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Developmental & Autism Screening in Primary Care

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VERMONT CHILD HEALTH IMPROVEMENT PROGRAM

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Executive Summary

Research has indicated that early identification of developmental delays and subsequent intervention can improve outcomes for young children. Yet, many health care practitioners rely on clinical judgment rather than validated screening tools to identify developmental delays and this reliance often impedes timely identification of children at risk for developmental delays. The American Academy of Pediatrics (AAP) Policy Statement on *Identifying Infants and Young Children with Developmental Disorders in the Medical Home* recommends a three tiered approach to addressing child development that includes routine developmental surveillance; regular, periodic screening using standardized tools; and if a developmental concern is identified, a comprehensive evaluation to identify specific developmental disorders.

In order to understand current developmental and autism screening processes and referral patterns as well as barriers and potential facilitators to screening, the Vermont Child Health Improvement Program (VCHIP) at the University of Vermont collaborated with the Vermont Agency of Human Services, Office of Vermont Health Access, Vermont Department of Health, and professional societies to conduct a survey of Vermont practices that provide primary care to children birth to age six. The *Developmental Screening in Primary Care* survey, developed during the spring of 2009, was administered via multiple modes (mail, telephone, online, and fax) to 103 primary care practices. Survey respondents received an initial phone call to ask them their preferred mode of administration and two reminder phone calls. Two thirds of primary care practice sites who provide routine well child care responded to the *Developmental Screening in Primary Care* survey for an overall response rate of 65% (89% response rate in pediatric practices and a 53% rate in family medicine practices).

Key findings include:

- 88% (59/67) of practices indicated they have a specific approach to developmental surveillance
- 58 practices (87%) currently perform developmental screening: 100% of pediatric practices and 75% of family medicine practices
- One in four practices utilize structured screening tools with good psychometric properties
- 59% of respondents perform autism screening in their practice and most (22/39) use the Modified Checklist for Autism in Toddlers (M-CHAT)
- Practices selected current screening tools based primarily on previous training (i.e. residency training), tradition in the practice, or because it was easy to administer

- Primary barriers to performing developmental and/or autism screening were lack of time, staff, and training.

There is wide variation in surveillance and screening practices among primary care practices in Vermont. Although definitions of surveillance and screening were provided in the survey tool, it is clear from narrative responses that practitioners define screening in many different ways. Among respondents, opportunities exist to improve primary care provider's knowledge of appropriate and effective screening tools, the periodicity of such tools, and to promote office systems to identify and track children with special health needs.

The majority of respondents were interested in participating in (or learning more about) a quality improvement initiative to improve developmental and autism screening in primary care practices. Using the findings from this survey, VCHIP will lead a quality improvement initiative to improve guideline-based developmental surveillance and screening in the medical home with appropriate connections to community systems to support the identification of children at risk for developmental delay, and their appropriate evaluation, diagnosis, and follow-up.

Background

The first five years of a child's life have a lasting impact throughout adulthood. The child's environment and experiences during this period influence their physical, social, and emotional development and their readiness for school. This in turn is linked to long term outcomes of adult mental health, injury/suicide rates, substance abuse, graduation rates, and employment rates among others.[1] Children who do not receive appropriate stimulation, nurturing, and communication from their parents/guardians often demonstrate impairments in their cognitive and communication skills and attachment relationships.[2]

The American Academy of Pediatrics' Task Force on Family policy statement emphasizes the importance of family-centered care and highlights the need for health care providers to partner with families to support the child and his/her development.[3] A strong relationship between the health care provider and a family can foster open, meaningful communication, collaborative decision-making, and it can provide the foundation of trust and respect necessary to promote the optimal health of the child and family. In order to promote strong provider/family relationships, the national Bright Futures guidelines instruct providers to: be aware of the composition of the family; ask about and address parental concerns; identify and build on parents and families strengths; assess the family's wellbeing; provide information, support, and access to community resources; and deliver family-centered care in the medical home. [4]

Substantial evidence[5] suggests that early identification of developmental delays and subsequent intervention can improve outcomes for children. Yet, research demonstrates that many health care practitioners rely on clinical judgment rather than validated screening tools and this reliance often delays and/or fails to identify children at risk for developmental delays. The American Academy of Pediatrics (AAP) Policy Statement on *Identifying Infants and Young Children with Developmental Disorders in the Medical Home*[2] recommends a three tiered approach to addressing child development:

1. Conduct routine developmental **surveillance** and elicit parental concerns at all well child visits;
2. Perform **screening** using standardized tools to identify developmental concerns; and

[1] Vermont State Team for Families, Children, and Individuals. http://humanservices. vermont.gov/publications/vermont-state-team-for-children-families-individuals-outcomes-indicators. Accessed August 8, 2008.

[2] AAP Policy Statement: Council on Children with Disabilities et al. Identifying infants and young children with developmental disorders in the medical home: an algorithm for developmental surveillance and screening. *Pediatrics.* 2006;118:405-420

[3] Schor EL. Family Pediatrics: report on the Task Force of the Family. *Pediatrics*. 2003;111:1541-1571

[4] Hagan, JF, Shaw, JS, Duncan P. Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, 3rd edition. *American Academy of Pediatrics*, 2007

[5] Center for Disease Control and Prevention, Child Development Division, Developmental Screening. http://www.cdc.gov/ncbddd/child/devtool.htm. Accessed May 11, 2009.

3. If a developmental concern is identified, conduct a comprehensive **evaluation** to identify specific developmental disorders, if any.

Surveillance is an ongoing process of obtaining the child's history, observing the child, eliciting parental concerns, identifying risk and protective factors, and providing patient education and family-centered care in support of healthy development. Surveillance should be performed at every well child visit. The AAP recommends the use of developmental screening using standardized screening tests at the 9, 18, and 30 month visits (or at the 24 month visit if a 30 month visit is not a reimbursable preventive care visit) for all children. In addition any concerns identified through routine developmental surveillance indicate the need for an age-appropriate screen to be performed. Further, autism specific screening is recommended at the 18 and 24 month well child visits. A positive screening test requires further testing and a referral for evaluation by a developmental specialist.

Providing optimal well child care is challenging and involves matching the needs and expectations of families with organizational structure and clinical practices of pediatric providers. These organizational structures, clinical practices, community resources, and national guidelines on the provision of evidence-based developmental care for young children provide the optimal context for a statewide quality improvement project to improve systems of care to promote the identification of children at risk for developmental delays and their appropriate evaluation, diagnosis, and follow-up. As a first step in this process, the Vermont Child Health Improvement Program (VCHIP) at the University of Vermont in collaboration with the Vermont Agency of Human Services, Office of Vermont Health Access, Vermont Department of Health, the American Academy of Pediatrics-Vermont Chapter, and the Vermont Academy of Family Physicians, are collaborating to determine current developmental and autism screening processes and referral patterns as well as barriers and potential facilitators to screening. Using these findings, VCHIP will lead a quality improvement initiative to improve guideline-based developmental surveillance and screening in the medical home with appropriate connections to community systems to support the identification of children at risk for developmental delay, and their appropriate evaluation, diagnosis, and follow-up. This report serves as a baseline assessment of current developmental surveillance and screening practices in pediatric and family medicine offices throughout Vermont.

Methods

The *Developmental Screening in Primary Care* survey was developed during the spring of 2009 through an iterative process involving research on existing survey instruments, formulating and revising specific questions, and consultation with developmental and primary care pediatricians and autism specialists. Initial questions were condensed and refined to develop a survey that would be quick and easy for practice staff to complete. Particular attention was paid to including the American Academy of Pediatrics' definitions of developmental surveillance and screening and to provide practitioners with the current recommendations for age-appropriate developmental and autism screening.

Potential survey respondents included primary care practices providing routine well child care to children from birth through age 21. An initial list of 85 practices was provided to VCHIP by the Office of Vermont Health Access, a partner in this project. VCHIP reviewed and cleaned the list, removing practices that do not provide routine well child care to children birth – age 6, and added 21 additional qualifying practices, for a total of 103 primary care practices.

The survey was structured for multiple modes of administration including telephone, mail, facsimile, and online. Beginning in mid-July 2009, all 103 practices were contacted by phone to invite them to participate in the survey and to identify their preferred mode of survey administration. Two to three weeks later practices were contacted again by phone or email to request return of the completed survey. Messages were left for practices that could not be reached directly. A second round of reminder calls and emails was initiated five weeks after initial survey distribution. Two surveys were returned in response to a separate contact with practices to recruit them to a quality improvement project to improve developmental and autism screening in their practice.

Multi-site practices were given the opportunity to complete a survey for each site or, if the office functions did not vary by site, to complete one survey across sites. Of the four multi-site practices, two practices chose to complete surveys for each site while two practices completed a single survey together with members of each of their sites; their collective responses were recorded for each site in a practice group. For the purposes of this report, each site is counted as an individual practice.

