OP1 Consultation and Referral Patterns of Primary Care Nurse Practitioners

Michelle Cook, PhD(c), MPH; Sharon Weyer, DNP, NP-C; Lydia Riley, MPH;

BACKGROUND: There is limited information on the percentage and type of patients nurse practitioners (NPs) seek consult advice and referral treatment for in the primary care setting. This study was designed to provide a basic understanding of how and when primary care NPs refer patients and will contribute to understanding the decision-making models for when NPs refer patients to physicians and other health care providers. Therefore, the objectives of the study were: 1. to determine the percentage of patients primary care NPs request informal consultation and referrals to other health care providers and 2.to determine provider, patient and system characteristics associated with variations in consultation and referral of patients seen by primary care NPs.

METHODS: Primary care NPs that were members of the American Association of Nurse Practitioners (AANP) were eligible to participate. Recruitment took place through email and social media announcements. Participants recorded summary data and detailed, de-identified information about all consultations and referrals over a three week study period and filled out a demographic survey including personal and practice site information. Data were returned by mail in a pre-paid, pre-addressed envelope. Using summary data for the denominator and detailed data for the numerator, percentage of visits resulting in a consultation and/or referral was calculated for the study group. Provider and patient characteristics were analyzed to determine association with consultation and/or referral.

RESULTS: A total of 54 participants completed the study, returning summary data on nearly 8,000 patient visits and over 800 consultation and referrals. An estimated 38.5% of the patients that the NPs saw during the study period were male, 20.6% were over the age of 64 and 18.3% were under the age of 18. Approximately 10% of all recorded patient visits resulted in a referral to another provider. The top five specialties that study participants were referred to were: 1. orthopedics, 2. mental health, 3. physical therapy, 4. gastroenterology, and 5. surgery. Nearly three-quarters of primary care NP referrals were to MDs; of which the majority were to specialists. Less than 1% of referrals were to MDs in primary care disciplines.

CONCLUSION: Findings from this study indicate that the majority (90%) of primary care visits can be managed completely by NPs without need for referral to another provider. Primary care NPs are well positioned, based on their expertise and training, to provide care to the expanding number of insured under the Affordable Care Act.

RELEVANCE STATEMENT: The number of nurse practitioners (NPs) licensed in the United States has nearly doubled over the past ten years, rising from approximately 106,000 in 2004 to 205,000 in 2014, and more than 15,000 men and women graduated from NP programs during the 2012-13 academic year. Approximately 86% of NPs are prepared in primary care, and the largest area of growth within the NP workforce in the last decade has been among family NPs; increasing from 41.9% of the workforce in 2003, to 54.5% by 2013-14. Since there is limited information on the percentage and type of patients nurse practitioners (NPs) seek consult advice and referral treatment for in the primary care setting, this study was conducted to provide a basic understanding of how and when primary care NPs refer patients and will contribute to understanding the decision-making models for when NPs refer patients to physicians and other health care providers. An understanding of primary care NP referral patterns is a needed focus to better articulate the contributions of this proliferating and vital component of the primary care workforce.

ONLINE RESOURCE:

OP2 Racial and Ethnic Differences in Healthcare Use among Patients with Uncontrolled and Controlled Diabetes

Melanie Spencer, PhD; Rohan Mahabaleshwarkar, PhD; Yhenneko Taylor, PhD; Thomas Ludden Andrew Craft

BACKGROUND: Diabetes continues to increase in prevalence in the U.S., imposing a significant burden on patients and health care systems alike. The disease and its complications disproportionately affect racial and ethnic minorities, as well as individuals with limited economic resources, complicating their ability to achieve glycemic control either through medical or self-management. The objective of this research was to explore associations between healthcare use and race/ethnicity among patients with controlled and uncontrolled diabetes. We hypothesized that, among patients with similar levels of glycemic control, measured by HbA1c, the numbers of all-cause and disease-related health care visits would differ by race and ethnicity. Several previous studies have examined healthcare utilization and glycemic control or glycemic control and race/ethnicity, but none were identified that examined the differences in healthcare utilization among racial and ethnic groups in the context of glycemic control.

METHODS: This study was conducted as a retrospective cohort analysis of 13,351 adult patients with Type 2 diabetes mellitus who had at least one medical record that met inclusion criteria in the year 2012 at Carolinas HealthCare System. The study population was drawn from Mecklenburg County, NC, which is primarily urban and suburban with approximately one million residents. The independent variable, glycemic control, was defined based on the average of all HbA1c readings for each patient during 2012 (average < 8 defined controlled; average ≥ 8 defined uncontrolled). Outcome variables for the study included diabetes-related and all-cause emergency department visits, inpatient hospital stays and physician office visits in 2013. Multivariate Poisson regression was conducted, controlling for covariates (age, gender, insurance type, body mass index and the presence of comorbidities: nephropathy, neuropathy, retinopathy, heart disease, hypertension, cancer and stroke) that showed $\alpha < 0.2$ in bivariate analyses and in a models testing race/ethnicity as the only predictor.

RESULTS: Results of the analysis demonstrated differences in healthcare utilization between African American and Caucasian patients with diabetes. African Americans had higher rates of diabetes-related (controlled RR: 1.57, 95% CI: 1.04 - 2.36, p=0.0311; uncontrolled RR: 2.61, 95% CI: 1.24 - 5.48, p=0.0115) and all-cause (controlled RR: 2.01, 95% CI: 1.81 - 2.22, p<0.0001; uncontrolled RR: 1.71, 95% CI: 1.41 - 2.06, p<0.0001) emergency department visits than did Caucasians, regardless of glycemic control. Higher all-cause emergency department visits were also strongly associated with government or other insurance status, female gender, younger age and presence of comorbidities, regardless of race or level of glycemic control. For inpatient visits, no differences in race were observed, except for a higher relative rate of all-cause inpatient visits for African American patients with controlled diabetes compared to Caucasians (RR: 1.14, 95% CI: 1.00 - 1.29, p=0.0440). All-cause physician office visits were significantly lower for African Americans with both controlled and uncontrolled diabetes compared to Caucasians (controlled RR: 0.83, 95% CI: 0.80 - 0.86, p<0.0001; uncontrolled RR: 0.90, 95% CI: 0.83 - 0.97, p<0.0083), as were rates for patients of other race. African Americans with good glycemic control also had lower rates of diabetes-related office visits.

CONCLUSION: Findings indicate that, for diabetes-related inpatient and physician office visits, Caucasian and African American patients with uncontrolled diabetes are similar in their healthcare utilization. However, the higher use of emergency services by African American patients for all cause and diabetes-related reasons suggests inefficient resource utilization as well as a pattern of care that is less equipped to provide African American patients with evidence-based strategies to achieve glycemic control and improve their health outcomes.

RELEVANCE STATEMENT: Understanding relationships between healthcare utilization, race and glycemic control for diabetic patients provides important information to the medical community that can inform interventions to change utilization and improve care and disease outcomes for this population.

ONLINE RESOURCE:

OP3 Interactive pedagogic intervention on obesity care for family medicine residents

Charles-Etienne Plourde, MD, MSc; Guillaume Dumais, MD; Marie-Thérèse Lussier, MD, MSc, FCMFC; Julie Moreau, MD Fatoumata Binta Diallo

BACKGROUND: Obesity, a complex pathology, is a major health problem in North America. Primary care providers (PCP) are involved in the care of obese patients. However, only 4,5% of PCP report having received specific training in the management of obesity and only 42 % explicitly discuss this problem it with their patients. The American Medical Association reports that the lack of medical training is a barrier for optimal obesity management. Moreover, many doctors still harbour prejudice about obese patients and this may be directly related to the quality of care they offer. The aim of this resident project is to evaluate the impact of exposing residents from our Université de Montréal Family Medicine research network to an interactive pedagogic intervention on obesity on their knowledge, prejudices and clinical interventions.

