

# Clinical Pediatrics

<http://cpj.sagepub.com/>

---

## Improving Developmental Screening Among Pediatricians in New Mexico: Findings From the Developmental Screening Initiative

Fauzia Malik, John M. Booker, Shannon Brown, Catherine McClain and Jane McGrath

*CLIN PEDIATR* published online 20 March 2014

DOI: 10.1177/0009922814527499

The online version of this article can be found at:

<http://cpj.sagepub.com/content/early/2014/03/19/0009922814527499>

---

Published by:



<http://www.sagepublications.com>

Additional services and information for *Clinical Pediatrics* can be found at:

**Email Alerts:** <http://cpj.sagepub.com/cgi/alerts>

**Subscriptions:** <http://cpj.sagepub.com/subscriptions>


**Reprints:** <http://www.sagepub.com/journalsReprints.nav>

**Permissions:** <http://www.sagepub.com/journalsPermissions.nav>

>> [OnlineFirst Version of Record](#) - Mar 20, 2014

[What is This?](#)

# Improving Developmental Screening Among Pediatricians in New Mexico: Findings From the Developmental Screening Initiative

Clinical Pediatrics  
1-8  
© The Author(s) 2014  
Reprints and permissions:  
sagepub.com/journalsPermissions.nav  
DOI: 10.1177/000922814527499  
cpj.sagepub.com  


Fauzia Malik, MPAS, MS<sup>1</sup>, John M. Booker, PhD<sup>2</sup>, Shannon Brown, MD, PhD<sup>3</sup>, Catherine McClain, MD, PT, FAAP<sup>2</sup>, and Jane McGrath, MD, FAAP<sup>2</sup>

## Abstract

**Background.** Seven pediatric primary care practices participated in New Mexico's Developmental Screening Initiative in a year-long quality improvement project with the goal of implementing standardized developmental screening tools. **Methods.** The initiative utilized a learning collaborative approach and the Model for Improvement to promote best practice about developmental screening outlined by the American Academy of Pediatrics. Also, the project emphasized interagency collaboration to improve communication between medical providers and state and community agencies that provide services to children with developmental delays. **Results.** A total of 1139 medical records were reviewed by the 7 practices, at 5 intervals during the intervention. At baseline, there were dramatic differences among the practices, with some not engaged in screening at all. Overall, the use of standardized developmental screening increased from 27% at baseline to 92% at the end of the project.

## Keywords

developmental screening, early intervention, quality improvement, well-child care

## Introduction

Developmental disabilities are prevalent in approximately 1 in 6 children in the United States according to a recent study based on data from the 1997-2008 National Health Interview Surveys.<sup>1</sup> However, early interventional services are utilized in only 1.8% of children from birth to 2 years and in 5% of children from 3 to 5 years of age.<sup>2,3</sup> Only about 30% of children with disabilities are detected prior to starting school.<sup>4</sup> It is apparent that a gap exists in timely detection of developmental delay and initiation of early intervention (EI) services, as such services improve child outcomes.<sup>5-7</sup>

Primary care practices and pediatricians specifically are in an ideal position to detect developmental difficulties since 95% of children aged birth to 3 years are seen regularly for health care.<sup>8</sup> A 2006 policy statement from the American Academy of Pediatrics (AAP) recommended surveillance for developmental disabilities at all well-child-check visits as well as standardized screening at 9-, 18-, 24-, or 30-month visits for all children, even in the absence of observed risk factors or parental or provider concerns, and for all patients where a parent or caregiver raises concerns.<sup>9</sup> Despite recommendations

from the AAP, a 2009 survey of Academy members showed that half of all respondents were not using any formal screening tools.<sup>10</sup> However, objective measurements, such as using a standardized screening instrument, improve reliability and accuracy in detecting developmental delays and differentiating them from the rest of the pediatric population.<sup>11</sup> While subjective assessment will only identify approximately 30% of children,<sup>12</sup> standardized screening tools can identify 70% to 90% of children with developmental delays.<sup>13-15</sup>