Results

Response Rates

Two thirds of primary care practice sites who provide routine well child care responded to the *Developmental Screening in Primary Care* survey for an overall response rate of 65%. While the number of pediatric and family medicine practices responding was similar at 31 and 36 respectively, this yielded an 89% response rate in pediatric practices and a 53% rate in family medicine practices (Table 1).

Table 1. Survey Response Rates

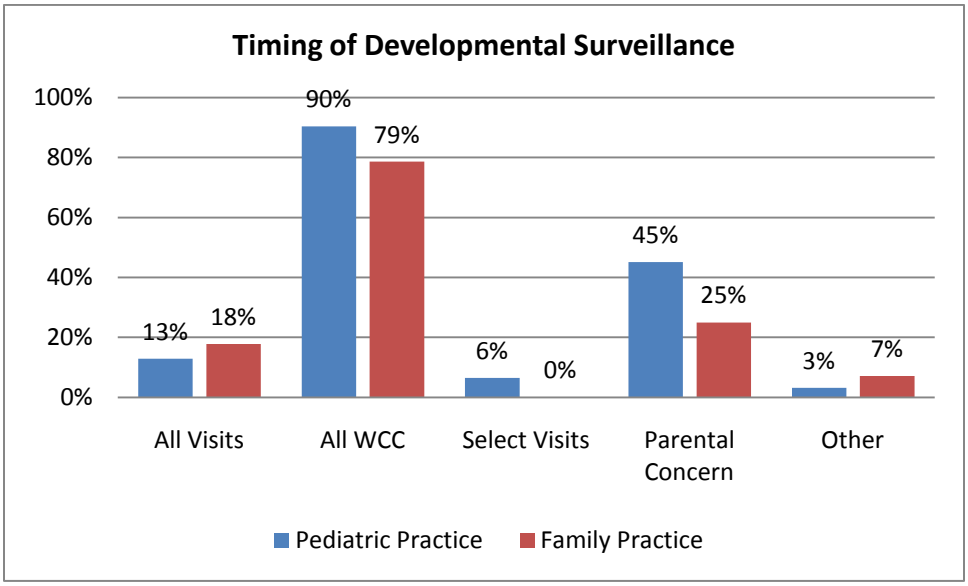
	Rate	# Responding	# possible respondents
Overall	65.0%	67	103
Pediatric	88.6%	31	35
Family Medicine	52.9%	36	68

Respondents were offered multiple modes of survey administration, 85% selected to receive and respond via fax, 12% responded to the survey online, and 3% chose to mail their surveys. None of the respondents selected to complete their survey by telephone. Pediatric and family medicine practices did not vary in their preferred mode of survey administration. Half (57%) of the surveys were completed by a physician or nurse practitioner in the practice, while 21% were completed by a nurse and 21% were completed by a manager (office/practice, QI/risk management). The remaining two surveys were completed by medical assistants in consultation with a physician.

Developmental Screening

Of practices surveyed, 88% (59/67) indicated they have a specific approach to developmental surveillance in their practice; this includes 100% of pediatric practices and 78% of family medicine practices. The majority of these practices routinely perform surveillance at all well child visits (85%); however, nine practices (15%) chose to perform surveillance at all visits, well and sick, and two practices conduct surveillance at select visits (Figure 1). One third of practices conduct surveillance whenever a parental concern is expressed. Twice as many pediatric (14/31) as family medicine practices (7/28) are likely to respond to parental concerns with a process of surveillance.

Figure 1. Timing of Developmental Surveillance by Practice Type



Fifty eight practices (87%) currently perform developmental screening: 100% of pediatric practices and 75% of family medicine practices. There is little variability among practices in the ages at which they perform developmental screening using a standardized tool – the majority conduct screening at the 9, 18, and 24 month visits (Figure 2). One third of practices routinely perform screening when surveillance demonstrates a risk and 40% screen when a parental concern is expressed. Practices vary in the screening tools utilized; however the Denver and Denver II are used most frequently at 32% and 29% respectively (Figure 3). The Ages and Stages Questionnaire (ASQ) and the Parent's Evaluation of Developmental Status (PEDS) are each used by one in ten practices. Many practices noted using other screening tools such as the Modified Checklist for Autism in Toddlers (M-CHAT), the Early Language Milestone Scale (ELMS), Bright Futures, American Academy of Pediatrics Templates, or built-in templates in electronic medical records (Table 2).

Several themes emerged regarding the selection of specific developmental screening tools (Figure 4):

- 17 respondents indicated that their selection was based on the tool they were **trained to use during residency or another training** they attended (i.e. VCHIP's 2004 Healthy Development Learning Collaborative)
- 14 practices indicated their selection was based on **tradition**
- 7 practices use their current tools because they are **easy to administer**
- 6 indicated the tool(s) are a **practice/hospital standard**

- 2 practices indicated **cost** was a primary or secondary concern in their current selection of tools

Figure 2. Timing of Developmental Screening Using a Standardized Tool

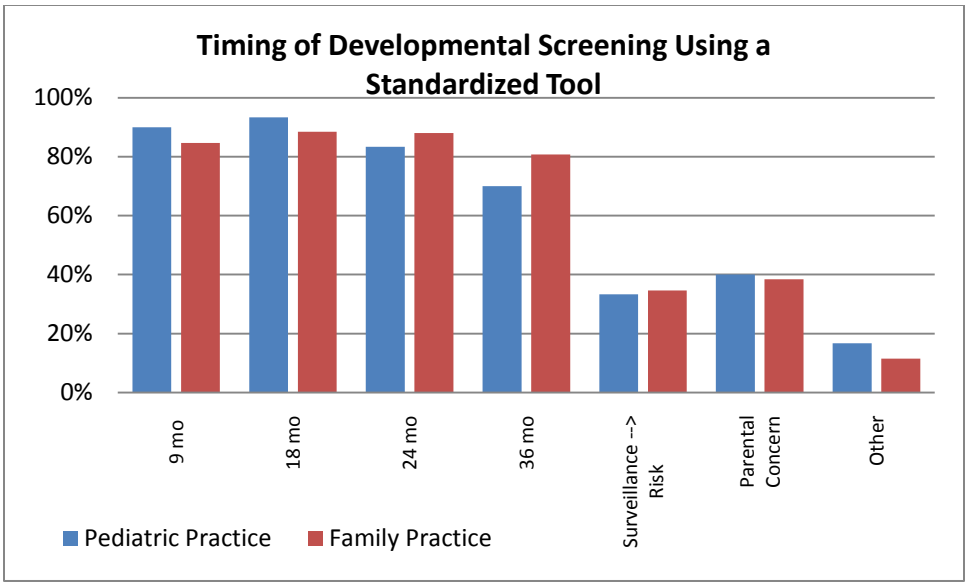


Figure 3. Developmental Screening Tool Utilized

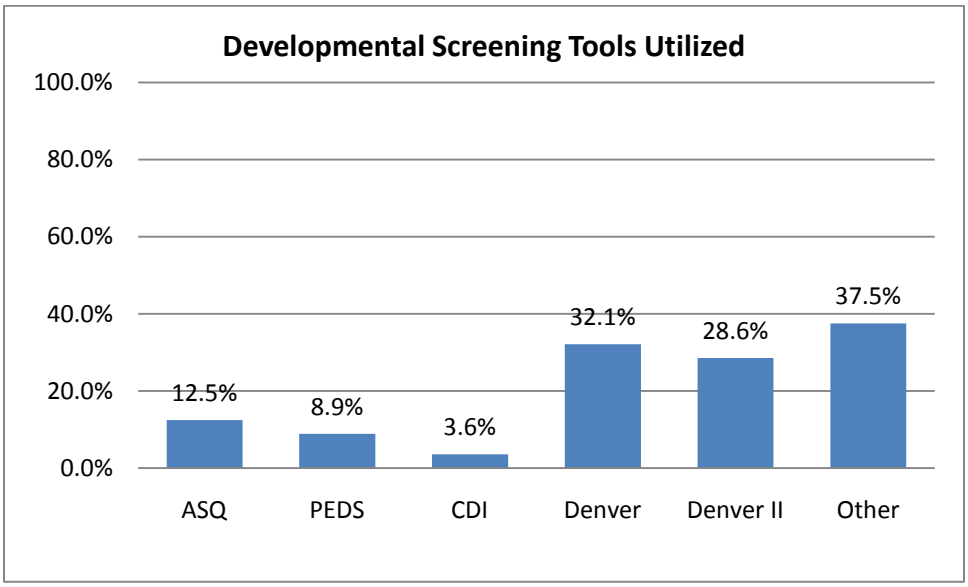
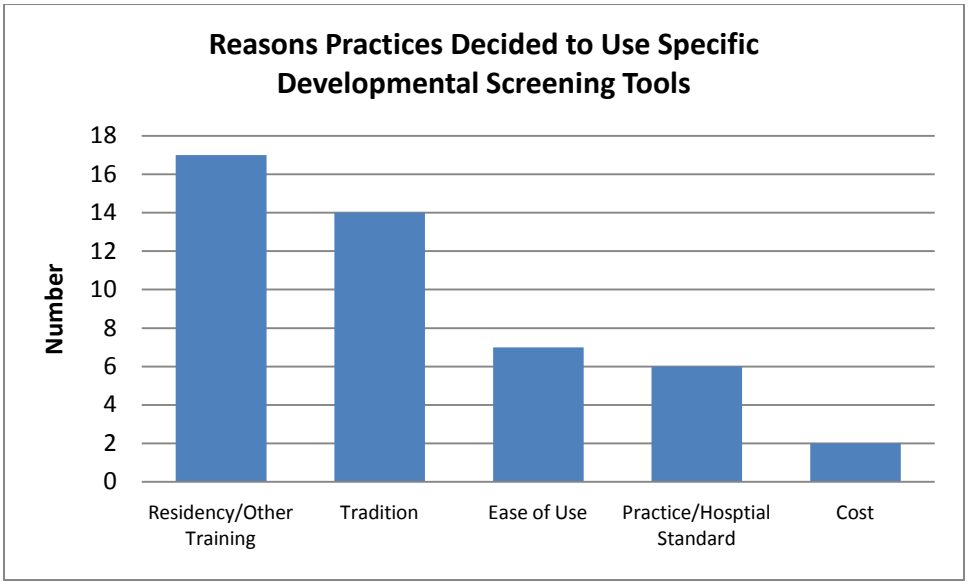


