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Clinical Topic Review:

Behavioral Health Screening for Children with Well Visits

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Acknowledgements

This project was requested by MassHealth in order to better understand how behavioral health screenings were occurring for children and adolescents during well visits prior to the implementation of a requirement that primary care providers perform behavioral health screening using a standardized behavioral health screening tool during every well child visit. CHPR appreciates the guidance of staff at MassHealth in formulating this project.

CHPR would like to acknowledge the contribution of Dr. David Keller to this project. Dr. Keller is a primary care pediatrician and has been in practice in central Massachusetts for 18 years. As a member of the Mental Health Task Force of the Massachusetts chapter of the American Academy of Pediatrics and having just completed a yearlong Physician Advocacy Fellowship hosted by the Center for Medicine as a Profession at Columbia University (to support his collaboration with the Children's Behavioral Health Initiative), Dr. Keller was able to provide insightful thinking on our study's findings and help to shape our conclusions.

Executive Summary

The Center for Health Policy and Research (CHPR) at UMass Medical School has completed several Clinical Topic Reviews (CTR) on behalf of MassHealth. The purpose of a CTR is to provide MassHealth more in depth information on a quality improvement area.

The 2008 CTR used medical record data to assess the percentage of paid well visits for children and adolescents that included screenings for behavioral health conditions[1]. This assessment also collected information on the use of formal screening tools and the percent of children who screened positive for behavioral health conditions, those who were referred for behavioral health follow-up and the rates of behavioral health services utilized by these children. The medical record data collection was supplemented with MassHealth administrative data to assess the utilization of behavioral health services in the six-month period following the well child visit.

A sample of 2000 children representing 2180 charts and 2966 visits was randomly selected among all MassHealth well visit claims in State Fiscal Year (SFY) 07 for children under age 21 enrolled in MassHealth managed care (MCO or PCC Plan). A chart abstraction tool was developed and piloted by CHPR. CHPR contracted with MedAssurant, Inc., a national vendor for medical record reviews, to conduct the data collection. MedAssurant was able to abstract from 62% of the charts provided to them.

Results Highlights

- For 82.9% of all visits, there was some indication of behavioral health screening, meaning the use of formal and/or informal tools as indicated by documentation in the medical record. For the vast majority of these visits (80.2%), no documentation was noted in the chart as to the results of those screens. By examining diagnoses in the notes at the time of the visit, a positive result was noted in 13.7% of these visits.

- While the extent of formal screenings was significantly lower than informal (i.e., non-tool) screenings, our results of 'positive' findings are comparable to those of others among the published literature over the past 15 years.

- When assessed across all visits, the use of one or more formal tools were used to screen children in 4.0% of the 1717 visits abstracted. In two-thirds (67.6%) of these visits, the chart had no documentation of the screening results. The results

[1] The term 'behavioral health' in this report refers to both developmental and mental health conditions.

of screening with a formal tool indicate a positive finding in slightly less than 10% of the visits (7.4%).

- Among the standardized tools included in our review, the Denver Developmental Screening Test was the most prevalent (34.2%) followed by the PEDS (Parents' Evaluation of Developmental Status) which was used in 14.3% of the visits where a formal tool was employed.

- When assessed across all visits, 81.8% of the 1717 visits abstracted had some type of (non-tool) documentation (evidenced in visit notes and flow sheets) that a relevant screening occurred during the well visit. In 80.9% of these visits, there was no specific documentation of the screening results. A positive screening result was noted for 13.7% of these visits.

- Documentation of advice or counseling provided by the PCP, as well as the referral by the PCP to a mental health specialist, behavioral specialist, developmental specialist or facility was noted in the chart for only 1.3% of the visits. In addition, a small number of visits (0.4%) noted that the PCP provided advice/counseling to the patient and/or family to address a behavioral or development concern raised at the time of the visit.

- MassHealth administrative data were used to identify the extent to which well child visits were followed by behavioral health services within six months of the visit. Among those visits with a formal tool-based screening, the vast majority (88.2%) had no post-visit behavioral health services identified. A similar rate (79.9%) applies for post-visit behavioral health services identified for those screened informally. And when visits had neither formal nor informal screening noted in the chart, 82.3% had no post-visit behavioral health services.

- Among children who screened positive, 40% of those screened with a formal tool and 65.9% screened without the use of a formal tool received post-visit behavioral health services. However, it is important to note that because administrative data were used for the identification of behavioral health services, we do not know whether or not these services were a direct result of the positive behavioral health screenings.

- Current sample sizes of those screened precluded any meaningful detailed analyses of sociodemographic and clinical characteristics of the population.

Conclusions/Next Steps

The use of formal developmental and behavioral health screening tools was low as was the referral rate. However, informal 'screening' (i.e., surveillance) was frequently conducted and identified at risk children with positive results at almost twice the rate of screening with formal tools.

In order to use this baseline data effectively, repeating this assessment of behavioral health screenings, referrals and treatment received in the future would help to demonstrate whether some of the outcomes of the implementation of the 2008 MassHealth regulation that requires all primary care providers to offer to use a standardized behavioral health screen at all well-child visits where a behavioral health screen is required are achieved and would be valuable to MassHealth in securing documentation of behavior health screenings and outcomes.

Future studies in this area could also include more detailed analyses using MassHealth administrative data to better understand diagnoses and services provided before, during and after screenings.

Section 1: Background and Significance

The Center for Health Policy and Research (CHPR) has conducted several Clinical Topic Reviews (CTR) for MassHealth in previous years. The purpose of these assessments is to identify and evaluate specific clinical issues in the areas of access and quality of care that are relevant to MassHealth managed care members, the State contracted MassHealth managed care plans, and the PCC Plan, with an emphasis on providing information to inform quality improvement initiatives.

In 2007, MassHealth identified the topic to be assessed as behavioral health screening for children and adolescents during well visits. A formal order issued pursuant to a 2001 Massachusetts class action law suit, *Rosie D. et al v. Patrick et al,* required MassHealth to regulate that all MassHealth providers, including those contracted with MassHealth Managed Care Organizations, offer to use a standardized behavioral health screening tool when screening MassHealth enrolled children for behavioral health issues. Effective December 31, 2007, MassHealth primary care providers are required to offer to conduct the behavioral health screening component of every well child visit by using a standardized behavioral health screening tool selected from the MassHealth menu of approved screening tools. Since behavioral health screening has been a longstanding component of the comprehensive well child visit prior to the requirement to use a standardized screening tool, MassHealth was interested in understanding how behavioral health screening was occurring during well visits prior to December 2007.

The early detection of behavioral and mental health problems in children has become a priority for Massachusetts. MassHealth is tracking, through administrative data, visits delivered, screens conducted and screens indicating a need for follow-up care. All MassHealth providers have access to information on the various acceptable tools, guidelines for screening, implementation steps and strategies, appropriate coding to be used on claim forms, and availability of resources at the state level.

While there are numerous screening tools that have been used over the years by pediatricians and family physicians to assess a child's and young adult's behavioral health, MassHealth approved an initial menu of tools for use with children under the age of 21. Information from these screenings assists the primary care provider (PCP)[2] in determining behavioral health needs, including referrals for treatment and/or the development of a treatment plan. In consultation with experts, the compiled menu of screening tools accommodate a range of ages while permitting some flexibility for provider preference and clinical judgment. The approved tools, their targeted age group for screening, and their administration, are as follows:

[2] Primary care providers include: physicians (Pediatricians, GPs, Family Practitioners, Internists, OB/GYNs), independent nurse practitioners, and independent nurse midwives.

- ASQ:SE – Ages and Stages Questionnaire: Social-Emotional; children 4 to 60 months; parent self-administered instrument
- BITSEA – Brief Infant – Toddler Social and Emotional Assessment; children 12 to 36 months; parent self-administered instrument
- M-CHAT – Modified Checklist for Autism in Toddlers; children 16 to 30 months; parent self-administered instrument
- PEDS – Parents' Evaluation of Developmental Status; children birth to 8 years; parent self-administered instrument
- CBCL (Achenbach System) – Child Behavior Checklist; children 18 months to 18 years; parent self-administered instrument; also includes versions for older individuals:
    - YSR – Youth Self Report; children 11 to 18 years; youth self-administered instrument
    - ASR – Adult Self Report; adults 18 to 58 years; adult self-administered instrument
- PSC – Pediatric Symptom Checklist; children 4 through 16 years; parent self-administered instrument; also includes a version for older children:
    - PSC-Y – Pediatric Symptom Checklist – Youth Report; children 11 years and older; youth self-administered instrument
- CRAFFT – an acronym for Car, Relax, Alone, Forget, Friends, Trouble – a tool that screens for substance abuse; adolescents 14 years and older; youth self-administered instrument
- PHQ-9 – Patient Health Questionnaire-9; screens for depression; adults 18 years and older; young adult self-administered instrument

The 2008 Clinical Topic Review used medical record data to assess the percentage of well visits for children and adolescents that include screenings for behavioral health (BH) conditions. This assessment also collected information on the use of formal screening tools and the percent of children who screen positive for behavioral health conditions, those who were referred for behavioral health follow-up and the rates of behavioral health services for these children. The medical record data collection was supplemented with MassHealth administrative data assessing BH services in the six-month period following the well child visit.

The research questions identified for this project were:

a. What percentage of well visits includes a behavioral health screening?
b. To what extent are providers using a standardized BH screening tool versus a non-standardized tool?
c. What types of standardized BH screening tools are being employed?
d. What percentage of members who received a BH screening screened positive for a BH condition?
e. Among those members who screened positive for a behavioral health condition:
    i. What percentage was referred within six months following a positive screen, according to the documentation (including visit notes) in the provider's records?

1. To what type of provider were those with referral referred?

ii. Using administrative data, what type of BH service was provided within the six months following a positive screen?

Section 2: Highlights from the Literature

In the United States, it is estimated that between 12% and 27% of all children have a developmental or behavioral health disorder (American Academy of Pediatrics Committee on Children with Disabilities, 2001; Borowsky, Mozayeny, & Ireland, 2003; Weitzman & Leventhal, 2006). Because evidence suggests that early intervention with these children results in better outcomes (Shonkoff & Phillips, 2000), it is important to screen children for developmental and behavioral health disorders as early as possible. Pediatric health providers are uniquely positioned to administer these screenings by including them as part of routine well child visits (Hart, Kelleher, Drotar, & Scholle, 2007; New Freedom Commission on Mental Health, 2003; U.S. Department of Health and Human Services, 1999). In addition, because up to 50% of all pediatric office visits address a behavioral, psychosocial, and/or educational concern, the pediatric practice is an optimal environment to detect and address these concerns and disorders (Weitzman & Leventhal, 2006). Screening and early identification of behavioral and developmental problems is not, however, universal.

Although pediatricians are seemingly aware of the need to screen children for behavioral and developmental disorders, several studies note that these screenings are not usually routine and providers seldom use standardized screening instruments (Cooper, Valleley, Polaha, Beganey, & Evans, 2006; Ford, Steinberg, Pidano, Honigfeld, & Meyers, 2006; Reijneveld, Brugman, Verhulst, & Verloove-Vanhorick, 2004; Sand et al., 2005; Sices, Feudtner, McLaughlin, Drotar, & Williams, 2004; Williams, Burwell, Foy, & Meschan Foy, 2006; Williams, Klinepeter, Palmes, Pulley, & Meschan Foy, 2004). For example, a 2003 national survey of family physicians and pediatricians found that only half used a formal behavioral screening tool (Sices et al., 2004). Another study (Williams et al., 2006) found that, among a random sample of 719 well child visits performed by pediatric residents, only 3% of the cases documented formal behavioral screening even though a psychosocial issue was discussed in 38% of these visits. The American Academy of Pediatrics Periodic Survey of Fellows (Sand et al., 2005) reported that 71% of surveyed physicians indicated that they ‘almost always’ relied solely on a clinical assessment for identifying children with a behavioral or developmental issue; only 23% reported using a standardized screening tool ‘always’ or ‘sometimes’. These studies all address the problem of screening in the context of well child care; less attention appears to be paid to these issues when children present with concurrent physical symptoms (Brown, Wissow, & Riley, 2007).

Pediatric health providers cite lack of time during office visits and inadequate insurance reimbursement as the most common reasons why they do not perform standardized screenings for behavioral and developmental problems (Hacker et al., 2006; Pinto-Martin, Dunkle, Earls, Fliedner, & Landes, 2005).

