Carolina Kids Pediatrics:

Summary of Quality Improvement Initiatives, 2019-20

Measure 1: Alternative Visit Appointments

Reason: Patients with acute care needs sometimes are not available for care during available appointment time slots, or their acute care needs are too urgent to wait for the next available acute care appointment slot. In order to encourage patients with acute care needs to come to their medical home instead of a "walk-in" urgent care center or ED, the practice needs to have the flexibility to provide acute care outside of scheduled appointment openings. We define "alternative" visits as same-day acute care visits that occur outside of available open slots on provider schedules. Numerator: Number of patients who presented for weekday acute care visits during the measurement period who received an "alternative" visit instead of a regular scheduled same-day, acute care appointment. Denominator: All patients who presented for an acute care visit (scheduled OR alternative) during the measurement period. Measure source: At least once monthly, a retrospective practice schedule review from the practice electronic medical record was conducted to tabulate alternative visits and total acute care visits (scheduled and alternative).

Process for Data Collection:

The practice appointment schedule from our electronic medical record was reviewed for half-month periods retrospectively after the conclusion of the half-month measurement period. The number of patient visits in the numerator and denominator categories (see above) were manually counted for all providers in the practice for all non-holiday weekdays during the measurement period. At least one measurement period was reviewed each month.

Baseline Performance:

***Baseline Start Date*:** 10/15/2019 ***Baseline End Date*:** 10/31/2019

Baseline Performance Measurement (% or #): 2/224 = 0.9%

Numeric Goal (% or #): 3%

***Quality Improvement Actions*:** Administrative staff were educated on the need to accommodate patients requesting unscheduled acute care, either by "walking in" without an acute care appointment, or by phone if an available same-day acute care appointment did not meet the patient's needs. Scripts for interacting with patients with these needs were reviewed. Specifically, patients were to be accommodated not only during regular hours, but also during the practice lunch hour and during the practice's extended hours between 5 pm and 6:30 pm for urgent needs. Phone triage staff was also educated on the above, and on phone scripts that would help accommodate patients with the need for an alternative acute care visit.

Remeasurement of Performance:

Start Date: 1/15/2020 ***End Date*:** 1/31/2020

Performance Remeasurement (% or #): 12/414 = 2.9%

Conclusion: Performance improved from 0.9% during the baseline period to 2.9% during the remeasurement period. Number of alternative visits as a proportion of total sick visits increased. Ongoing monitoring is needed to insure that improvement continues during seasonal variations in illness patterns seen in clinic.

Measure 2: Scheduled Acute Care (Sick) Appointment Availability

Reason: Due to the retirement of a physician in our practice as of 12/31/2019, we wanted to insure that we maintained adequate availability of acute care (sick) appointments in our schedule due to the decrease in providers in the office. Every other week, using a calculator in our electronic medical record, we measured the time available for sick appointments weekly on Monday for a period starting the next day for 8 days (Tuesday to Tuesday). Prior to Dr. Foor's retirement, the office had 6 providers and had about 100 hours of sick appointment availability for each measurement period, which met the needs of our patients without filling our schedule to capacity. During the baseline period (1/14/2020 – 1/21/2020) immediately after the retirement of Dr. Foor, this availability decreased to 66 hours. This was a measure targeted for quality improvement. Definition: Acute care appointment time included all appointment time, in hours, not categorized as preventive or well care appointment time for all providers in the office schedule.

Process for Data Collection: Prospective review of available sick appointments using the QIC calculator of Office Practicum, PCMH Custom tab, AC02 measure on the day prior to measurement period (typically Monday).

Baseline Performance:

***Baseline Start Date*:** 1/14/2020 ***Baseline End Date*:** 1/21/20

Baseline Performance Measurement (% or #): 66 total hours

Numeric Goal (% or #): 100 hours

***Quality Improvement Actions*:** The managing physician partner would coordinate with the office manager to review the office schedule to insure that enough of the office schedule remained available for sick or acute care appointments each week, while insuring that preventive care appointments were still available for each provider within a 3-4 week timeframe. When insufficient sick appointments remained, physicians were notified by text message by the office manager and added alternative sick appointments to their schedule. Additionally, if insufficient sick appointments were available at the end of the day, more than one physician would add evening appointments after 5 pm.

Remeasurement Performance:

Start Date: 2/25/20 ***End Date*:** 3/3/20

Performance Remeasurement (% or #): 121 total hours

Conclusions: The number of available sick or acute care appointment hours increased from 66 hours for all providers during the baseline period to 121 hours for all providers during the remeasurement period, exceeding the goal of 100 hours. The performance goal was met. We will continue this process to determine if performance is maintained during other seasons of the year, when the needs for preventive care visits for school-age children increase (especially the summer months).

Measure 3: Timely Completion of HPV Vaccination

Reason: The CDC and AAP recommend completion of the HPV vaccine series within 6-12 months after the first dose is given in adolescents 11-12 years and older. Because many adolescents do not come to a health care provider frequently, many do not complete the HPV vaccine series on time, which may impact vaccine efficacy. More proactive reminder/recall systems are needed to insure timely HPV vaccine completion. Numerator: Number of adolescents age 11 and over who completed the HPV vaccine series within the timeframe recommended by CDC and AAP guidelines during the measurement period. Denominator: All adolescents who completed the HPV vaccine series during the measurement period (including both those who completed the series within the recommended time frame and those who took longer than the recommended time frame to complete the series).

Process for Data Collection: All HPV vaccines given were pulled monthly using the "Vaccines Given" feature of the Demographic Analysis & Recall function in Office Practicum. Manual chart review for all patients who received an HPV vaccine during that month was conducted to identify patients who completed the HPV vaccine series on time or not on time. Data was aggregated for two month measurement periods.