Table 2. Other Developmental Screening Tools Utilized

	# practices
Bright Futures	4
ELMS	2
MCHAT	2
EMR Templates	2
AAP Forms	2

Figure 4. Reasons Specific Screening Tools are Utilized



Pediatric and family medicine practices generally complete developmental screening tools and review the results while in the patient exam room during the visit (Figures 5-6). However, more pediatric practices are likely to initiate tool completion while the family is in the waiting room before the visit. In a small number of practices clinicians review results before (N=4) or after (N=3) a visit.

Figure 5. Timing of Completion of Developmental Screening Tools

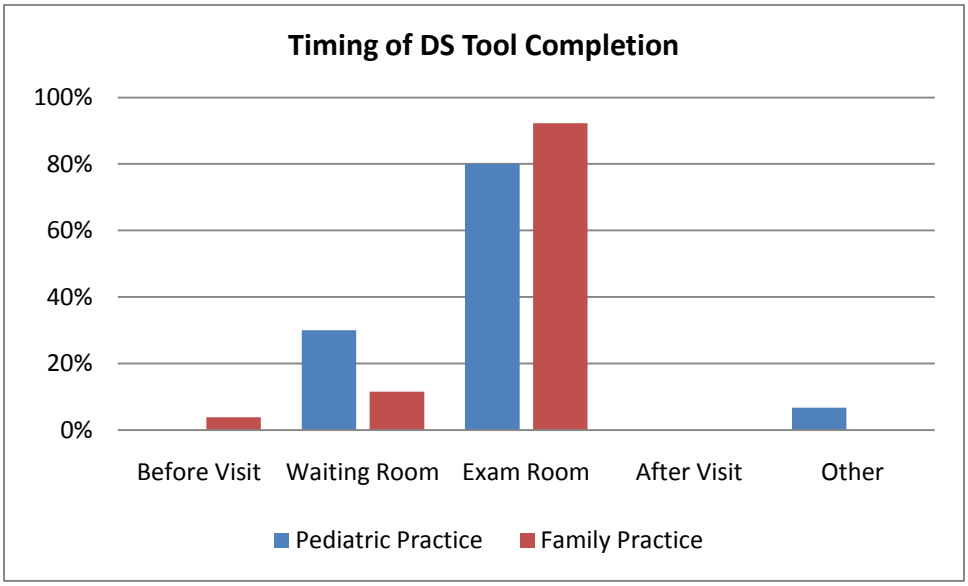
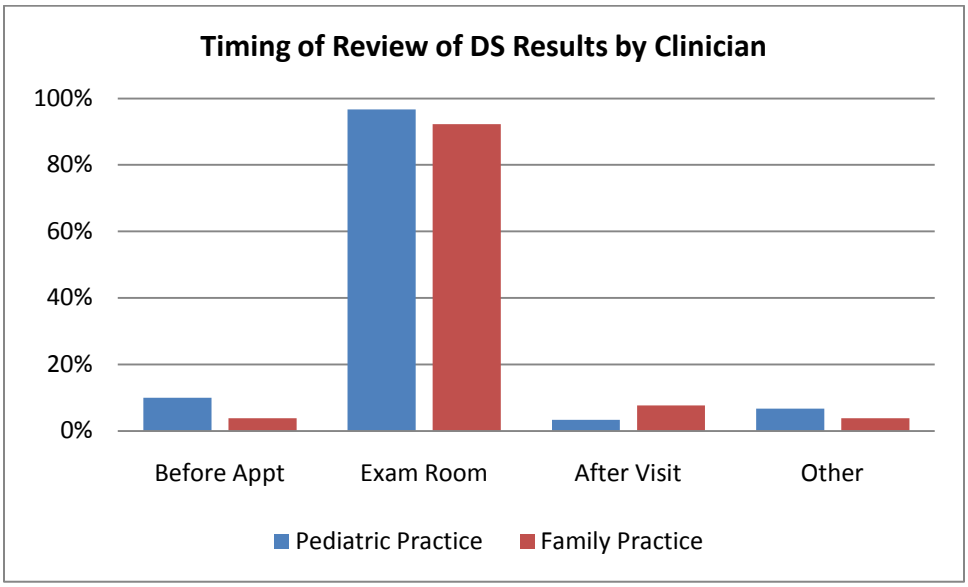


Figure 6. Timing of Clinician Review of Results of Developmental Screening



Barriers to Developmental Screening

While lack of time is the primary barrier to implementing developmental screening in surveyed practices, family medicine practices were twice as likely pediatric practices to consider this a barrier (Figure 7). Similarly, 18 family medicine practices indicated lack of training is a significant barrier while only four pediatric practices reported similar issues. Overall 28% of practices indicated that cost of the tools is a barrier while 20% reported overall cost to the

practice as a barrier to screening. In the eight practices responding that do not conduct developmental screening; the primary barriers of lack of time, staff, and training are consistent themes (Figure 8). Other barriers include implementation of electronic health records, poor reimbursement, general dissatisfaction with available screening tools, office system barriers, and general "inertia." The weighted average of the rankings confirms that lack of time and training are the most pressing barriers followed by lack of staff to conduct the screenings.

Figure 7. Barriers to Implementing Developmental Screening by Practice Type

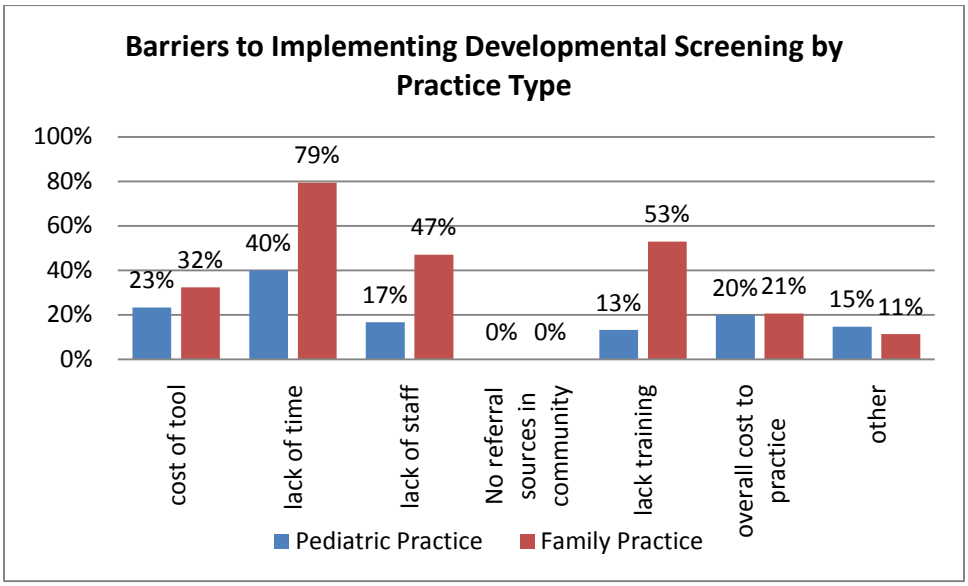
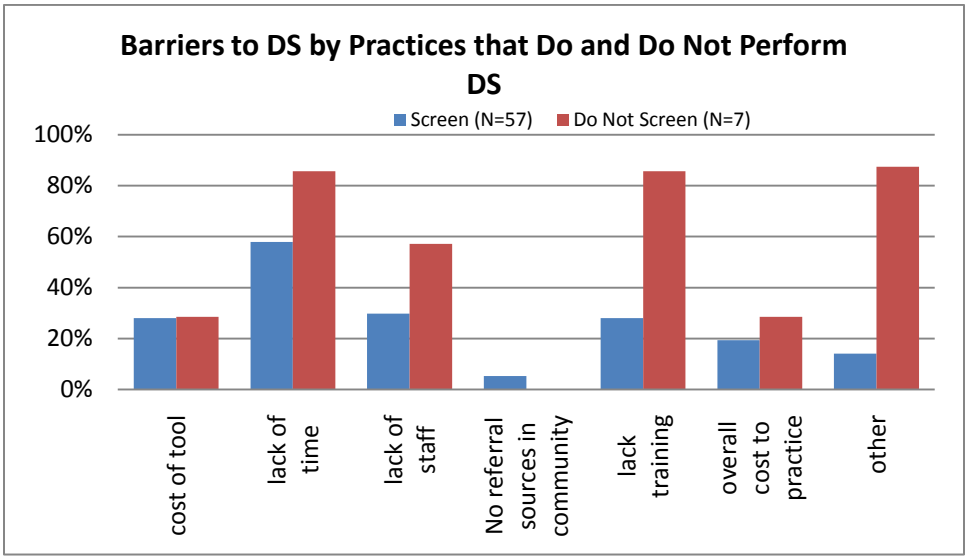