Appendix A provides a more extensive summary of the literature review conducted for this project.

Section 3: Methods

Study sample and data collection efforts

This CTR project used medical record data (similar to other CTR and HEDIS projects managed by CHPR) to assess the percentage of well visits for children and adolescents that included screenings for behavioral health conditions. The assessment also collected information on the percent of visits for which the child screened positive for these conditions, the percent of those visits where a positive screen subsequently resulted in a referral for behavioral health services (as documented in the medical record), and the percent of those visits with a screen (positive or negative) where the child subsequently received treatment within six months of the screen. Medical records were supplemented with MassHealth administrative data to provide additional information on the behavioral health services received by children after the well child visit.

Because American Academy of Pediatrics (AAP) guidelines suggest anticipatory guidance topics for different age groups of children, including for developmental and behavioral issues, our sample was selected from the pool of all MassHealth children (birth to age 21) who had at least one claim for a well child visit during the study time frame (and all well visits for those children were abstracted). The sample of visits was defined as follows:

1. The population of children who met the following criteria was identified:
    - were less than 21 years old as of June 30, 2007; and
    - had a claim on or between July 1, 2006 through June 30, 2007 time period with procedure code or diagnosis matching the HEDIS 2007 codes for Well-Child Visits and Adolescent Well-Care Visits measures; and
    - were enrolled in MassHealth managed care (MCO or PCC Plan) at the time of the visit.
2. These children were randomly sampled within the following age strata:
    - age 0-2 (500 members)
    - age 3-5 (500 members)
    - age 6-11 (500 members)
    - age 12-20 (500 members)
    - NOTE: The original sample sizes calculated as needed per group (n=411; as per other CTR and HEDIS projects managed by CHPR) were increased by approximately 20% to cover the possibility/likelihood of charts not being found at the time of abstraction (based on previous CHPR projects). This sampling strategy refers to members being sampled, not visits. The 2000 children whose IDs were identified represented 2966 visits.
    - NOTE: Below is the distribution of the sample pool by age strata from which the random samples of 500 were selected:

Age Strata	Number of Members	Percent
0 - 2 yrs	60148	26.5%
3 - 5 yrs	39689	17.5%
6 - 11 yrs	58689	25.9%
12 - 20 yrs	68277	30.1%

3. Claims (i.e., visits) were identified meeting the following:[3]
    - the claim was for a child sampled as described above; and
    - the service occurred between July 1, 2006 to June 30, 2007; and
    - the claim included the HEDIS 2007 codes (CPT or ICD-9) to identify well-child visits and adolescent well-care visits.

The sample size of 500 members per age strata was also chosen to provide a 95 percent confidence interval of 10 percentage points under an assumption of random sampling.

Chart abstraction tool development:

The chart abstraction tool (See Appendix B) was developed using instruments from previous Clinical Topic Review projects as models. Specific adaptations to those instruments were made consistent with the collection of data on behavioral health screening and provider follow-up activities following those screens. In addition to demographic data being collected (gender, date of birth, race, ethnicity, primary language spoken at home, and use of an interpreter during the well child visits), the following information was abstracted from all well child visits in the charts of those children in the study population:

- Use of behavioral health or developmental screening tools as identified by MassHealth;
- Use of additional behavioral health or developmental screening tools beyond the list provided by MassHealth;
- Any additional behavioral health or developmental screening documented in the chart that did not include an actual screening tool;
- Results of screenings by any of the methods described above;
- Documentation of follow-up activities conducted by the provider (e.g., advice or counseling provided to the patient during the visit, referral to a mental health provider or facility, parent or patient refusal or deferral of behavioral health/developmental screening services); and

[3] Only 1 visit is counted per day

- Facility or provider to whom a referral was made if the patient screened positive.

The tool was developed in consultation with several currently-practicing physicians including a pediatrician, a family physician, and a developmental pediatric specialist.

Pilot testing of the chart abstraction tool

Using 50 charts from one practice in central Massachusetts, a nurse abstractor with over ten years of experience working in outpatient pediatric practices and conducting chart reviews was recruited to perform a focused review of these medical records using the drafted abstraction tool. Charts were selected so as to represent all four age groups of interest as well as the range of children and adolescents with and without known behavioral health issues. The data variables were abstracted from the medical record onto hardcopy paper forms for subsequent review by the project team as well as for use by the pediatric practice, allowing them to perform a small, internal quality improvement project on their own clinical behavioral health screening practices.

Details from these 50 chart reviews were used to make minor modifications to the abstraction form as well as to identify *where* in the 'typical' pediatric medical record information to be abstracted was most easily located. This information was provided to the chart review vendor in an effort to make the abstractions as efficient as possible.

Chart abstractions

The Center for Health Policy and Research subcontracted with MedAssurant, Inc. to collect clinical information on the MassHealth-enrolled members via a medical record (i.e., chart) review. Once the sample of children was identified and forwarded to the vendor, MedAssurant's staff contacted the provider offices to schedule on-site appointments or, if the entity had four or fewer records, to arrange for the medical record documentation to be mailed or faxed to MedAssurant. Chart abstractors reviewed the medical records and documented results in the abstraction tool. All relevant supporting documents were scanned for subsequent use and available for CHPR review via a secure online data portal. In addition, the reviewers documented all instances where a provider could not furnish the requested medical record and noted the reasons for missing records using a list of standardized categories. All medical record data were reported back to CHPR and MassHealth.

As part of maintaining quality control and rigor over the chart abstraction process, the vendor performed quality over-read reviews of 25% of the record reviews completed during the first two weeks following the review start date. Quality over-read reviews were subsequently completed for at least 10% of the total record reviews completed over the course of the project. If there was disagreement between the over-read review and the original review, the over-read review data was saved to the final data file. These over-read review processes were maintained for each of the chart reviewers. An inter-rater reliability score of 95% or higher was attained between abstractors prior to performing

the actual chart reviews. Mid-cycle inter-rater reliability testing among chart review staff was also conducted to insure on-going consistency of data collection. Meetings between MedAssurant, MassHealth and CHPR were conducted throughout the project as a final step in evaluating the data collection process and its quality.

A computerized medical record data collection instrument that mirrored the chart abstraction tool was developed by MedAssurant. All charts were abstracted using a secured laptop and data were captured in accordance with the project template and technical specifications (i.e., whenever possible, the tool contained data checks to prevent abstractors from entering conflicting or impossible data; for example, dates of birth outside of a specified range). MedAssurant was responsible for conducting all testing of the computerized data collection system to ensure it was operational and accurate.

Data analysis

Use of SAS v9.1.3, univariate and bivariate analyses were conducted. Frequency, percentile distributions, and measures of central tendency (i.e., means and medians) were computed based on the categorical or continuous nature of the data elements. For many of these analyses, distributions stratified by age group were calculated. Chi-square tests assessing the relationship between screening practices, tools utilized, and screening outcomes were also computed.

Section 4: Results

The Center for Health Policy and Research (CHPR) supplied to the medical record abstraction vendor (MedAssurant) the original sample of randomly selected children in each of the four age groups of interest: 0-2 years, 3-5 years, 6-11 years, and 12-20 years. The original sample was pulled to provide an equal number of children stratified by these age groups. As Table 1 demonstrates, the sample of 2000 children reflected 2180 charts and a total of 2966 well child visits. While the number of children in the original sample was equally distributed by age group, there were more charts in the 0-2 age group than in the other strata reflecting infants and very young children having multiple records with either multiple providers or multiple practices of the same provider. This pattern was also true for the number of visits to be abstracted. Given the recommended periodicity of visits in those children two years and younger, it was not surprising that over 40% of the total visits reflected those in the youngest age group while the other strata reflect children for whom the anticipated frequency of well care visits is recommended to be annual.

Records Reviewed

Table 1. Frequency and percent distributions of original sample pulled for chart abstraction by age group.

Age	*Number of children (N=2000)*	*Number of charts (N=2180)*	*Number of well child visits (N=2966)*
0-2 yrs	500 (25%)	633 (29.1%)	1276 (43.0%)
3-5 yrs	500 (25%)	513 (23.5%)	570 (19.2%)
6-11 yrs	500 (25%)	506 (23.2%)	543 (18.3%)
12-20 yrs	500 (25%)	528 (24.2%)	577 (19.5%)

As Table 2 indicates, the total number of children, charts and visits abstracted by the vendor, despite repeated attempts to obtain charts and records for abstraction (either in paper form, electronic form, or via faxed materials), was lower than the original sample supplied. As expected with any chart review, the vendor was unable to collect information on all of the charts included in the sample provided by UMass (Table 1), the primary reason being an inability to identify provider location of where the chart resided due to missing or inaccurate data. The 1336 children for whom charts were abstracted represented 66.8% of the original sample. The number of charts abstracted (n=1355) reflected 62.2% of the original sample. Finally, the 1717 visits abstracted represented 57.9% of the original sample supplied. As can be seen in Table 2, the proportions retrieved in each of these categories did not appear to be significantly different from the original sample when compared across the four age strata.

Table 2. Frequency and percent distribution of study sample based on successful visit abstractions by age group.*

Age	*Number of children (N=1336)*	*Number of charts (N=1355)*	*Number of well child visits (N=1717)*
0-2 yrs	348 (26.0%)	357 (26.4%)	698 (40.6%)
3-5 yrs	347 (26.0%)	350 (25.8%)	365 (21.3%)
6-11 yrs	338 (25.3%)	340 (25.1%)	341 (19.9%)
12-20 yrs	303 (22.7%)	308 (22.7%)	313 (18.2%)

*Note: If MedAssurant was able to locate the chart but not any of the visit dates supplied in the original sample, those charts were excluded in the above statistics.

The abstraction of well child visits was done through one of four means: onsite, using paper records; electronic records; partial paper and partial electronic records; or via remote access to the visit information (e.g., through faxed copies used for subsequent review). Table 3 reflects the distribution of charts reviewed based on their format. Nearly three-quarters of the charts (72.7%) were reviewed using paper copies (either the direct paper record or a facsimile done remotely). One in five charts (19.5%) was abstracted through a practice-based electronic medical record (EMR) and less than 10% of charts were reviewed available to the abstractor as a combination paper/EMR record. There were no significant differences noted in how records were accessed among the four age strata.

Table 3. Frequency and percent distribution of patient chart access by age group (for the total number of charts reviewed).

	Age				
Type of access	*0-2 yrs (N=357)*	*3-5 yrs (N=350)*	*6-11 yrs (N=340)*	*12-20 yrs (N=308)*	*Total (N=1355)*
Paper	108 (30.3%)	140 (40.0%)	112 (32.9%)	105 (34.1%)	465 (34.3%)
EMR	75 (21.0%)	66 (18.9%)	62 (18.2%)	62 (20.1%)	265 (19.5%)
Partial EMR	28 (7.8%)	25 (7.1%)	26 (7.7%)	26 (8.4%)	105 (7.8%)
Remote review (fax)	146 (40.9%)	119 (34.0%)	140 (41.2%)	115 (37.4%)	520 (38.4%)

Patient Demographics

As noted previously in Table 2, the children for whom charts were abstracted were divided nearly equally among four age groups: 0-2 years (26.0%), 3-5 years (26.0%), 6-11 years (25.3%), and 12-20 years (22.7%). Age group sizes ranged from 303 (12-20 yrs) to 348 (0-2 yrs).

Based on the number of children for whom well child visits were abstracted, Table 4 indicates the gender breakdown of our study population for the total group as well as by age strata. The population of children was nearly equally divided by male (49.6%) and female (50.4%) children overall and within each age group.

Table 4. Frequency and percent distribution of patient gender* by age group.

	Age				
Gender	*0-2 yrs (N=348)*	*3-5 yrs (N=347)*	*6-11 yrs (N=338)*	*12-20 yrs (N=303)*	*Total (N=1336)*
Female	171 (49.1%)	173 (49.9%)	162 (47.9%)	167 (55.1%)	673 (50.4%)
Male	177 (50.9%)	174 (50.1%)	176 (52.1%)	136 (44.9%)	663 (49.6%)

*Note: Data on gender was abstracted from MassHealth data and not the chart abstraction process.

Patient race and ethnicity, as abstracted from medical record documentation was, not surprisingly, absent from notation within many of the charts. For 84% of children (as a total group as well as within each age strata), the race of the child was not documented. Since the majority of charts were absent this data, we used MassHealth administrative data to identify the distribution of race/ethnicity. With only one-third of the administrative data being absent race/ethnicity, children whose charts were abstracted were noted to be predominantly White/Caucasian (29.6%), Hispanic (21.9%), or Black/African American (10.4%).