Baseline Performance:

Baseline Start Date: 7/1/2019 ***Baseline End Date:*** 8/31/2019

Baseline Performance Measurement (% or #): 76/109 = 70%

Numeric Goal (% or #): 75%

***Quality Improvement Actions*:** Monthly review of all HPV doses given through report pulled from EMR. We utilized this list to identify patients who were due for further dose of HPV vaccine AND had not yet scheduled an appointment for this next dose. We contacted all these patients by phone, patient portal, or text message to insure HPV booster dose were scheduled.

Remeasurement Performance:

Start Date: 11/1/2019 ***End Date:*** 12/31/2019

Performance Re-Measurement (% or #): 56/74 = 76%

Conclusions: This is an ongoing quality measure targeted for improvement. During the initial period measured (9/1/2018 – 10/31/2018), performance was 44%. After this initial cycle, providers, nurse management and administrative management teams were educated on goals for this cycle, and patients were asked to schedule booster HPV

dose prior to leaving the office. During measurement cycle from 1/1/2019 – 2/28/2019, performance had improved to 65%. After this cycle, providers were asked to utilize a red sticker on the checkout sheet to remind administrative staff to schedule the next dose of HPV vaccine after appointment. Performance has improved after each measurement cycle over the past 2 years.

Measure 4: Timely Completion of Hepatitis A Vaccination

Reason: The AAP and the CDC recommend routine 2-dose hepatitis A vaccination beginning at 12 months of age with completion by 24 months of age, and a minimum of 6 months between vaccine doses. Because this vaccine series is not initiated in low-risk children until after infancy when the frequency of routine well visits decreases in the second year of life, timely completion rates for hepatitis A vaccine is lower in our practice than it is for other routine immunizations administered in children under the age of 2. Our baseline performance for all other routine vaccines given under age 2 was over 85%, but was only 72% for hepatitis A vaccine. Numerator: Active patients who had 2 doses of hepatitis A vaccine before 2 years of age. Denominator: Active patients who turned 2 years old during the measurement period.

Process for Data Collection: Data for each time period was pulled using the "Vaccines Coming Due" feature of the QIC calculator in Office Practicum. Data was collected every 1-2 months for one month periods.

Baseline Performance:

Baseline Start Date: 10/1/2019 ***Baseline End Date:*** 10/31/2019

Baseline Performance Measurement (% or #): 60/83 = 72%

Numeric Goal (% or #): 75%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka	14/17 = 82%
Dr. Leanna Willey	18/24 = 75%
Dr. Christian Nechyba	6/8 = 75%
Dr. Robert Foor	7/8 = 88%
Dr. Mari Emmet	10/15 = 67%
Dr. Mary Beth Helton	4/6 = 67%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Actions: Generate monthly list of patients between 19 and 23 months who have received only 1 dose of hepatitis A vaccine and thus need a booster. Recall these patients for a second dose of vaccine by phone, portal message or text message.

Date Action Initiated: 1/8/2020

Additional Actions: Review patients between 12 and 24 months on daily schedule during morning huddle to determine hepatitis A vaccine status.

Remeasurement Performance:

Start Date: 1/15/2020 ***End Date:*** 2/14/2020

Performance Remeasurement (% or #): 87/105 = 83%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka	13/14 = 93%
Dr. Leanna Willey	18/20 = 90%
Dr. Christian Nechyba	17/22 = 77%
Dr. Robert Foor	N/A
Dr. Mari Emmet	24/30 = 80%
Dr. Mary Beth Helton	5/6 = 83%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Between the baseline cycle and the remeasurement cycle reported above, there was an interim measurement cycle from 12/1/2019 – 12/31/2019 with a performance of 74%. Performance goal was not quite met and was again set at 75%. Performance goal was met on the second remeasurement cycle. On 11/13/2019, after baseline measurement and before the interim measurement cycle, vaccine completion goals by age 2 were reviewed at a meeting of provider and management team. The following actions were taken: review with all providers need to recall patients for vaccine visit if timing of second hepatitis A dose would not coincide with routine well visit, review with administrative staff the need to schedule second hepatitis A vaccine at checkout before patient leaves clinic whenever possible.

Measure 5: Primary Caries Prevention (Fluoride Varnish) in Toddlers

Reason: The American Academy of Pediatrics recommends the application of fluoride varnish from the time of tooth emergence every 3-6 months until a child establishes a dental home. This intervention significantly decreases the risk of early dental caries (tooth decay). At baseline, 50% of patients between 1 and 3 years of age had fluoride varnish applied by a provider in our office at a preventive care visit, making this a good target for quality improvement. These ages were used as cutoffs because most infants had shown some tooth eruption by age 1, and most of our patients had established care with a dentist by age 3. Numerator: All patients between 1 and 3 years of age who had a preventive care visit during the measurement period and had an application of fluoride varnish by a provider in our office during the measurement period. Denominator: All patients 1 and 3 years of age who had a preventive care visit during the measurement period.

Process for Data Collection: For each measurement period, data was pulled from the KM05 group of the PCMH 2017 KM Concepts section of the QIC Calculator of Office Practicum. This data was pulled monthly.

Baseline Performance:

Baseline Start Date: 10/1/2019 ***Baseline End Date:*** 10/31/2019

Baseline Performance Measurement (% or #): 67/133 = 50%

Numeric Goal (% or #): 60%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka	15/17 = 88%
Dr. Leanna Willey	17/29 = 59%
Dr. Christian Nechyba	17/18 = 94%
Dr. Robert Foor	11/21 = 52%
Dr. Mari Emmet	8/30 = 27%
Dr. Mary Beth Helton	2/18 = 11%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Action: A brightly colored information sheet about the benefits of fluoride varnish was stapled to the intake packet that all families received at check-in during the 12, 18, and 24 month well visits. Nursing team was informed on the goal to increase patient awareness of the benefits of fluoride varnish at check-in. The US Preventive Service Task Force Guidelines for dental caries prevention were reviewed with all providers. Specifically, the evidence for shifting from using fluoride varnish only in high risk patients to universal application was discussed.