METHODS: Design: Pre-post survey study. Setting: Family medicine teaching units of the Réseau de recherche en soins primaires de l'Université de Montréal (RRSPUM) Participants: 133 family medicine residents Intervention: 30 minute interactive video composed of three segments: 10 minutes on aetiology and pathology, 10 minutes devoted to a patient testimony and 10 minutes on clinical interventions. Instruments: A self-report questionnaire was specifically developed for this study to evaluate changes in obesity-related knowledge, prejudices and clinical interventions. The questionnaire was filled before the video presentation and 5 to 6 months post intervention.

RESULTS: Data collection is complete. Data analysis is in progress. Complete data will be available at presentation date. Pre intervention questionnaires indicate that residents demonstrated good knowledge of basic concepts (n=133). On post intervention questionnaires (n=52) 77% of residents declare this intervention had a positive clinical impact on their practice and 86 % indicated being more aware of the reality of living with obesity.

CONCLUSION: This is the first RRSPUM project that was initiated and conducted by residents interested in a pedagogical research question. Facilitating FM residents' projects is a priority for our group. In this study, FM resident's basic theoretical knowledge of obesity was high at pre intervention. However, the intervention seems to be benefit for more complex theoretical knowledge. Moreover, preliminary analyses indicate that the obese patient testimony did improve resident sensitivity towards obese patients in their practice. This way of providing resident learning material could have a more important place in the FM curriculum.

RELEVANCE STATEMENT: New interactive intervention in family medicine improve MD's sensitivity to obesity reality.

ONLINE RESOURCE:

OP4 Physician and patient congruence on what it takes to improve a patient's health status: A Cincinnati Area Research and Improvement Group study

Nancy Elder, MD, MSPH; Ryan Imhoff; Saundra Regan, PhD; Jennifer Chubinski; Harini Pallerla; Anthony Leonard; Jeffrey Jacobson; Mark Carozza; Vitaly Rotenberg; Petar Saric; Matthew Charek

BACKGROUND: A single self-rated health (SRH) question, "in general, how would you rate your overall health?" has been consistently associated with future mortality, morbidity and health care costs. Little is known, however, about what patients believe would improve their health status, and how well that matches what family physicians would recommend to their patients for health improvement.

METHODS: A cross-sectional survey and chart review of adult, English speaking patients in waiting rooms of 4 family medicine offices of the Cincinnati Area Research and Improvement Group PBRN. Patients rated their health and answered: "what could you change to improve your health?" Physicians answered the same questions about each patient. Chart reviews and additional patient surveys of habits and demographics were performed. Short answers were categorized into a taxonomy developed from the data. Patient-physician congruence was coded as exact, partial (at least one reason matching) or no match.

RESULTS: Surveys were completed by 506 patients, seen by 32 physicians. Short answers were coded to four broad categories: 1) Medical Concerns. 2) Life and lifestyle, 3) overall health and appearance and 4) miscellaneous. The second level of the taxonomy had specific areas, such as disease control, medication adherence, lose weight, more exercise, and doing everything already. Lifestyle changes – more exercise, better diet and food choices and losing weight -- were the top three changes most patients said they needed to improve their health. However those with poor SRH only mentioned improving medical problems. Physicians' top recommendations were similar to patients, agreeing that weight loss and more exercise were the top two changes needed. They also noted that some patients were "doing everything they could already." Getting needed treatments was the most common change they recommended for those whose health they rated poor.   While the general categories of changes needed were similar for patients and physicians, for individual patients, there was poor congruence. Only 24.1% of the patient and physician improvement changes were exact matches (e.g., patient and physicians both said lose weight) or had at least one reason matching (e.g., patient said "eat better" and physician said "better diet, improve diabetes"). There was no change in the congruence based on how well the physician and patient matched on their actual health ratings, (excellent, very good, good, fair, or poor) nor by a number of factors including patient age, gender, race, insurance status, income level, marital status, education level, patient self-reported behaviors (exercise </>= 3 days last week, average daily servings of fruits and vegetables </>= 5, risky alcohol use, current smoker) and chart review data assessing chronic health problems and prescription medications. Only being more overweight (by chart BMI) was significantly associated with a better match between physician and patients for improvement change needed (p=.008).

CONCLUSION: Conclusions: As a group, physicians and patients recommended similar changes for health improvement, but there was limited agreement between the two for individual patients

RELEVANCE STATEMENT: Physicians and patients rarely agree on what a patient should do to improve the patient's health status. Physicians should not assume they know what is important to patients to improve health and should engage the patient in shared conversation.

ONLINE RESOURCE:

OP5 Implementing a Smoking Cessation Program in the Safety Net Setting: Rewards to Quit

Daren Anderson, MD; Ianita Zlateva, MPH; Bridget Teevan, MPH; Tara Lee Davidson, BA

BACKGROUND: Medical care for smoking related health issues costs upwards of $96 billion annually. Among underserved populations, smoking remains rampant with 30% of Connecticut's Medicaid members citing themselves as smokers. Additionally, a recent report in Connecticut noted that smoking rates are disproportionately high among underserved patients. As many as 70% of current smokers want to quit, but the success rate is only 2-3% among those attempting to quit on their own. Many smokers do not have access to cessation programs and experience other barriers to quitting. As a Federally Qualified Health Center (FQHC) providing care to 130,000 underserved patients, the Community Health Center Inc. (CHCI) is in a unique position to address this disparity. CHCI offers a variety of smoking cessation services to over 12,000 active adult Medicaid smokers through the Rewards to Quit (R2Q) Program. The program launched at CHCI in October of 2013 and continues to enroll patients. Smoking cessation services made available through R2Q include group and individual counseling, access to the Connecticut QuitLine, carbon monoxide breathalyzer monitoring, and cessation medications. Patients enroll in R2Q and utilize services of their choosing at intervals of preference.

METHODS: To examine the effect of financial incentives to quit smoking, half of the patients enrolled in Rewards to Quit are randomized to be incentivized for service utilization (intervention group) and the other half are included in the control group. Targeted recruitment for enrollment in the R2Q program begins by extracting contact information from the electronic health record (EHR) for patients who indicate that they are currently smoking and have medical coverage by Medicaid. Ongoing recruitment strategies utilize a large variety of media including: mailed postcards, automated phone calls, flyers posted in clinics, large posters positioned in waiting rooms, referrals to the program from a clinical staff members (nurse, medical assistant, doctor, dentist, etc.), pop-up advertisements in the patient check-in kiosk, and active waiting room recruitment. Patients eligible for the incentives earn small amounts for each service utilized. Regardless of intervention status, all patients have access to the same cessation services. To promote utilization of the available services, all patients enrolled into the program are immediately scheduled for a smoking cessation service visit with a nurse, their primary care provider (PCP), or a behavioral health provider, depending on the service of interest (i.e. prescription, counseling). After this visit, enrolled patients schedule their follow up services as per regular agency protocol. Outcome measures include enrollment totals, utilization metrics, and patient outcomes.

RESULTS: To date, 922 patients have enrolled into R2Q at CHCI. Preliminary data suggests that the most effective means of recruitment, as reported by enrolled patients, is referrals from CHCI staff members (46%), followed by direct recruitment of patients in the waiting room by research staff (26%), posters and other signage around the clinic (12%), and postcard mailings (10%). Of those enrolled in smoking cessation services, 50.6% of patients in the control group are engaged in some type of service utilization as compared to 74.7% of patients in the incentive arm. On average, incentivized patients use 2.25 times as many services as patients not receiving incentives. Of note, both groups access PCPs for smoking cessation medications and nicotine replacement therapies at the same rate. The current quit rate among the non-incentivized patients is 11.4% as compared to a rate of 30.0% among those receiving incentives. Recruitment of patients will end June 30, 2015 and service utilization is ongoing until December 31, 2015.

CONCLUSION: A blanketed recruitment strategy, immediate patient engagement, the provision of incentives, staff engagement and support are keys to a successful smoking cessation program in a large FQHC.

RELEVANCE STATEMENT: Smoking cessation is difficult, especially for underserved and minority patients. By using a blanketed recruitment strategy, immediate patient engagement, the provision of incentives, and having full staff engagement, patients are given the support they need to quit smoking for good.

ONLINE RESOURCE:

OP6 OVERTREATMENT OF HYPERTENSION IN OCTOGENARIANS IN PRIMARY CARE SETTINGS: POTENTIAL FOR THE J-CURVE PHENOMENON?

