Assuring Better Child health Development – Family Medicine Cohort 2016 Quality Improvement Project: Retrospective Medical Record Review

Final Report

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Executive Summary

In 2016, the Community and Family Health Division of the Minnesota Department of Health completed a retrospective chart review project among a sample of its Assuring Better Child health Development (ABCD) – Family Medicine Cohort 2016 clinics. This project was designed to help primary care clinics and providers of early intervention/early childhood special education (EI/ECSE) services understand referral practices between clinics and EI/ECSE.

The project was funded by the *Race to the Top Early Learning Challenge Grant* awarded to the Minnesota Department of Education in 2011. The Retrospective Medical Record Review project collected and analyzed screening, referral, and follow-up data from ABCD project clinic sites across the state of Minnesota, analyzing data from well-child checks that occurred in March and April, 2016.

Project Overview:

- Five clinics volunteered to participate in the project and obtained Institutional Review Board waivers/ exemptions when a structure was available.
- One hundred and forty-eight chart audits were completed representing:
    - 95 well-child checks that did not result in a referral to EI/ECSE
    - 53 well-child checks that resulted in a referral to EI/ECSE
    - Of those 53 well-child checks, 37 referrals were made to *Help Me Grow*
- Findings suggest:
    - Providers have adopted the routine use of evidence-based screening tools into the delivery of pediatric primary care to screen for developmental or social/emotional delay.
    - In addition to screening, many referrals are made based on parental/guardian observation or concern.
    - Referrals are promptly made to either EI/ECSE or specialty medical services when patients need additional evaluation.
    - The most common concerns expressed by parents in the screening process were language, motor, and social/emotional/behavioral challenges.
    - Clinics collect data to ensure loop-closure from referrals, but follow-up information is inconsistent between clinics and EI/ECSE providers.

Introduction

The Assuring Better Child health Development (ABCD) Retrospective Medical Record Review Project[1] was completed from September through December 2016. The project was designed to collect screening, referral, and follow-up data from ABCD sites across the state of Minnesota. Project findings are intended to be used in two ways: 1) To assist the Community and Family Health Division of the state of Minnesota in understanding opportunities within the ABCD project and improving the design of future interventions to address current challenges; and 2) To assist stakeholders in understanding the screening, referral, and communication processes used to identify, evaluate, enroll, and provide primary care follow-up to children in early intervention/early childhood special education (EI/ECSE) services.

Five participating clinics reviewed medical records from well-child check visits that occurred in March and April 2016. This time period was chosen to provide baseline data that preceded ABCD process improvement efforts.

Within the review, clinicians analyzed the utilization of evidence-based screening tools to identify children with developmental and social/emotional delays and the referral process to connect them to EI/ECSE services. The project also looked at communication and feedback mechanisms between clinics and referral recipients to understand how follow-up occurs.

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[1] ABCD Retrospective Medical Record Review Project will be referred to as the “project” throughout this document.

Methodology

Institutional Review Board

An institutional review board (IRB) is a committee designated by organizations to approve and monitor research involving people; IRBs exist to ensure ethical research practices and protection of patients. As the definition of 'research' can vary, it is prudent to have IRB review for any project that involves patients or patient information.

This project was designed in a way that it was unlikely to be categorized as research or need a full IRB review. The project was retrospective, collecting data that was documented prior to the project start. All data was de-identified,[2] the project did not change patient treatment, and the results of the project were intended solely for quality improvement purposes.

As clinics chose to participate in the project, clinic staff identified if their organization had a relationship with a formal IRB. When an IRB was identified, exemption was sought, based on the project design. In all cases, IRB review confirmed the project protocol did not meet the criteria of human subject testing.

For clinics without a formal IRB structure, clinic leadership reviewed the project protocol and approved data collection and the parameters of its use.

Inclusion Criteria

The project was scoped to include medical record data from the charts of children five years of age and younger and was limited to patients who had been seen at the clinic for a well-

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[2] Clinics were instructed to delete data that would serve as a 'key' from the medical records they screened once the chart reviews had been completed.

child check during the project months. Clinics screened their medical records for project inclusion in two ways: 1) All well-child checks that resulted in a referral based on developmental or social/emotional concerns were included in the data collection. 2) Clinics then sampled additional medical records from well-child checks that had occurred during the project months. These charts were reviewed to assess the routine screening process clinics utilize during well-child checks and to look for patterns of under-referral. After following project sampling protocol, clinic staff manually ensured additional well-child check records represented a distribution of providers at each clinic.

