddlers (M-CHAT).<sup>11</sup> These instruments were selected for their solid psychometric properties, parent-completed

nature, suitability for use in primary care settings, and use by other community partners serving children with delays. Each participating clinic received a set of ASQ-3 questionnaires and a user's guide, along with copies of the M-CHAT.

Trainings were performed in collaboration with local professionals serving children with delays and their families. Professionals from Wisconsin's Regional Centers for Children and Youth With Special Health Care Needs, along with Wisconsin's Part C Early Intervention Program, shared information on their programs. Wisconsin's Regional Centers are funded through the Wisconsin Department of Health Services Title V Children and Youth with Special Health Care Needs Program. Wisconsin's Part C Early Intervention Program (known as the Wisconsin Birth to 3 Program) is funded through the Wisconsin Department of Health Services.

In 2012, a survey was developed for Wisconsin primary care clinicians to assess rates of routine use of developmental and autism-specific screening tools within well-child care. The 11-question electronic survey was sent to over 300 clinicians who had participated in developmental screening trainings, as well as members of the WAFP via program listservs in November 2012. In early December 2012, the same survey was sent to the Wisconsin Chapter of AAP members through its listserv. The survey was closed December 30, 2012.

## RESULTS

### Survey Respondent Demographics.

One hundred fifty-seven clinicians completed some or all of the survey. The number of clinicians completing each item varied; percentages were calculated using the total number of respondents for each individual question. Eighty-three (53.5%) respondents were family physicians and 63 (40.6%) were pediatricians; the remaining respondents were nurse practitioners or physician assistants (Table 1). Seventy-seven respondents (49.4%) had been practicing for 16 or more years, 30 respondents had been practicing for less than or equal to 5 years, 25 for 11 to 15 years, and 24 for 6 to 10 years. The vast majority provided primary care to pediatric patients (n = 143 respondents, 91.7%), and only 4 respondents had fellowship training in developmental pediatrics or neurology.

The greatest number of respondents practiced in a non-university hospital or clinic practice (n = 27 respondents, 21.4%), followed by a group or health maintenance organization (HMO) practice with either 3 to 5 clinicians or 6 to 10 clinicians (both 24 respondents), a group or HMO practice with 11 or more clinicians (20 respondents), and a university hospital or clinic practice (18 respondents). Fewer respondents practiced in a community health center (9 respondents) or a solo or 2-clinician practice (4 respondents). Over 60% of the respondents practiced in the southern or southeastern portion of the state (54 and 32, respec-

tively), as defined by the 5 Wisconsin public health regions.<sup>12</sup> Twenty-four respondents practiced in the northeast, and 15 respondents practiced in both the northern and western regions of Wisconsin.

Most respondents practiced in either a suburban (48 respondents) or urban, non-inner city (45) community setting. Nearly a quarter of respondents practiced in a rural community setting (31), defined as a population less than 2500 people. The fewest respondents practiced in an urban, inner city setting (10).

### Use of Screening Tools and Referral Patterns

Three of the 11 survey questions asked about routine use of validated developmental and autism-specific screening tools within well-child care, as well as referral option selection for children with concerning screening results. Respondents were asked to select “almost always,” “sometimes,” or “never” to describe their practice patterns on these topics.

The majority of respondents “almost always” used an informal checklist of developmental milestones (84 respondents), while 76 respondents “almost always” used clinical impression (history and physical exam) without use of a screening instrument or checklist (Figure 1). Over half of respondents (66) “almost always” used a formal developmental screening tool, and an even greater number (74) “almost always” used the specific developmental screening tool ASQ.

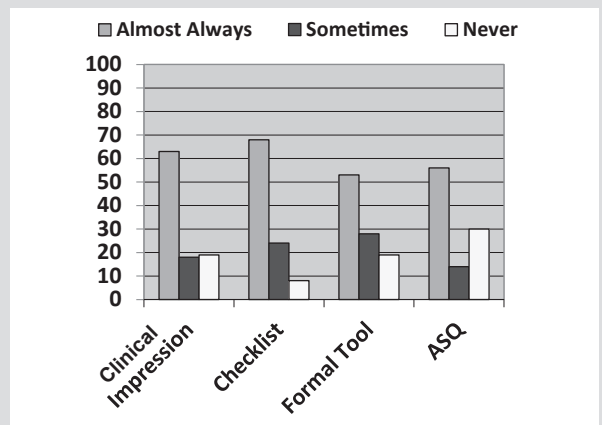
Similar to use of validated developmental screening instruments, the majority of respondents “almost always” used clinical impression (77 respondents) or an informal checklist of developmental milestones (74 respondents) to identify children who may have an autism spectrum disorder (Figure 2). Over half of respondents (73) “almost always” used the autism screening instrument M-CHAT; 53 respondents “almost always” used some type of formal tool to identify this population. Another autism screening tool, the Communication and Symbolic Behavior Scale: Developmental Profile (CSBS:DP),<sup>13</sup> was used less frequently by respondents. Only 6 respondents “sometimes” used this instrument.