Anwar Parbtani, PhD, MD, CCFP; Manazir Walajahi, MBBS, CCFP; Stu Murdoch, MD, CCFP, FCFP;

BACKGROUND: Beneficial effects of strict hypertension (HTN) control in terms of reduced cardiovascular and cerebrovascular morbidity as well as overall mortality have led to "lower the better" dogma, with some studies promoting systolic blood pressure (SBP) target of less than 130 and diastolic blood pressure (DBP) target of less than 80. However, closer assessment of these trials indicate that SBP below 130 and DBP below 80 was not consistently achieved in these trials and the studies rarely included elderly patients, particularly ≥ 80 years. Moreover, emerging evidence suggest that very aggressive HTN treatment increases the risk of cardiovascular events and overall mortality; the so called "J-curve phenomenon", particularly noteworthy in elderly patients. These observations provided the rationale for our study to assess the current status of HTN treatment in the very elderly (octogenarians) in primary care settings

METHODS: We conducted a retrospective chart review of BP status of all octogenarians rostered to 10 primary care practices. The HTN diagnosis was accepted as per the chart notation. Data collection included systolic and diastolic blood pressure at the last patient visit, number and classes of anti-hypertensive medications, as well as any change in the number of hypertensive medications initiated at this visit. We also noted associated major comorbidies. Statistics: $\chi2$ or z-statistics was used for the nominal data and t-test was used for the ordinal data.

RESULTS: 389 octogenarians (mean age 85 ± 4) were rostered to the 10 practices, with 269 (69%) having a diagnosis of HTN. More comorbidities were noted in the HTN vs non-HTN group (renal insufficiency: 23 vs 2, diabetes: 59 vs 5; CV events: 59 vs 9; stroke: 27 vs 1; p <0.001). Mean SBP/DBP for the HTN group was 136±19/71±10 vs 129±14/70±11 for non-HTN (p<0.001 for SBP). In the HTN group, 20% (n=54) had SBP ≥150, vs 80% with <150 (p<0.001). SBP of <130 was noted in 33% of patients (17% with <120, 6% with <110). In the HTN group, 97% of patients had DBP of <90; 76% had DBP <80 and 39% had DBP of <70. Number of anti-hypertensive medications ranged from 0 to 4 but a downward "adjustment" was noted with reduction in SBP (for SBP ≥ 150, 9 added, 2 reduced; for <140-130: 5 added, 4 reduced; for <130-120: 3 added, 13 reduced, for <120-110: 0 added, 11 reduced ($\chi2$:p<0.01)).

CONCLUSION: Eighty percent of octogenarians had achieved adequate SBP control of <150 and 97% had achieved the DBP of <90. More concerning was the observation that a large number of the octogenarians had BP that would potentially subject them to the "j-curve phenomenon". However, we also noted a reduction in the number of antihypertensive medications with reduction in SBP; unsure whether this was a sign of judicious hypertension management or serendipity!

RELEVANCE STATEMENT: While blood pressure (BP) control provides benefit in terms of reducing heart attacks and strokes, very aggressive BP control negates this benefit and can cause harm. This is referred to as the J-curve phenomenon, and it is particularly relevant in elderly patients. The present study indicates that we may be over-treating elderly patients (octogenarians), with ~35% having their blood pressure in the range that could cause more harm than benefit.

ONLINE RESOURCE:

OP7 Building Healthy Partnerships through local initiatives on the ground

Doan Hoang, MPH; Vanessa Nguyen, MPH; Lyndee Knox, PhD; Donzella Lee, MPH Cesar Barba, MD Deborah Lerner, MD Latoya Reinhold, NP

NEEDS & OBJECTIVES: Health centers undergo rigorous transitions to implement electronic health record systems under Meaningful Use (MU) and engage patients through the Patient Centered Medical Home (PCMH) model. Both MU and PCMH aim to improve the quality of care provided to patients in ambulatory care through systems redesign, and require a practice to consider a shift in its organizational culture--a culture based on the formation of teams (i.e. care teams, quality improvement teams, workgroups). As practices seek new methods to form teams and achieve MU and PCMH, researchers and local agencies continue to offer opportunities for practices to implement innovative and proven approaches, and employ practice facilitators to support.

SETTING & PARTICIPANTS: We look at local primary care practices along with community-based health education and policy organizations serving the LA county undeserved areas.

DESCRIPTION: We raise the question: How do practices, practice facilitators, and researchers effectively engage one another to improve the formation of teams? In this paper we consider the lessons learned from the perspectives of clinic administrator, researcher, and practice facilitator. We address: 1) team formation and lifespan, 2) communications between clinical researchers and health centers, 3) processes for reporting and analysis, 4) patient engagement, 5) time commitment, 6) local sharing, and 7) building trust and longstanding partnerships.

EVALUATION: Not applicable.

DISCUSSION/REFELCTIONS/LESSONS LEARNED: Learning Objective 1 To identify methods for improving communications between health centers and local partners Learning Objective 2 To discuss collaborative approaches when working in multidisciplinary teams

RELEVANCE STATEMENT: Developing a solid foundation from which all stakeholders can easily communicate and collaborate will potentially result in a healthy long-lasting partnership to build community and produce evidence-based care.

ONLINE RESOURCE:

OP8 Developing an Electronic Health Record based Research Project in a Practice-Based Research Network

Allison Cole, MD, MPH; Brenda Molis; Gina Keppel, MPH; Laura-Mae Baldwin, MD, MPH;

NEEDS & OBJECTIVES: Electronic Health Records (EHRs) are widely used by practices in Practice-Based Research Networks (PBRNs), and may be an important platform for the conduct of practice-based research. Many primary care practices have little experience asking and answering scientific questions using EHR data. This presentation will report on the process the WWAMI region Practice and Research Network (WPRN) used to work collaboratively with champions from its member practices to develop and implement a new EHR-based research project. This approach may be useful to PBRNs hoping to increase their capacity to conduct research with EHR data and can be used to better understand the clinical and research priorities of practices within practice-based research networks.

SETTING & PARTICIPANTS: The WPRN is a collaborative network of more than 50 primary care practices in Washington, Wyoming, Alaska, Montana and Idaho.

DESCRIPTION: The WPRN held an optional session immediately before its 2014 Annual Meeting. 11 champions from 7 practices participated. Small breakout groups participated in the following activities: 1) brainstorm of clinical topics of interest, 2) development of potential scientific questions related to the clinical topic that could be answered using EHR data, 3) and prioritization of the potential questions. The WPRN Coordinating Center (CC) reviewed proposed questions for scientific validity and feasibility and used an electronic survey to invite all WPRN champions to vote on their preferred scientific question. The question selected was "What percent of adult patients with a clinic visit in a 12-month period received a prescription for a sleep medication?" The CC worked with a small group of interested practice champions to develop the definitions and required data elements that each participating site would need to collect and report to the CC to answer the question. 5 WPRN sites contributed data to the project. Participating champions, in collaboration with their clinics' information technology staff, collected required data from the EHR and reported aggregate results to the CC. During the 2015 Annual Meeting, the CC presented results of the project and sought feedback on next steps from all member practices.

EVALUATION: Across all 5 sites, 3% of adult patients received a prescription for a zolpidem-containing medication during the study period, with a range of 0-6% across sites. Practice champions felt that additional information about accepted levels of sleep medication prescription would have been helpful in interpreting their clinic's results. Several sites hoped to use the results to develop additional clinical care or quality improvement activities.

DISCUSSION/REFELCTIONS/LESSONS LEARNED: We were able to develop the clinical topic and scientific question for the project, confirming the feasibility of having practices collect and report EHR-based data as part of research efforts. The skills practice champions developed through participation in this project may translate to increased capacity for future research involving use of EHR data.

RELEVANCE STATEMENT: Our approach may be effective in addressing critical challenges in practice-based research, such as building research capacity in real-world practice settings and ensuring that research activities meet the needs and priorities of community-based practices.