Table 5. Frequency and percent distribution* of patient race, by age group.

	Age				
Race	*0-2 yrs (N=348)*	*3-5 yrs (N=347)*	*6-11 yrs (N=338)*	*12-20 yrs (N=303)*	*Total (N=1336)*
American Indian/ Alaskan American	0 (0%)	0 (0%)	1 (0.3%)	0 (0%)	1 (0%)
Asian or Pacific Islander	14 (4.0%)	16 (4.6%)	12 (3.6%)	26 (8.6%)	68 (5.1%)
Black	34 (9.8%)	39 (11.2%)	36 (10.7%)	30 (9.9%)	139 (10.4%)
Hispanic	85 (24.4%)	77 (22.2%)	62 (18.3%)	68 (22.4%)	292 (21.9%)
Caucasian	85 (24.4%)	109 (31.4%)	109 (32.2%)	92 (30.4%)	395 (29.6%)
Not documented	129 (37.1%)	101 (29.1%)	116 (34.3%)	86 (28.4%)	432 (32.3%)
Other	1 (0.3%)	5 (1.4%)	2 (0.6%)	1 (0.3%)	9 (0.7%)

*Note: Data on race/ethnicity are reported based on MassHealth administrative data as the chart abstraction process indicated that in 84% of the cases, the child's race/ethnicity was not documented.

As with patient race and ethnicity, primary language spoken in the home was also not documented in the medical record for nearly 80% of the visits abstracted (78.7%). Thus, we again used MassHealth administrative data to identify the distribution of primary

language. As Table 6 shows, among the more than a dozen languages captured in the MassHealth data, primary language was English for 4 of 5 children whose well visits were abstracted (82.0%) followed by Spanish for nearly 1 in 10 children (9.4%). All other languages were significantly less prevalent.

Table 6. Frequency and percent distribution of primary language spoken in patient's home by age group*.

	Age				
Primary language	*0-2 yrs (N=347)*	*3-5 yrs (N=347)*	*6-11 yrs (N=338)*	*12-20 yrs (N=303)*	*Total (N=1335)***
American Sign Language	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Amharic	0 (0.0%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Arabic	2 (0.6%)	2 (0.6%)	2 (0.6%)	0 (0.0%)	6 (0.5%)
Cambodian	2 (0.6%)	1 (0.3%)	1 (0.3%)	3 (1.0%)	7 (0.5%)
Chinese	7 (2.0%)	7 (2.0%)	8 (2.4%)	8 (2.6%)	30 (2.2%)
English	293 (84.4%)	295 (85.0%)	275 (81.4%)	232 (76.6%)	1095 (82.0%)
French	0 (0.0%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Greek	0 (0.0%)	0 (0.0%)	1 (0.3%)	0 (0.0%)	1 (0.1%)
Haitian Creole	1 (0.3%)	0 (0.0%)	1 (0.3%)	1 (0.3%)	3 (0.2%)
Portuguese	3 (0.9%)	3 (0.9%)	3 (0.9%)	3 (1.0%)	12 (0.9%)
Russian	3 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.2%)
Somali	0 (0.0%)	0 (0.0%)	1 (0.3%)	0 (0.0%)	1 (0.1%)
Spanish	30 (8.6%)	29 (8.4%)	33 (9.7%)	33 (10.9%)	125 (9.4%)
Vietnamese	1 (0.3%)	2 (0.6%)	2 (0.6%)	6 (2.0%)	11 (0.8%)
Other	5 (1.4%)	6 (1.7%)	11 (3.2%)	17 (5.6%)	39 (2.9%)

*Note: Data on primary language are reported based on MassHealth administrative data as the chart abstraction process indicated that in nearly 80% of the cases, the child's language was not documented.
** Data was missing for one child.

The chart abstraction process asked reviewers to note whether there was documentation in the chart that an interpreter was used for any office visit on or between our study time frame (i.e., 7/1/06 – 6/30/07). The abstraction process also asked reviewers to note specific accounts for: American Sign Language, Cambodian, Chinese, Haitian/Creole, Laotian, Portuguese, Russian, Spanish, Vietnamese, or Other. As Table 7 indicates, for no more than 5% of the visits was there a notation that an interpreter was used as part of any clinical visit with the patient, either in total or by age group. The specific languages for which an interpreter was used are highlighted in Table 8. For two-thirds (64.6%) of those overall visits, Spanish interpretation was the most frequent of the languages needed to conduct the visit. For most others, while an interpreter was noted to have been used during the indicated visit, the specific language was not documented.

Table 7. Frequency and percent distribution of documentation of interpreter used for office visits during study time frame, by age group, as noted in the medical record.

	Age				
Use of interpreter	*0-2 yrs (N=357)*	*3-5 yrs (N=350)*	*6-11 yrs (N=340)*	*12-20 yrs (N=308)*	*Total (N=1355)*
Used	17 (4.8%)	13 (3.7%)	11 (3.3%)	6 (2.0%)	47 (3.5%)
Not documented	339 (95.0%)	337 (96.3%)	329 (96.8%)	302 (98.0%)	1307 (96.4%)
Missing*	1 (0.2%)	0 (0 %)	0 (0%)	0 (0%)	1 (0.1%)

* No data provided by the abstractor.

Table 8. Frequency* and percent distribution of language interpreter used for office visits during study time frame, by age group, as noted in the medical record.

	Age				
Language used	*0-2 yrs (N=17)*	*3-5 yrs (N=13)*	*6-11 yrs (N=11)*	*12-20 yrs (N=7)*	*Total (N=48)*
Language not documented	3 (17.6%)	1 (7.7%)	3 (27.3%)	3 (42.9%)	10 (20.7%)
ASL	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cambodian	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Chinese	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Haitian/Creole	1 (5.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.1%)
Laotian	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Portuguese	2 (11.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (4.2%)
Russian	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Spanish	10 (58.8%)	10 (76.9%)	8 (72.7%)	3 (42.9%)	31 (64.6%)
Vietnamese	0 (0.0%)	1 (7.7%)	0 (0.0%)	0 (0.0%)	1 (2.1%)
Other**	1 (5.9%)	1 (7.7%)	0 (0.0%)	1 (14.2%)	3 (6.3%)

*The number of visits where interpreters were used is slightly higher than noted overall in Table 7 likely indicating that more than one interpreter may have been used for a given visit (in the 12-20 age group).
**The only 'Other' specific language noted in the charts was Greek; others were unspecified.

Behavioral Health Screening

Per the study's project statement, MassHealth was specifically interested in knowing the percentage of well visits that included a behavioral health screening. For each of the visit dates abstracted (with a data tolerance of +/- 2 days), MassHealth was particularly interested in knowing to what extent providers are using a standardized behavioral

health screening tool versus a non-standard tool. Of the tools being used, the abstraction process identified the specific types of behavioral health screening tools employed. Per the project statement, the reviewers also captured the percentage of members who received a behavioral health screening who screened positive for a behavioral health condition. Tables 9-14 provide details for answering each of these questions as outlined in the project statement.[4]

When assessed across all visits, Table 9 notes that one or more formal tools were used to screen children in 4.0% (n=68) of the 1717 visits abstracted. Of those children screened, Table 9 also indicates that in two-thirds (67.6%) of these visits the chart had no documentation of the screening results. Where there was more than one tool noted for a specific visit, the result of the screening was captured as 'positive' if at least one of the tools indicated a positive finding with the screening. We noted that there were some instances where more than one tool was used for a specific visit (see Table 10; 70 formal tools were noted to have been used in these 68 visits). The results of screening with a formal tool, as noted below, indicate a positive finding in slightly less than 10% of the visits (7.4%).

Table 9. Frequency and percent distribution summarizing all screening formal tool documentation, and the results of those screenings, as noted in the medical record.

Screening tool use and results	*Visits*
Use of formal screening tools at well child visits (N=1717)	
No documentation of use of formal tools	1649 (96.0%)
One or more formal tools were used	68 (4.0%)
Results of screening (N=68)	
Positive	5 (7.4%)
Negative	17 (25.0%)
Not documented	46 (67.6%)

[4] For the vast majority of these tables, as well as other subsequent ones that provide percent distributions of key data relevant to specific project statement questions, **Appendix C** provides additional information on the 95% confidence intervals surrounding each of these percentages. As described in the Appendix, 95% confidence intervals provide a degree of precision around the actual point estimate (in this case, the percentage). The upper and lower bounds of the confidence interval are noted as the confidence limits within which one would expect, with 95% confidence, to find the 'true' percentage of these estimates if one were to study the whole population and not a sample thereof.

Among those records for which there was documentation of a formal screening tool, Table 10 displays the distributions (frequency and percent) for the specific tools queried plus the results of those screenings. The specific tools described in the Background and Methods sections and a number of 'other' tools were noted in the abstraction of select visits.

As the table shows, the Denver Developmental Screening tool was the most frequently used single tool noted in the charts (34.2%). However, in most instances (87.5%), the results of the Denver screens were not discussed in the progress notes of the child's medical record although the findings were recorded on the Denver screening tool graphic corresponding to the child's chronological age with notes in the margins of the instrument. In one-third (37.1%) of the instances where other tools were identified/ noted, these are described in more detail in Table 11. Again, for most of those instances, results were indicated for only 11.5% of the screens.

Table 10. Frequency and percent distribution of specific screening tools used during well child visits, and results of those screenings, as noted in the medical record.

Tool	*Number of times used (N=70)**	*Screening results***		
		Positive	*Negative*	*Not documented*
ASQ:SE[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
BITSEA[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Child Behavior Checklist (1½ to 5)[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Child Behavior Checklist (6 to 18)[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
CRAFFT[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Denver Developmental Screening	24 (34.2%)	2 (8.3%)	1 (4.2%)	21 (87.5%)
HEADSS	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
M-CHAT[+]	1 (1.4%)	0 (0.0%)	0 (0.0%)	1 (100.0%)
PEDS[+]	10 (14.3%)	0 (0.0%)	9 (90.0%)	1 (10.0%)
PHQ-9[+]	2 (2.9%)	1 (50.0%)	1 (50.0%)	0 (0.0%)
Pediatric Screening Checklist[+]	4 (5.8%)	1 (25.0%)	3 (75.0%)	0 (0.0%)
Pediatric Screening Checklist (Youth)[+]	3 (4.3%)	0 (0.0%)	3 (100.0%)	0 (0.0%)
Youth Self-Report (11-18)[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Adult Self Report (18-59)[+]	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other formal tool	26 (37.1%)	1 (3.8%)	2 (7.7%)	23 (88.5%)

*While the number of visits for which a tool was documented to have been used is noted in Table 9 as being 68 (4.0%), there were 70 instances where a specific tool was noted in the chart.
**The screening results percentages are based on the number of times each specific tool was used.

[+]On the initial menu of MassHealth approved tools (Note: several of these tools, e.g., the Pediatric Symptom Checklist, have several versions used with children in different age categories).

Table 11. Frequency and percent distribution of 'other' formal tools used to conduct behavioral or developmental screening during well child visits, as noted in the medical record.

Tool	*Visits with screening (N=26)*
Office tool, NOS	8 (30.8%)
Parent survey/questionnaire, NOS*	5 (19.3%)
Teen survey/questionnaire, NOS*	5 (19.3%)
RBMG Adolescent Risk Screen	4 (15.4%)
GAPS patient survey/questionnaire, NOS*	1 (3.8%)
Depression questionnaire	1 (3.8%)
EPS/Early Periodic Screening	1 (3.8%)
Parent-completed Denver Developmental Screening Tool	1 (3.8%)

[*]NOS=Not otherwise specified

If there was no documentation of the use of a specific screening tool found in the medical record for the visit dates supplied to the vendor, nurses abstracted any additional information which indicated a behavioral health or developmental screening had occurred during the visit. This would have included reviewing all visit notes and flow sheets for that date to determine some level of 'evidence' of screening.