Screening

Clinics collected data about provider utilization of an evidence-based screening tool during visits or if referrals were generated based on concerns expressed by parents/guardians.

Referrals

Data was collected to facilitate calculation of screening-to-referral timelines, mode of referral transmission, and referral recipients. Clinicians also audited data regarding follow-up communication with clinics and the direction of that communication.

Service Follow-up

If clinics had received follow-up or were able to contact the referral recipient regarding services, the clinics reported data about screening timelines, eligibility, and enrollment in services.

Data and Analysis

Overview

From the five clinics participating in the ABCD Retrospective Medical Record Review Project, 148 patient charts were reviewed for project-pertinent data. Of those charts, 53 medical records (36%)[3] were included based on the referral that was triggered from the visit; an additional 95 medical records (64%) were reviewed based on well-child checks during the project months (March/April, 2016).[4]

When the functionality was available, clinic staff used reporting functions in the Electronic Health Record (EHR) to track use of screening tools, referrals, and follow-up. Other clinics collected information manually from paper charts.

The average[5] age of children whose charts were reviewed was 24.8 months (median: 19 months), and the average age of children who were not referred to services was 25.5 months. The average age of children whose visits generated referrals within the two-month sample were 23.4 months (median: 24 months).[6]

Screening Data

Of the charts reviewed, providers consistently utilized an evidence-based tool to screen for developmental and social/emotional delays. Seven of the medical records (4.7%) did not

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[3] This represented 54 referrals, as one child received referrals to two different specialties which were sent at different times. Neither of these referrals was made to *Help Me Grow.* Patient data was analyzed utilizing 53 referral records; referral data was analyzed to include both referrals.

[4] One clinic submitted four referrals that appear to be outside of the date range of the project but contained data helpful in understanding clinic practice. This data was included in the referral data set.

[5] In this document 'average' is reported as the mean.

[6] A 2-sample t-test between means was performed to determine whether there was a significant difference between the ages of patients who were referred for developmental or social/emotional concerns versus those whose well child check did not result in a referral. The t-statistic was not significant at the .05 critical alpha level; we failed to reject the null hypothesis and conclude that the difference between the project population and the referral population is not significant.

have evidence that the tool was utilized during the visit. Of the medical records missing evidence-based screening, six of them were from referrals, which constituted 12.5% of the referrals in the sample.

Three of the five clinics were able to abstract data regarding previous use of the evidence-based tool; this sample included 103 medical record reviews. Eighty-three of these charts (80%) had documentation of previous screening, and most had documentation of multiple screenings at regular intervals.

Of the 20 charts that did not have previous documentation of evidence-based screening, eight of the patients were two months of age or younger. One additional medical record review noted that the patient was new to the clinic. Within these three clinics, the data demonstrates consistent use of an evidence-based developmental assessment as an iterative measure of developmental milestones.

Referrals

Of the 54 referrals, 31 had documentation of a parent/guardian concern regarding the child's development (57%). The remaining 23 referrals were made based on evidence-based screening tool findings or provider assessment (43%). The majority of the referrals – 17 of the 31 (54.8%) – were due to speech or language, five (16.1%) indicated the referral was due to either fine or gross motor deficits, five (16.1%) due to emotional/behavioral concerns, two (6.5%) for toilet training concerns, two (6.5%) were referrals for other reasons.

Four well-child checks had parental concerns documented in the chart but did not generate a referral. In one case, the chart reviewer noted that a referral was not sent based on the child’s performance during the evidence-based screening. For this case, the clinic provided the patient’s mother with information on the *Help Me Grow* program.

In other documentation within the data collection tool, clinics reported an additional four referrals related to fetal drug or alcohol exposure, two diagnoses resulting in referrals to pediatric orthopedic specialists (“leg issues” and a “congenital defect”) and two diagnoses resulting in referrals to pediatric gastroenterology (“constipation” and “hernia”). Remaining referrals were based on provider assessment/judgment or results of evidence-based screening.