ONLINE RESOURCE:

OP9 EHR Limitations Lead to Use of Workarounds in Practices Integrating Behavioral Health and Primary Care

Maribel Cifuentes, RN; Douglas Fernald, MA; n/a n/a;

BACKGROUND: Primary care clinics adopting electronic health records (EHR) continue to face challenges in their implementation and functionality. Primary care clinics and community mental health centers aiming to seamlessly integrate behavioral health and primary health care services face additional EHR barriers.

METHODS: Observational study of 11 diverse practices, including 9 primary care clinics and 3 community mental health centers participating in Advancing Care Together (ACT). Data from site visit observations, surveys, interviews, and online implementation diaries were analyzed using a grounded theory approach.

RESULTS: Practices used various commercially available and custom-built EHR systems, and employed seven EHR workarounds to overcome the limitations of their systems: (1) double documentation, (2) scanning, (3) paper documents, (4) asking patients to recall information from past visits, (5) direct communication between providers, (6) manual tracking systems, and (7) use of other electronic tools. Three ACT practices also made specific customizations to their EHRs by adding data templates.

CONCLUSION: EHR products do not support essential integration functions, like documenting and tracking longitudinal data, working from shared care plans, and template-driven documentation for common behavioral health conditions. Practices working to integrate behavioral health and primary care should optimally use a single EHR system, dedicate resources to facilitate EHR customizations, and receive technical assistance to analyze early data needs and workflows to enable the delivery of integrated care. EHR vendors should intentionally design commercial products that support essential integration functions.

RELEVANCE STATEMENT: Primary care clinics and community mental health centers aiming to integrate behavioral health and primary health care services face additional electronic health record (EHR) barriers. Providers and staff developed different workarounds to overcome EHR limitations. These workarounds point to a mismatch between the existing capabilities of EHRs and the clinical tasks practices need to perform to enable integration. EHR constraints limit the effective and efficient documentation and communication among staff and providers needed to support whole-person, patient-centered care.

ONLINE RESOURCE:

OP10 Adoption of Clinical Decision Support Tools to Improve Primary Care Management of Chronic Kidney Disease

Cara Litvin MD, MS; Steven Ornstein MD

BACKGROUND: Early detection and management of chronic kidney disease (CKD) can lead to interventions to prevent renal failure and reduce risk for cardiovascular disease. However, adherence to treatment goals is suboptimal in the primary care setting. CKD-TRIP (Translating Research into Practice) was a two year demonstration study designed to assess whether electronic health record (EHR)-based clinical decision support (CDS) tools could be used to improve the identification and management of CKD in primary care practices. The purpose of this report is to present the results of a qualitative analysis to assess CDS adoption in this study.

METHODS: CKD-TRIP was conducted in PPRNet, a national primary care practice-based research network whose members share a common EHR, from September 2012 to September 2014. Eleven practices in 11 states, representing 21 physicians and 11 midlevel providers, volunteered to participate. CKD CDS tools developed by the research team included a risk assessment tool that could be embedded within progress notes, EHR-based health maintenance (HM) protocols, a patient registry generated from EHR data and an EHR flow chart. To facilitate adoption of these tools, practices received quarterly performance reports and hosted annual half day on-site visits for academic detailing, performance review and CDS training. Detailed field notes were taken at each site visit to describe practice characteristics and document the practice's plans to use the CDS. The research team followed up on these plans quarterly via email with a lead provider from each practice. To determine which CDS attributes were perceived to be most helpful for improving CKD management and identify facilitators and barriers to their use, semi-structured group interviews were conducted with all providers and staff at each practice during the second site visit. All qualitative data was reviewed by the research team and organized into four domains (provider, patient, organizational and technical factors) based on a previously published CDS evaluation framework.

RESULTS: The majority of providers reported using the CKD risk assessment tool, although frequency of use varied by provider in several practices. All but one practice reported using HM protocols. Six practices reported regularly reviewing the patient registry. No practices reported regular use of the flow chart. Providers generally felt that use of these tools helped improve CKD management, although there was occasional provider disagreement about the recommendations embedded in these tools. Some providers also felt that use of the tools required additional steps outside the existing workflow. A few practices linked these tools to patient education handouts which they reported were favorably received. However, some providers noted concern about over-diagnosing patients with CKD. Many practices reported prioritizing CKD improvement and implemented organizational changes to support use of the CDS tools for ordering tests, including adopting in-office urine albumin testing and establishing protocols for urine collection for prior to office visits. Half of the practices used standing orders based on HM protocols to empower staff to order appropriate laboratory tests. In two practices, staff turnover was felt to impede use of CDS tools. The CDS tools occasionally required modifications to work correctly at each practice. A few practices reported that labs performed by specialists were not captured by the CDS tools.

CONCLUSION: Use of a CKD risk assessment tool, HM protocols and a patient registry were reported by many providers to be helpful for improving care for patients with CKD. However, other provider, patient, organizational and technical factors must be addressed in order to successfully adopt and use these tools to improve care.

RELEVANCE STATEMENT: Use of electronic health record tools may be helpful for improving care of patients with chronic kidney disease. However, successful use of these tools requires a practice to address other factors that may impact their use beyond the technology itself.

ONLINE RESOURCE:

OP11 Reducing Antibiotic Prescribing for Acute Bronchitis and Acute Cough with Natural Language Processing-Based Monitoring and Near Real-Time Feedback

Jeffrey Linder, MD, MPH, FACP; Patrick Dempsey; Alexandra Businger;

BACKGROUND: Studies show, guidelines state, and performance measures assert that antibiotic prescribing for acute bronchitis is inappropriate. Despite this, primary care physicians in the United States prescribe antibiotics to 72% of patients with acute bronchitis. Prior interventions have had limited success reducing antibiotic prescribing for acute bronchitis. We conducted a demonstration project in 14 primary care practices to reduce antibiotic prescribing for acute bronchitis using natural language processing, explicit monitoring, and near real-time feedback to physicians.

METHODS: The Brigham and Women's Practice Based Research Network includes 14 primary care practices with a common electronic health record (EHR). We searched coded fields in the EHR daily to identify patients between the ages of 18-64, did not have chronic lung disease, were not immunosuppressed, and had not made a clinic visit in the prior 30 days. Then, using natural language processing, we identified visits that were potentially cough-related. Potentially cough-related visits were reviewed by research assistants to verify that the visit met inclusion criteria – including that the patient had an acute cough (≤21 days) – and extracted information about diagnoses and antibiotic prescribing. In the pre-intervention period, from March 15, 2013 to November 13, 2013, we monitored practices passively. On November 14, 2013, we informed practices that we would be monitoring the EHR, reviewing visit notes, and providing specific, near real-time feedback (within 3 days) via email to individual physicians about specific acute bronchitis visits associated with inappropriate antibiotic prescribing. The intervention period was from November 14, 2013 to May 31, 2014.

RESULTS: In the 14 practices throughout the entire study, there were 123,339 visits by patients 18-64 years old without chronic lung disease or immunosuppression, who had not made a clinic visit in the prior 30 days. Using natural language processing and manual chart review, we identified 5442 (4%) visits that were acute cough-related. As part of the intervention, we sent 48 emails to 34 different clinicians in 10 practices within 3 days of an antibiotic prescription for acute bronchitis (2 clinicians opted out of receiving further emails). From the pre-intervention to the intervention period, the proportion of acute cough-related visits increased slightly, but significantly (4% [2131/59,344] to 5% [3311/63,995]; p<0.0001). Among cough-related visits, the rate of diagnosis of acute bronchitis was not significantly different from the pre-intervention period (11%; 229/2131) to the intervention period (10%; 319/3311; p=0.2). The acute bronchitis antibiotic prescribing rate decreased significantly from 42% (97/229) pre-intervention to 18% (56/319) intervention (p<0.0001). Across practices, the acute bronchitis antibiotic prescribing rate in the pre-intervention period ranged from 0% to 93% and in the intervention period ranged from 0% to 59%. Eight practices had acute bronchitis antibiotic prescribing percentage decreases of at least 20% (range, -20% to -47%); 2 practices had percentage decreases between 0% and 20%; 1 practice had no change in the antibiotic prescribing rate; and 3 practices had increases (range, +2% to +11%). For all practices considered together, the cough-related antibiotic prescribing rate decreased significantly from 28% (587/2131) pre-intervention to 25% (816/3311) during the intervention (p=0.02). The rate of prescribing antibiotics for non-antibiotic-appropriate diagnoses decreased from 30% (174/587) pre-intervention to 17% (141/816) during the intervention (p<0.0001).