As Table 12 notes, four out of five visits (81.8%) also had some type of (non-tool) 'documentation' that a relevant screening occurred during the visit. Among most of the records abstracted, there was not a specific indication of 'positive' versus 'negative' vs 'at risk' result (i.e., results 'not documented' occurred in 80.9% of the visits abstracted). For the vast majority of the notes abstracted from the charts, specific 'outcomes' of screening were indicated by a diagnosis being noted (e.g., ADHD, learning disability, speech/language deficit, ASD/autism, behavioral issues, developmental delays, family issues, etc.) rather than the chart indicating a 'positive' or 'negative' result of the screen. A central Massachusetts pediatrician consulting with CHPR on this project worked with the project team to denote the results of these screenings to be 'positive' versus 'negative' if it was not already noted by the abstractor that no results were specified in the visit notes.

Table 12. Frequency and percent distribution of additional screening practices used during well child visits, and results of those screenings, as noted in the medical record.

Additional screening practices and results	*Visits*
Use of additional screening practices at well child visits (N=1717)	
No documentation of additional screening practices	312 (18.2%)
Screening indicated on well-visit form, flow sheet or visit notes*	1405 (81.8%)
Results of screening (N=1405):	
Positive	192 (13.7%)
Negative	76 (5.4%)
Not documented	1137 (80.9%)

*Includes visits in which screening with formal tools may have also occurred.

Among those visits where there was some indication of additional screening practices, abstractors were instructed to specify what the results of those screenings were if not specifically charted as 'positive', 'negative', 'at risk' or 'no/low risk'. A total of 242 visits, however, had some indication of an 'other' screening result. Of those 242 visits, there were a total of 304 coded responses (i.e., 'diagnostic' results of the screening). Among all of these visits abstracted, 54 had two diagnoses noted and 8 patients had three diagnoses noted. Table 13 displays these 'other results' of behavioral health/ developmental screening which the project team, as noted above, subsequently recoded into 'positive' or 'negative' wherever possible (see Table 12 above). These 'other' results provide a descriptive sampling of what clinicians noted in the medical record as 'findings' based on these more informal screens.

Table 13. Frequency distribution of any additional screening results, as noted in the medical record.

Problems identified through additional screening practices	*Total (among 242 visits)*
No problems identified / Normal	55
Speech/Language delays/disorders	47
ADD/ADHD	31
Behavior problem, NOS*	28
Developmental delay, NOS*	17
Depression	10
Learning disability	10
Family/Social issues	7
Genetic disorder (e.g., Downs Syndrome, Trisomy 21)	7
Autism/PDD	6

Problems identified through additional screening practices	*Total (among 242 visits)*
Cerebral palsy	6
Preemie, NOS*	6
Anxiety	5
Psychiatric disorder, NOS*	5
School issues	5
Sleeping problems	5
Adjustment disorder	4
Mental retardation	4
Neurologic problem SP (status post) drug withdrawal	4
ADD/ADHD questioned	3
Conduct disorder	3
Developmental delay specified (e.g., gross motor delays)	3
Birth trauma	2
Eating disorder	2
Endocrine disorder	2
Enuresis	2
Hearing impairment	2
History of ADD/ADHD	2
Mental health, NOS*	2
Neurologic problem, NOS*	2
Obsessive compulsive disorder (OCD)	2
Oppositional defiance disorder (ODD)	2
Seizure disorder	2
Brain injury, NOS*	1
Hearing impairment questioned	1
History of behavior problem	1
History of psychiatric disorder	1
Learning disability questioned	1
Mood disorder	1
Neurologic problem questioned	1
Post traumatic stress disorder (PTSD)	1
Seizure disorder questioned	1
Substance abuse	1
Tourettes Syndrome	1

*NOS=Not otherwise specified

As noted above, there were a number of ways in which *any* behavioral screening might have been indicated in a chart; i.e., through the use of a formal tool, noted on a visit flow sheet or visit note, or in some other chart documentation for a specific visit date. In some instances, there was more than one screening at a single well-child visit. Table 14 indicates that in 82.9% of all visits there was some indication of behavioral screening. For the vast majority of these visits (80.2%), no documentation was noted in the chart as to the result of those screens. By examining diagnoses, in a little over 10% of these visits (13.7%), a positive result was noted.

Table 14. Frequency and percent distribution of visit screening status and visit screening results, as noted in the medical record.

		*Screening results**		
Screening at well child visits	*Visits*	*Positive*	*Negative*	*Not documented*
Screening Status (N=1717)				
No documentation of screening	294 (17.1%)			
Documentation of screening (any type)	1423 (82.9%)	195 (13.7%)	87 (6.1%)	1141 (80.2%)
Type of screening (N=1423)				
Formal tools only	18 (1.3%)	0 (0%)	0 (0%)	18 (100%)
Other screening only	1355 (95.2%)	185 (13.7%)	70 (5.2%)	1100 (81.2%)
Both types of screening	50 (3.5%)	10 (20.0%)	17 (34.0%)	23 (46.0%)

*Percentages are based on the number of visits in the respective row. NOTE: If there was more than one type of screening, a positive result replaced a negative result (on a second screen at the same visit) and a negative result replaced one that was not documented.

As shown in Table 14, among the 1423 visits for which there was documentation of *some* type of screening, there were 68 visits where at least one formal tool was used to screen the child and 1355 visits using informal screening methods only. The distribution of screening results appears to be quite different depending on whether a formal tool was used or if the 'evidence' of screening was from some other documentation of non-formal screening within the chart. Most screenings (95.2%) were abstracted from 'other' documentation only. The coding of a positive screen was nearly doubled in those instances (13.7%) compared to those where at least one formal tool was used (7.4% - Table 9) though these results were not statistically significant nor was the comparison of formal tools only (n=18; 0.0% positive screens) vs informal non-tool screening only (n=1355; 13.7% positive screens) vs screening with both formal and informal means (n=50; 20.0% positive screens) - likely the result of small numbers in several of these categories (i.e., formal screenings).

Lastly, MassHealth was interested in knowing among those members who screened positive for a behavioral health condition, what percentage were referred following a positive screen, according to the documentation (including visit notes) in the primary

care provider's records. CHPR, based on discussions with MassHealth, additionally searched administrative data to determine the frequency and percent distributions of post-visit services for behavioral health including those in the ambulatory setting, emergency room, and inpatient service. Tables 15-18 provide detail abstracted information from both the medical record and administrative data for behavioral health services.

Subsequent to the initial review of any documentation on the occurrence of behavioral health screening practices, the chart abstractors noted whether any action was taken on the part of the provider to advise the patient/family or make a referral to another provider/facility. Table 15 indicates that in only a few instances were there any specific notes in the chart about actions taken to address behavioral or developmental concerns.

Table 15. Frequency and percent distribution of actions taken at well child visits to address behavioral or developmental concerns, as noted in the medical record.

Action to address behavioral/developmental concern	*Number of visits (N=1717)*
Advice/counseling by PCP	7 (0.4%)
Referral by PCP to a mental health provider or facility	5 (0.3%)
Parent or patient refusal or deferral of behavioral health screening services	1 (0.1%)
Other*	3 (0.2%)
No action documented	1701 (99.0%)

*The only 'Other' specified notation suggested a 6-month follow-up visit; others were unspecified.

Abstractors also recorded whether chart notes indicated whether or not a referral was made to a behavioral/developmental specialist at the time of the visit. As Table 16 displays, in less than 2% of cases (1.3%) was there a notation of any referral being made at the time of the visit.

Table 16. Frequency and percent distribution of behavioral health referrals at well child visits, as noted in the medical record.

Referral status	*Number of visits (N=1717)*
No behavioral health referral	63 (3.7%)
Referral documented	22 (1.3%)
No action documented	1632 (95.0%)

Among those who were referred, information was recorded (Table 17) for both facilities and individual providers to whom referred. As the table below shows, specific notations regarding facilities were absent except in rare instances of a community health center

being noted as the referral recipient. Similarly, only a few specifically-identified mental health providers were documented as the recipient of a referral from the PCP (e.g., psychologists). Interestingly, more referrals were made to those classified as 'medical' providers than to those in the traditional behavioral health categories; however, the numbers of referrals were not significantly higher overall given the total number of well visits abstracted. These referrals to medical providers were consistent with the 'outcomes' of referrals as noted above (e.g., those with developmental delays being referred to Early Intervention, those with speech and language deficits being referred to content specialists such as Speech and Language Pathologists or Otolaryngologists).

Table 17. Frequency and percent distribution of referrals to facilities and providers at well child visits, as noted in the medical record.

Type of referral	*Number of visits (N=1717)*
Health care facility	
Community mental health center or licensed mental health agency	6 (0.4%)
'Other' health care facilities*	3 (0.2%)
MCO BH services contractor	2 (0.1%)
Emergency service provider	0 (0%)
Substance abuse counseling agency	0 (0%)
Other substance abuse treatment facility	0 (0%)
Mental health professional	
'Other' mental health professionals**	4 (0.2%)
Psychiatrist	3 (0.2%)
Psychologist	3 (0.2%)
School counselor	1 (0.1%)
Licensed independent clinical social worker	0 (0%)
Licensed certified social worker	0 (0%)
Licensed social worker	0 (0%)
MA Child Psych Access project	0 (0%)
Psychiatric nurse	0 (0%)
Social worker (type not defined)	0 (0%)
Marriage/family counselor	0 (0%)
Substance abuse counselor	0 (0%)
Medical professional	
DPH/Early intervention	9 (0.5%)
Neurologist	7 (0.4%)
Speech/language specialist	5 (0.3%)

Type of referral	*Number of visits (N=1717)*
Hearing specialist	4 (0.2%)
Medical specialist	3 (0.2%)
'Other' medical professionals***	2 (0.1%)
Vision specialist	2 (0.1%)
Physical therapist	1 (0.1%)
Surgical specialist	1 (0.1%)
Adolescent medicine	0 (0%)
Behavioral/developmental pediatrics	0 (0%)
Learning disabilities specialist	0 (0%)
Occupational therapist	0 (0%)
No action documented	1661 (96.6%)

* 'Other' health care facility notations included: in-house counseling unit, neuropsychology facility, etc.
** 'Other' mental health professionals included neuropsychologists and psychotherapists.
*** 'Other' medical professionals included public school providers and nutritionists.

In addition to the chart abstraction data collected for referrals, MassHealth administrative data were queried to identify the extent to which well child visits were followed by behavioral health services within six months of the visit. Post-visit behavioral health services were categorized into either Inpatient/Emergency Department visit or 'other behavioral health service'. Other behavioral health services included ambulatory care visits and school-based services, the search specifications for which were supplied by MassHealth (e.g., school-based IEP services, individual and family psychotherapy visits with diagnostic evaluation and drug management, family training and counseling for child development, mental health crisis intervention, counseling/risk factor reduction interventions, pharmacologic management visits, treatment visits for speech and language, etc.). We then assessed this information vis-à-vis behavioral health screenings which had been previously identified.

Table 18 indicates that, overall, among the 1717 visits for which chart abstractions were conducted, nearly 20% (19.3%) had at least one post-visit behavioral health service, of which 12.0% were inpatient or emergency in nature. Among children who screened positive, 40% of those screened with a formal tool and approximately two-thirds (65.9%) screened without the use of a formal tool received post-visit behavioral health services.

It is important to note that because we are using administrative data for the identification of behavioral health services, we do not know whether or not these services were a direct result of the positive behavioral health screenings. We do know, however, that 17.7% of the visits that did not include formal or informal screening had at least one

post-visit behavioral health service, close to the 20.1% with at least one post-visit behavioral health service subsequent to an informal screening.

Table 18 indicates that among those visits with a formal tool-based screening, the vast majority (88.2%) had no post-visit behavioral health services identified. Among that cohort with behavioral health services, most of them (87.5%) were services other than inpatient or ED visits. The table also indicates similar information for those screened without formal tools being used; i.e., most of those visits (79.9%) had no post-visit behavioral health services noted in the administrative data, but among those who had additional services, the majority (89.7%) was other than inpatient or emergency in nature. Finally, among those visits where no screenings (tool versus no tool) were noted in the charts, most of these visits also had no post-visit behavioral health services (82.3%); however, among those with services, nearly nine out of ten (88.5%) were, again, not inpatient or Emergency Department in nature and only a small percent (11.5%) were either inpatient or ED visits.

Table 18. Frequency and percent distribution of behavioral health services six months following the well child visit, by screening type.