The goal of New Mexico's Developmental Screening Initiative (DSI) is to promote the use of standardized developmental screening tools among pediatricians and mid-level providers, in order to ensure that no child reaches kindergarten with an undetected developmental delay. In New Mexico, the prevalence of developmental

<sup>1</sup>Presbyterian Healthcare Services, Albuquerque, NM, USA

<sup>2</sup>University of New Mexico, Albuquerque, NM, USA

<sup>3</sup>Kaiser Permanente, Portland, OR, USA

## Corresponding Author:

Fauzia Malik, Presbyterian Healthcare Services, 2501 Buena Vista SE, Albuquerque, NM 87106, USA.  
Email: f.fauzia@gmail.com

or behavioral problems in children was 22.7% according to a 2007 national survey, lower than but not statistically different from the national estimate.<sup>16</sup> According to this survey, New Mexico ranked fourth in the nation with a rate of 29.6% for the use of standardized developmental screening tools among children aged 10 months to 5 years who had a health care visit during the previous year. New Mexico's high ranking may say more about the generally low rate of screening in the United States, than about New Mexico's pediatric providers. Overall, New Mexico ranks 46th in the nation for child well-being,<sup>17</sup> thought to be related to rural geography, population diversity, economics, and overall health status of the state.<sup>18-20</sup>

### About New Mexico's Developmental Screening Initiative

Concerned agencies and community members convened 3 statewide forums in 2005 and 2006 to bring early childhood stakeholder groups and families together to discuss changes in policies, programs and practices needed to ensure children receive timely access to developmental services. The Assuring Better Child Health and Development (ABCD) project in North Carolina was used as a potential model for New Mexico.<sup>12</sup> New Mexico's DSI was an outgrowth of this work. In 2009, Envision NM: The Initiative for Child Healthcare Quality and the Center for Development and Disability (CDD), 2 divisions within the University of New Mexico Health Sciences Center, began working with primary care practices to promote the best practice guidelines recommended by the AAP. Furthermore, DSI became an approved Maintenance of Certification (MOC) Part IV Quality Improvement (QI) project with the American Board of Pediatrics (ABP). The initiative promotes practice improvement through (a) incorporating best practices, (b) efficient and sustainable practice systems change, (c) networking of providers with community and state agencies like early intervention, (d) patient/parent-centered care, and (e) enhancing capacity within each participating community for earlier identification of children with developmental delays.

### Methods

The DSI intervention was based on training of best practices via collaborative learning and the use of QI techniques followed by ongoing coaching and support. Developed by the Institute of Healthcare Improvement (IHI), the learning collaborative approach brings practice teams together to learn from each other and from experts in the content area.<sup>21</sup> This process was reinforced

by 5 periodic reviews of medical records to track implementation and outcomes of screening. The DSI coordinator provided ongoing technical support following the initial learning session to discuss methods, results, and progress using conference calls, teleconferencing, email, and site visits over the year-long project period.

Reflecting the 2006 AAP policy statement, the initiative provided practices with training and encouraged the use of well-established parent-completed screening tools that had sensitivity and specificity greater than 80%. Thus, DSI gave each practice the Ages and Stages Questionnaire (ASQ), third edition,<sup>22</sup> and the Modified Checklist for Autism in Toddlers (M-CHAT).<sup>23</sup> However, practices had the option to use other screening tools, so long as the tool adhered to the AAP guidelines. Practices were expected to implement developmental screening at one age-specific, health supervision visit and later expand use to other ages.