Figure 8. Barriers to Developmental Screening: Practices that Screen vs. Practices that do not Screen



Autism Screening

Fifty nine percent of respondents indicated they perform autism screening in their practice (Figure 9), with twice as many pediatric practices performing autism screening as family medicine practices (Figure 10). Of the 39 practices that perform autism screening, the majority (N=22) use the Modified Checklist for Autism in Toddlers (M-CHAT), while an additional five practices use the Checklist for Autism in Toddlers (CHAT) (Figure 11). Combined, 73% of the practices conducting autism screening use the CHAT or M-CHAT. One practice uses both the Autism Behavior Checklist (ABC) and the Autism Screening Questionnaire (ASQ) and nine practices describe other autism screening tools. Of these other tools, one practice indicated they use the Early Language Milestone Scale (ELMS), another replied "we use two screening questions and if positive, follow-up with the full MCHAT," while the remainder indicated they rely on "experience" or have homegrown tools with responses such as "basic screening based on exam", "ask about speech and pointing at 1 YO, 15 MOS, 18MOS, 2 YO." A higher percent of pediatric practices use the M-CHAT than family medicine practices at 62% and 55% respectively; however family medicine practices use the CHAT more frequently (Figure 12).

Figure 9. Percent of Practices Performing Autism Screening

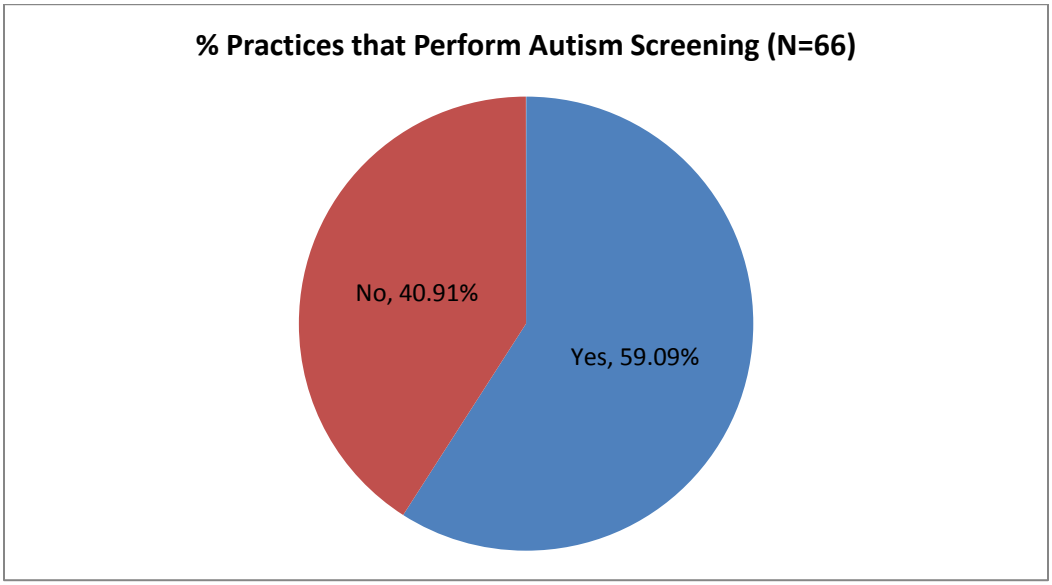


Figure 10. Percent of Practices that Perform Autism Screening by Type

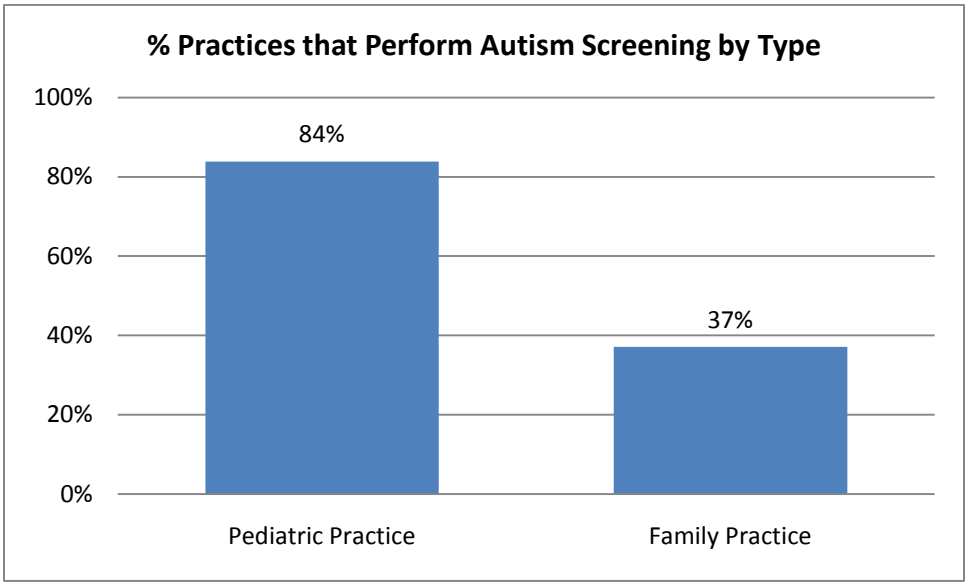


Figure 11. Type and Frequency of Autism Screening Tools Utilized in Pediatric Primary Care Practices