CONCLUSION: Explicit monitoring using natural language processing and near real-time feedback of acute bronchitis visits in 14 primary care practices was associated with a significant decrease in antibiotic prescribing for acute bronchitis, antibiotic prescribing for acute cough, and inappropriate antibiotic prescribing for acute cough.

RELEVANCE STATEMENT: Acute bronchitis should not be treated with antibiotics, but doctors in the United States prescribe antibiotics to 72% of patients with acute bronchitis. We implemented electronic health record monitoring and gave near real-time feedback to doctors about inappropriate antibiotic, which resulted in a drastic drop in antibiotic prescribing for acute bronchitis, from 42% to 18%.

ONLINE RESOURCE:

OP12 Using Health Information Technology to Support Quality Improvement in Primary Care

Tricia Collins Higgins, PhD, MPH; Jesse Crosson, PhD; Deborah Peikes, PhD, MPA; Robert McNellis, M.P.H., P.A., Agency for Healthcare Research and Quality; Janice Genevro, Ph.D., Agency for Healthcare Research and Quality; and David Meyers, M.D., Agency for Healthcare Research and Quality

BACKGROUND: Health information technology (IT) can be an important and effective tool for primary care practices to use in ongoing quality improvement (QI) efforts. Significant barriers have limited the use of health IT for this purpose, but exemplary primary care practices and organizations have found ways to effectively use health IT to support QI efforts. These practices can offer lessons to support and increase the use of health IT to improve the quality of health care delivery and patient and population health outcomes that may be useful to PBRNs and their member practices working on health IT projects to support QI.

METHODS: (1) A targeted literature search; (2) a technical expert panel with eight nationally recognized experts in health IT, clinical practice, QI, primary care transformation, health policy, and human factors engineering to discuss examples of effective use of health IT for QI in primary care, facilitators of and barriers to these activities, and policy recommendations to increase the use of health IT for QI in primary care; (3) interviews with clinicians and other QI leaders of three exemplary organizations—including a small independent practice; a large academic practice; and a health information network that supports primary care practices—to collect examples of how primary care practices can deploy health IT successfully for QI.

RESULTS: Factors in primary care practices that promote the use of health IT for QI include: a practice culture with a strong commitment to using health IT for QI; high-functioning health IT tools to enable tracking and extraction of data; clinical team and staff knowledge and skills related to both health IT and QI; and practice processes and workflows that incorporate effective use of health IT for QI. These factors are supported by financial incentives to offset capital, training, and clinician and staff time costs related to QI activities, and transformation assistance. Case studies of three exemplary primary care organizations revealed numerous lessons for clinicians, practice leaders, and facilitators working with primary care practices; IT developers and standards certifiers; and decisionmakers. The paper offers lessons practices can apply. These include explaining to clinicians and staff how using health IT for QI will ultimately help them deliver care and improve outcomes for patients; establishing a dedicated QI team, as well as regular communication between the QI team and the rest of the practice, to keep QI activities progressing and build these activities into regular operations; aligning QI projects with the practice's values or strategic plans; and others.

CONCLUSION: Although significant obstacles stand in the way of primary care practices using health IT for QI, practices in diverse settings have demonstrated it is possible and pays off in improved patient care and health outcomes. Additional support for primary care practices seeking to make these transformations—both payment reforms and targeted technical assistance—will help more practices commit to using health IT for continuous QI and ultimately ensure patients are receiving the best possible primary care.

RELEVANCE STATEMENT: PBRNs can use this information and share it with their member practices to promote use of health IT for QI, and ultimately to improve health outcomes.

ONLINE RESOURCE:

OP13 Use of Appreciative Inquiry to Identify Locally Relevant Health Solutions – a Research Method for PBRNs

Jodi Summers Holtrop, PhD; Tristen Hall, MPH; Donald Nease, MD; Linda Zittleman, MPH; Margaret Brawley, MPH; Doreen E. Martinez, PhD; Maret Felzien, MA; Jack Westfall, MD.

NEEDS & OBJECTIVES: This presentation describes the Appreciative Inquiry (AI) process as a method of eliciting effective strategies in addressing community problems and qualitative analysis to identify patterns of success based on the AI data collected. Data from a mental health project in Colorado will be used to illustrate this methodological approach.

SETTING & PARTICIPANTS: Researchers at the University of Colorado Denver in partnership with the High Plains Research Network (HPRN) representing rural eastern Colorado and the 2040 Partners for Health non-profit organization representing the metro-east Denver/Aurora area utiliz

DESCRIPTION: AI gathers information about how a particular issue or problem has been addressed successfully by individuals or groups. The focus is on "what works." Qualitative coding and analysis was used to identify meaning and patterns in the data. Specifically, this analysis identified clusters or groups of narratives that represented patterns of success by a particular issue or participant type. In this presentation, AI and the process of utilizing AI to identify successes in addressing mental health concerns in two Colorado regions will be described. Also, methods of analyzing the data from the AI interviews using a grounded hermeneutic editing approach will be presented.

EVALUATION: HPRN and 2040 groups utilized a community intercept/snowball technique to identify 45 community members who had experiences of successfully receiving some type of mental health care or support. The stories shared covered a range of experiences and types of care. Data were collected through individual interviews and small group discussions. Two separate analysis teams, and then the larger overall research team, analyzed the stories to identify key themes across each group as well as clusters of stories that resulted in different meaning and significance for each group (HPRN and 2040). The HPRN and 2040 community advisory councils were engaged in feedback sessions regarding identified patterns and success strategies.

DISCUSSION/REFELCTIONS/LESSONS LEARNED: AI was a valuable process to elicit community voices about ways community members successfully overcame challenges to accessing mental health. The AI process drew out rich stories of success. The analysis process revealed patterns of those successes and how participant characteristics and preferences were considered within community resources and intervention strategies to highlight future potential intervention approaches.

RELEVANCE STATEMENT: Identification of what works well is important to identifying strategies for replication in PBRN research. AI can be used to identify what works well. The associated qualitative analysis can reveal specific elements important for replication. This method may prove useful for PBRNs to identify effective, community-relevant strategies related to a range of health conditions and systems for which clear guidelines are not available.

ONLINE RESOURCE:

OP14 The Patient, Provider and Researcher Tryad: Perspectives on Partnerships formed to undertake Patient-Centered Outcomes Research

Hazel Tapp, PhD; Melissa McCallum; Sveta Mohanan, MD; Tamera Hege

NEEDS & OBJECTIVES: Partnership formation and engagement is considered key to successfully pursuing patient-centered outcomes research. Over the last 5 years we have studied outcomes related to the implementation of a shared decision making toolkit for patients with asthma. Here we will present partnership perspectives from a patient, provider and researcher.

SETTING & PARTICIPANTS: The setting is a PBRN, MAPPR, the Mecklenburg Area Partnership for Primary care Research. Participants are Melissa McCallum, patient partner and asthma advocate, Sveta Mohanan, champion physician and physician research partner and Hazel Tapp researcher.