Given a child with a concerning screening result, the majority of respondents (115) “almost always” referred the child to the Wisconsin Birth to 3 Program (Figure 3). Providers referred to Early Childhood Special Education (ECSE) regularly, but less frequently than Birth to 3; 51 respondents referred “almost always” to ECSE, and 49 “sometimes” referred to the Birth to 3 program.

Respondents most commonly “sometimes” referred to private therapy or to a developmental specialist (80 and 73 respondents, respectively). Over a quarter (47 respondents) “almost always” referred to a developmental specialist, and 18 respondents “almost always” referred such children to private therapy.

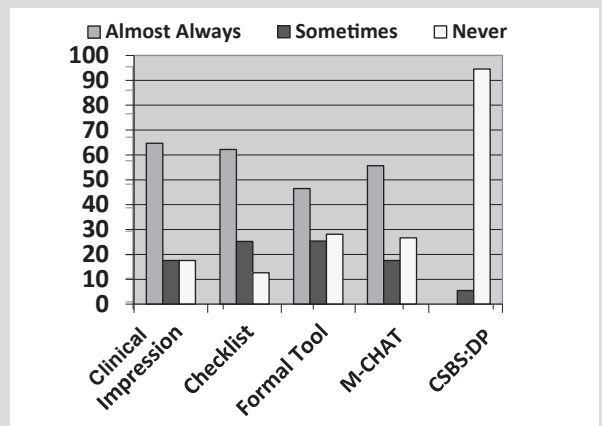
Tools like the ASQ offer parent-guided learning activities designed to promote child development in specific domains. Forty-nine respondents (40.5%) “almost always” provided

**Figure 1.** Strategies Used to Identify Children with Developmental Delays in Wisconsin (n=137)



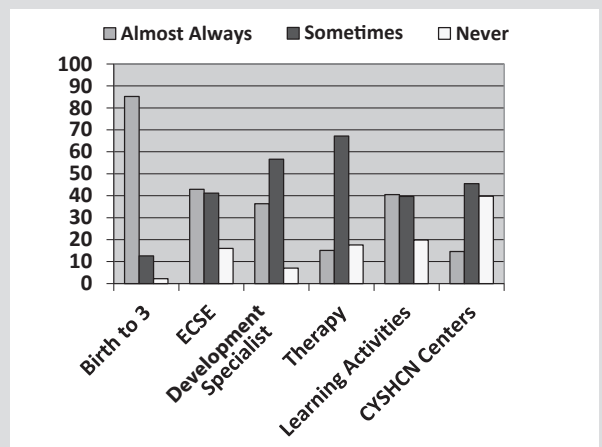
Abbreviations = ASQ, Ages and Stages Questionnaire.

**Figure 2.** Strategies Used to Identify Children with Autism Spectrum Disorders in Wisconsin (n=136)



Abbreviations = M-CHAT, Modified Checklist for Autism in Toddlers; CSBS:DP, Communication and Symbolic Behavior Scale: Developmental Profile.

**Figure 3.** Referrals Following a Concerning Screening Result in Wisconsin (n=137)



Abbreviations = ECSE, Early Childhood Special Education; CYSHCN, Children and Youth with Special Health Care Needs Program.

**Table 2.** Perceived Barriers to Developmental Screening (n=135)

	Agree (%)	Slightly Agree (%)	Neutral (%)	Slightly Disagree (%)	Disagree (%)
Lack of training on use of a validated screening tool	27 (20.0)	39 (28.9)	17 (12.6)	19 (14.1)	33 (24.4)
Lack of time for developmental screening	29 (21.6)	56 (41.8)	13 (9.7)	13 (9.7)	23 (17.2)
Lack of office staff to perform the screen	26 (19.3)	44 (32.6)	16 (11.9)	26 (19.3)	23 (17.0)
Language barriers (staff cannot speak the family's language)	12 (8.9)	29 (21.5)	26 (19.3)	23 (17.0)	45 (33.3)
Inadequate reimbursement for conducting a formal developmental screen	29 (21.5)	32 (23.7)	33 (24.4)	16 (11.9)	25 (18.5)
Lack of confidence in the validity of screening instruments	4 (3.0)	17 (12.6)	25 (18.5)	34 (25.2)	55 (40.7)
Lack of referral options for children with concerning screens	19 (14.1)	28 (20.7)	15 (11.1)	34 (25.2)	39 (28.9)
Lack of understanding of community partners serving children with delays	14 (10.4)	30 (22.2)	16 (11.9)	37 (27.4)	38 (28.1)

such learning activities to parents of children with concerning screening results. Eighteen respondents (14.6%) “almost always” referred the family to their Regional Center for Children and Youth With Special Health Care Needs, while 56 (45.5%) “sometimes” did.