### Participants

The initiative targeted primary care practices in a large urban area and a small regional community. Practices were initially contacted via email, and of those that expressed interest, 7 practices agreed to the terms of the project. Each practice established a QI team of 2 to 5 members composed of medical providers, nurses, medical assistants, and office staff. The QI team carried out activities related to implementation of developmental screening for their respective practice. All medical providers in each practice did not participate in the initiative. The number of providers that conducted screening varied from a single medical provider (1 practice), 2 to 4 medical providers (3 practices), and 5 to 8 medical providers (3 practices). In total, the initiative brought together 27 physicians, 2 nurse practitioners (NP), and 1 physician assistant (PA). Also, medical providers did not receive monetary compensation for participation in the project but were eligible to receive 35 MOC credits on completion of the project.

### Training

The initial learning sessions occurred during the spring and fall of 2009. All practices participated in a 2- to 4-hour training, with 1 practice participating in the spring session and 6 practices participating in the fall. Topics included AAP developmental screening guidelines, orientation to the ASQ, and IHI's Model for Improvement.<sup>24</sup> Each practice conducted small tests of change by using the Plan-Do-Study-Act (PDSA) cycle, a QI tool adapted from IHI's Model for Improvement.<sup>25</sup>

The second learning session occurred mid-study in order to give practices an opportunity to collaborate with state and community agencies providing services to young children. Practices were required to attend at least one of three, 2-hour sessions. Early interventional agencies serving an urban area in New Mexico attended these sessions and practices learned about the referral process. Barriers and challenges to care coordination were identified. EI providers received a stipend of \$50 for attending each networking session.

Additional information was provided via monthly telehealth sessions. Participants were required to attend at least 2 sessions. Topics discussed via telehealth included the following: How to Make a Referral to Family, Infant, Toddler (FIT) Program; Screening, Diagnosis and Management of Autism Spectrum Disorder; and New Mexico Waiver Programs. The telehealth sessions were free-of-cost and open to the New Mexico health care community at large.

### Data Collection

The DSI QI process included a series of 5 performance reviews based on samples of patient records in each practice. Each site was expected to submit a total of 30 records per review, regardless of the number of participating providers, and where there were multiple providers, each provider was expected to contribute at least 3 to 5 patient records per medical record review. The first medical record review sampled patient visits 3 to 6 months prior to the start of the project, with subsequent reviews being every 6 to 8 weeks thereafter. Samples were selected from systematic random samples of appropriate patients (age, type of visit) who were seen during the specified time period. One team member from each practice was designated to conduct the medical record reviews throughout the project. During the site visit, which occurred 1 to 2 months after the initial training, the procedure for data sampling and the measures in the data collection form were clearly defined and explained. The DSI coordinator coached the designated team member through the conduction of the first medical record review. A sample of the data collection form is shown in the appendix.

Practices submitted de-identified data to the DSI coordinator who checked the data for completeness and compliance with the protocol. Progress reports on the quality measures were returned to the primary care practices, and these reports were used subsequently for coaching between reviews. Cases for the baseline measures ranged from May 2009 through October 2009. Postintervention patient visits occurred from November 2009 through November 2010.

Data analysis included updated run charts for the required measures. *T*-tests (independent samples, 2-tailed tests) were used to evaluate the observed improvements (proportions of compliance) between each set of patient record reviews. SPSS v16 was used for the statistical analyses.

### Measures

The following measures were collected in the medical record reviews: date of patient visit, chronological age of child, gestational age, was the encounter type a routine health supervision visit (Yes/No), health supervision visit age in months, whether the child was already receiving developmental services at the time of visit, was standardized developmental screening performed during visit (Yes/No), which tool was used (PDQ, ASQ, M-CHAT, other), and whether the child was referred for developmental assessment at this visit (yes, referral deferred, referral declined, not indicated, not documented).

### Results

A total of 1139 medical records were reviewed by the 7 practices, with data reported at baseline, and at 4 follow-up reviews for patients seen after the QI was begun. Record volume averaged between 11 and 64 records per practice over the 5 reviews depending on the reporting period and the practice. Practice 4 did not submit the first medical record review as they were not using any type of screening tool prior to the intervention.