Remeasurement Performance:

Start Date: 1/1/2020 ***End Date:*** 1/31/2020

Performance Remeasurement (% or #): 68/132 = 52%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka	19/25 = 76%
Dr. Leanna Willey	11/31 = 35%
Dr. Christian Nechyba	14/16 = 88%
Dr. Robert Foor	N/A
Dr. Mari Emmet	18/42 = 43%
Dr. Mary Beth Helton	6/18 = 33%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Although performance improved slightly from 50% to 52%, the goal of 60% was not met during this period. Additional interventions under discussion include social media outreach regarding the benefits of fluoride varnish, direct patient recall for fluoride varnish when care gaps are identified, and increased focus on this intervention during morning huddles.

Measure 6: Chlamydia Screening in Adolescent Females

Reason: The American Academy of Pediatrics recommends annual chlamydia screening of all adolescent and young adult female patients who are at risk because of potential sexual exposure. Many adolescents are hesitant about discussing sexual activity with physicians due to fear of repercussions from their family and others. Barriers pertaining to inaccurate history provided by adolescents, patient fears about confidentiality, and perceived stigma of sexually transmitted infections made this a good target for quality improvement. Baseline performance for screening was 23%. Numerator: Adolescent females 16 years and older with a preventive visit during the measurement period who had a chlamydia screening test performed. Denominator: All adolescent females 16 years and older with a preventive visit during the measurement period who had documented sexual activity, or past medication or laboratory testing history consistent with past sexual activity, documented in their medical record.

Process for Data Collection: For each measurement period, data was pulled from Measure CMS 153 in the Pediatric CQMs report of the QIC calculator for Office Practicum. Data was pulled every 2-3 months for two month measurement periods.

Baseline Performance:

Baseline Start Date: 8/1/2019 ***Baseline End Date:*** 9/30/2019

Baseline Performance Measurement (% or #): 11/47 = 23%

Numeric Goal (% or #): 30%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka	1/3 = 33%
Dr. Leanna Willey	4/18 = 22%
Dr. Christian Nechyba	1/7 = 14%
Dr. Robert Foor	0/4 = 0%
Dr. Mari Emmet	4/7 = 57%
Dr. Mary Beth Helton	1/9 = 11%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Actions: Chart review was conducted to identify potential markers for chlamydia risk, including past history of pregnancy testing and prescription of oral contraceptives. Provider-specific list of female patients 16 years and older who were identified through this review were reviewed with each provider. Educational materials reviewing the risk of unidentified chlamydia infection and the need to screen for this and other adolescent issues in a confidential manner were provided to all families of patients over 16 at check-in. A confidential adolescent screening questionnaire incorporated questions on sexual activity and was universally administered to all adolescents in this age group. Nurses were asked to collect urine samples on all patients 16 years and older presenting to the office for a preventive visit before encounter with provider.

Remeasurement Performance:

Start Date: 11/15/2019 ***End Date:*** 1/14/2020

Performance Remeasurement (% or #): 12/45 = 27%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka	0/6 = 0%
Dr. Leanna Willey	6/11 = 55%
Dr. Christian Nechyba	3/8 = 38%
Dr. Robert Foor	1 /2 = 50%
Dr. Mari Emmet	0/8 = 0%
Dr. Mary Beth Helton	2/11 = 18%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Performance improved from 23% during the baseline period to 27% during the remeasurement period, which was improved but did not quite meet the performance goal of 30%. This measure is a target for potential future quality improvement. Potential interventions include provider education on best practice interviewing techniques to elicit an accurate sexual history from adolescents and universal screening of all adolescents regardless of risk factors.

Measure 7: Spirometry in Patients with Persistent Asthma

Reason: Guidelines from the National Asthma Education and Prevention Program Expert Panel Report 3 recommend regular spirometry to objectively assess asthma control in children 5 years of age and older with a diagnosis of persistent asthma. Evidence suggests that management of asthma without the objective measures of lung function provided by spirometry can lead to poorer asthma control. During the baseline measurement period, 40% of patients with a diagnosis of persistent asthma had spirometry done in our office as part of their asthma management, making this a good target for quality improvement. Numerator: Patients 5 years and older with a diagnosis of persistent asthma who had spirometry performed in our office during the measurement period as part of a preventive care visit or asthma follow up visit. Denominator: All patients 5 years and older who had a preventive care visit or asthma follow up visit during the measurement period and had a diagnosis of persistent asthma.

Process for Data Collection: The numerator was calculated by pulling a list of all patients with persistent asthma who had spirometry performed during the measurement period using the billing recall function of Office Practicum to search for the relevant spirometry CPT codes (94060 and 94010) and cross-referencing this to the list of patients used to calculate the denominator. The denominator was calculated by pulling a list of patients who had a diagnosis of persistent asthma listed on an encounter during the measurement period (J45.30, J45.31, J45.40, J45.41, J45.50, J45.51) and then reviewing this list manually to filter it for patients 5 years and older who had a preventive

care visit or asthma follow up visit during the measurement period. This data was pulled every 2-3 months for 6 week measurement periods.

Baseline Performance:

Baseline Start Date:7/1/2019 ***Baseline End Date:*** 8/15/2019

Baseline Performance Measurement (% or #): 4/10 = 40%

Numeric Goal (% or #): 50%

Actions: Our nurse asthma care coordinator was trained to review all charts of patients with persistent asthma at least monthly to determine if they had spirometry within the prior 12 month period. If not, she coordinated with the patient's provider and family to arrange an asthma follow up visit. Asthma coordinator insured that treatment decisions resulting from spirometry were incorporated in a written asthma care plan, and that families were familiar with this care plan.