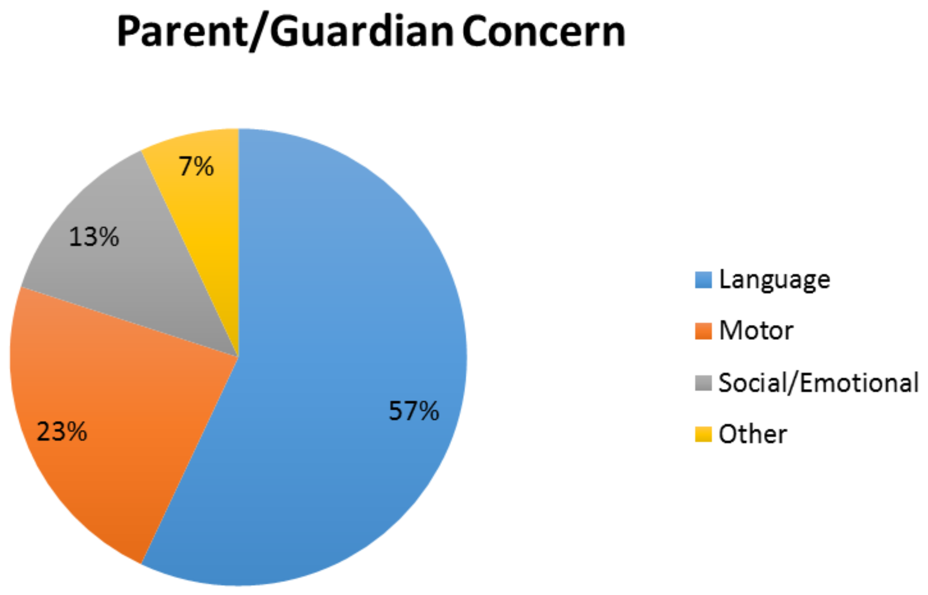

Figure 1: Pie chart depicting the types of parental concerns that resulted in EI/ECSE referrals

Clinics sent their referrals to a combination of community resources, both public and private. Most clinics utilized EI/ECSE resources from partner school districts, but one clinic mainly utilized referral streams within their health system or the community (e.g. private speech, occupational, or physical therapy). Of the 54 referrals, 37 were made to *Help Me Grow*.

While one of the clinics referred children to one EI/ECSE provider and another only followed up on referrals sent to one EI/ECSE provider, several clinics have additional complexity with their referral recipients and follow-up mechanisms. One of the clinics sent referrals to seven different EI/ECSE entities within the two-month project period.

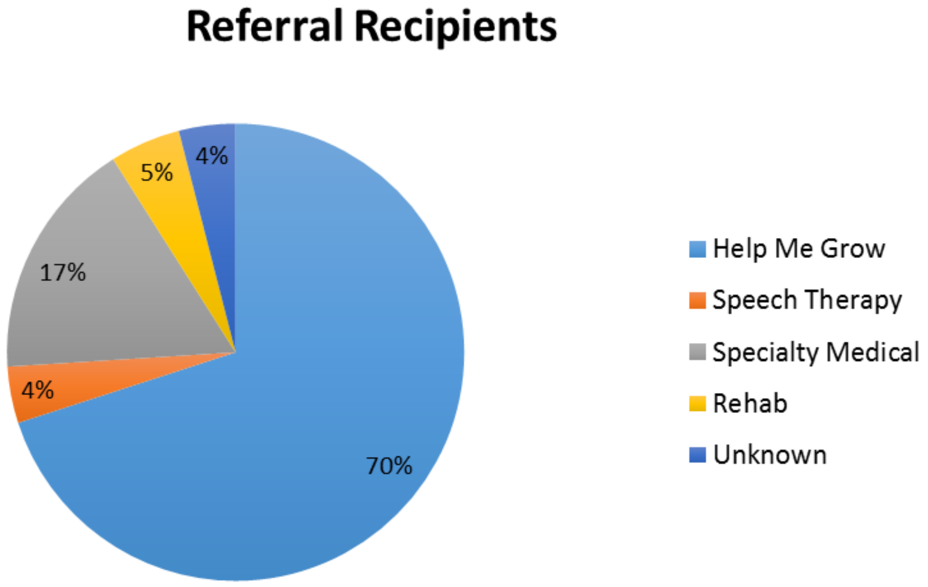

Figure 2: Pie chart summarizing the distribution of referral recipients

ABCD providers triggered 38 referrals (70%), while 16 referrals (30%) were made by providers within the clinics who are not affiliated with the ABCD program. This mirrors the overall data collected; 73% of charts reviewed were patients of ABCD providers; 27% were patients of unaffiliated providers. However, of the 37 *Help Me Grow* referrals, 35 were sent by ABCD providers. [7] Though not statistically significant, this highlights an opportunity for *Help Me*

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[7] 2-sample t-tests between proportions were performed to determine whether there was a significant difference between referral percentages of the ABCD providers versus those who are unaffiliated with the program. The t-statistic was not significant at the .05 critical alpha level for all tests; we failed to reject the null hypothesis and

Grow awareness for unaffiliated providers.