Records of patients aged 1 month through 60 months were included in the data. Since the number of records varied over the 5 reviews, all possible pediatric visits were included. Practices focused on the 12-month health supervision visit, resulting in 76.3% of all patients in the sample being between 11 and 15 months of age at the visit. Assessment of gestational age revealed that 14.7% ( $n = 157$ ) patients in the sample were preterm. Fewer than 3% ( $n = 37$ ) of visits were for other than a health supervision visit, and 3.6% ( $n = 46$ ) were already receiving some form of developmental services when seen.

### Developmental Screening

The primary measure of performance was rate of developmental screening with a validated tool during health supervision visits. In addition, we examined the adoption of validated screening tools in place of the nonvalidated tools by some practices when the initiative began.

Table 1 shows the rates of screening, with any tool, for each practice for baseline and follow-up reviews, and the average rate across all 7 practices. At baseline

**Table 1.** Rates of Screening, Any Tool, by Practice and by Review (N = 920).

	Review 1 (05/2009-10/31/2009)	Review 2 (11/1/2009-1/30/2010)	Review 3 (2/1/2010-3/30/2010)	Review 4 (4/1/2010-5/30/2010)	Review 5 (6/1/2010-7/30/2010)
Practice 1	0%	0%	82%	45%	91%
Practice 2	100%	83%	100%	94%	97%
Practice 3	90%	94%	90%	100%	100%
Practice 4	—	91%	94%	100%	100%
Practice 5	84%	91%	82%	67%	64%
Practice 6	0%	5%	89%	91%	93%
Practice 7	100%	100%	91%	93%	100%
Average of practices	62%	66%	90%	84%	92%

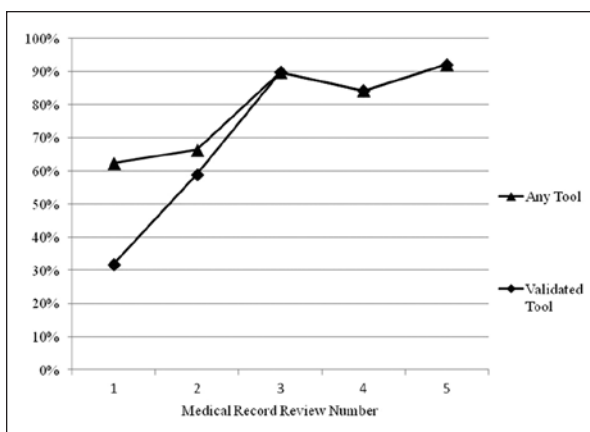
**Table 2.** Rates of Screening, Validated Tool, by Site by Review (N = 840).

	Review 1	Review 2	Review 3	Review 4	Review 5
Practice 1	0.00%	0.00%	81.80%	45.00%	91.30%
Practice 2	0.00%	83.30%	100.00%	93.50%	96.70%
Practice 3	6.70%	42.30%	90.00%	100.00%	100.00%
Practice 4	—	91.40%	94.40%	100.00%	100.00%
Practice 5	84.00%	90.90%	82.40%	66.70%	64.30%
Practice 6	0.00%	4.90%	88.50%	91.40%	93.00%
Practice 7	100.00%	100.00%	91.30%	92.90%	100.00%
Average of sites	32%	59%	90%	84%	92%

there were large differences among these practices, with some not engaged in screening at all while others had rates of 80% to 100%. Of those practices screening initially at higher rates, 3 were using validated tools and 2 practices were not. By the final review, the differences are reduced to a range of 64% for one practice to the remaining 6 practices all above 90%. These practices improved their screening rates, on average from 62% at baseline to 92% at the final review ( $t$ -test,  $P < .001$ , baseline compared to final follow-up).

For comparison, Table 2 shows the screening rates for validated tools. At baseline only 3 practices were using validated tools, and only 2 practices were routinely screening with a nonvalidated tool. These practices fully transitioned to a validated tool by the third review. One site lost ground at the end of the QI, showing rates of validated screening 20% lower than at baseline, essentially moving away from nonvalidated tools without increasing screening with validated tools. The performance of the other practices varied between 91% and 100% at the final review, differences that may be attributed to sampling variation in these small samples.