Remeasurement Performance:

Start Date: 11/1/2019 ***End Date:*** 12/15/2019

Performance Remeasurement (% or #): 5/9 = 56%

Conclusions: Inclusion of routine spirometry in asthma care coordination and asthma care plans improved incorporation of spirometry as part of routine care for patients with persistent asthma. This measure will be an ongoing target for improvement, with future goal of over 80%. Potential interventions include patient education materials on the benefits of routine spirometry, increased attention to spirometry in daily huddles, and extended appointment times for patients who require spirometry with asthma follow up.

Measure 8: Appropriate Testing for Children with Pharyngitis

Reason: In order to avoid the overuse of antibiotics for viral pharyngitis, the CDC recommends that clinicians need to use either a rapid antigen strep test or throat culture to confirm bacterial infection with streptococcus prior to prescribing antibiotics for streptococcal pharyngitis.

(Source: https://www.cdc.gov/groupastrep/diseases-hcp/strep-throat.html)

Numerator: Children between 2 and 18 years of age who were diagnosed with pharyngitis, received a streptococcal test (rapid antigen or throat culture) and were prescribed an antibiotic during the measurement period. Denominator: All children between 2 and 18 years of age who were diagnosed with pharyngitis and prescribed an antibiotic during the measurement period, including those who did and those who did not have a streptococcal test performed.

Process for Data Collection: An electronic report, pulled every 3-4 months for a 3-month measurement period from the Pediatric CQM section of the quality improvement calculator of our electronic medical record.

Baseline Performance:

***Baseline Start Date*:** 7/15/2019 ***Baseline End Date*:** 10/14/2019

Baseline Performance Measurement (% or #): 15/18 = 83%

Numeric Goal (% or #): 90%

***Action*:** During a meeting of providers and managers on 11/13/2020, CDC guidelines for streptococcal testing in pharyngitis were reviewed, as well as other literature reviewing the overuse of antibiotics in pharyngitis. (Dooling, KL, et al. Overprescribing and inappropriate antibiotic selection for children with pharyngitis in the United States, 1997-2010. *JAMA Pediatr*, 2014; 168(11):1073-1074.) Case reports of antibiotic overuse from the past year were reviewed with providers, including prescribing antibiotics without a strep test because of patient anxiety about the test, or because a sibling had tested positive, but the index patient had not been tested.

***Additional Actions*:** Standing lab orders were updated, and office nursing staff could initiate a rapid streptococcal test before the provider saw a patient when typical symptoms of streptococcal pharyngitis were present (fever and sore throat without other cold symptoms in children over 2 years old).

Remeasurement Performance:

Start Date: 11/15/2019 ***End Date*:** 2/14/2020

Performance Remeasurement (% or #): 16/16 = 100%

Conclusion: Performance improved from 83% in the baseline period to 100% in the remeasurement period. The performance goal of 90% was met. Improving provider awareness of antibiotic overuse in pharyngitis, and reviewing specific scenarios leading to antibiotic overuse in the past was effective in improving performance on this measure.

Measure 9: Clinical Quality - Addressing Disparities in Care based on Socio-Economic Status

Population:
Adolescents who qualify for the North Carolina VFC program (indicating Medicaid insurance, underinsurance, or no insurance)

Disparity:
Lower rates of HPV vaccine completion

Reason: Patients who qualify for the North Carolina Vaccines for Children (VFC) program either have Medicaid insurance, or are uninsured or underinsured, indicating lower socioeconomic status. Although only a minority of patients served in our clinic fit this criteria, we noted a lower rate of HPV vaccine completion among adolescents in the VFC program compared to patients with private insurance when the data from Measure 2 (Timely Completion of HPV vaccination) was stratified in this way by socioeconomic status. Numerator: Number of adolescents age 11 and over who completed the HPV

vaccine series within the timeframe recommended by CDC and AAP guidelines during the measurement period. Denominator: All adolescents who completed the HPV vaccine series during the measurement period (including both those who completed the series within the recommended time frame and those who took longer than the recommended time frame to complete the series).

Process for Data Collection: All HPV vaccines given were pulled monthly using the "Vaccines Given" feature of the Demographic Analysis & Recall function in Office Practicum. Manual chart review for all patients who received an HPV vaccine during that month was conducted to identify patients who completed the HPV vaccine series on time or not on time and to ascertain VFC status of each patient. Data was stratified by VFC status and aggregated for two month periods.

Baseline Performance:

Baseline Start Date: 7/1/2019 ***Baseline End Date:*** 8/31/2019

Baseline Performance Measurement for Vulnerable Population (% or #): 2/5 = 40%

Baseline Performance Measurement for General Population (% or #): 74/104 = 71%

Numeric Goal (% or #): 75%

Action: For the general population, attempts were made to reach families who had not scheduled a timely visit to complete the HPV series after the initial dose was given. These outreach attempts were made by phone, patient portal message or text message. Due to the likelihood that patients in the vulnerable population might have additional barriers to this intervention (including possible lack of patient portal access, parent work schedules, transportation difficulties, etc.), more attempts would be made to reach families in the vulnerable population group (at least 4 attempts). VFC status was indicated on patient recall lists to assist staff in identifying vulnerable patients. Patient recall lists were managed monthly. Patients in the vulnerable population who were not reached to schedule timely vaccine follow up during the initial month were then added to the recall list for the subsequent month. In addition, charts were reviewed to insure that alternate phone numbers for families were attempted.

Remeasurement Performance:

Start Date: 11/1/2019 ***End Date:*** 12/31/2019

Performance Re-Measurement for Vulnerable Population (% or #): 6/7 = 86%

Performance Re-Measurement for General Population (% or #): 50/67 = 75%

Conclusions: Performance re-measurement increased from 40% in the vulnerable population during the initial period to 86% during the re-measurement period. The performance goal of 75% was met. Additionally, performance in the vulnerable population exceeded that in the general population during the remeasurement period, indicating that actions taken were effective for decreasing the identified disparity for this measure. However, due to the relatively small number of patients in the vulnerable population group during each measurement period, performance needs to be monitored on an ongoing basis to insure that this improvement is consistent over time.