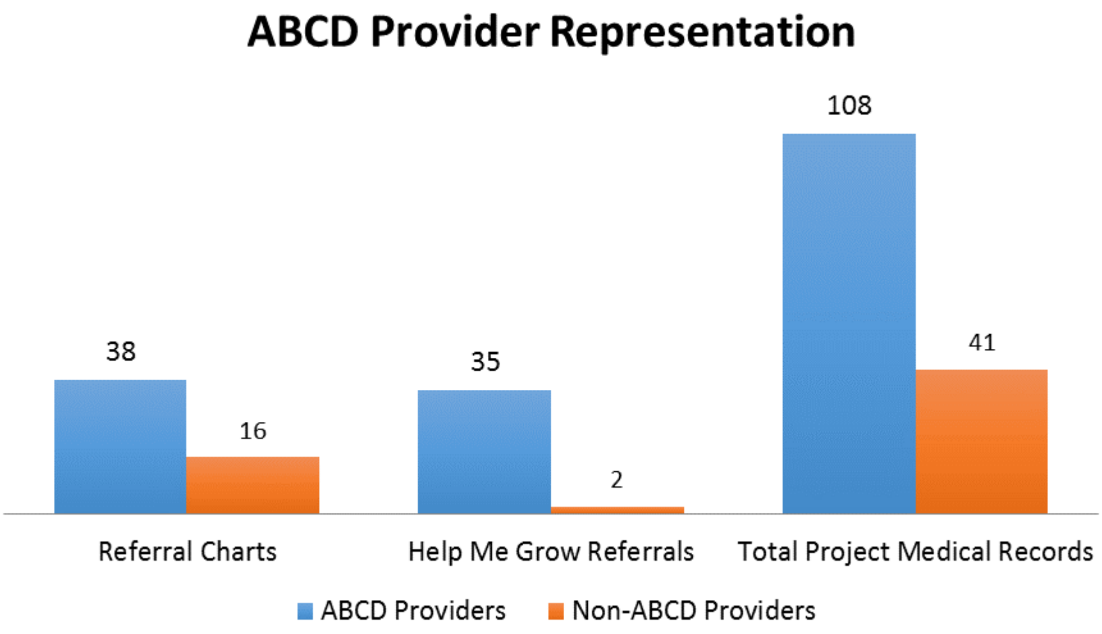

Figure 3: Bar graph depicting that ABCD providers represented over twice as many total and referral medical records in the project as providers who are unaffiliated with ABCD; ABCD providers represent 95% of the Help Me Grow referrals in the project.

Clinics sent referrals via two modes: fax and referral website. Sixty-nine percent of all referrals (35) were sent via fax, while 31% (16) were sent via website.[8] Of the *Help Me Grow* referrals, 21 were faxed (57%), and clinics used the website for 16 (43%). In discussion with chart reviewers during data collection training, two specifically stated that the website had streamlined process and improved referral feedback mechanisms. Mode of referral did not correlate with rates of follow-up documentation.

The majority of referrals were sent on the same day of the well-child check, with 91% completed within the first week. Six percent of the referrals were sent greater than two weeks