Rates of screening with a validated tool showed a rapid improvement following the intervention and had begun to stabilize above 90%, on average, by the third review, eventually reaching 92% by the final medical record review. Figure 1 illustrates the QI curves for both

**Figure 1.** Average screening rates for the 7 practices.

uses of validated and nonvalidated tools, demonstrating that by the third follow-up all screening was based on validated tools.

At baseline, screening was divided about equally among the ASQ, Prescreening Developmental Questionnaire (PDQ), modified version of the Denver developed by a practice (a nonvalidated tool), and a pediatric developmental milestones questionnaire (PQ) developed by a practice (a nonvalidated tool). Also, none of the providers used the M-CHAT. At the final review, 97.0% of the

providers were using the ASQ, and 3% used the M-CHAT. None were using the PDQ, Denver, or PQ. Use of multiple screening tools was rare; only 5 children received a second screening with another instrument.

### Variations in Screening Performance

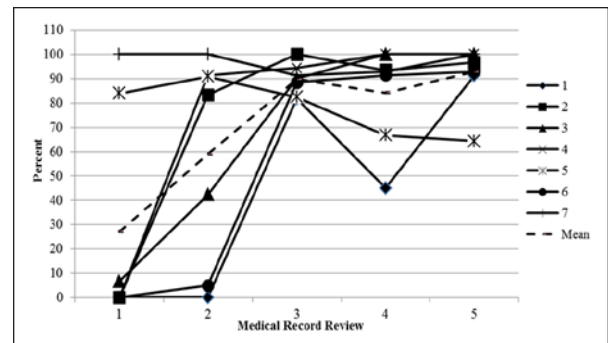
Some apparent differences were observed between types of providers. For screening using any tool, the rates at baseline for Physicians was 66.5%, Physician Assistant 100%, and Nurse Practitioners 40.0%. By the fourth round these rates had become 100%, 81.2%, and 95.7%, respectively. For validated tools, the screening rates were 0.0%, 20.0%, and 37.9% at baseline, improving to 100%, 81.2%, and 95.7% at the completion of the project. Screening rates were equivalent for term and preterm patients over baseline and all follow-up record reviews. Preterm patients were more likely at each round to already be receiving some form of developmental services (on average 14% compared with 1.9%,  $P \leq .05$  at each round). Preterm patients were equally distributed among all age groups at each round. These differences are suggestive, but the numbers of cases is not statistically viable, nor are the number of DSI participants a representative sample of the community of providers in New Mexico.

### Referrals

Providers were expected to indicate the response to developmental screening in terms of referrals of patients for additional evaluation and services. Among the 922 patients screened, with any instrument, during the project, 51 were referred for new developmental services, 35 had referral deferred, 4 declined, and 25 were already receiving some form of services. Among the 290 patients not screened, none were referred, 16 were already receiving services, and 4 were deferred or declined. Referrals were more likely for patients seen for their 18 month (27.7% referred) and 30 month (24.5% referred) visits compared with others (fewer than 12.5% on average;  $P \leq .000$ ). Since scheduled visits are associated with age, a similar pattern holds for the age of the patients. Preterm patients were also more likely to be referred than others (20.3% vs 10.6%,  $P \leq .01$ ).

### Discussion

In this study, the overall goal was to increase the rate of developmental screening for children aged birth to 5 years. Among sampled medical records of patient visits, the use of standardized developmental screening tools prior to participation in DSI was 27%. Postintervention, the use of standardized developmental screening



**Figure 2.** Percentage of validated screening by review by practice.

increased to 92%. The QI intervention increased the use of developmental screening tools among these pediatric primary care practices. Practices started at differing rates of screening; the result of the QI was to establish more uniform screening protocols among providers (Figure 2). Twenty-two of the pediatricians received MOC credit; 5 of the physicians already had lifetime certification.