Measure 10: Autism Screening in Toddlers

Reason: The American Academy of Pediatrics recommends that all toddlers be screened for autistic spectrum disorder at 18 months and 2 years of age in addition to other recommended developmental screening. Early identification of autism improves the outcome of early intervention programs. Although our practice has performed universal general developmental screening at all well visits, structured screening for autism using the modified checklist for autism in toddlers revised (M-CHAT R) was 60% during the baseline period, making this an excellent target for quality improvement intervention. Numerator: All patients who had two M-CHAT-R autism screening evaluations documented in our EMR during the measurement period and had a 2 year well visit during the measurement period. Denominator: All patients who had a 2 year well visit during the measurement period and had been active patients in the practice for at least the prior 6 months. Source: Patient lists pulled based on date of birth for the measurement period, followed by individual chart reviews.

Process for Data Collection: For each 2-month measurement period, patient lists were pulled from our electronic medical record of all patients who turned 2 years old during the measurement period. Each patient's chart was then reviewed to determine patients who qualified for the group specified in the denominator (patients who had a 2 year well visit during the measurement period and had been active patients with the practice for at least 6 months prior to this date), and for patients within that group who had at least 2 M-CHAT-R autism screens documented in the electronic medical record. Data was further stratified by provider in order to provide individualized provider feedback.

Baseline Performance:

Baseline Start Date: 8/1/2019 ***Baseline End Date****:* 9/30/2019

Baseline Performance Measurement (% or #): 43/72 = 60%

Numeric Goal (% or #): 70%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka:	11/11 = 100%
Dr. Leanna Willey:	15/16 = 94%
Dr. Christian Nechyba:	9/12 = 75%
Dr. Robert Foor:	3/11 = 27%
Dr. Mari Emmet:	10/16 = 63%
Dr. Mary Beth Helton:	3/7 = 43%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Actions**:** The M-CHAT R was added as a task to complete for families through our electronic patient portal as soon as either an 18 month or 2 year well visit was

scheduled. Providers were educated on where to view M-CHAT R screens completed through the patient portal, and how to review them in preparation for the office visit. During schedule reviews at daily morning huddles, patients with 18 month and 2 year well visits were highlighted, and need to complete M-CHAT R was added to task lists on the written patient schedule.

Remeasurement Performance:

Start Date: 11/1/2019 ***End Date*:** 12/31/2019

Performance Remeasurement (% or #): 28/39 = 72%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka	6/9 = 67%
Dr. Leanna Willey	9/9 = 100%
Dr. Christian Nechyba	3/3 = 100%
Dr. Robert Foor	1 /4 = 25%
Dr. Mari Emmet	7/10 = 70%
Dr. Mary Beth Helton	3/5 = 60%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Increased rates of completion of M-CHAT R autism screening is demonstrated by improvement from 60% during the measurement period to 72% during the remeasurement period. The performance goal was met. Improvements were due both to portal completion of the M-CHAT R prior to the visit, as well as to increased emphasis at morning huddles with addition of written reminders to the daily schedule printout.

Measure 11: Adolescent Depression Screening

Reason: According to American Academy of Pediatrics guidelines, "patients ages 12 years and older should be screened annually for depression (MDD or depressive disorders) with a formal self-report screening tool either on paper or electronically (universal screening)." (Source: Guidelines for Adolescent Depression in Primary Care. Zuckerbrot RA, et al. *Pediatrics*. March 2018, 141(3) e20174081. Link: https://pediatrics.aappublications.org/content/141/3/e20174081#sec-15) During the baseline measurement period, 75% of adolescent patients in our practice had depression screening using the PHQ-2 standardized screen documented in their electronic medical record. Providers in the practice agreed that this number should be improved given the guideline for universal screening. Numerator: All qualifying patients 12 years and older who had a standardized depression screen documented in the electronic medical record during the measurement period. Denominator: All patients 12 years and older who had a preventive care visit during the measurement period.

Process for Data Collection: Bimonthly, for each 2-month measurement period, the CMS2 measure group in the Alternate CQMs measure of the quality improvement

calculator in our practice EMR was pulled. This report was then also stratified for individual providers.

Baseline Performance:

Baseline Start Date: 8/1/2019 ***Baseline End Date:*** 9/30/2019

Baseline Performance Measurement (% or #): 232/309 = 75%

Numeric Goal (% or #): 80%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka:	37/47 =	79%
Dr. Leanna Willey:	56/69 =	81%
Dr. Christian Nechyba:	62/73 =	85%
Dr. Robert Foor:	17/41 =	42%
Dr. Mari Emmet:	34/38 =	90%
Dr. Mary Beth Helton:	26/41 =	63%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

***Actions*:** Prompts for PHQ-2 questions were added to all well child electronic note templates for age 12 and older. The PHQ-2 standardized depression screen was reviewed at an office meeting with providers, nursing management, and administrative management. Template prompts, as well as AAP guidelines for universal adolescent depression screening, were reviewed. Appropriate completion of the "Risk Assessment" portion of depression screen in electronic record, as well as documentation of plan for positive screening in this field, was also reviewed.

Remeasurement Performance:

Start Date: 11/15/2019 ***End Date*:** 1/14/2020

Performance Remeasurement (% or #): 183/221 = 83%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka	33/37 =	89%
Dr. Leanna Willey	57/61 =	93%
Dr. Christian Nechyba	44/50 =	88%
Dr. Robert Foor	19/35 =	54%
Dr. Mari Emmet	19/20 =	95%
Dr. Mary Beth Helton	11/18 =	61%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Standardized depression screening rates improved from 75% to 83%, meeting the performance goal. Further interventions contemplated include incorporation of depression screen onto pre-visit patient tasks on the patient portal.