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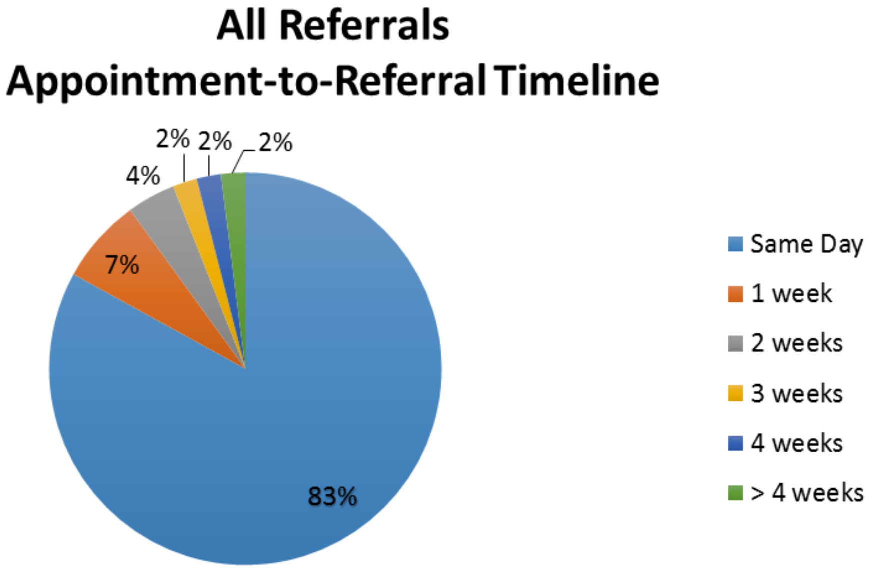
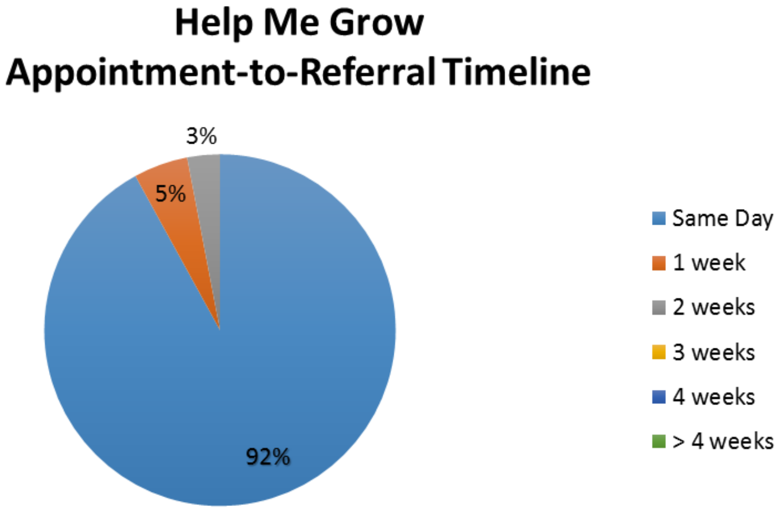
conclude that the difference between the project population and the referral population was not significant with the small size of the sample.

[8] Three referral charts did not indicate the mode of referral.

after the appointment date.[9] Of the *Help Me Grow* referrals, all but 3 (92%) were made on the same day.





Figures 4 & 5: Pie charts showing clinic well-child check-to-referral timelines: Over 80% of referrals were sent the same day and 90% within a week of the appointment. Six percent of referrals were sent two weeks or more after the appointment. Ninety-two percent of Help Me Grow Referrals were sent on the day of the appointment, with only one referral sent more than a week after the well-child check.

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[9] One patient had two referrals generated off the same visit, one sent the same day. The second referral was made fourteen days after the initial visit.

Referral Follow-up

Once a referral had been sent, communication feedback to clinics was inconsistent when looking at both mechanism of communication and the content of what was received and documented. Three of the clinics reported they had a mechanism to keep track of open referrals; only one of the clinics had a mechanism to follow the referrals via their EHR.

Follow-up tracking practice also varied among the clinics. Most of the clinics reported documenting/filing data from referral recipients when it came in; one clinic relied on hand-written notes on the patient's face sheet. Only one clinic reported following up actively with EI/ECSE providers or parents via telephone to ask about the outcomes of open referrals.

Despite training on the approved data collection tool, pertinent data about referral follow-up was found in several sections within the tool. Data has been compiled from multiple fields to identify patterns. While the data is not statistically significant or necessarily representative of ABCD project practice, the information is interesting to broaden understanding of follow-up practices within the sample.

Among the 54 referrals, 14 charts had no follow-up documented. Of the 37 *Help Me Grow* referrals, 9 had no follow-up documented. Four of these medical records had documentation that the EI/ECSE entity is across a county line from the clinic, and because of this, the clinic intentionally does not follow up on these referrals.

Six of the charts had documentation that the referral recipient was unable to contact the parent/guardian. The EI/ECSE practices for reaching out to parents and guardians was unknown, but in one chart, the clinic had documentation that EI/ECSE had attempted to contact parents three times. In another case, the child had an appointment scheduled that was cancelled by the parent. EI/ECSE reported they were unable to contact the parent after the cancellation.