Practices were using a variety of tools preintervention to assess development. For example, one practice was using the PDQ before starting the initiative. While the PDQ is a validated screening tool, it does not meet the standards of the AAP, as its psychometric properties are lower than 80%. Thus, all participants established screening tools with the best psychometric properties for detecting developmental delays. Furthermore, as shown in Figure 1, practices as a group were able to implement standardized developmental screening fairly quickly. However, practices reported that it was easier to make changes to clinic processes when they did developmental screening at all health supervision visits. Thus, 5 of the 7 practices were doing screening at every health supervision visit by the end of the initiative.

Second, although we expected that increases in developmental screening would lead to increases in referrals, our data did not show such an outcome; referrals were no more frequent toward the end of the program. A larger sample for the reviews might have revealed differences, but it may be because information about EI agencies and the referral process was given mid-study. Earlier work on referrals will be considered in future work.

The M-CHAT was used among 3% of sampled patient visits. The low percentage of autism screening was likely due to the majority of sampled visits being the 12-month health supervision visit, where the M-CHAT is not indicated. Informal surveys indicated that 4 of the practices were using the M-CHAT after completion of the initiative.

This study had some limitations. First, the medical record reviews could not be verified for accuracy as practices conducted their own respective reviews. Second, the individual screening results (ie, score) were not collected. Instead, the outcome of developmental screening was gathered. Thus, it was difficult to determine if the medical providers made the most appropriate assessment plan. This will be changed with future cohort practices. Third, while the goal of the intervention was to collect a minimum of 30 medical record reviews for baseline and follow-up reviews, this did not always occur. Three practices encountered a drop in health supervision visits during some data periods and, as a result, submitted data for all actual visits but fewer than 30. Fourth, the reviews included a few children already receiving services. Although a referral was made, communication between practices and EI was delayed and it was difficult to assess whether children were actually receiving services. Developmental screening was repeated to establish a system for surveillance, and only when deemed appropriate by providers.

Last, as practices increased screening, they often encountered difficulties in navigating the EI system. Thus, the second learning sessions aimed to increase understanding of referral resources. Although governed by the FIT program, each EI agency had differing referral processes. An important outcome of the sessions was to establish one referral form across the whole system. This form has since been approved by FIT and is currently in use.

## Conclusion

This study furthers current literature regarding implementation of standardized screening tools in primary care practices. Along with establishing best practice on assessment of development, increased awareness of referral sources is equally important. Additional work is necessary to strengthen the medical neighborhood between practices and state and community agencies that provide services to young children. Subsequent years will focus on spreading this work across the state.

## Appendix

### Medical Record Review for 2009-2010

Provider Name: \_\_\_\_\_ Data Collection Round: (circle) 1<sup>st</sup> review 2<sup>nd</sup> review 3<sup>rd</sup> review 4<sup>th</sup> review 5<sup>th</sup> review