Measure 12: Electronic Care Coordination for Outbound Referrals

Reason: A key component of coordinating care with specialists to whom the practice refers is timely outbound transmission of relevant medical records from our office with a patient's referral. In the past, paper medical records were often provided by our office to specialists by our medical records department after the initial referral had been arranged. Transmission of records on paper was slower and did not consistently reach the specialist in a timely manner. During the baseline measurement period, only 27% of outbound referrals to specialists included transmission of outbound medical records by electronic transmission at the same time the referral was generated. Transmission of records electronically at the same time a referral was generated was therefore a target for quality improvement. Numerator: New specialist referrals during the measurement period accompanied by simultaneous electronic transmission of medical records with the referral. Denominator: All new specialist referrals during the measurement period. Source: Monthly, this measure was pulled electronically for each 1-month measurement period from the MU Modified Stage 2 section, Measure 5, of our electronic medical record's quality improvement calculator.

Process for Data Collection: Monthly, this measure was pulled electronically for each 1-month measurement period from the MU Modified Stage 2 section, Measure 5, of our electronic medical record's quality improvement calculator. Data was then also stratified for each individual provider.

Baseline Performance:

Baseline Start Date: 8/1/2019 ***Baseline End Date:*** 8/31/2019

Baseline Performance Measurement (% or #): 15/55 = 27%

Numeric Goal (% or #): 50%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka:	0/16 =	0%
Dr. Leanna Willey:	1/8 =	13%
Dr. Christian Nechyba:	12/12 =	100%
Dr. Robert Foor:	0/4 =	0%
Dr. Mari Emmet:	1/10 =	10%
Dr. Mary Beth Helton:	1/5 =	20%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

***Actions*:** Providers were educated on a new workflow in which generation of referrals through our electronic medical record system would generate a request for electronic

transmission of medical records at the same time as the referral was processed. The office also employed a new medical records administrative staff member who was trained in following up on this workflow. The new referral workflow with simultaneous electronic medical record transmission to specialists with the referral was reviewed in morning huddles with nursing staff, who often arranged specialist appointments.

Remeasurement Performance:

Start Date: 12/1/2019 ***End Date:*** 12/31/2019

Performance Re-Measurement (% or #): 18/25 = 72%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka: 4/5 = 80%

Dr. Leanna Willey: 1/1 = 100%

Dr. Christian Nechyba: 8/8 = 100%

Dr. Robert Foor: 0/0 = 0%

Dr. Mari Emmet: 4/10 = 40%

Dr. Mary Beth Helton: 1/1 = 100%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Percentage of outbound referrals for which electronic medical records were simultaneously transmitted increased from 27% during the baseline period to 72% during the remeasurement period, exceeding the target of 50%. Of note, patients who stated that the practice "always" shared information well with specialists on our patient survey improved from 39% in the third quarter of 2019 to 62% in the fourth quarter of 2019, indicated improved patient satisfaction with specialist care coordination. Although this was not a primary outcome measure of this QI project, improved patient satisfaction with specialist care coordination on completed patient surveys during this period is notable.

Measure 13: Generic Prescribing

Reason: A key component of reducing prescription drug costs is choosing lower cost, generic medications whenever possible. Published data indicates that at least 80% of medications prescribed in the U.S. have been generic in recent years. (Source: *Making Medicines Affordable: A National Imperative,* National Academy of Sciences, Committee on Ensuring Patient Access to Affordable Drug Therapies; Nass SJ, et al, National Academic Press (US); 2017 Nov 30.) Our baseline period showed generic prescription rate of 73%, which made this an excellent target on QI efforts targeting health care costs. Numerator: generic prescriptions created during the measurement period. Denominator: all prescriptions created during the measurement period.

Process for Data Collection: Monthly, this data was pulled electronically from the "Internal Pediatric Quality Measures" section of the quality improvement calculator in our electronic medical record.

Baseline Performance:

Baseline Start Date: 8/1/2019 ***Baseline End Date:*** 8/31/2019

Baseline Performance Measurement (% or #): 565/772 = 73%

Numeric Goal (% or #): 75%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka: 85/139	=	81%
Dr. Leanna Willey: 105/175	=	60%
Dr. Christian Nechyba: 196/231	=	85%
Dr. Robert Foor: 80/86	=	93%
Dr. Mari Emmet: 50/74	=	68%
Dr. Mary Beth Helton: 49/67	=	73%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Actions: Generic prescribing rates were reviewed for each provider. Patterns of specific brand-name prescriptions and prescription classes with generic alternatives prescribed by each provider were reviewed by pulling medication lists. Information on free, comparison-shopping pharmaceutical discount programs was disseminated to patients on our social media outlets and displayed prominently within our office.

Remeasurement Performance:

Start Date: 1/1/2020 ***End Date:*** 1/31/2020

Performance Remeasurement (% or #): 785/995 = 79%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka: 151/200	=	76%
Dr. Leanna Willey: 149/204	=	73%
Dr. Christian Nechyba: 235/281	=	84%
Dr. Robert Foor: N/A		N/A
Dr. Mari Emmet: 154/186	=	83%
Dr. Mary Beth Helton: 93/120	=	78%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusion: Performance improved from 73% during the baseline period to 76% during an initial remeasurement period from 10/1/2019-10/31/2019, then improved to 79% during the second remeasurement period (see above). The goal of 75% was reached, and significant improvement was noted. Patient feedback on social media and in person also indicated cost savings through discount pharmaceutical programs.

Measure 14: Referral to Community Resources (Healthy Lifestyle and Developmental/Mental Health Concerns)

Reason: Our community offers a number of pediatric resources at little or no cost to assist families in the areas of healthy lifestyle (weight management/ physical fitness) developmental delay and mental health concerns. These resources are often a more cost-effective, holistic, and community-centered way of addressing these issues compared to specialty referral. At baseline, 3.4% of patients had an active referral initiated by the practice to a community resource related to healthy lifestyle goals or developmental/mental health concerns. Numerator: Active patients with a community resource referral in the area of healthy lifestyle or developmental/mental health concerns during the measurement period. Denominator: All active patients during the measurement period.