			*Behavioral health service visit six months after well child visit**		*Type of behavioral health service visit six months after well child visit*	
Screenings	*Members*[1]	*Well child visits*[2, 3]	*No*[4]	*Yes*[4]	*Inpatient/ED*[5]	*Other*[5]
Well child visits						
Formal tools	53	68 (4.0%)	60 (88.2%)	8 (11.8%)	1 (12.5%)	7 (87.5%)
Other	1059	1355 (78.9%)	1083 (79.9%)	272 (20.1%)	33 (12.1%)	244 (89.7%)
None	267	294 (17.1%)	242 (82.3%)	52 (17.7%)	6 (11.5%)	46 (88.5%)
Total	1336	1717	1385 (80.7%)	332 (19.3%)	40 (12.0%)	297 (89.4%)
Positive screenings						
Formal tools	5	5	3 (60.0%)	2 (40.0%)	0 (0.0%)	2 (100%)
Other	170	185	63 (34.1%)	122 (65.9%)	9 (7.4%)	113 (92.6%)

[1]Members count is a unique count per row; members may be included in more than one row.
[2]Percentages based on the number of visits.
[3]For visits where both formal screening and other screening occurred, the results only reflect the formal screening.
[4]Percentages are based on the number of visits in the respective row.
[5]Percentages are based on the number of visits with at least one behavioral health service (any type) in the respective row.
*MassHealth administrative data were used to identify these behavioral health services unlike previous tables where results were documented through the chart review process.

Section 5: Discussion

Based on this chart review, it appears that, in SFY 2007, child health providers in Massachusetts regularly screened a majority of children and young adults for developmental and behavioral problems as part of well child care. However, screening with the use of formal tools was uncommon. Only 4.0% of the visits abstracted from the medical records of children between birth and 21 years of age had evidence of the use of a formal screening tool. As previously described in the literature review, although pediatricians are seemingly aware of the need to screen children for behavioral and developmental disorders, several studies note that these screenings are not usually routine and providers seldom use standardized screening instruments (Cooper, Valleley, Polaha, Beganey, & Evans, 2006; Ford, Steinberg, Pidano, Honigfeld, & Meyers, 2006; Reijneveld, Brugman, Verhulst, & Verloove-Vanhorick, 2004; Sand et al., 2005; Sices, Feudtner, McLaughlin, Drotar, & Williams, 2004; Williams, Burwell, Foy, & Meschan Foy, 2006; Williams, Klinepeter, Palmes, Pulley, & Meschan Foy, 2004). This CTR project demonstrates the feasibility of the use of chart review to monitor this important marker of the quality of well child care among Massachusetts child health providers.

Given that this project captured data on the prevalence of behavioral and developmental screening (including screening findings and subsequent referrals) prior to the MassHealth requirement of PCPs to use a standardized behavioral health screening tool, one might expect that with the implementation of universal and formal screening of a child's behavioral and developmental health, identification of needs will increase and concomitantly the number of referrals to specialty care, early intervention, and improved health outcomes. Based on the findings of this CTR project, our results are quite consistent with the literature showing numerous examples of screening using validated instruments in the context of specific practice improvement initiatives (Gall, Pagano, Desmond, Perrin, & Murphy, 2000; Garg et al., 2007; Hacker, Williams, Myagmarjav, Cabral, & Murphy, 2009; Murphy et al., 1996; Schonwald, Huntington, Chan, Risko, & Bridgemohan, 2009). Schonwald and colleagues (2009) noted success in their screening initiative following careful attention to workflow and the involvement and training of office staff. They also found that use of a formal tool appeared to save time during the visit as it provided an "organized structure for discussing parent concerns and identified concerns ahead of time, rather than at the end of the visit". Garg et al. (2007) demonstrated both feasibility and effectiveness of addressing psychosocial problems during well-child care visits among low-income children and their families and concluded that "screening and provider training may lead to greater discussion of topics and contact of community family support resources by parents". Gall and her colleagues (2000), in adopting the PSC-Y screening tool among adolescents in a school-based health clinic, reported ready youth acceptance of the screening tool and staff acknowledgments that the quality of their referrals to mental health services improved. The role of practice organization and quality improvement projects in the implementation of formal screening is of great importance as the Commonwealth moves to establish medical homes as the primary providers of care for the MassHealth population.

Among visits with more formal screening efforts identified, our results showed that the Denver Developmental Screening Test was the most commonly used tool (34.2%) followed by the PEDS (Parents' Evaluation of Developmental Status) which was used in 14.3% of the visits for which a formal tool was employed. Ten additional tools were used for screening during the project time frame. Positive screening results were noted in 7.4% of the visits where one or more formal tools were completed and found to be part of the child's medical record. Unfortunately, in over two-thirds (67.6%) of the visits where a formal tool-based screening occurred, no documentation was noted in the chart as to the results of those screenings.

Child health providers were far more likely to use informal methods of 'surveillance' rather than formal tool screenings to detect developmental and behavioral problems in well child care. These non-tool screenings (in 81.8% of visits) were identified through notations on well-visit forms, flow sheets and/or visit notes. Among those informal screenings, positive results were noted at nearly twice the rate (13.7%) of positive results found by using formal tools.

In the instances where screenings were identified without the use of a tool, the vast majority (80.9%) of the results of those screenings were not documented in the child's medical record. While the percent of children 'screened' informally was significantly higher than those screened with formal tools, and the identification of potential behavioral and developmental problems was also noted to be higher with informal screening, experts continue to caution against relying on surveillance and the use of clinical judgments alone. As noted in the extensive literature review accompanying this report (See Appendix A), a routine formal screen is likely to identify a greater number of children in need of follow-up care. In this report, however, a positive screen was often not indicative of a child's use and/or need of behavioral health services.

While the extent to which formal screenings were used was significantly lower than informal (i.e., non-tool) screenings, our results of 'positive' findings (7.4% among those where formal screening tools were used and 13.7% among those where informal screening/surveillance was conducted) compare 'within range' to those of others among the published literature over the past 15 years. For example:

- Lavigne, 1993: Among 3876 children (2-5 years old) screened with the Child Behavior Checklist (CBCL) at one of 68 pediatric offices, 8.7% were found to have emotional or behavioral problems.
- Murphy, 1996: 10.6% of 379 children screened during well child visits at one of three clinics (two school-based health clinics and one neighborhood health clinic) were identified as being at risk for psychosocial problems using the Pediatric Symptom Checklist (PSC).
- Gall, 2000: 14% of 383 students at a school-based public high school health center (serving a large immigrant population) scored at or above the PSC-Y cutoff for the identification of psychosocial impairment among adolescents.
- Brugman, 2001: A total of 4480 school-aged children from a random sample of 19 child health care sites were screened with the CBCL as part of a routine

preventive health assessment; 8.0% of those not currently undergoing any behavioral and mental health treatment were found to have behavioral or emotional problems in the clinical range.

- Wildman, 2004: Among 138 children 4-12 years of age seen at a primary care clinic within an urban public teaching hospital for a health supervision visit, 14.5% screened with the PSC had elevated scores indicating psychosocial problems.
- Reijneveld, 2004: Of 2229 preschool-aged children seen at one of 16 child health care service sites and screened with the CBCL during their routine health assessments, 9.4% were identified by their child health provider as having psychosocial problems.
- Wiefferink, 2006: 6.1%-8.0% of 6375 children 5-6 years of age screened with the CBCL were found to have positive problem scores. The range of scores was based on a randomized clinical trial of 58 child health providers one-half of whom were trained to identify psychosocial problems in children.
- Hacker, 2006: 6.0% of 1668 children 5-19 years of age screened with the PSC at a large outpatient practice within a public hospital system were found to have positive scores.
- Hacker, 2009: between 4.3% and 8.0% of over 1000 children screened with the PSC in two hospital-based outpatient pediatric clinics scored above the cut-off for a positive PSC score, depending on whether they returned for a second visit after their initial screening or not, respectively.

One might imagine that if the 'non-documented' screening results in our study had results (positive, negative or at risk) noted in the charts, the true population rates of children with behavioral health problems needing follow-up might, in fact, be significantly higher than what we found in this chart review. It is unknown from reviewing the literature whether other investigators found similar high rates of undocumented screening results. It is also important to note that these results (both our study and the vast majority of those reported in the literature) are based on the review of well child visits alone. One could easily imagine that if screenings were conducted at any/all visits with children (especially at those times when parents might be raising a specific concern about their child), the rates of identification of developmental/behavioral problems would be even higher.

Screening is the first step in the process of early detection of any condition. In the course of this chart review, records that documented the use of formal and/or informal screenings had little documentation about the advice or counseling provided by the PCP. Only 1.3% of visits had evidence in the chart of the referral by the PCP to a mental health, behavioral health, developmental specialist or facility. MassHealth administrative data, however, showed that post-visit behavioral health services were accessed in the six months following the well visit in about 20% of the visits.

The vast majority (89.4%) of these post-visit behavioral health services were (non-emergency) ambulatory in nature (e.g., individual and family counseling and psychotherapy, diagnostic evaluations and drug management, school-based IEP/special education services, etc.). While the number of children screened with formal tools was small, 40% of those with a positive result received one or more behavioral health

services provided within six months of the visit. All of these were ambulatory visits. However, among the visits with positive screens based on informal screening, nearly two-thirds (65.9%) had one or more post-visit behavioral health service provided (nearly all, 92.6%, being ambulatory in nature). This suggests that Massachusetts' child health providers frequently attended to the behavioral and developmental needs of their patients prior to the institution of universal and formal behavioral health screening (in the winter of 2007).

Surveillance using informal screening methods failed to identify many children at risk of developmental, behavioral and mental health problems. Of the 1170 visits[5] that were screened using informal (i.e., non-tool) methods and which did not result in the positive identification of a developmental or behavioral health problem, 150 (12.8%)[6] were associated with the receipt of behavioral health services in the six-month period after the visit. In addition, 16% of those visits[7] where subsequent behavioral health services occurred involved inpatient or emergency mental health services. While documentation of developmental or behavioral problems at the well-child visit was associated with increased utilization of behavioral health services, problems not identified as part of the early and periodic screening nor via the use of formal tools, seemed to be associated with the utilization of a greater percentage of emergency and inpatient mental health services. While association does not establish a cause and effect relationship, formal screening programs using normed instruments may result in earlier identification of problems, allowing outpatient interventions that preempt the need for inpatient and/or emergency services compared to informal surveillance resulting in the later identification of BH problems and potentially more emergency BH service needs.

There are some difficulties in interpreting the 'results' of any screening or surveillance of children for behavioral health problems and concerns. Child health providers tend to chart in the medical record that which needs follow-up and/or that which is required for reimbursement. Additionally, it's often unclear from medical record abstractions of particular well visits, how much a provider might be screening for new conditions versus following up on pre-existing ones. We did not, in this project, look back through administrative data to determine if there were any behavioral health claims for services prior to the well child visits.

It also remains unclear to what extent a provider might be screening (and subsequently referring children) for a specific developmental or behavioral condition, or whether

[5] Table 18: 1355 visits with informal screens minus 185 visits among those informal screens with positive results.
[6] Table 18: 272 visits among those informally screened who had one or more behavioral services provided within the six-month follow-up period minus 122 of those visits with a positive screening result.
[7] Table 18: 24 visits which included an informal screen (but which did not result in the identification of a developmental or behavioral problem; 33 minus 9) and which had follow-up behavioral health services on an emergency or inpatient basis divided by the 150 as described in Footnote 6 (i.e.,16%).

screening and referral practices are based on the severity of the child's presentation. A study of routine developmental screening in an urban primary care setting (Schonwald, 2009) suggested that many providers address behavioral issues through counseling at the time of the visit while developmental issues often need further evaluation or treatment necessitating a referral. Also, if a child is receiving on-going services for a behavioral or developmental issue, this might decrease the likelihood that a provider would refer a patient for additional services. It appears that the identification of a positive finding, based on screening tests, may not necessarily increase referral rates as physicians are likely to continue to use clinical judgments in deciding whether to manage the patient within the office setting or refer out.

However, Hacker et al. found (2009) in their longitudinal use of the PSC following over 1000 patients screened at two consecutive preventive care visits (10 to 18 months apart), that referrals of children with noted psychosocial problems (based on their initial PSC screening) predicted improved PSC scores which suggests that the referral process may play an important role in the mental and behavioral health care of children. This finding was echoed in the work by Gall et al. (2000) in which the screening of 383 adolescents with the PSC-Y at a school-based health clinic identified the positive impact of mental health referrals on academic functioning (i.e., teens who scored positive on the PSC-Y who were referred to mental health services had significantly decreased absenteeism and tardiness).