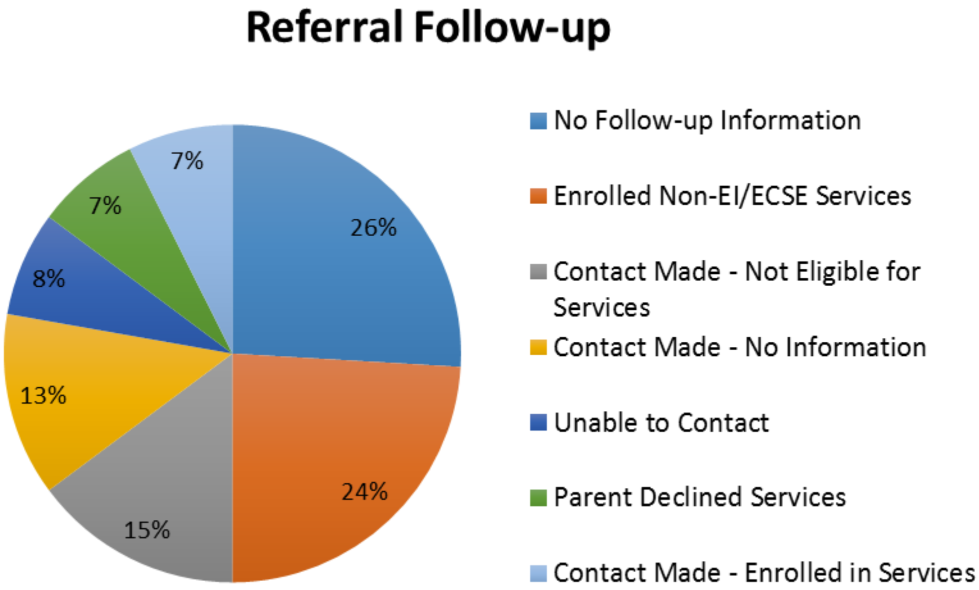


Figure 6: Pie chart depicting referral follow-up information

In five cases, the clinics had documentation that parents declined services. In these records, it was unclear if an assessment was completed to determine eligibility before the parent declined. In two of the five, there was documentation of parents declining services with the clinic's EI/ECSE partner but enrolling in therapy with other providers.

Thirteen of the referral charts had documentation that children had been seen or were enrolled in services outside of the EI/ECSE partnership structure.

For the 37 *Help Me Grow referrals,* EI/ECSE made contact with parents or guardians and evaluated 17 patients (46%). For five of these patients, the results of the evaluation are unclear from the data collection. Eight patients had documentation that they were not eligible for services after evaluation (22%). Of the 37 referrals, four had documentation they had been assessed and were enrolled in EI/ECSE services (11%).

Only eight charts had timelines from well-child check to referral to evaluation. Of these medical records, the average time from initial well-child check to evaluation was 57.5 days (median 37 days). The shortest timeframe was 23 days, while the longest was 140 days. For the 37 referrals to EI/ECSE, 22 patients had the direction of follow-up documented in their charts. Eighteen medical records (48%) had feedback initiated by EI/ECSE to the clinic. Four (11%) had documentation that the clinic had initiated the follow-up.

Conclusions

The clinics involved in the ABCD – Family Medicine Cohort 2016 Quality Improvement Project are a diverse representation of pediatric/family medicine primary care across the state of Minnesota. Screening, referral, and follow-up procedures varied based on the location, size of the clinic, resources available, health care system affiliation, internal process, and EI/ECSE entities within proximity.