Process for Data Collection: Every 4-6 months, this measure was pulled as an electronic report from Measure Group 4Bs in the PCMH section of our electronic medical record's quality improvement calculator.

Baseline Performance:

Baseline Start Date: 10/15/2018 ***Baseline End Date:*** 2/15/2019

Baseline Performance Measurement (% or #): 240/7086 = 3.4%

Numeric Goal (% or #): 5%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka: 24/2709	=	0.9%
Dr. Leanna Willey: 12/2939	=	0.4%
Dr. Christian Nechyba: 46/2025	=	2.3%
Dr. Robert Foor: 2/3314	=	0.06%
Dr. Mari Emmet: 4/240	=	1.7%
Dr. Mary Beth Helton: 0/37	=	0%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Actions: **(Baseline to Cycle 1):** A list of 5 community resources having to do with healthy lifestyle and developmental/mental health concerns was compiled and reviewed with providers and nursing staff. Fliers about two of these community resources was prominently displayed in clinic areas for patients.

Actions: **(Cycle 1 to Cycle 2):** The list of community resources in the areas listed above was expanded to 9. New resources were reviewed with providers and nursing staff. Information on an additional two community resources was displayed in the office.

Cycle 1 Remeasurement:

Start Date: 3/1/2019 ***End Date:*** 6/30/2019

Performance Remeasurement (% or #): 321/7066 = 4.5%

Numeric Goal (% or #): 5%

Stratified Data by Provider: (Cycle 1 Remeasurement Period)

Dr. Jeff Tanaka: 29/2685	=	1.1%
Dr. Leanna Willey: 25/2982	=	0.8%
Dr. Christian Nechyba: 99/2001	=	5%
Dr. Robert Foor: 8/3285	=	0.2%
Dr. Mari Emmet: 154/441	=	35%
Dr. Mary Beth Helton: 4/169	=	2.4%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Cycle 2 Remeasurement:

Start Date: 7/15/2019 ***End Date:*** 11/15/2019

Performance Remeasurement: (% or #): 368/7075 = 5.2%

Stratified Data by Provider: (Cycle 1 Remeasurement Period)

Dr. Jeff Tanaka: 9/1372	=	0.7%
Dr. Leanna Willey: 25/2038	=	1.2%
Dr. Christian Nechyba: 113/1369	=	8.3%
Dr. Robert Foor: 9/1372	=	0.7%
Dr. Mari Emmet: 182/527	=	35%
Dr. Mary Beth Helton: 7/242	=	2.9%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Performance from baseline to Cycle 1 improved from 3.4% to 4.5%, but did not reach the goal of 5%. Performance from Cycle 1 to Cycle 2 improved from 4.5% to 5.2% and reached the goal of 5%. Familiarizing providers and nursing staff with available community resources and displaying free brochures and fliers about these resources for patients in the office was effective in improving performance. This

measure is a target for further quality improvement, as our area offers other potential community resources for pediatric patients.

Measure 15: Direct Portal Messaging Utilization by Providers

Reason: Feedback was received that patients would like to communicate with providers electronically via patient portal on a broader range of issues, instead of primarily by phone. Results of practice survey data prior to this time indicated that 35 out of 58 survey respondents (60%) had indicated that they "always" received an answer to a clinical question from office staff when they called/messaged the office the same day. A QI goal was developed to increase the percentage of patients who communicated to providers electronically (via patient portal) as opposed to just by phone to improve timely response to patient clinical questions, and provide improved communication to families that prefer electronic communication. Numerator**:** Active patients who exchanged at least one portal message with a provider during the measurement period. Denominator: All active patients who communicated with the office by any means (telephone or portal message) at least once during the measurement period.

Process for Data Collection: Monthly, this data was pulled as an electronic report from measure group 9 of the MU section of the quality improvement calculator in our electronic medical record.

Baseline Performance:

Baseline Start Date: 7/1/2019 ***Baseline End Date:*** 7/31/2019

Baseline Performance Measurement (% or #): 296/1360 = 21.8%

Numeric Goal (% or #): 25%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka: 59/284 = 21%

Dr. Leanna Willey: 73/286 = 26%

Dr. Christian Nechyba: 84/224 = 38%

Dr. Robert Foor: 34/221 = 15%

Dr. Mari Emmet: 42/227 = 19%

Dr. Mary Beth Helton: 41/206 = 20%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Actions: A meeting with providers and nurse manager was held to discuss improved electronic portal communication in 3 key areas: chronic condition questions, developmental & behavioral questions, and lab and radiology follow-up. Nurse management and administrative management reviewed goals of timely response to phone messages with staff (same day response).

Remeasurement Performance:

Start Date:11/1/2019 ***End Date:*** 11/30/2019

Performance Remeasurement (% or #): 371/1657 = 22.4%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka: 61/279	=	22%
Dr. Leanna Willey: 70/294	=	24%
Dr. Christian Nechyba: 103/313	=	33%
Dr. Robert Foor: 45/211	=	21%
Dr. Mari Emmet: 51/242	=	21%
Dr. Mary Beth Helton: 46/191	=	24%

Note: Adding data from all providers may not always precisely equal cumulative data, since patients may have identified more than one primary provider during the measurement period.

Conclusions: Percentage of patients who utilized electronic messaging to communicate with providers increased modestly from 21.8% to 22.4%, though did not reach the goal of 25%. However, patient survey data obtained after the baseline period indicated that patients who stated that they "always" received an answer to a clinical question from office staff when they contact the office the same day increased from 60% to 90% (37 out of 41). This indicates that patient satisfaction re. timely clinical response to questions asked outside of regular office appointments improved, and that other factors affecting timely phone/portal message response (not just portal messaging alone) may have improved during this period.