Screening may not improve the rate of referrals due to the numerous barriers faced by both providers and families (e.g., a limited number of openings at referral sites, prior experiences with waiting lists for appointments and little or no provider-to-provider communication regarding the results of referrals, no provider requirement to document referrals to behavioral health services, family schedules, transportation to non-primary care sites, prerequisite intake visits prior to services being provided, parental resistance, etc.). Thus, failure to use a referral to mental health services is an issue that providers need to address within their office practice protocols and with families just as they address adherence with medication and other treatment recommendations (Rushton, Bruckman, & Kelleher, 2002).

The documentation rates for referrals may not accurately represent the actual receipt of behavioral health services, as the system of behavioral health care does not require a provider number to secure a referral. Families and schools often initiate contact with the behavioral health/mental health provider/facility unlike the typical scenario in which pediatricians and family physicians initiate referrals for children with physical conditions requiring specialty follow-up. It is also possible, as noted above in discussing missed opportunities to capture screenings at visits other than those documented as 'well child', that referrals are happening as a result of other visits a PCP might have with a child/family. Since we only captured screenings and follow-up referrals directly related to well child visits, the results presented herein may be underestimating the true number of behavioral, developmental, or mental health services that were accessed by children who received a screening.

Despite the lack of referrals noted in this retrospective chart review, it appears that many children have received services whether as a result of formal or informal screening and referral or through other avenues. The chart abstraction process itself, however, makes it difficult to know the extent to which children have truly been screened, treated, and/or referred for additional services. The low prevalence of referrals, for example, may be as much due to a lack of documentation on the part of the provider as well as children and families obtaining services through other means (e.g., schools, self-referrals). The literature does suggest (Brent, 2004) that the partnering of families with their multiple providers, especially when families themselves are raising concerns about behavioral and psychosocial problems, increases the identification of children with potentially significant problems.

Formal screening (with concomitant reimbursement) may be one of the most efficient ways to identify, refer, and ultimately treat children with behavioral health conditions in the busy primary care practice where so many competing issues need to be addressed at each well child visit. As Kelleher and colleagues discuss in their longitudinal review of identifying psychosocial problems in children (Kelleher, McInerny, Gardner, Childs, & Wasserman, 2000), the organization and financing of health care threatens the integration of medical and behavioral health services and subsequently the need to better recognize and treat children within the primary care setting. Kelleher and colleagues report “The increasing use of behavioral health carveouts may diminish the willingness of mental health providers to work creatively with primary care clinicians.” The use of carveouts may impact the ability to solve the need for mental health and primary care providers to provide optimal continuity of care for children needing service from multiple providers.

While studies such as these may have potential limitations, there are a number of strengths of the study that support our findings. The attention to the detailed data abstraction process; the sample sizes of children, charts and visits selected for study; and the comparative nature of. our results vis-à-vis other published studies provide an indication that these results demonstrate at least the minimal prevalence of screenings, positive findings, and post-visit services being provided. The initiation of universal screening for behavioral, developmental and mental health problems initiated by the CBHI affords a unique opportunity to examine the impact of universal behavioral health screening on the utilization of services at a statewide level.

Limitations

As with any project, some minor limitations should be noted. Our results may be affected by information bias as medical records typically underestimate true prevalence of any particular condition. Abstractors are dependent on complete charting of any/all information relevant to an assessment of data. The medical record abstraction process is also potentially limited when multiple reviewers are utilized to abstract records in a timely manner. The process requires careful attention to inter-rater reliability. As noted in the Methods section, the vendor conducted training sessions that included specific

attention being paid to inter-rater reliability of 95% or greater among all of their reviewers; nevertheless, there may be some potential validity issues in rare instances. The abstraction process requires not only careful training of the abstractors, but also that safeguards be put in place for accurate data entry. Even with proper protocols in place, errors are known to occur. Strategies like more automatic skip patterns in the data entry tool might have addressed some of these quality control issues.

There is also the potential for some selection bias in that not all charts from our sampled population were able to be reviewed and one might question whether those that were captured were different in any way from those not captured in the abstraction process. We were unable to fully assess the extent to which 'non-response' (i.e., charts not being available for review) might be biasing the results (either over- or under-estimating the extent of screening) as we do not have sufficient detailed information to compare the two groups (completed versus non-completed chart abstractions). What we do know is that charts abstracted were not statistically significantly different[8] when assessed by race/ethnicity, gender, or MassHealth designated regions of the State. As our sample was selected stratified by age group, we did these comparison within age groups and found no significant differences; thus, we feel that the population of children whose well visits were abstracted are representative of the MassHealth population from which they were sampled.

Finally, chasing charts may be harder for those children who are the most mobile (including those in homeless situations and/or foster care). Families covered by MassHealth may be moving between providers and practices as a result of poverty and other social vulnerabilities. The literature has long suggested that these children are more apt to have behavioral and mental health needs (among a number of adverse health outcomes) and should be regularly screened in the primary care setting (Gall et al., 2000; Garg et al., 2007; Hacker et al., 2009; Jee, Tonniges, & Szilagyi, 2008; Murphy et al., 1996; Weinreb, Nicholson, Williams, & Anthes, 2007). Given these findings from other researchers, coupled with the potential for missing some 'screens' and/or referrals by only abstracting only well child visits, it may be that our results truly underestimate the extent to which children are being screened for behavioral health conditions, documented to have positive screens referred for services, and treated for these conditions.

[8] Comparisons were made between 'all claims for visits' and 'abstracted visits' as well as between 'all children with visits' and 'children with abstracted visits' for race/ethnicity, gender, primary language and MassHealth region. Significance testing could not be completed for primary language because there were too small samples in most of the languages spoken other than English, Spanish and a variety of languages spoken by Southeast Asian populations.

Section 6: Conclusions and Recommendations

The current assessment of behavioral health screening, and subsequent referrals and treatment, among MassHealth children (0-20 years, enrolled in managed care) during well-child visits provides a baseline of information as this project reports on activities conducted prior to the implementation of the Children's Behavioral Health Initiative. As noted throughout the report, the use of formal developmental and behavioral health screening tools was low as was the referral rate. However, informal 'screening' (i.e., surveillance) was frequently conducted and identified at risk children with positive scores at twice the rate of screening with normed instruments.

One would anticipate that significantly more screenings, via the use of formal tools, will have occurred in the years following the mandate for screening (beginning in Calendar Year 2008), coupled with the new legislation signed into law in August 2008: An Act Relative to Children's Mental Health (often referred to as Yolanda's Law). Yolanda's Law was designed to improve mental health services for the State's children. The law "enables school personnel to receive mental health consultation and guidance; promotes behavioral health screening for children during visits to their doctors; provides behavioral health consultations for very young children in each education and preschool settings; and creates processes to move children with mental health needs who are ready for discharge from acute care facilities to more appropriate community settings" (Children's Hospital Boston, 2008).

Thus, repeating this assessment of behavioral health screenings, referrals and treatment received in the future would help to demonstrate some of the outcomes of the implementation of this legislation and would be valuable to MassHealth in securing documentation of behavior health screenings and outcomes. One might even consider a two-level approach to follow-up:

- using Calendar Year 2008 data which immediately follows the statewide training of providers in the use of these screening tools and their initial implementation; and
- using Calendar Year 2010 data to assess screenings and outcomes after the implementation of coverage by MassHealth for new behavioral health services.

One of the main values in repeating this chart abstraction process is that the current billing codes used by providers indicate that they've completed the mandated behavioral health screenings but they do not indicate:

- which tools are being used;
- whether particular tools appear to be related to specific referral activities; and
- the extent to which surveillance of children's mental health needs continues to dominate subsequent 'screening' activities.

Additionally recommended would be to include in the next phase, more so than currently conducted, a detailed analysis of administrative data related to the diagnosis and

treatment/services provided to children who have behavior, developmental and/or mental health needs over the various timeframes of interest. Missing from the current study was an assessment of the extent to which children had pre-existing (and documented) behavioral health needs. As noted in the review of the literature, the screening and subsequent referral of children related to behavioral and/or developmental issues, may not be directly related to the initial diagnosis of a newly identified problem as much as the monitoring of children with previously identified problems and concerns.

A parallel claims analysis would also provide an opportunity for a more comprehensive assessment of behavioral health diagnoses and receipt of services from specialty providers/sites comparing those for whom formal screening was completed versus those either informally screened or not notably screened at all – all of this in comparison to what we know from chart reviews. The use of multiple sources of data always provides for a more comprehensive understanding of patient (and population) health care needs and services provided as related to those identified needs. Chart reviews are likely the only way to confirm and/or compare results to see if administrative data reflects what is documented in the child's medical record. These future studies might assist MassHealth in determining the extent to which the health care system is able to respond to the identification of children in need.

Several published studies suggest the need for additional research to assess the long-term impact of psychosocial screening interventions, among families and children, and on family and child behavioral, developmental, mental and physical health. According to Stein et al. and Weitzman and Leventhal (Stein et al., 2008; Weitzman & Leventhal, 2006), the frequency of contact and the trusted relationship that many parents and children develop with their child health provider makes the pediatric (and family practice) child health care setting a "de factor venue for the delivery of mental health services for children". At the very minimum, the pediatric setting is "an optimal environment to address behavioral health concerns" and "system change around the detection of behavioral health problems is possible".

With the new Massachusetts legislation, the anticipated increased prevalence of behavioral screening in the child healthcare setting will provide an opportunity for continued monitoring of these screenings, referrals and receipt of services with the goal of early identification and treatment of developmental and behavioral healthcare needs in MassHealth children. The link between screenings, referral and delivery of services remains an important outcome to monitor as does the association between increased referrals/services and improved functioning. These outcomes are enhanced by increased dialogue between parental concerns raised and follow through by providers, potentially resulting in more patient-centered care with in the primary care setting. Quality indicators such as rates of screening, referral and outcomes (i.e., treatments received and improved mental health) are needed in the overall assessment of children's primary care. The implementation of the Children's Behavioral Health Initiative provides

a unique opportunity for the early recognition of developmental and behavioral needs among some of the State's most vulnerable children.

Appendix A: Literature Review

Pediatric Behavioral Health Screenings During Well Child Visits:
How Often Do They Take Place and What are the Results?
A Review of the Literature

In the United States, it is estimated that between 12% and 27% of all children have a developmental or behavioral health disorder (American Academy of Pediatrics, 2001; Weitzman, 2006; Borowsky, 2003). Because evidence suggests that early intervention with these children results in better outcomes (Shonkoff and Phillips, 2000) it is important to screen children for developmental and behavioral health disorders as early as possible. Pediatric health providers are uniquely positioned to administer these screenings by including them as part of routine well child visits (U.S. Department of Health and Human Services, 1999; New Freedom Commission on Mental Health, 2003; Hart, 2007). In addition, because up to 50% of all pediatric office visits address a behavioral, psychosocial, and/or educational concern, the pediatric practice is an optimal environment to detect and address these concerns and disorders (Weitzman, 2006). Screening and early identification of behavioral and developmental problems is not, however, universal. This review summarizes the literature on the use of pediatric behavioral health screenings.

Physician Use of Behavioral Health and Developmental Screening Tools

Pediatric well visits offer a unique opportunity for regular behavioral health and development screening to occur. Although pediatricians are seemingly aware of the need to screen children for behavioral and developmental disorders, screenings are not usually routine and providers seldom use standardized screening instruments (Brown et al., 2007; Cooper et al., 2006; Ford et al., 2006; Reijneveld et al., 2004; Sand et al., 2005; Sices et al., 2004; Williams et al., 2006; Williams et al., 2004). For example, a 2003 national survey of family physicians and pediatricians found that only half used a formal behavioral screening tool (Sices et al., 2004). Another study (Williams et al., 2006) found that, among a random sample of 719 well child visits performed by pediatric residents, only 3% of the cases documented formal behavioral screening even though a psychosocial issue was discussed in 38% of these visits.