The last survey question asked about perceived barriers to providing high-quality developmental screening in respondents’ practices. Responses to this question were formatted in a typical 5-level Likert item manner (Table 2). Barriers most commonly selected by respondents included lack of time (41.8% “slightly agreed,” n=56), lack of office staff (32.6% “slightly agreed,” n=44), and lack of training on use of a validated tool (28.9% “slightly agreed,” n=39). Respondents most commonly did not consider the following barriers to screening: lack of confidence in the validity of the screening instruments (40.7% “disagreed,” n=55), language barriers (n=45 “disagreed”), lack of referral options for children with concerning screens (n=39 “disagreed”), and lack of understanding community partners serving children with delays (38 respondents “disagreed”). Respondents were divided on whether inadequate reimbursement for conducting a formal screen was a barrier; they most commonly were neutral on this issue (24.4%, n=33).

## DISCUSSION

Routine use of validated tools within well-child care is more effective than surveillance alone for the early identification of children with delays.<sup>8,14</sup> Surveillance alone identifies some children with delays, particularly those with medical complications or those with significant delay. Validated tools do a superior job overall at identifying children with more subtle delays, particularly fine motor, cognitive, and personal social delays.

As compared with a similar survey of Wisconsin primary care clinicians conducted in 2007, more clinicians are now using validated tools to monitor children’s development, along with informal checklists and clinical impression. Six years ago, 74% of survey respondents indicated that they “never” used a validated tool, whereas this survey found that only 19% “never” routinely use developmental screening tools, and 28% “never” use an autism-specific tool.

Of those clinicians using tools, the ASQ and the M-CHAT were the most commonly used instruments. These correspond with the tools shared during physician outreach in this area, as well as tools used by community partners. Few clinicians used another autism-specific tool listed on the survey, the CSBS:DP. As compared with the M-CHAT, the CSBS:DP distinguishes children with communication-only delays from those with deficits in the areas of symbolic play and social reciprocity. It is a more complicated and extensive instrument than the M-CHAT, however, and may present more challenges to use in a busy primary care setting.

Referral patterns for children with concerning screening results are complex and likely are influenced by many factors, including perceived severity of delay, parent preference, insurance coverage, and relationships with other professionals serving children with delays. The vast majority of clinicians referred children with concerning screening results to the Wisconsin Birth to 3 Program. This state- and federally-funded program offers full developmental assessments for children with suspected delays. Children with at least a 25% delay (or a diagnosed condition with at least a 50% likelihood of delay) are eligible for Birth to 3 programming, which emphasizes family-centered goals and intervention activities. Birth to 3 Program partners attended over 90% of the onsite physician trainings on developmental screening. In many cases, these trainings helped strengthen already well-established relationships.

Respondents referred children with concerning screening results regularly to ECSE, but less frequently than Birth to 3. Like Birth to 3 programs, ECSE programs conduct developmental assessments for children with suspected delays and offer developmentally appropriate supports and services for those children determined to be eligible. They serve children aged 3-5 years through local public schools.

Birth to 3 Program professionals and professionals from regional centers co-present at physician trainings on developmental and autism-specific screening. Regional centers were “almost always” selected as a referral source by 15% of respondents and “sometimes” by 46%. These free and confidential resources for families and providers may be underutilized for children with



concerning screening results. Professionals from the regional centers offer guidance on health benefits coverage, local resources, and statewide support networks available to families raising children with unique health care needs.

## CONCLUSION

Although a causal relationship cannot be established between the trainings offered to over 130 clinics statewide on this topic and increased use of validated tools, a strong correlation between them appears to exist. The academic detailing model of outreach has been demonstrated to be an effective strategy for modifying clinician understanding and behavior. Including community partners serving children with delays as well as care team members also may promote successful implementation of screening. Momentum for this work built gradually over time; for instance, clinicians initially were asked if they were interested in participating in screening trainings, whereas later unsolicited requests for training came in regularly. In the long term, a model to consider is the Child Health and Development Institute of Connecticut,<sup>15</sup> which provides a stable source of funding and programming from which ongoing support of this kind can be offered to primary care clinicians in practices statewide.

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