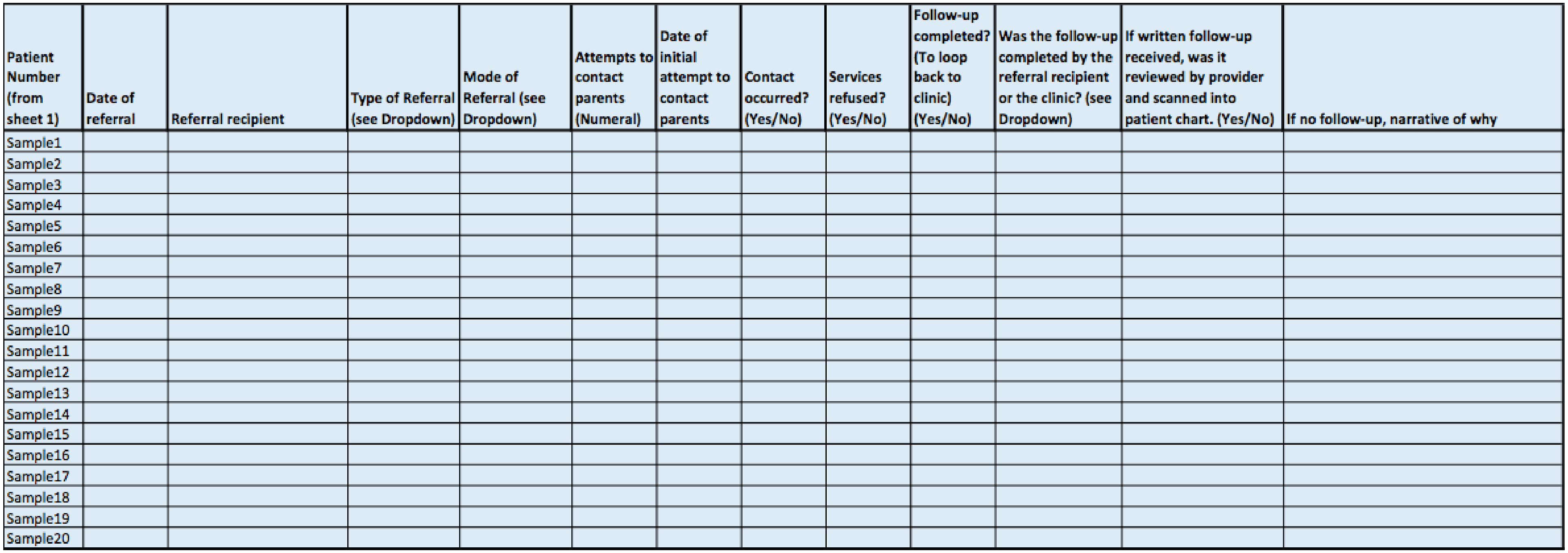
Clinic process was generally consistent, as providers are utilizing the evidence-based screening tool and sending referrals in a timely manner. Information streams and timelines of evaluation and enrollment follow-up were less consistent and had variation across the state. From this information, the Community and Family Health Division and EI/ECSE can identify ways to build reliable communication systems for referral follow-up within the program.

This project was funded by the *Race to the Top Early Learning Challenge Grant* awarded to the Minnesota Department of Education in 2011.

Appendix A: Data Collection Tool Sample

Patient Number (from sheet 1)	Type of chart audit (see Dropdown)	Date of appointment	Age of child at time of appointment (Years/Months)	Evidence-based screening tool used? (Yes/No)	Is the provider an ABCD participant? (Yes/No)	Date (Month/Year) of Evidence-based screening tool usage (If utilized in the past)	Developmental/ Social-Emotional concern voiced by parent/guardian? (Yes/No)	If parental concern, when was this noted? (Month/Year)	If parental concern, narrative of developmental concern	Referral made? (Yes/No) (If Yes, complete columns L-W)
Sample1										
Sample2										
Sample3										
Sample4										
Sample5										
Sample6										
Sample7										
Sample8										
Sample9										
Sample10										
Sample11										
Sample12										
Sample13										
Sample14										
Sample15										
Sample16										
Sample17										
Sample18										
Sample19										
Sample20										

Appendix Figure 1: Picture of the data collection tool utilized for all medical record reviews: Column 1: Patient Number column, Column 2: Type of chart audit, Column 3: Date of Appointment, Column 4: Age of child at time of appointment (in years/months), Column 5: Evidence-based Screening tool used (yes/no), Column 6: Is the provider an ABCD participant