DESCRIPTION: Patient- Ms Melissa McCallum has served on the executive committee of the ADAPT- NC where she has helped guide the research project currently underway and also helped develop a new PCORI submission as a co-investigator. "With all that I have gone through with caring for my children with asthma, it was an easy choice to engage with the team. I have become more engaged in raising asthma awareness. Each year, on the anniversary of my daughter's birthday, I ask people to post an inspiring story with the hashtag "takesmybreathaway" in memory of my daughter who passed away from asthma." Provider- Dr Mohanan has served as provider partner on two externally funded shared decision making implementation projects, first as champion physician at one clinic site, and second as coinvestigator on the ADAPT-NC state-wide implementation project. "As a family medicine provider and "provider champion" during implementation of shared decision making, first within my own practice and then state-wide, I have been partnering with the research team for several years. I was originally inspired by seeing that the shared decision making intervention was helping to keep my asthma patients out of the ED. Working with the research team has allowed for professional growth and a chance to redirect my career more academically. I feel like I help patients on a larger scale by talking to providers and participating practices about the benefits of the intervention and also how to overcome implementation barriers such as billing and productivity. " Researcher Hazel Tapp served first as co-investigator on the ACE project and then as PI on the ADAPT-NC project. "Through our work in community based participatory research we worked to build partnerships with communities. We used these principles to adapt CBPR into implementation of shared decision making into practices. Through partnership with practices we established "champion physicians" at each site and worked to build relationships through research partnerships with physicians and patients. Physicians may be interested in attending research meetings and learning grant writing and how to conduct their own research. Patients may have a variety of interests, for example, Activated patients - patients with disease knowledge and understanding. Caregiver advocates - We will actively seek to partner with caregivers of patients with complex medical conditions or diseases. Caregiver advocates often have considerable amounts of energy and passion related to the disease or condition of their loved one. Research participants -Patients or caregivers who attend disease-specific research focus groups or forums and express interest in follow-up on the research process. Patients usually assist by advising on study development, research patient surveys, toolkit development and usability, attending health fairs and research conferences and dissemination meetings."

EVALUATION: The team undertook an anonymous process evaluation survey which has items reflecting on team function and allows for comments on improvements. – For example one question "Do you have any suggestions about how the team could work better together?" brought the following responses "Make sure communication stays strong and we all look to bring the best out of the team." "Undertake team building exercises?" "Have more discussion on how we function as a team?" "Creat more opportunities for anonymous feedback."

DISCUSSION/REFELCTIONS/LESSONS LEARNED: We have developed robust partnerships between researchers, patients and providers. The primary lessons learnt are the importance of building trust in the partnership through listening to the needs of patients and providers. This means being aware of what the partnership means for all partners and what is helpful for them to develop as an advocate, researcher or teacher. From a provider perspective, the primary lesson was the impact research has on the role of clinician as medicine becomes a more outcome-based and patient-engaged culture. Engaging patients in research deepens the patient-provider bond as well as promotes empowerment and self-direction, leading patients to truly see themselves as equal members of the health care team.

RELEVANCE STATEMENT: Partnership formation and engagement is considered key to successfully pursuing patient-centered outcomes research. Over the last 5 years we have studied outcomes related to the implementation of a shared decision making toolkit for patients with asthma. Here we will present partnership perspectives from a patient, provider and researcher involved in two asthma shared decision making projects over the last five years. The primary lessons learnt as a researcher are the importance of building trust in the partnership through listening to the needs of patients and providers and being aware of what the partnership means for them. As a provider, research improves and creates more depth as a clinician, while increasing the depth of the relationship with the patient as well as the patient's relationship with the healthcare team.

ONLINE RESOURCE:

OP15 INSTTEPPing - Circuit-riding implementation of a multi-PBRN stepped-wedge trial in Meta-LARC

Donald Nease, MD; LJ Fagnan, MD; Matthew Simpson, MD, MPH; David Hahn, MD; Barcey Levy, MD, PhD; Doug Fernald, MA; Paige Backlund-Jarquin, MPH; Jeanette Daly, RN, PhD; LeAnn Michaels; Kate Judge, MSSW; France Legare, MD, PhD

NEEDS & OBJECTIVES: Trials that involve multiple practice-based research networks, or multi-PBRN trials, place demands on individual networks' staff to calibrate implementation of procedures to ensure fidelity across the networks involved. Most often this is done through bringing involved network investigators and staff together for joint meetings. We sought to assess the contribution of stepped-wedge designs to implementation trials.

SETTING & PARTICIPANTS: Implementing Networks Self-management Tools Through Engaging Patients and Practices (INSTTEPP) was an 18 month long, AHRQ funded trial through the Meta-LARC P30 consortium that included SNOCAP (Colorado), ORPRN (Oregon), IRENE (Iowa) and WREN (Wisconsin).

DESCRIPTION: INSTTEPP's stepped-wedge design involved five, two month long phases, requiring each network begin patient and practice level survey data collection in Phase 1 and Boot Camp Translation (BCT), a complex intervention implementation, in each network in subsequent phases. The protocol for survey data collection was developed through serial telephone conference calls among the networks, while BCT implementation was launched in randomly assigned order through the lead SNOCAP team traveling to each network. Three surveys were to be completed by four newly recruited patients per practice in each phase, and practice staff and clinicians were invited to complete one survey each per phase. BCT implementation included on-site training and leadership of the BCT kick-off meeting by the SNOCAP team, followed by handoff to the local network team for subsequent BCT conference calls with continued mentoring by SNOCAP.

EVALUATION: Survey data collection was successful among patients with completion of 869 (91%) of the possible surveys. Clinician staff data collection was less successful with completion of 337 (46%) of the possible surveys. BCT implementation was successful with all networks completing their BCT process with production/modification of self-management support tools that were ready for use by participating practices.

DISCUSSION/REFELCTIONS/LESSONS LEARNED: Serial implementation of the BCT intervention allowed each network to implement the BCT successfully and with a high degree of fidelity because the lead team initiated the BCT process in each network, before handing off. Each network also built capacity in conducting BCT interventions with practices. Stepped-wedge designs contributed positively to the implementation of a complex intervention because it appears to increase fidelity across sites.

RELEVANCE STATEMENT: Implementing complex study interventions across multiple PBRNs can challenge needs for consistent implementation and learning across all networks and participants. We were able to use a phased stepped wedge design to have the lead network team travel to each participating network for training and implementation. This method addresses the heterogeneity across multiple PBRNs while increasing the local network capacity to carry out the project.

ONLINE RESOURCE:

Clinician and Staff Perspectives on Participating in Practice-based Research: A Report from WREN

Amanda E. Hoffmann, MPH; David L. Hahn, MD, MS

BACKGROUND: The success of practice-based research (PBR) depends on the willingness of clinicians and staff to incorporate meaningful and useful research protocols into already demanding clinic schedules. The impact of participation on those who implement multiple projects and how to address the issues that arise during this complex process remain incompletely described. A qualitative evaluation was conducted on the experiences of primary care clinicians and clinic staff who participated in multiple PBR projects with the Wisconsin Research and Education Network (WREN). Also included are their suggestions to researchers and clinicians for future collaborations.

METHODS: For program evaluation purposes, WREN conducted four focus groups at its 2014 annual meeting. The main focus group question was: "How has participation in PBR impacted you and your clinic?" Twenty-seven project members from 13 clinics participated in 4 groups (physicians, nurses, managers, and other clinical staff). The two-hour sessions were recorded, transcribed, and analyzed by the authors to identify recurring themes.

RESULTS: Five major focus group themes emerged: receptivity to research; outcomes as a result of participation; barriers to implementation; facilitators of success; and advice to researchers and colleagues. Focus group members find research valuable and enjoy participating in projects that are relevant to their practice, even though many barriers exist. They indicated that research participation produces clinical changes that they believe result in improved patient care. They offered ways to improve the research process, with particular emphasis on collaborative early planning, project development, and communication before, during, and after a project.

CONCLUSION: Clinics that participate in WREN projects remain willing to risk potential work constraints because of immediate or impending benefits to their clinical practice and/or patient population. Including a broader array of clinic personnel in the communication processes, especially in the development of relevant research ideas and planning for clinic implementation and ongoing participation in research projects, would address many of the barriers identified in implementing PBR. The themes and supporting quotes identified in this evaluation of WREN projects may inform researchers planning to collaborate with primary care clinics and clinicians and staff considering participating in research endeavors.

RELEVANCE STATEMENT: Researchers must develop a better understanding of how to work with clinics, clinicians, and staff who are a part of a study, to improve patient safety, satisfaction, and overall health outcomes.