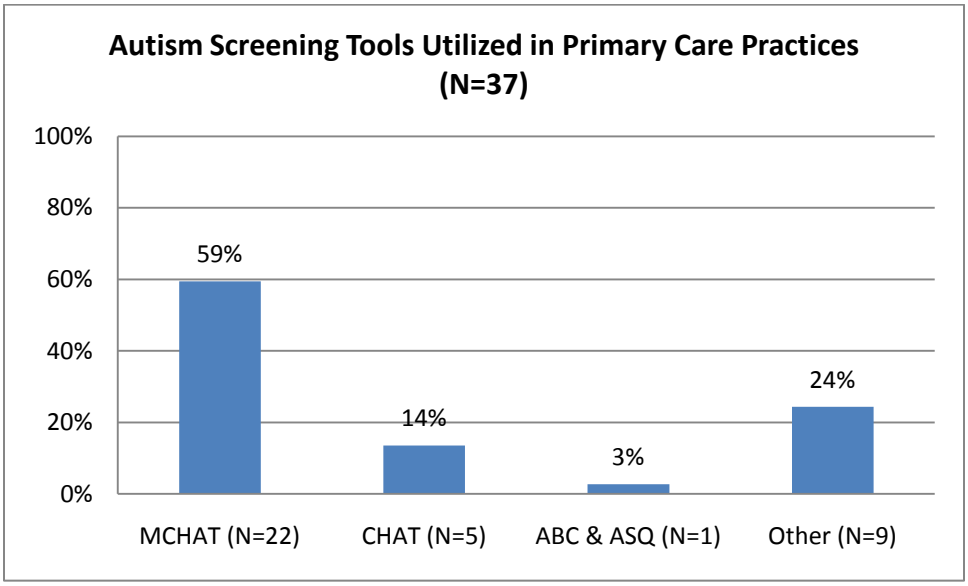
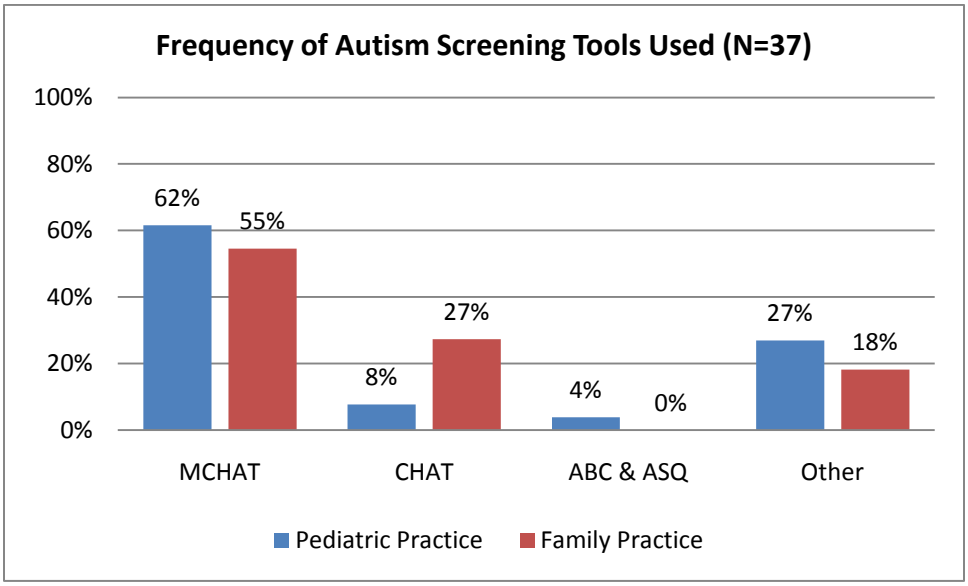
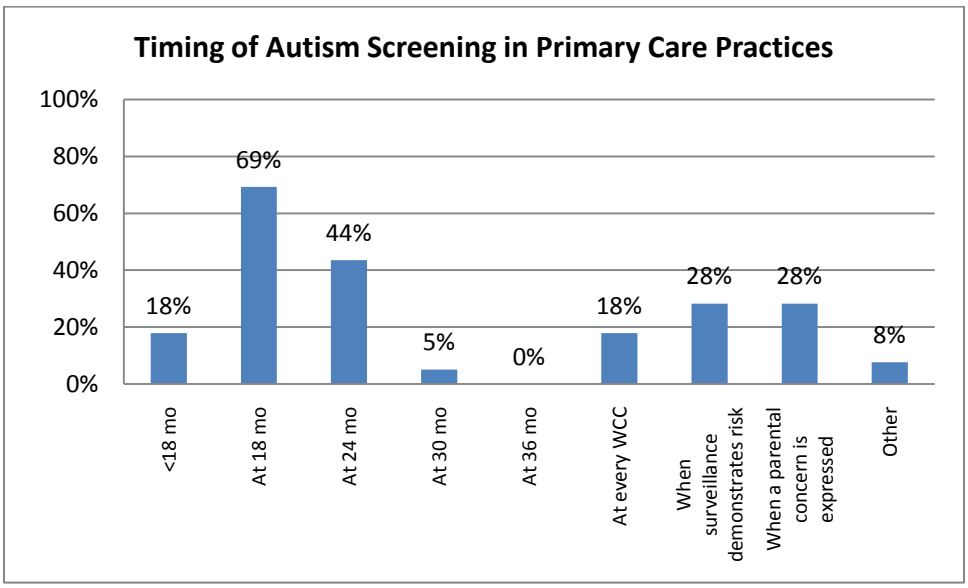


Figure 12. Frequency of Autism Screening Tools Utilized by Type of Practice



Primary care practices most frequently perform autism screening at the 18 month well child visit followed by the 24 month well child visit (Figure 13). Three out of four practices performing autism screening conduct screening at least once at the recommended ages (29/39) of 18 and 24 months and 38% of practices conduct screening at both recommended ages. Two practices conduct screening only at 24 months and 12 conduct it only at 18 months. Less than 30% of practices conduct autism screening when surveillance identifies risk or a parental concern is identified. Seven practices indicated they screen for autism at every well child visit.

Figure 13. Timing of Autism Screening in Primary Care Practices



When a concern is noted during autism screening, 72% (N=28) of practices refer the child to a developmental pediatrician for diagnostic evaluation and more than half of practices refer the child to early intervention (Figure 14). Many practices initiate multiple referrals and continue to monitor the child in the office. No practices indicated that they continue to monitor a child in the office without initiating referrals. Of those that monitor in the office, 82% also refer the child to a developmental pediatrician, 73% refer to early intervention, and 9% refer to a child psychiatrist (Figure 15).

Figure 14. Identification of a Concern Triggers Next Steps

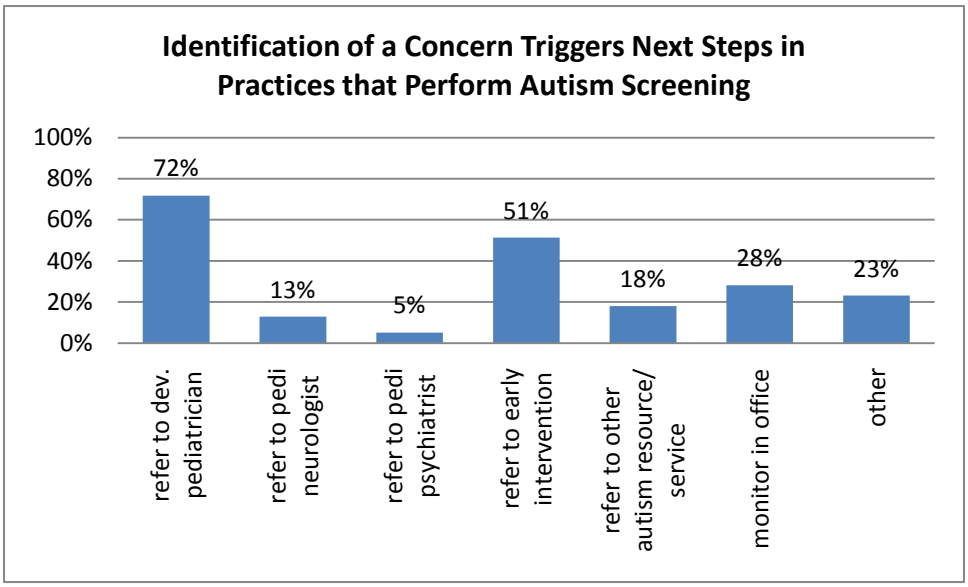
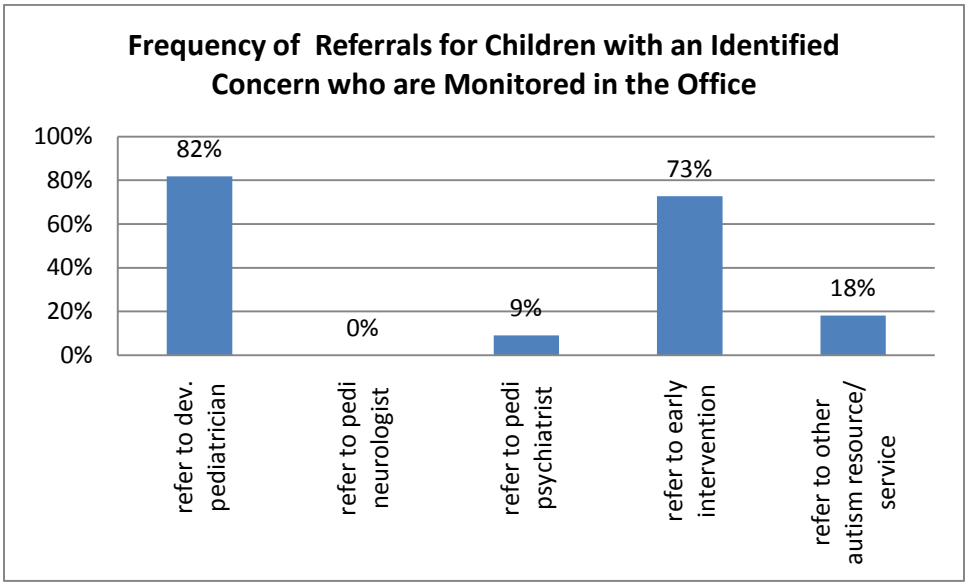


Figure 15. Referrals for Children with an Identified Concern who are Monitored in the Office



Barriers to Autism Screening

Across all respondents, lack of time and lack of training on performing autism screening were the most frequently cited barriers followed by concerns about the cost of tools and lack of staff available to conduct the screenings (Figure 16). Of note, 81% of practices who do not perform autism screening indicated that lack of training was a barrier while 29% of practices that currently perform autism screening concurred (Figure 17). Practices were asked to rank autism screening barriers in order from most important to least important. Twenty four practices ranked lack of training as their primary barrier while thirteen practices ranked lack of time the most significant barrier. The weighted average of the rankings confirms these are the most pressing barriers followed by lack of staff to conduct the screenings (Figure 18).