Patient Number (from sheet 1)	Date of referral	Referral recipient	Type of Referral (see Dropdown)	Mode of Referral (see Dropdown)	Attempts to contact parents (Numeral)	Date of initial attempt to contact parents	Contact occurred? (Yes/No)	Services refused? (Yes/No)	Follow-up completed? (To loop back to clinic) (Yes/No)	Was the follow-up completed by the referral recipient or the clinic? (see Dropdown)	If written follow-up received, was it reviewed by provider and scanned into patient chart. (Yes/No)	If no follow-up, narrative of why
Sample1												
Sample2												
Sample3												
Sample4												
Sample5												
Sample6												
Sample7												
Sample8												
Sample9												
Sample10												
Sample11												
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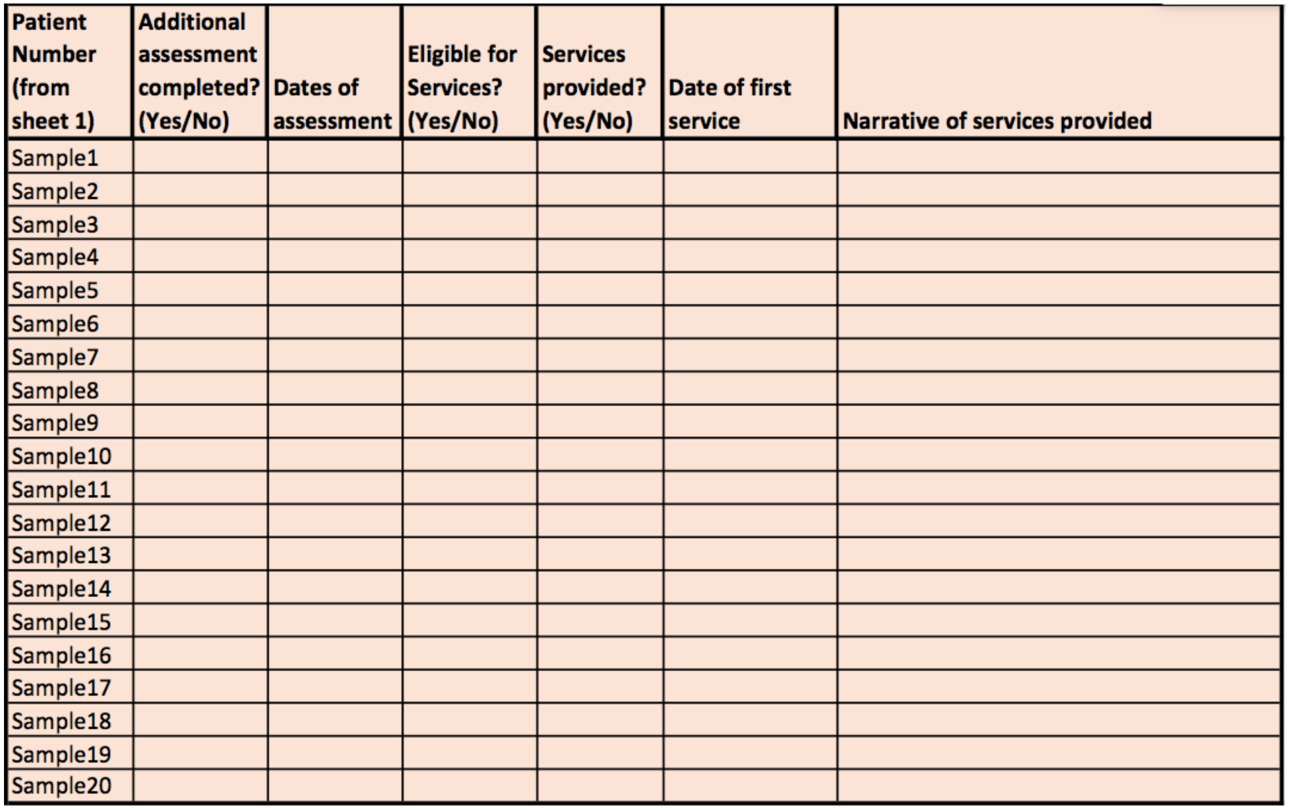
Sample15												
Sample16												
Sample17												
Sample18												
Sample19												
Sample20												

Appendix Figure 2: Data collection tool utilized for well-child checks that resulted in a referral. Includes: Column 1: Patient Number; Column 2: Date of referral; Column 3: Referral recipient; Column 4: Type of referral; Column 5: Mode of referral; Column 6: Attempts to contact parents; Column 7: Date of initial attempt to contact parents; Column 8: Contact occurred? (yes/no); Column 9: Services refused? (yes/no); Column 10: Follow-up completed? (To loop back to clinic) (yes/no); Column 11: Was the follow-up completed by the referral recipient or the clinic? Column 12: If written follow-up received, was it reviewed by provider and scanned into patient chart? Column 13: If no follow-up, narrative of why



Patient Number (from sheet 1)	Additional assessment completed? (Yes/No)	Dates of assessment	Eligible for Services? (Yes/No)	Services provided? (Yes/No)	Date of first service	Narrative of services provided
Sample1						
Sample2						
Sample3						
Sample4						
Sample5						
Sample6						
Sample7						
Sample8						
Sample9						
Sample10						
Sample11						
Sample12						
Sample13						
Sample14						
Sample15						
Sample16						
Sample17						
Sample18						
Sample19						
Sample20						

Appendix Figure 3: Picture of the data collection tool utilized for medical records with documented follow-up. Includes Column 1: Patient Number; Column 2: Additional assessment completed (yes/no); Column 3: Dates of assessment; Column 4: Eligible for services? (yes/no); Column 5: Services provided? (yes/no); Column 6: Date of first service; Column 7: Narrative of services provided