ONLINE RESOURCE:

OP17 Participation in clinical research: A thorough explanation in their own language helps Family Medicine patients decide

Anita Kurt, PhD, RN; Charity Curtis, MPH; Melanie Johnson, MPA; Henry Liu, MD, Beth A. Careyva, MD, Jerry Chang, Alex Winter, Claudia P. Santiago, BA, Wendy H. York, BS, MA, Kathleen Straubinger, RN, BSN, Brian Stello, MD

BACKGROUND: Clinical investigators struggle to achieve their enrollment goals in almost all areas of medicine. Previous studies indicate that there is minimal representation of women and under-served populations in clinical research. Since no study has been done to date that identifies factors that influence Family Medicine (FM) patients' decision-making regarding participation in clinical research, we conducted this study to explore FM patients' opinion and experiences regarding their participation. We hypothesized that patients with a higher educational background and socioeconomic status would be more likely to report participating in research in the past compared to those who are less educated and of lower socioeconomic status. We rationalized that participation in research involves a greater understanding of the research process, genuine time commitment, and having an assurance of safety. Therefore, patients who have a higher educational background and socioeconomic status would be more likely to understand and be available to participate without fear of unknown risks or of losing income.

METHODS: After designing and validating a 44-question survey, we utilized it in four FM practices/clinics of our hospital network. The survey was anonymous and voluntary. Inclusion criteria required participants to be a patient of the clinic during the survey period, be >/=18 years of age, and be both physically and mentally competent to complete the survey on their own. In addition to English, the survey was offered in Spanish, Traditional Chinese and Simplified Chinese, and was conducted by research scholars fluent in these languages. Comparisons were made by Fisher's Exact test and chi-square as appropriate and logistic regression analysis was utilized to explore the influence of income and education to self-reported participation in clinical research.

RESULTS: Out of 738 patients approached, 467 subjects (approx. 63%) agreed to participate. Based on the completeness of the survey and eligibility, only 432 surveys were included in the analysis. The respondents included 301 females, 127 males and four undisclosed genders. 129 participants identified themselves as belonging to a minority group, while 24 did not disclose their race. Furthermore, 184 (approx. 43%) earned </=$30K in 2013, 70 chose not to disclose and 20 did not respond. Only 37 subjects reported that they had participated in clinical research out of which 24 (approx. 65%) were female.   For income, regression models showed an increase in the likelihood of participating in research for low income (</=$30K) compared to high income (>$75K) people and a decrease in participation in research for middle income (>$30K-75K) compared to high income respondents. P-values for middle income (and low incomes were p = 0.9030 and p= 0.3919 respectively concluding no significant association between income and reporting participation in research. For education, regression models showed a decrease in the likelihood of participation for either high school graduates or less (p= 0.4494) and some college or college graduates (p= 0.8545) compared to professional degrees. Data results did not show an association between education and reporting participation in research. Of those who have never participated in research, "Risk of unknown side-effects" was most frequently scored as the greatest barrier preventing participation (approx. 58%) and "How well research is explained to me" was most frequently cited as the most motivating factor in deciding to participate in clinical research (approx. 58%). Survey results indicated that "having all material in my own language" was the most helpful factor for this subgroup when deciding to participate (approx. 55%).

CONCLUSION: Levels of education and income were not found to be associated with the likelihood of FM patients reporting participation in clinical research. Although the concern regarding unknown side-effects was found to be an important barrier, survey results indicated that well-explained research and the availability of materials in their own language are major factors that could possibly have an influence on FM patients when deciding to participate in clinical research.

RELEVANCE STATEMENT: A thorough explanation and availability of material in their own language could help enrollment of family medicine patients in clinical research.

ONLINE RESOURCE:

OP18 Patient - Engagement, Literacy, Adherence (Pilot) Study

Jennifer Schilling; Roberto Cardarelli, DO, MPH; Karen Roper, PhD; Christina Studts; Gretchen Holmes, PhD

BACKGROUND: Clinical use of self-report questionnaires and related forms of assessment of a patient's health, risks and/or other aspects of their health care has grown exponentially since early descriptions to include social, environmental, and psychological dimensions that factor into enhanced patient-centered care. Unfortunately, many assessments have not developed into practical, methodologically sound, clinical tools, primarily due to the impracticality of administering lengthy surveys within the typical time allotted for a primary care office visit. Some assessments also prove less useful or relevant to clinical application. Three constructs that have emerged as especially impactful to health outcomes include: health literacy, medication adherence, and the patient's preferences and efforts toward control over their care. The application of brief and accurate measures of these concepts could contribute enormously to improved patient-centered primary care. Health literacy is currently understood as a set of skills for gaining access to, understanding and using information to promote and maintain good health. With limited health literacy reported in nearly half of U.S. adults, concern for adverse consequences on health has risen sharply amongst policy and advocacy organizations. A review of 111 published studies found increased hospitalizations/emergency care use, poorer overall health status, and higher mortality in low-literacy patients. The consequences of poor medical adherence, defined as "the extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen" are also well documented. The United States dispenses 3.2 billion annual prescriptions, but with only half of these taken as prescribed. Current estimates are that 30% to 50% of treatment failures and 125,000 deaths per year can be attributed to medication non-adherence. The impact to medical costs is substantial. The influence of patient engagement in care (passive, or more active participation) on patient outcomes is less clear. On the one hand, many patients who prefer active control over medical decisions (or are trained on how to do so) have shown greater satisfaction with their care, and experience positive health outcomes (e.g., enhanced quality of life). This association is especially strong in seriously ill (i.e., cancer) patients. However, not all patients embrace "empowerment," and some research suggests that costs and length of stay as well as discomfort with side effects may increase in those take an actively engaged role. It was the goal of this study to address the lack of measures for these constructs by developing an ultra-brief battery, called the Patient-ELA (Engagement, Literacy, Adherence) tool that will equip primary care clinicians with patient-level information so that they can approach and interact with their patient at a very individualized level. The expected consequence is improved patient-oriented outcomes through behavioral change, shared-decision making, and appropriate and effective health education interactions. The Patient-ELA will overcome the problems with assessing these factors discussed above by proving practical even during a typical high-volume fast-paced clinical setting. The objective is for medical staff to administer the brief tool at the intake portion of the clinical visit (i.e, during vital sign assessments) and utilize the assessment at the point-of care for all patients – the Patient-ELA will function, in essence, as the newest "vital sign."

METHODS: Phase 1a: The first phase of this study was the assessment and selection of validated full-version measures of each construct: health literacy, medication adherence, and engagement preference. A review of the literature and assessment of existing instruments to ensure that items are amenable to Item Response Theory (IRT) methods. Instruments must: 1.) have been previously validated in clinical settings, 2.) have scaled responses to questions 3.) have been previously tested for psychometric properties, and 4.) be non-proprietary. Phase 1b: The details of each instrument were assessed by an IRT expert and, in consultation with the research team, the IRT expert lead the selection of instruments comprising items most appropriate for IRT analyses. Phase 1c: The selected full-version instruments were administered to a convenience sample of 200 individuals from 3 primary care clinics ideally selected to provide a highly generalizable study population with a mix of race/ethnicities and rural/non-rural individuals. Eligible participants were 18 years or older and fluent in speaking/reading English. After being approached in the waiting room, interested individuals completed the informed consent process, provided sociodemographic variables and completed survey instruments in a private setting following their clinical appointments. Phase 2: Psychometric analyses using IRT are model-based, predicting the probability of item responses as a function of the level of the underlying construct being measured. IRT model-fitting compares the relative merit of items and identifies the most informative items while eliminating redundant items and those leading to floor or ceiling effects. Reliable measurement of each of the 3 constructs (health literacy, medication adherence, and engagement preference) is produced by IRT analyses of the items in existing full-length instruments through a process of : (a) fitting an appropriate IRT model (the Rasch model or graded response model, depending on whether item responses are binary or Likert-type ratings); (b) calibrating the items to obtain item difficulty parameters, discrimination parameters, and information estimates; and (c) identifying the minimum subset of items that maximize measurement information along the spectrum of each construct. Analyses was completed using MULTILOG 7.0325 and the R package. The final product is the ultra-brief Patient-ELA tool with validity psychometric measures.

RESULTS: Seven items were selected to comprise an initial brief screen for patient engagement, literacy, and adherence concerns. Future investigations will be required to determine the clinical utility of the proposed P-ELA tool.