Figure 16. Barriers to Autism Screening in Primary Care Practices

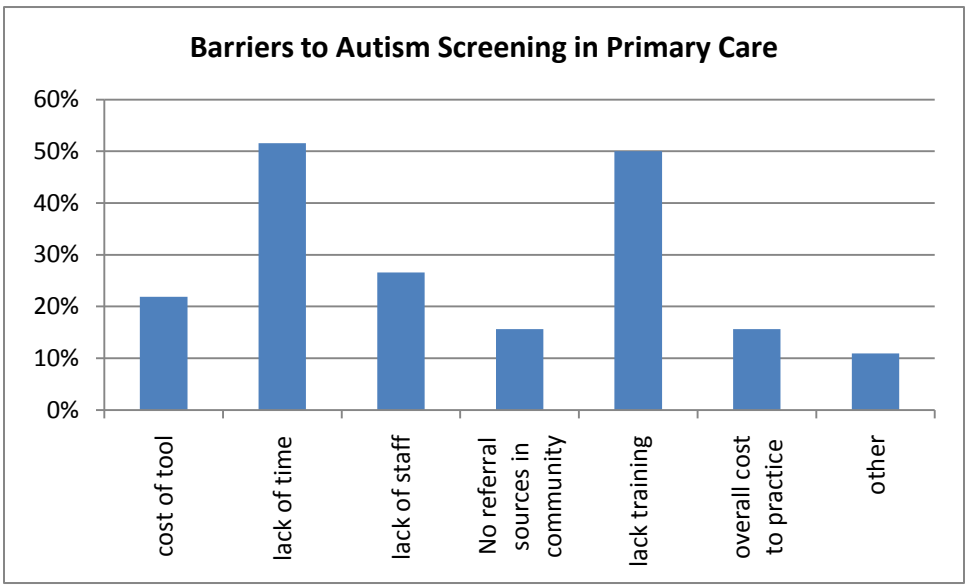


Figure 17. Barriers to Autism Screening by Current Screening Practices

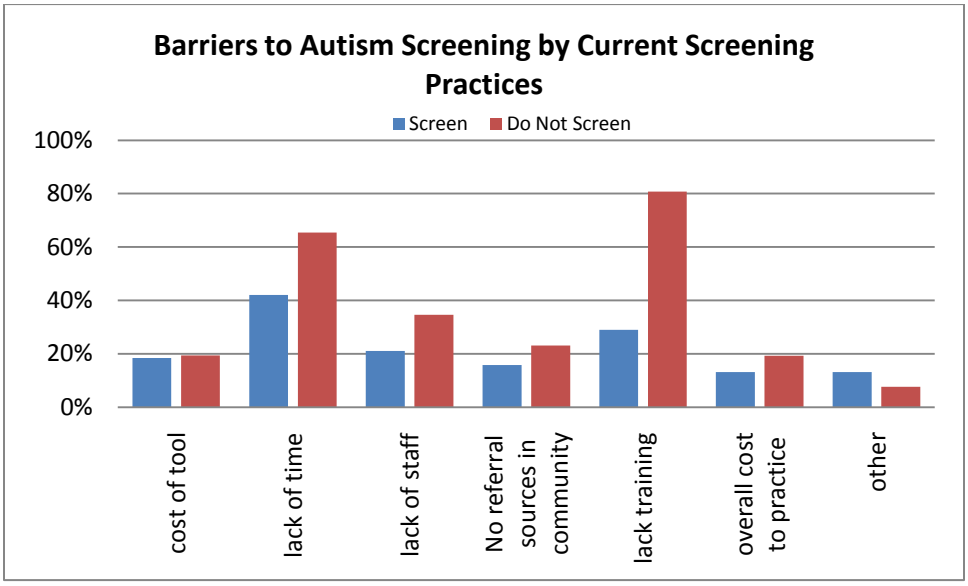
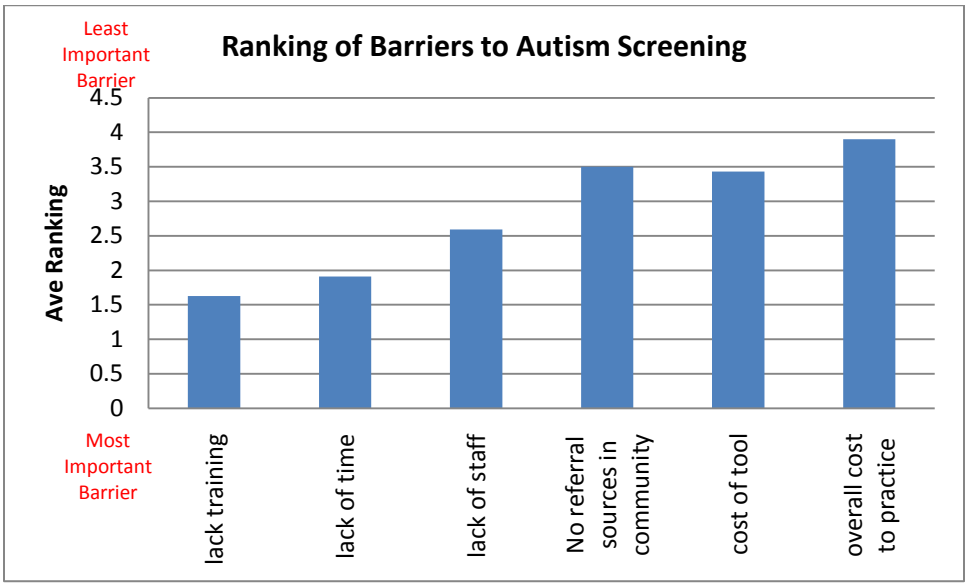


Figure 18. Ranking of Barriers from Most Important to Least Important



Tracking and Referrals

More than 80% of practices rely on a note in a patient chart to track children at risk for or with a positive developmental or autism screen (Figure 19-20). Practices are more likely to use a flag in a chart or electronic medical record to note a child at risk for an autism spectrum disorder than other types of developmental delays (21% and 14% respectively). Conversely practices are more likely to use a log or tracking sheet to track children with suspected developmental

delays. Ten practices indicated they had no systematic way to track children at risk for or with positive developmental screens and none of the respondents utilized patient registries to support them in identifying and tracking children with special health care needs. Practices who noted "other" systems indicated they track children by memory or with a note on a problem list.

Practices refer most frequently to the child development clinics in Vermont and New Hampshire (CDC/CSHN and DCDP) along with hearing and audiology services, Early Essential Education (EEE), Family, Infant, Toddler Program (FITP), and pediatric specialists (Figure 21). While few practices refer to Children's Integrated Services (CIS) directly, this is most likely related to the recent start-up of that program. Of note, one third of practices refer to a child psychologist and seven practices have co-located mental health service providers to support their behavioral health needs.

Figure 19. Tracking Systems for Children at Risk for or with a Developmental Screen

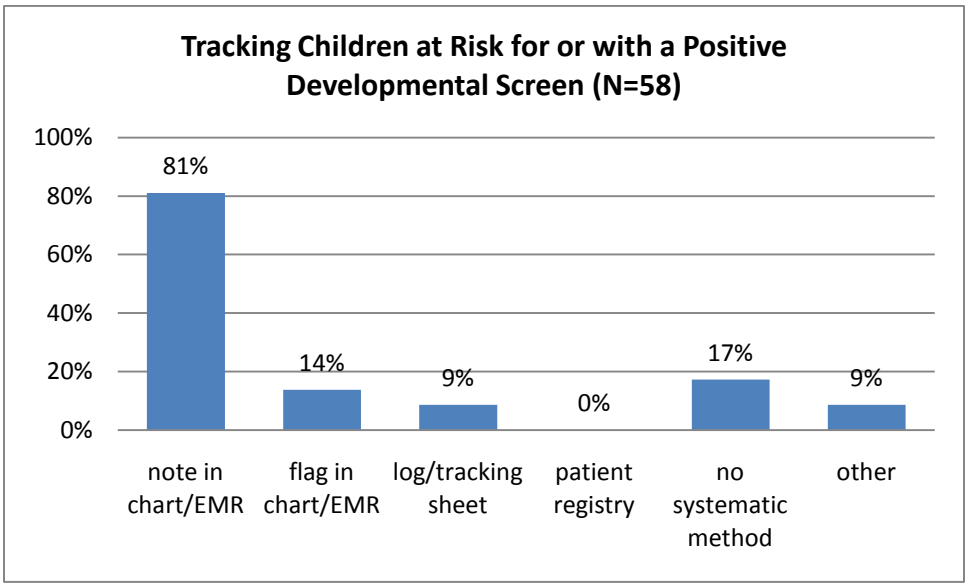


Figure 20. Tracking Systems for Children at Risk for or with a Positive Autism Screen