Studies have also noted that when physicians rely on clinical assessment alone, they often miss behavioral and developmental problems that could have been identified through the use of screening instruments (Reijneveld et al., 2004; Sand et al., 2005). Sand and colleagues found that fewer than 30% of children with developmental disabilities were identified through clinical assessment alone. In addition, there was an inconsistent pattern of referral for those with developmental and behavioral health issues, as well as a tendency not to consider important risk factors when determining whether or not to refer a child. Identification of psychosocial problems and subsequent referral were much more likely in children screened with the Child Behavior Checklist (Reijneveld et al., 2004). While the child health providers in this study frequently

identified problems in preschool children, they missed many cases of parent-reported problems identified through the use of this standardized screening tool. When Rydz and colleagues studied pediatricians' clinical judgment vis-à-vis the use of two standardized screening tools (the Ages and Stages Questionnaire and the Child Development Inventory) in a community-based pediatric clinic, they found that clinical judgment alone did not accurately detect developmental delays recognizing that many child health providers use developmental surveillance rather than developmental screening relying heavily on intuition and clinical judgment (Rydz et al., 2006). Even with increased attention to psychosocial issues in children and their families, it appears that many children with behavioral and emotional problems continue to be undiagnosed and untreated (Stein et al., 2008).

However, formal behavioral health screenings have been found to help foster communication between parents and their children's health providers with the potential to improve health care delivery (Halfon, Inkelas, Abrams, & Stevens 2005; Schonwald et al., 2009; Wildman, Stancin, Golden, & Yerkey, 2004). Halfon et al. (2005), as well as Schonwald and colleagues (2009), found that parents whose children received developmental assessments were more likely to discuss other issues with their child's health provider. Wildman et al. (2004) noted that a mother's disclosure to the pediatrician concerning her child's psychosocial functioning was one of the best predictors in identifying psychosocial problems in primary care. Enhanced systematic interviewing and screening has been recognized to increase the disclosure of these concerns. And, health attainment is maximized when these interventions are begun early in a child's life.

The literature suggests that the discrepancy between the number of developmental and behavioral health disorders in children and the success of physicians in identifying these is not due to a lack of publicity surrounding this issue. The American Academy of Pediatrics (AAP) has long supported the importance of including behavioral and developmental screening as part of routine pediatric care. In 1996, the AAP published the *Diagnostic and Statistical Manual for Primary Care, Child and Adolescent Version*, which provides a framework for primary care physicians to identify and diagnose a wide range of behavioral and developmental issues (Williams et al., 2004). In 2001, the AAP published a policy statement stating that physicians should screen all infants and young children for developmental delays at regular intervals, using valid and reliable instruments (Sand et al., 2005). The AAP has also recommended a process called 'developmental surveillance' where a physician uses a five-step process to recognize children who may be at risk of developmental delays, performing this at every well child visit until a child reaches the age of 5 (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, 2006).

Factors Affecting Use of Screening Tools

Several reasons have been cited by providers as to why screening tools aren't utilized more often. In addition to time and insurance reimbursement, barriers included: a lack of training; a lack of confidence in ability to screen; a lack of skills to manage behavioral and mental health issues effectively; a lack of treatment options for those who screen positive; a lack of resources for referral; a lack of confidence in the validity of screening instruments; a fear of stigmatizing a child with a behavioral health or developmental issue; and an inability to communicate effectively with the family (Hacker et al., 2006; Hart et al., 2007; Pinto-Martin et al., 2005; Sand et al., 2005; Weitzman & Leventhal, 2006; Wiefferink et al., 2006; Williams et al., 2004). These barriers to standardized screening have been consistently noted despite an AAP survey of 794 pediatricians whereby 94% thought it was important to inquire about development and 80% felt confident in their own ability to advise parents on developmental issues (Miller, 2007).

Additionally, physicians have mixed views on being seen as the primary provider of screenings to children and any needed follow-up. A national random sample of 502 pediatricians (Coker, Casalino, Alexander, & Lantos, 2006) revealed that while most pediatricians (85%-91%) are the primary conductors of developmental and psychosocial screenings, 54%-60% responded that in an ideal system to maximize care, non-physicians would be providing these screening services. And only 55% of the respondents rated the current well-child care system as being 'excellent' or 'good' for providing psychosocial screenings. In addition, results from the 59th Periodic Survey of members of the American Academy of Pediatrics noted that, among 659 members in current practice, more than 80% agreed that pediatricians should be responsible for the identification of behavioral conditions; however, less than one-third agreed that it is their responsibility to treat or manage these issues (Stein et al., 2008). To what extent providers were concerned about time, lack of training and experience in treating such patients, or reimbursement issues remains unknown.

Implementing Screening Tools and Programs

Despite the challenges primary care providers report regarding screening for behavioral and mental health issues in children, and the subsequent low rates of screening on a regular basis, the literature has cited a number of studies where standardized screening instruments have been shown to be effective in the identification of developmental, behavioral, and psychosocial issues in children – some of these dating back 10-20 years (Murphy et al., 1996). More recently, a 2002 study examined use of the Pediatric Symptom Checklist (PSC-17) to screen for behavioral issues during primary care visits (Borowsky et al., 2003). In this study (of children between the ages of 7 and 15), 46% of the children sampled were being seen as part of a well-child care visit, of which 39% had a positive test score on the PSC-17 tool (Borowsky et al., 2003).

A study by Knight (2007) examined the use of the CRAFFT (Car, Relax, Alone, Forget, Friends, Trouble) substance abuse screening test with adolescents (12 to 18 year olds)

seeking non-emergency care. Of the 2133 patients studied, 67.5% were attending a well-child visit, of which 11.4% had a positive test result on the CRAFFT screening. A 2001 Netherlands study (Brugman, Reijneveld, Verhulst, & Verloove-Vanhorick, 2001) described use of the Child Behavior Checklist to screen 4480 children aged 5 through 15 (representing 90.1% of children eligible for a routine health assessment). In 25% of the children, 1 or more psychosocial problems were identified, of which 52% were rated as 'mild', 37% as 'moderate', and 11% as 'severe'. Finally, a study of 3876 children (from 68 pediatric offices) aged 2 through 5 screened by their pediatrician for behavioral problems also using the Child Behavior Checklist were subsequently re-evaluated by clinical child psychologists. Prevalence rates were significantly higher among the psychologists compared to the pediatricians; the authors concluded that a substantial number of preschool children identified with behavioral problems in primary care (51.7%) did not receive either services or referral from their pediatricians (Lavigne et al., 1993).

Since 2004, Medicaid providers in North Carolina have been required to screen all children using the Ages and Stages Questionnaire (ASQ) standardized screening tool at the 6, 12, 18 or 24, 36, 48, and 60 month well-child visits (Earls, Shakelford, & Hay, 2006).This policy was brought about as a result of the Assuring Better Child Health and Developmental Project (ABCD) demonstration project that began in 2000. Starting out as a pilot initiative in three pediatric practices, this project grew, within two years, to include more than 100 practices statewide. Before the ABCD project, the average rate for developmental screening of children in Medicaid across North Carolina was reported to be 15.3%. After the ASQ questionnaire was adopted as the screening tool of choice, the screening rate increased to over 70% by 2002 and to 85% by 2005 (Commonwealth Fund, 2005). An updated 2009 report indicates the rate of screening for developmental disabilities during well child visits in North Carolina has dramatically increased statewide from 15% in 2000 to 80% in 2008 (Klein & McCarthy, 2009).

Most recently (Schonwald et al., 2009), use of the Parents' Evaluation of Developmental Status (PEDS) screening tool with all patients attending well child visits between six months and eight years of age was implemented in two urban pediatric practices as a quality improvement initiative. Within one year, the practice change resulted in the screening of 62% of eligible children with statistically significant increases in the identification of both developmental and behavioral concerns comparing pre-implementation to post-implementation screening. Provider feedback regarding routine screening also noted increases in both the ease and feasibility of implementation with a busy primary care setting, as well as saving time and increasing their ability to identify children with developmental problems. Ease and feasibility of use in the setting of a community-based pediatric clinic was also echoed by Rydz et al. in their implementation of two formal screening tools (Rydz et al., 2006).

While there have been some successful well-child screening programs, such as the ABCD project in North Carolina, there is relatively little information on the full spectrum of care being provided as part of these 'screening programs'; i.e., the number of screenings performed specifically during well-child visits accompanied by their results in

terms of outcomes of screening and/or referrals and treatment subsequent to positive screens. The ABCD project noted an increase in referrals to early intervention programs from 3.0% in 2003 to 4.3% in 2008 (Klein & McCarthy, 2009). Rushton et al. (2002) also reported on management and referral practices of clinician-identified psychosocial, behavioral and mental health problems (based on a secondary data analysis of 4012 patients cared for by 385 clinicians in four practice networks). They noted that the most common management strategy for patients at the initial visit was watchful waiting/no treatment (38%), followed by primary care counseling alone (33%), primary care counseling with medication prescription (18%), and prescribing medication alone (10%); only 16% of patients were referred at the index visit. Among those patients with a newly diagnosed psychosocial problem, the referral rate was 27%. Most patients who received a referral received primary care counseling as well (73%); 19% of the referred patients received a referral alone. Reasons providers often cited as barriers to referral included: the ability for the clinician to manage the patient in his/her primary practice, patient refusal, insurance limitations, lack of available resources, and lack of effectiveness. Recognition, assessment and referral processes are complex in the important role providers have in managing the primary care of children with developmental, behavioral and/or mental health conditions. An important topic for future research includes understanding better this link between screening and referral as well as the extent to which referrals lead to improved functioning (Gall et al., 2000; Hacker et al., 2009). Decision-making around screening and referral practices are greatly influenced not only by providers, but by patients, their families, payors and the health care system at large.

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Appendix B: Chart Abstraction Tool

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
Medical Record Format	1) For on-site reviews only, indicate the format of the member's medical record: 1- Paper 2- Electronic medical record (all components) 3- Partial electronic medical record (some components are electronic and some are paper) 4- Not applicable (remote review completed)	If the site provides you with a print-out of an electronic medical record, please check 2 or 3, as appropriate.	MRFORMAT	Lookup box	
Demographic Information	2) Indicate child's gender: 1-Male 2-Female 0-Not documented		GENDER	Lookup box	
	3) Is the child's date of birth documented in the chart? 1-Yes 0-No		DOBDOC	Lookup box	
	4) Enter child's date of birth:	If partial date, enter whatever (month, date or year) that is available.	DOBDATE	Date	
	5) What is the member's race? Check all that apply. • American Indian or Alaskan American • Asian or Pacific Islander • Black (not of Hispanic origin) • Hispanic • Caucasian • Other (please list) • Not documented	If member is of more than one race, check those that apply and/or use the 'other' comment box to indicate a race not listed.	RACEa-g	Checkboxes, open text field where indicated	
	6) Is the member of Hispanic or Latino ethnicity? 1-Yes 0-No or not documented		ETHN	Lookup box	

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	7) What is the primary language spoken in the member's home? 0-Not documented 1-English 2-Cambodian 3-Chinese 4-Haitian/Creole 5-Laotian 6-Portuguese 7-Russian 8-Spanish 9-Vietnamese 10-Other (please list)	Indicate only the member's primary language. If more than one language is indicated in the record and it is not clear which is the primary language, use the 'other' comment box to list all languages spoken in the home.	LANG	Lookup box, open text field where indicated	
	8) Is there any documentation in the chart that an interpreter was used for any office visit on or between 7/1/06-6/30/07? 1-Yes 0-No	Count use of an interpreter during any type of visit, including a sick visit.	TRANS	Look-up box	
	9) If Yes, indicate the language the interpreter used. 0- Not documented 1-American Sign Language (ASL) 2-Cambodian 3-Chinese 4-Haitian/Creole 5-Laotian 6-Portuguese 7-Russian 8-Spanish 9-Vietnamese 10-Not appicable 11-Other (please list)		TRANSLANG	Look-up box, open text field where indicated	Disable if TRANS=0
Identification of Visits for Review	Identify the medical record documentation that corresponds with the following visit dates (all dates occur on or between 7/1/06-6/30/07).	Note to MedAssurant: CHPR will provide a list of visit dates to abstract as	N/A	N/A	

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	[Populate a table or list with the visit dates that CHPR provided in the import file for the member.]	part of its import file (all dates will occur on or between 7/1/06-6/30/07). Most members in the sample will have 1-2 visit dates to abstract, except for children under the age of 2 who may have up to 10.			
Behavioral Health Screening, Referral and Treatment	****The following questions must be answered for every visit date that CHPR provides in the import file. All visit dates will be between 7/1/06-6/30/07. ****				
	10) For this visit date (allow a date tolerance of +/- 2 days) indicate whether documentation for the visit is found in the medical record: 1- Documentation of visit on this date is available in the medical record 0-No documentation of visit on this date is available in the medical record	If documentation of visit date is not found, abstractor should proceed to the next visit date.	MRDOC	Look-up box	