Date of Review: \_\_\_\_\_

Date of Visit	Chrono-logical Age (months)	Gestational Age	Was this visit a routine WCC?	Was child receiving developmental services at time of visit?	Did this child get a validated developmental screening at this visit?	If yes, which tool was used?	Was this child referred for developmental assessment at this visit?
1			<input type="checkbox"/> Yes <input type="checkbox"/> No WCC visit in months (circle one): 9 12 16 18 24 30 36 48	<input type="checkbox"/> Yes Agency: _____ <input type="checkbox"/> None documented in chart	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> ASQ <input type="checkbox"/> PEDS <input type="checkbox"/> MCHAT <input type="checkbox"/> Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> Referral deferred <input type="checkbox"/> Referral declined <input type="checkbox"/> Not indicated (no developmental concern) <input type="checkbox"/> Not documented
2			<input type="checkbox"/> Yes <input type="checkbox"/> No WCC visit in months (circle one): 9 12 16 18 24 30 36 48	<input type="checkbox"/> Yes Agency: _____ <input type="checkbox"/> None documented in chart	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> ASQ <input type="checkbox"/> PEDS <input type="checkbox"/> MCHAT <input type="checkbox"/> Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> Referral deferred <input type="checkbox"/> Referral declined <input type="checkbox"/> Not indicated (no developmental concern) <input type="checkbox"/> Not documented
3			<input type="checkbox"/> Yes <input type="checkbox"/> No WCC visit in months (circle one): 9 12 16 18 24 30 36 48	<input type="checkbox"/> Yes Agency: _____ <input type="checkbox"/> None documented in chart	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> ASQ <input type="checkbox"/> PEDS <input type="checkbox"/> MCHAT <input type="checkbox"/> Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> Referral deferred <input type="checkbox"/> Referral declined <input type="checkbox"/> Not indicated (no developmental concern) <input type="checkbox"/> Not documented
4			<input type="checkbox"/> Yes <input type="checkbox"/> No WCC visit in months (circle one): 9 12 16 18 24 30 36 48	<input type="checkbox"/> Yes Agency: _____ <input type="checkbox"/> None documented in chart	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> ASQ <input type="checkbox"/> PEDS <input type="checkbox"/> MCHAT <input type="checkbox"/> Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> Referral deferred <input type="checkbox"/> Referral declined <input type="checkbox"/> Not indicated (no developmental concern) <input type="checkbox"/> Not documented

## Acknowledgments

We thank Sherri Alderman, MD, for building the foundations of DSI; Mette Pederson from the CDD for her continual support; Janette Schluter for her diligent entry of data; and the practices that participated in the initiative. We also thank our partners from the FIT Program, especially Andrew Gomm and Verna Trujillo.

## Authors' Note

The Developmental Screening Initiative is funded by the Center for Development and Disability and the Family, Infant, Toddler Program. DSI was approved by the University of New Mexico Health Sciences Center Institutional Review Board (#07-339) and the Navajo Nation Human Research Review Board (#NNR-07.198).

## Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Fauzia Malik, Shannon Brown, and Catherine McClain received funding from NM Department of Health, Family Infant Toddler (FIT) Part C program and NM Medicaid. These sponsors did not play a role in the study design; collection, analysis, and interpretation of data; writing the article; and the decision to submit the article for publication. The other authors have no conflicts of interest relevant to this article to disclose.

## Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

## References

- Boyle CA, Boulet S, Schieve LA, et al. Trends in the prevalence of developmental disabilities in US children, 1997-2008. *Pediatrics*. 2011;127:1034-1042.
- Hix-Small H, Marks K, Squires J, Nickel R. Impact of implementing developmental screening at 12 and 24 months in a pediatric practice. *Pediatrics*. 2007;120:381-389.
- Bailey DB, Hebbeler K, Scarborough A, Spiker D, Mallik S. First experiences with early intervention: a national perspective. *Pediatrics*. 2004;113:887-896.
- Earls MF, Hay SS. Setting the stage for success: implementation of developmental and behavioral screening and surveillance in primary care practice—the North Carolina Assuring Better Child Health and Development (ABCD) project. *Pediatrics*. 2006;118:e183-e188.
- Rydz D, Shevell MI, Majnemer A, Oskoui M. Developmental screening. *J Child Neurol*. 2005;20:4-21.
- Allen SG, Berry AD, Brewster JA, Chalasani RK, Mack PK. Enhancing developmentally oriented primary care: an Illinois initiative to increase developmental screening in medical homes. *Pediatrics*. 2010;126:S160-S164.
- Guralnick MJ. *The Effectiveness of Early Intervention*. Baltimore, MD: Paul H. Brookes; 1997.
- Newacheck P. Access to health care for disadvantaged young children. *J Early Interv*. 2002;25:1-11.
- American Academy of Pediatrics, Council on Children with Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee, Medical Home Initiatives for Children with Special Needs Project Advisory Committee. Identifying infants and young children with developmental disabilities in the medical home: an algorithm for developmental surveillance and screening. *Pediatrics*. 2006;118:405-420.
- Radecki L, Sand-Loud N, O'Connor KG, Sharp S, Olson LM. Trends in the use of standardized tools for developmental screening in early childhood: 2002-2009. *Pediatrics*. 2011;128:14-19.
- Halfon N, Regalado M, Sareen H, et al. Assessing development in the pediatric office. *Pediatrics*. 2004;113:1926-1933.
- May J, Kaye N. *State Strategies to Support Practice Changes That Improve Identification of Children at Risk for or With Developmental Delays: Findings From the ABCD Screening Academy*. Portland, ME: National Academy for State Health Policy; March 2008.
- Glascoe FP. Parents' concerns about children's development: prescreening technique or screening test. *Pediatrics*. 1997;99:522-528.
- Squires J, Bricker D, Potter L. Revision of a parent-completed developmental screening tool: Ages and Stages Questionnaires. *J Pediatr Psychol*. 1997;22:313-328.
- Rydz D, Srouf M, Oskoui M, et al. Screening for developmental delay in the setting of a community pediatric clinic: a prospective assessment of parent-report questionnaires. *Pediatrics*. 2006;118:e1178-e1186.
- Child and Adolescent Health Measurement Initiative. Data Resource Center for Child & Adolescent Health. 2007 National Survey of Children's Health. <http://www.childhealthdata.org/learn/NSCH>. Accessed March 25, 2011.
- New Mexico Voices for Children, 2010 NM Kids Count Data Book. [www.nmvoices.org/attachments/nm-kids-count-rpt-2010.pdf](http://www.nmvoices.org/attachments/nm-kids-count-rpt-2010.pdf). Accessed July 1, 2011.
- 2010 Census Data. US Census Bureau: State and County QuickFacts. <http://quickfacts.census.gov/gfd/states/35000.html>. Accessed July 3, 2011.
- New Mexico Department of Health, Division of Policy and Performance. *Racial and Ethnic Health Disparities in New Mexico Report Card*. 5th ed. [www.health.state.nm.us/dpp/2010ReportCard.pdf](http://www.health.state.nm.us/dpp/2010ReportCard.pdf). Published August 2010. Accessed March 1, 2014.
- US Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, Centers for Disease Control and Prevention and National Center for Health Statistics. The National Survey of Children with Special Health Care Needs Chartbook 2005-2006. [www.cdc.gov/nchs/slait/cshcn.htm](http://www.cdc.gov/nchs/slait/cshcn.htm). Accessed March 1, 2014.



21. *The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement* (IHI Innovation Series White Paper). Boston, MA: Institute for Healthcare Improvement; 2003. <http://www.ihi.org/resources/Pages/IHIWhitePapers/TheBreakthroughSeriesIHICollaborativeModelforAchieving-BreakthroughImprovement.aspx>. Accessed March 1, 2014.
22. Squires J, Twombly E, Bricker D, Potter L. *ASQ-3 User's Guide*. Baltimore, MD: Paul H. Brookes; 2009.
23. Robins DL, Fein D, Barton M, Green J. The Modified Checklist for Autism in Toddlers: an initial investigation in the early detection of autism and pervasive developmental disorders. *J Autism Dev Disord*. 2001;31:131-144.
24. Langley GJ, Nolan KM, Nolan TW, Norman CL, Provost LP. *The Improvement Guide: A Practical Approach to Enhancing Organizational Performance*. 2nd ed. San Francisco, CA: Jossey-Bass; 2009.
25. Massoud MR, Nielsen GA, Nolan K, Schall MW, Sevin C. *A Framework for Spread: From Local Improvements to System-Wide Change* (IHI Innovation Series White Paper). Cambridge, MA: Institute for Healthcare Improvement. <http://www.ihi.org/resources/Pages/IHIWhitePapers/AFrameworkforSpreadWhitePaper.aspx>. Published 2006. Accessed March 1, 2014.