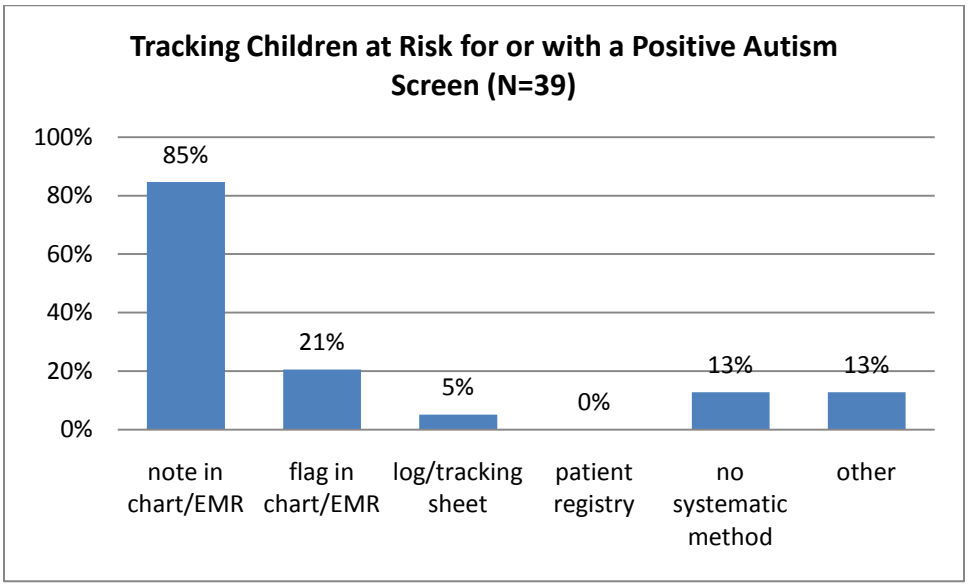
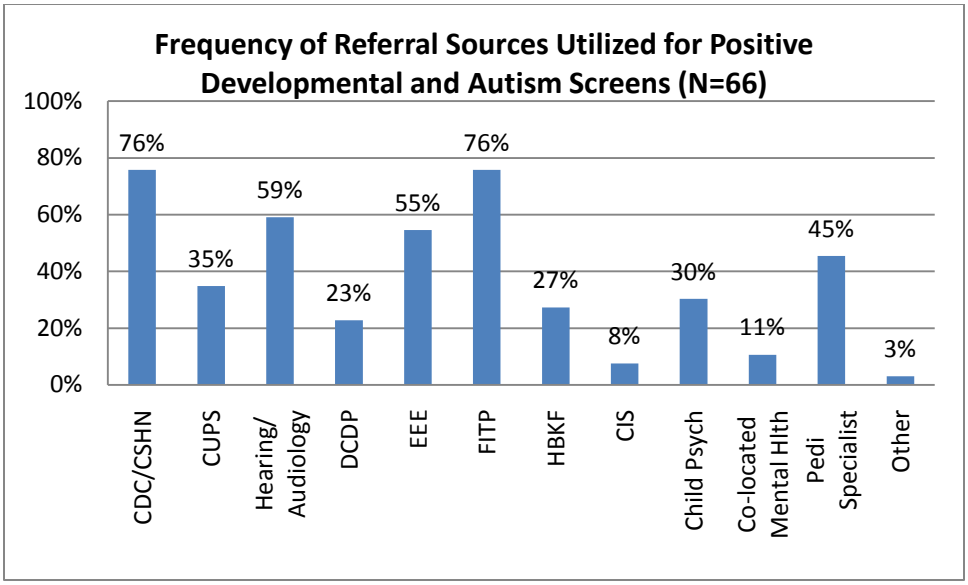


Figure 21. Frequency of Referral Sources Utilized for Positive Developmental and Autism Screens



Conclusions

There is wide variation in surveillance and screening practices among primary care practices in Vermont. The majority of practices perform routine developmental surveillance; however family medicine practices are less likely than pediatric practices to conduct routine surveillance. Practices differ more in their screening for developmental issues including autism. While most respondents indicated they conduct developmental screening at the nationally recommended ages, only one in four practices use appropriate structured, validated screening tools. Further, although definitions of surveillance and screening were provided in the survey tool, it is clear from narrative responses that practitioners define screening in many different ways. In addition, more education is needed to improve autism screening rates including adhering to recommended ages for autism screening – currently only 15 of the 39 practices that screen do so at both 18 and 24 mo visits.

Among respondents, opportunities exist to improve primary care provider's knowledge of appropriate and effective screening tools, the periodicity of such tools, and to promote office systems to identify and track children with special health needs. Fortunately, the majority of respondents were interested in participating in (or learning more about) a quality improvement initiative to improve developmental and autism screening in primary care practices.

Appendix 1. Survey Instrument

Developmental Screening in Primary Care

Please complete one survey per practice with input from a provider who is knowledgeable about how developmental screening is performed in your practice.

Please return the completed survey by faxing it to Shannon at 802.656.8368.

Practice Name: _____

Completed by:_____ **Role:** _____

Clinical input provided by:_____ **Role:** _____

Developmental Surveillance

Bright Futures and the American Academy of Pediatrics (AAP) define developmental surveillance as the process of recognizing children who may be at risk for developmental delays. The process may include history, observation, and elicitation of parental concerns and documentation of changes over time.

1. **Do you have a specific approach to developmental surveillance in your practice?**
   - ☐ Yes
   - ☐ No
2. **If yes, when do you currently complete the process of surveillance?**
   - ☐ At all visits (well and sick)
   - ☐ At all well visits
   - ☐ At selected visits
   - ☐ Whenever a parental concern is expressed
   - ☐ Other *(please specify)* _____

Developmental Screening

Bright Futures and the AAP recommend that all children receive developmental screening using a standardized tool at the 9-, 18-, and 24/30 month visits and when risk factors and/or parental concerns are identified.

3. **Do you currently perform developmental screening in your practice?**
   - ☐ Yes
   - ☐ No
4. **If yes, when do you currently perform developmental screening, using a standardized tool, in your practice?** *(check all that apply)*
   - ☐ At the 9 month visit
   - ☐ At the 18 month visit
   - ☐ At the 24 month visit
   - ☐ At the 30 month visit
   - ☐ At the 36 month visit
   - ☐ At every well-child visit
   - ☐ When surveillance demonstrates risk
   - ☐ Whenever a parental concern is expressed
   - ☐ Other *(please specify)* _____

Please continue to page 2

5. **Which developmental screening tool(s) do you currently use?** *(check all that apply)*
   - ☐ Ages and Stages (ASQ)
   - ☐ Ages and Stages Social and Emotional (ASQ:SE)
   - ☐ Denver
   - ☐ Denver II
   - ☐ Parents' Evaluation of Developmental Status (PEDS)
   - ☐ Brief Infant Toddler Social Emotional Assessment (BITSEA)
   - ☐ Child Development Inventory (CDI)
   - ☐ Bayley Infant Neurodevelopmental Screen (BINS)
   - ☐ Brigance Screen
   - ☐ Other *(please specify)* _____

6. **What led your practice to decide to use this/these specific developmental screening tool(s)?**

7. **In relation to the office visit, when is the developmental screening tool completed?**
   - ☐ Before appointment (at home)
   - ☐ In waiting room before visit
   - ☐ In patient exam room during visit
   - ☐ After visit
   - ☐ Other *(please specify)* _____

8. **When are developmental screening results reviewed by the clinician?**
   - ☐ Before appointment
   - ☐ In patient exam room during visit
   - ☐ After visit
   - ☐ Other *(please specify)* _____

9. **Please indicate the barriers to implementing developmental screening in your practice?** (*check all that apply and then rank your selections in order of importance- 1= most important, 7=least important).*

	Barrier	Ranking
Cost of tool	☐	_____
Lack of staff	☐	_____
Lack of time	☐	_____
Lack of training on performing screening	☐	_____
No referral sources in community	☐	_____
Overall cost to practice	☐	_____
Other *(please specify)* _____	☐	_____

Please continue to page 3

Autism Screening

Bright Futures and the AAP recommend autism screening for all children at the 18 and 24 month visits.