Measure 16: Telephone Response Times

Reason: Results of practice survey data during the baseline measurement period indicated that 35 out of 58 survey respondents (60%) had indicated that they "always" received an answer to a clinical question from office staff when they called/messaged the office the same day. Providers agreed that it was a reasonable expectation that patients should receive a provider response to an inquiry to a provider within 4 hours of the call being received. Numerator: Patient phone calls directed to a provider during the measurement period with a response time of less than 4 hours. Denominator: All phone calls directed to a provider during the measurement period.

Process of Data Collection: Every 3-4 months, a 3-month electronic list of individual telephone response times for each provider was pulled from the quality improvement calculator of our electronic medical record. This list was reviewed every 3-4 months and divided into calls with a response time over 4 hours and calls with a response time of less than 4 hours. This list was completed for each provider.

Baseline Performance:

Baseline Start Date: 7/1/2019 ***Baseline End Date:*** 9/30/2019

Baseline Performance Measurement (% or #): 347/397= 87%

Numeric Goal (% or #): 90%

Stratified Data by Provider: (Baseline Period)

Dr. Jeff Tanaka: 73/80	=	91%
Dr. Leanna Willey: 69/79	=	87%
Dr. Christian Nechyba: 152/153	=	99%
Dr. Robert Foor: 33/41	=	80%
Dr. Mari Emmet: 16/23	=	70%
Dr. Mary Beth Helton: 4/21	=	19%

Actions: Provider-specific lists of phone logs were pulled from our electronic medical record system. Response times greater than 4 hours were highlighted for each provider so that each provider could analyze their response patterns. Also, phone triage nurse would remind a provider during the mid-day lunch break and again in the late afternoon (at least every 4 hours) if they had unanswered phone messages. All acute care questions directed to a provider who was not in clinic for the day would be sent to the on-call provider instead.

Remeasurement Performance:

Start Date: 10/2/2019 ***End Date:*** 1/1/2020

Performance Remeasurement (% or #): 351/385 = 91%

Stratified Data by Provider: (Remeasurement Period)

Dr. Jeff Tanaka: 76/78	=	97%
Dr. Leanna Willey: 65/72	=	90%
Dr. Christian Nechyba: 153/153	=	100%
Dr. Robert Foor: 21/24	=	88%
Dr. Mari Emmet: 18/26	=	69%
Dr. Mary Beth Helton: 18/32	=	56%

Conclusions: Performance improved from 87% during the baseline period to 91% during the remeasurement period, meeting the performance goal. Additionally, new patient survey data obtained during the remeasurement period indicated that patients who stated that they “always” received an answer to a clinical question from office staff when they contact the office the same day increased from 60% to 90% (37 out of 41).

Measure 17: Addressing Disparities of Care

Population:

Patients with Medicaid insurance, under-insurance, or no insurance

Disparity:
Telephone response times

Reason: Providers agreed that it was a reasonable expectation that patients should receive a provider response to an inquiry to a provider within 4 hours of the call being

received. When phone response data was stratified, a disparity was noted between patients of lower socio-economic status (as indicated by Medicaid insurance, underinsurance or no insurance) and the general population. Numerator: Patient phone calls directed to a provider during the measurement period with a response time of less than 4 hours. Denominator: All phone calls directed to a provider during the measurement period.

Process of Data Collection: Every 3-4 months, a 3-month electronic list of individual telephone response times for each provider was pulled from the quality improvement calculator of our electronic medical record. Through chart review, lists were then stratified by insurance status (VFC eligible, indicating Medicaid/underinsurance/no insurance vs. private insurance).

Baseline Performance:

Baseline Start Date: 7/1/2019 ***Baseline End Date:*** 9/30/2019

Baseline Performance Measurement for Vulnerable Population (% or #): 12/17 = 71%

Baseline Performance Measurement for General Population (% or #): 335/380 = 88%

Performance Goal: *90%*

Stratified Data by Provider: (Baseline Period)

		Vulnerable Population	General Population	
Dr. Jeff Tanaka: 2/3	=	67%	71/77	= 92%
Dr. Leanna Willey: 2/3	=	67%	67/76	= 88%
Dr. Christian Nechyba: 4/4	=	100%	148/149	= 99%
Dr. Robert Foor: 2/3	=	67%	31/38	= 82%
Dr. Mari Emmet: 1/2	=	50%	15/21	= 71%
Dr. Mary Beth Helton: 1/2	=	50%	3/19	= 16%
TOTAL		**71%**		**88%**

Actions: Provider-specific lists of phone logs were pulled from our electronic medical record system. Response times greater than 4 hours were highlighted for each provider so that each provider could analyze their response patterns. Patients in the vulnerable population with response time greater than 4 hours were specifically highlighted. Due to likely increased barriers among patients from vulnerable families in responding to office call-backs, it was decided to remind providers at least every 1-2 hours to respond to messages from these patients which needed same day action. This compares to reminders to providers at least every 4 hours for messages from patients in the general population.

Remeasurement Performance:

Start Date: 10/2/2019 ***End Date:*** 1/1/2020

Performance Re-Measurement (% or #): 18/19 = 95% (as compared to 333/366 = 91% for general population during the re-measurement period).

Stratified Data by Provider: (Remeasurement Period)

		Vulnerable Population	General Population	
Dr. Jeff Tanaka: 3/3	=	100%	73/75	= 97%
Dr. Leanna Willey: 4/4	=	100%	61/68	= 90%
Dr. Christian Nechyba: 5/5	=	100%	149/149	=100%
Dr. Robert Foor: 2/2	=	100%	19/22	= 86%
Dr. Mari Emmet: 3/3	=	100%	15/23	= 65%
Dr. Mary Beth Helton: 1/2	=	50%	17/30	= 57%
TOTAL		**95%**		**91%**

Conclusions: Performance in the vulnerable population improved from 71% during the baseline period to 95% during the re-measurement period, meeting the performance goal of 90%. Additionally, performance in the vulnerable population during the remeasurement period exceeded performance in the general population during the remeasurement period, indicating that actions taken were effective in decreasing this disparity.