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	11) For this visit date (must be same date as above), check all formal behavioral or developmental screening tools that were used during the visit: • No documentation of behavioral or developmental screening tool found for visit • ASQ:SE (Ages and Stages Questionnaire: Socio-Emotional) o Indicate which age group tool was used o Indicate result of screening: o Total Score (0-495) • BITSEA (Brief Infant-Toddler Social and Emotional Assessment) o Indicate result of screening: o Problem Total Score (0-62) AND Competence Total Score (0-22) • Child Behavior Checklist (ages 1 ½ to 5) o Indicate result of screening: o Total Problems Raw Score Range 0-200 OR Total Problems T Score Range 28-100 • Child Behavior Checklist (ages 6-18) o Indicate result of screening: o Total Problems Raw Score Range 0-240 OR Total Problems T Score Range 24-100 • CRAFFT (Substance/Alcohol Use-Car, Relax, Alone, Forget, Friends Trouble) o Indicate result of screening: o How many items were answered "yes" (0-6) • Denver Developmental Screening form o Indicate result of screening:	Documentation can include a copy of the actual tool or notes that a tool was used. See your hard copy manual for examples of each standardized tool. Blank tools in the record do not count without documentation that the tool was administered and scored, interpreted, and results/recommendations made or not and shared with the patient/member/ family. Undated tools do not count unless there is evidence that the tool was completed during the visit that corresponds to the visit date provided. To count as one of the tools, the documentation must clearly indicate the title or acronym of the tool. If it appears that questions have been taken from tools and incorporated into a new but unnamed instrument, then check "other tool" and describe the tool in the comment box.	TOOLa-n, Result variable namesTBD	Check boxes, date fields, open text fields where indicated	

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	o [How many items with a "caution" (1-125) o How many items with a "delay" (1-125) • HEADSS (Home, Education, Activities, Drugs, Suicide/Depression, Sexuality) o Indicate result of screening: o Qualitative tool • M-CHAT (Modified Checklist for Autism in Toddlers) o Indicate result of screening: o How many items failed? (0-23) (Fail = answering 'yes' to items 11,18,20,22 OR answering 'no' to items 1-10, 12-17,19,21,23) • PEDS (Parents' Evaluation of Developmental Status) o Indicate result of screening: o Number of shaded boxes checked (0-7) o Number of unshaded boxes checked (0-6) • PHQ-9 (Patient Health Questionnaire) o Indicate result of screening: o How many items checked "More than half the days" or "Nearly every day" (questions 1-8) and for question #9, indicate if it was checked "Several Days" "More than half the days" or "Nearly every day" • Pediatric Symptom Checklist (PSC) o Indicate result of screening: o What is the score (1-70) • Pediatric Symptom Checklist- Youth Report o Indicate result of screening:	Do not interpret rankings or other notes on the tool. Do not use documentation on tool to score the instrument. Accept only clear documentation of a result that was entered into the chart by a provider (e.g., positive, +, negative, -, at risk, etc.). If tool is complete but there is no clear documentation of a result entered by a provider, choose "tool does not include a score or result." Indicate if a tool was used, but not completed or without a final score.			

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	o Total Score (0-70) • Youth-Self Report for Ages 11-18 o Indicate result of screening: o Total Problems Raw Score Range 0-240 OR Total Problems T Score Range 26-100 • Adult Self-Report for Ages 18-59 o Indicate result of screening: o Total Problems Raw Score Range 0-240 OR Total Problems T Score Range 25-100 • Other formal tool (please describe) o Indicate result of screening: o [Open field]				
	12) If no documentation of the use of a screening tool was found in the medical record for this visit date, indicate any other documentation that indicates that a behavioral health or developmental screening occurred during the visit (check all that apply): • No other documentation is present indicating a behavioral health or developmental screening occurred during this visit date • Behavioral health/developmental screening during this visit date indicated on well visit form, flow sheet or visit notes o Result of screening: ▪ Positive ▪ Negative ▪ At risk or High Risk ▪ Not at risk or Low Risk	Some well visit forms may have areas for screening to be checked off. Evidence of screening may also be found in visit notes. Examples of written notation include "no mental health problem" or "no behavioral health problem." Documentation found in nurse notes indicating a screening is acceptable.	OTHERDOC a-e, Results variable names TBD	Check boxes, open text fields where indicated	

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	▪ Other result (please describe) ▪ Results of screening not documented • Other chart documentation during this visit date indicates behavioral health/developmental screening occurred during visit (please describe) o Result of screening: ▪ Positive ▪ Negative ▪ At risk or High Risk ▪ Not at risk or Low Risk ▪ Other result (please describe) ▪ Results of screening not documented	Accept only clear documentation of a result that was entered into the chart by a provider (e.g., positive, +, negative, -, at risk, etc.).			
	13) Are any of the following documented at this visit date (check all that apply): • Advice or counseling by PCP during this visit • Referral by PCP to a mental health provider or facility • Parent or patient refusal or deferral of behavioral health screening services • Other (please describe)		BHTXa-g	Checkboxes, open text field where indicated	
	14) Was a referral made to a BH to developmental specialist at this visit? If yes, indicate the type of provider for which a referral was made (check all that apply) • Referral documented but documentation does not include type of provider Health Care Facilities • Community mental health center or licensed	If the referral is made to an individual provider, indicate that provider's type under 'Mental Health Professionals' or 'Medical Professionals'. If the type of provider is not listed, chose 'other' and provide detail in the comment box.	BHREFa-cc	Checkboxes, open text fields where indicated	

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	mental health agency • Emergency Service Provider (ESP) • Substance abuse counseling agency • Other substance abuse treatment facility • Managed care organization's BH services contractor • Other facility not listed (please describe) Mental Health Professionals • Psychiatric nurse • Psychiatrist • Massachusetts Child Psychiatry Access Project • Psychologist • School counselor (may also be documented as 'adjustment counselor') • Licensed Independent Clinical Social Worker • Licensed Certified Social Worker • Licensed Social Worker • Social worker (type not defined) • Marriage and family counselor • Substance abuse counselor • Other mental health professional (please describe) Medical Professionals • Adolescent medicine • Behavioral/developmental pediatrics • Hearing specialist (audiologist) • Vision specialist • Learning disabilities specialist • Neurologist • Medical specialist (include otolaryngologist here)	If the referral is made to a facility or to Behavioral Health Services in a managed care plan (i.e., not to individual provider), then indicate the type of facility under 'Health Care Facilities.' If it is not clear what the type of facility to which the patient was referred, chose 'other facility not listed' and provide detail in the comments box.			

Topic/Section	Data Collection Item	Manual	Variable Names	Field type	Programming Notes
	• Occupational therapist • Physical therapist • Speech/language specialist (speech pathologist) • Surgical specialist • DPH/Early Intervention • Other medical professional (please describe)				

Appendix C: Confidence Interval Tables

For many of the tables presented in the Results section of the report, frequency and percent distributions outline the findings of the chart abstraction in terms of use of screening tools, results of those screenings, referrals made for behavioral health services following well child visits, etc. Noted below are the 95% confidence intervals surrounding the percent distributions for all relevant questions related to behavioral and developmental screening. As described in the Results, 95% confidence intervals provide a degree of precision around the actual point estimate (in this case, the percentage). The upper and lower bounds of the confidence interval are noted as the confidence limits within which one would expect, with 95% confidence, to find the 'true' percentage of these estimates if one were to study the whole population and not a sample thereof.

Table 9. Frequency and percent distribution summarizing all screening tool documentation, and the results of those screenings, as noted in the medical record, including confidence levels.

	Visits		*95% CI*	
Screening tool use and results	*N*	*%*	*Lower Bound*	*Upper Bound*
Use of formal screening tools at well child visits (N=1717)				
No documentation of use of formal tools	1649	96.0%	95.1%	97.0%
One or more formal tools were used	68	4.0%	4.0%	6.0%
Results of screening (N=68)				
Positive	5	7.4%	1.1%	13.6%
Negative	17	25.0%	14.7%	35.3%
Not documented	46	67.6%	56.5%	78.8%

Table 12. Frequency and percent distribution of additional screening practices used during well child visits, and results of those screenings, as noted in the medical record, including 95% confidence levels.

	Visits		*95% CI*	
Additional screening practices and results	*N*	*%*	*Lower Bound*	*Upper Bound*
Use of additional screening practices at well child visits (N=1717)				
No documentation of additional screening practices	312	18.2%	16.4%	20.0%
Screening indicated on well-visit form, flow sheet or visit notes	1405	81.8%	80.0%	83.7%
Results of screening (N=1405):				
Positive	192	13.7%	11.9%	15.5%
Negative	76	5.4%	4.2%	6.6%
Not documented	1137	80.9%	78.9%	83.0%

Table 14. Frequency and percent distribution of screening results (as noted in the medical record) by screening type, including 95% confidence intervals.

	Visits		*95% CI*	
Screenings and results	*N*	*%*	*Lower Bound*	*Upper Bound*
Screening at well child visits (N=1717)				
No documentation of screening	294	17.1%	15.3%	18.9%
Documentation of screening (any type)	1423	82.9%	81.1%,	84.7%
Results of screening (any type) (N=1423):				
Positive	195	13.7%	11.9%	15.5%
Negative	87	6.1%	4.9%	7.4%
Not documented	1141	80.2%	78.1%	82.3%
Type of screening at visit (N=1423)				
Formal tools only	18	1.3%	0.7%	1.8%
Other screening only	1355	95.2%	94.1%	96.3%
Both types of screening	50	3.5%	2.6%	4.5%
Results of 'Formal tools only' (N=18):				
Positive	0	0%	N/A	N/A
Negative	0	0%	N/A	N/A
Not documented	18	100%	N/A	N/A
Results of 'Other screening only' (N=1355):				
Positive	185	13.7%	11.8%	15.5%
Negative	70	5.2%	4.0%	6.4%
Not documented	1100	81.2%	79.1%	83.3%
Results of 'Both types of screening' (N=50)				
Positive	10	20.0%	8.9%	31.1%
Negative	17	34.0%	20.1%	47.1%
Not documented	23	46.0%	32.2%	59.8%

Table 18. Frequency and percent distribution of behavioral health services 6 months following the well child visit, by screening type, including 95% confidence intervals.

				*Behavioral health service visit six months after well child visit**				*Type of behavioral health service visit six months after well child visit*			
		Visits[2,3]		*No*[4]		*Yes*[4]		*Inpatient/ED*[5]		*Other*[5]	
Screenings	*Members*[1]	*N*	*%*[6]	N	*%*[6]	*N*	*%*[6]	*N*	*%*[6]	*N*	*%*[6]
Well child visits											
Formal tools	53	68	4.0% [3.0%, 4.9%]	60	88.2% [80.6%, 95.9%]	8	11.8% [4.1%, 19.4%]	1	12.5% [N/A]	7	87.5% [N/A]
Other	1059	1355	78.9% [77.0%, 80.8%]	1083	79.9% [77.8%, 82.1%]	272	20.1% [17.9%, 22.2%]	33	12.1% [8.3%, 16.0%]	244	89.7% [86.1%, 93.3%]
None	267	294	17.1% [15.3%, 18.9%]	242	82.3% [78.0%, 86.7%]	52	17.7% [13.3%, 22.0%]	6	11.5% [2.9%, 20.2%]	46	88.5% [79.8%, 97.1%]
Total	1336	1717		1385	80.7% [78.8%, 82.5%]	332	19.3% [17.5%, 21.2%]	40	12.0% [8.5%, 15.5%]	297	89.4% [86.2%, 92.8%]
Positive screenings											
Formal tools	5	5		3	60.0% [N/A]	2	40.0% [N/A]	0	0.0% [N/A]	2	100% [N/A]
Other	170	185		63	34.1% [27.2%, 40.9%]	122	65.9% [59.1%, 72.8%]	9	7.4% [2.7%, 12.0%]	113	92.6% [88.0%, 97.3%]

[1]Members count is a unique count per row; members may be included in more than one row.

[2]Percentages based on the number of visits.

[3]For visits where both formal screening and other screening occurred, the results only reflect the formal screening.

[4]Percentages are based on the number of visits in the respective row.

[5]Percentages are based on the number of visits with at least one behavioral health service (any type) in the respective row.

[6]The upper and lower bounds for the 95% CI are shown underneath the percentage.

Appendix D: References

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