10. Do you currently perform autism screening in your practice?

- ☐ Yes
- ☐ No

11. If yes, which autism screening tool(s) do you currently use? *(check all that apply)*

- ☐ Autism Behavior Checklist (ABC)
- ☐ Autism Screening Questionnaire (ASQ)
- ☐ Checklist for Autism in Toddlers (CHAT)
- ☐ Modified Checklist for Autism in Toddlers (M-CHAT)
- ☐ Pervasive Developmental Disorders Screening Test – Stage 1 (PDDST-Stage 1)
- ☐ Screening Tool for Autism in Two-Year-Olds (STAT)
- ☐ Other *(please specify)* _____

12. When do you currently perform autism screening? *(check all that apply)*

- ☐ Prior to the 18 month visit
- ☐ At the 18 month visit
- ☐ At the 24 month visit
- ☐ At the 30 month visit
- ☐ At the 36 month visit
- ☐ At every well-child visit
- ☐ When surveillance demonstrates risk
- ☐ Whenever a parental concern is expressed
- ☐ Other *(please specify)* _____

13. When a concern is noted during an autism screening, what are your next steps?
(check all that apply)

- ☐ Refer the child to a developmental pediatrician for diagnostic evaluation
- ☐ Refer the child to a pediatric neurologist
- ☐ Refer the child to a pediatric psychiatrist
- ☐ Refer the child to early intervention
- ☐ Refer the child to other autism resource/service, please specify:_____
- ☐ Monitor in the office
- ☐ Other *(please specify)* _____

14. Do primary care providers in your practice diagnose autism?

- ☐ Yes
- ☐ No

15. Please indicate the barriers to implementing autism screening into your practice?
(check all that apply; then rank your selections in order of importance 1= most important, 7=least important)

	Barrier	Ranking
Cost of tool	☐	_____
Lack of time	☐	_____
Lack of staff	☐	_____
No referral sources in community	☐	_____
Lack of training on performing autism screening	☐	_____
Overall cost to practice	☐	_____
Other *(please specify)* _____	☐	_____

Follow-up and Referral

16. **How does your practice follow-up and track children at risk for or with a positive developmental or autism screen?** *(check all that apply)*
    - ☐ Note in the chart/EMR
    - ☐ Flag the chart/EMR
    - ☐ Record it in a log or tracking sheet
    - ☐ Record it in a patient registry
    - ☐ No systematic method for tracking
    - ☐ Other *(please specify)* _____

17. **To which services does your practice refer children with positive developmental and/or autism screens?** *(check all that apply)*
    - ☐ Child Developmental Clinic (CDC/CSHN)
    - ☐ Child Mental Health (CUPS)
    - ☐ Hearing/Audiology Evaluation
    - ☐ Dartmouth Child Development Program (DCDP)
    - ☐ Early Essential Education (EEE)
    - ☐ Family, Infant, Toddler Program (FITP)
    - ☐ Healthy Babies, Kids, and Families (HBKF)
    - ☐ Local Children's Integrated Services Team (CIS)
    - ☐ Child Psychologist
    - ☐ Co-located mental health service provider
    - ☐ Pediatric specialist (developmental pediatrician/neurologist/psychiatrist)
    - ☐ Other *(please specify)* _____

18. **Would your practice be interested in participating in a quality improvement project to improve developmental and autism surveillance and screening for young children?**
    - ☐ Yes
    - ☐ No
    - ☐ We would like additional information

Thank you for completing this survey!

You may contact Sara Barry, MPH, the Investigator in charge of this study, at 802.656.8210 for more information about this study. If you have any questions about your rights as a participant in a research project you should contact Nancy Stalnaker, the Director of Research Protections Office, at the University of Vermont at 802.656.5040.

Appendix 2. List of All Primary Care Practices Contacted

PracticeName	City	PracticeType
Arlington Family Practice	Arlington	Family
Associates in Family Health	Berlin	Family
Associates in Pediatrics	Berlin	Pediatrics
Barre Pediatrics	Barre	Pediatrics
Bennington Family Practice	Bennington	Family
Berlin Family Health	Berlin	Family
Bethel Health Center	Bethel	Family
Border Health Center	Derby Line	Family
Brandon Medical Center	Brandon	Family
Brattleboro Family Health Center	Brattleboro	Family
Brattleboro Primary Care	Brattleboro	Family
Brookside Pediatrics & Adolescent Medicine	Bennington	Pediatrics
Castleton Family Health Center	Bomoseen	Family
Central Vt. Primary Care	Berlin	Family
Champlain Valley Family Health Associates	Middlebury	Family
Chelsea Health Center	Chelsea	Family
Chester Family Medicine	Chester	Family
Colchester Family Practice	Colchester	Family
Cold Hollow Family Practice	Enosburg Falls	Family
Community Health Center of Burlington	Burlington	Family
Cornerstone Pediatrics	Bellows Falls	Pediatrics
Danville Health Center	Danville	Family
Dartmouth Hitchcock Family Medicine	Hanover	Family
Deerfield Valley Health Center	Wilmington	Family
Dr. Angela L. Wingate Family Practice	Bennington	Family
Dr. David Toll Practice	St. Johnsbury	Pediatrics
Dr. Gary Waring Practice	Morrisville	Family
Dr. H. Taylor Yates, Jr. Practice	St. Albans	Pediatrics
Dr. Joseph Nasca Practice	Milton	Pediatrics
Dr. Logan Family Practice	Rutland	Family
Dr. Martin R. Luloff Pediatrics	Bennington	Pediatrics
Enosburg Health Center	Enosburg Falls	Family
Essex Pediatrics	Essex Junction	Pediatrics
Evergreen Family Health	Williston	Family
Family Practice of Newport	Newport	Family
Family Medicine	Rutland	Family
Family Medicine Associates	Springfield	Family

Family Practice Associates, Inc	Cambridge	Family
Franklin County Pediatrics	St. Albans	Pediatrics
Georgia Health Center	Fairfax	Family
Gifford Family Health Center	Bethel	Family
Gifford Medical Center	Randolph	Pediatrics
Grace Cottage Family Health	Townshend	Family
Green Mountain Pediatrics	Bennington	Pediatrics
Hagan & Rinehart Pediatricians	Burlington	Pediatrics
Hardwick Area Heath Center	Hardwick	Family
Hinesburg Family Health	Hinesburg	Family
Island Pond Family Health Center	Island Pond	Family
Just So Pediatrics	Brattleboro	Pediatrics
Little City Family Practice	Vergennes	Family
Little Rivers Health Care at Bradford	Bradford	Family
Little Rivers Health Care at East Corinth	East Corinth	Family
Little Rivers Health Care at Wells River	Wells River	Family
Ludlow Health Center	Ludlow	Family
Mad River Family Practice	Waitsfield	Family
Maplewood Family Practice	Brattleboro	Family
Mettowee Center Family Health	West Pawlet	Family
Middlebury Family Health	Middlebury	Family
Middlebury Pediatric and Adolescent Medicine	Middlebury	Pediatrics
Milton Family Practice	Milton	Family
Montpelier Health Center	Montpelier	Family
Mount Anthony Primary Care	Bennington	Family
Mountain Health Center	Bristol	Family
Mousetrap Pediatrics Enosburg	Enosburg	Pediatrics
Mousetrap Pediatrics Milton	Milton	Pediatrics
Mousetrap Pediatrics Saint Albans	St. Albans	Pediatrics
Mt Ascutney Physicians Practice	Windsor	Family
Neshobe Family Medicine	Brandon	Family
Newport Pediatric and Adolescent Medicine	Newport	Pediatrics
Northshire Medical Center	Manchester Ctr	Family
NVRH St. Johnsbury Pediatrics	St. Johnsbury	Pediatrics
Orleans Medical Clinic	Orleans	Family
Ottauquechee Health Center	Woodstock	Family
Pediatric Associates	Rutland	Pediatrics
Pediatric Medicine	South Burlington	Pediatrics
Rainbow Pediatrics	Middlebury	Pediatrics
Rebecca Collman MD	Colchester	Pediatrics
Richford Health Center of NOTCH	Richford	Family

Richmond Pediatrics	Richmond	Pediatrics
Robert A. Mesropian Center for Community Care	Lebanon	Family
Rockingham Medical Group	Bellows Falls	Family
Rogers & Malcolm MDs	Johnson	Family
Rutland Primary Care	Rutland	Family
Ryder Brook Pediatrics	Morrisville	Pediatrics
Shaftsbury Medical Associates	Shaftsbury	Family
Shelburne Pediatrics	Shelburne	Pediatrics
South Burlington Family Practice	South Burlington	Family
South Royalton Health Center	Royalton	Pediatrics
Springfield Pediatric Network	Springfield	Pediatrics
St. Albans Primary Care	St. Albans	Family
St. Johnsbury Family Health Center	St. Johnsbury	Family
Stowe Family Practice	Stowe	Family
The Health Center	Plainfield	Family
Thomas Chittenden Health Center	Williston	Family
Timber Lane Pediatrics	South Burlington	Pediatrics
Timber Lane Pediatrics North Avenue	Burlington	Pediatrics
University Pediatrics	Burlington	Pediatrics
University Pediatrics in Williston	Williston	Pediatrics
Upper Valley Pediatrics	Bradford	Pediatrics
Waterbury Medical Associates	Waterbury	Family
White River Family Practice	White River Jct	Family
Winooski Family Health	Winooski	Family
Women's & Children's Services of Bennington	Bennington	Pediatrics