CONCLUSION: Limitations: small sample size for IRT analyses; some item misfit was identified; analyses may have capitalized on chance because they were all conducted with the same dataset; no DIF analyses were possible due to small sample size. Future studies should utilize larger samples, cross-validate IRT results, and investigate the construct and criterion-related validity of the 7 identified items.

RELEVANCE STATEMENT: The goal of this study was to determine the most appropriate questions to include in a brief questionnaire that can be asked to patients quickly during clinic intake so that the clinician can understand the patients: level of health literacy, medication adherence, and engagement in care preferences prior to entering the exam room. Knowing this information may help clinicians interact with their patients in a patient-centered way, which will hopefully ultimately improve the health of the patient.

ONLINE RESOURCE:

OP19 Provider perceptions of knowledge exchange and communication within a multi-site family health team

Morgan Slater, PhD; Aisha Lofters, MD, PhD, CCFP; Fok-Han Leung, MD, MHSc, CCFP; Emily Nicholas, BSc

BACKGROUND: Team-based care is common in today's primary health care system and Ontario, Canada has shifted toward an interprofessional, team-based model of comprehensive care. In most cases, a single Family Health Team (FHT) is spread across multiple geographic sites. This dispersion of team members restricts communication, encourages providers to work in silos, and ultimately may limit the effectiveness of this model of care. The goal of this study was to explore provider knowledge and utilization of FHT services and their perspectives of communication within a large, multi-site FHT.

METHODS: All health care providers active within the St. Michael's Hospital FHT in Toronto, Canada, were invited to participate in an electronic survey. Non-staff providers (i.e. residents, medical students and other trainees) and clerical staff were not eligible to participate. Team members of this FHT are spread out across four geographically distinct sites in five different clinics with their own culture and specialty services and programs. At the time of this study, the team consisted of 60 physicians, many with specialized clinical skills (e.g. procedural skills, HIV, addictions) and numerous non-physician health professionals, such as dentists, chiropractors, addictions counsellors and dieticians. The survey captured demographics, knowledge and use of services within the FHT and perceived communication issues. This study received approval from the St. Michael's Hospital Research Ethics Board.

RESULTS: Forty-six health care providers participated (51% response rate). While respondents were highly aware of the clinical resources offered at their own site of practice (95% agree/strongly agree), only 54% were aware of services offered at other sites within the FHT. Internal referrals for certain specialty services were high (i.e. methadone management, obstetrical care, IUD insertions and psychiatry); however, less than 50% of other referrals were to physicians within the FHT despite physicians within the FHT offering these areas of expertise (i.e. sports medicine, joint injections and tropical medicine). Only 60% of respondents believed that patients have equal access to all FHT services and 42% believed that patients were unlikely to travel between sites to access services. Roughly one-quarter of respondents believed that physicians were unlikely to refer patients to another site within the FHT to receive health care services. A majority of respondents agreed that the geographic distribution of the sites negatively affected communication within the FHT (68% agree/strongly agreed).

CONCLUSION: Geographical dispersion of team members in a multi-site Family Health Team had a negative impact on provider knowledge of available services within the FHT, perceived patient access to services, and communication amongst team members.

RELEVANCE STATEMENT: With the majority of FHTs in Ontario composed of multiple sites, geographic separation is common and has an effect on knowledge exchange and communication amongst team members. Other studies suggest that the communication issues reported here are not unique. Most relevant to the patient experience is the physician perception of unequal access to services as access to community care is the backbone of the FHT model. Improved knowledge of services within the FHT should increase FHT service referrals and utilization, increasing the effectiveness of this team-based model and improving patient care. The full benefits of the FHT model on effective patient care may not be achieved without creative and innovative ways to ensure effective communication and overcome the separation of team members.

ONLINE RESOURCE:

OP20 Expanding Cardiovascular Disease Risk Reduction for Patients with Diabetes in Patient Centered Medical Homes

Nina Park, MD; Laura Myerchin Sklaroff, MA; Sandra Gross-Schulman, MD, MPH, RN; Geoffrey Scheib, RN Chien-Ju Wang, MS Khathy Hoang, MPH Jeffrey Guterman, MD, MS (presenter)

BACKGROUND: Cardiovascular disease is the leading cause of death in the U.S. with a much greater risk among people with diabetes than those without. African-Americans and Latinos are disproportionately affected by cardiovascular morbidity and mortality. Numerous studies have demonstrated the morbidity, mortality, and cost benefits of aspirin, ACE-inhibitors/ARBs, and statins when used separately or collectively. Los Angeles County Department of Health Services (DHS) adopted the A-L-L HEART (aspirin, lisinopril, and lovastatin) Initiative promoting the use of aspirin, ACE-I/ARB, statin among patients 50 years and older with diabetes. There is an urgent need to increase the penetration of and adherence to this medication combination among minority and indigent patients with diabetes. This population is known to have more difficulty accessing care, receiving and adhering to therapy, as well as greater case fatality than non-indigent and non-minority patients.

METHODS: DHS is the second largest safety net health system in the U.S. Our populations are multicultural and diverse; approximately 15% are African American and 63% are Hispanic/Latino. A significant portion of patients have multiple chronic conditions, are non-native English speakers, and post Affordable Care Act, remain residually uninsured at higher rates than state or national levels. Within DHS, more than 40% of patients have diabetes, heart failure, or asthma, and one or more other chronic conditions. This program was implemented across members of the DHS PBRN in more than 120 Patient Centered Medical Homes (PCMHs).

RESULTS: DHS created an electronic A-L-L prompt integrated our electronic Medication Reconciliation module of a Disease Management Registry (DMR) used with patients in the Diabetes Disease Management Programs (DMP). The tool screens patients for A-L-L criteria (patient is age 50 years or older with diabetes), determines if the patient is on any of the A-L-L medication regimen, and prompts care providers to prescribe any A-L-L medications the patient is on not currently on, or provide a reason for not prescribing them. The tool uses one-click prescribing for ease of starting patients on A-L-L medications. The A-L-L HEART initiative expanded to reach a broader indigent patient population with Type 2 Diabetes. Concurrent with integration of i2i Tracks into PCMHs, we built an A-L-L reporting mechanism within i2i that identifies empaneled patients who meet criteria and then screens them for the A-L-L drugs. This was added to the Diabetes Tracking Type (a user-defined collection of measures). This mechanism includes most of the DMR functionality but does not have one-click prescribing. In a 5 year period, 5,120 DMP patients were screened by the A-L-L tool, with 83% on the full regimen. In a 2 year period, 13,299 PCMH patients were screened and 43% are on the full A-L-L regimen. Within the first 5 months of each program's implementation, the i2i tool touched more than 4 times the amount of empaneled patients, compared to the eMedRecon tool reach for patients in the DMP.

CONCLUSION: By making it easy for providers to "do the right thing" through one click prescribing for recommended medications, the A-L-L prompt used with the DMP allowed for greater efficacy, impacting a large percentage of a small population. The broader implementation of A-L-L within i2i that did not include one-click prescribing across all DHS PCMHs resulted in greater effectiveness, with a larger population of patients touched and a lower percentage of patients on the full regimen. Integration into workflow for both carve out and empaneled populations can successfully impact patients, however we've learned that you can't have it all. When determining the best electronic prompting system for medication prescribing, the type of population and delivery system directly impact results.

RELEVANCE STATEMENT: DHS has determined two methods to deliver systematic, generalizable, and scalable provider behavior change that promotes prescribing a regimen consisting of aspirin, an ACE-inhibitor or ARB, and a statin ("A-L-L") to safety net patients with diabetes mellitus. Results compare efficacy and effectiveness of these two methodologies.

ONLINE RESOURCE:

OP21 Personalized Health Planning in Veterans Health Administration Primary Care Settings

Connor Drake, MPA; Ralph Snyderman, MD; Leigh Ann Simmons, PhD; Tracy Gaudet, MD;

BACKGROUND: In response to the increasing burden of preventable chronic disease, the Veterans Health Administration (VHA) is fostering innovations in primary care to shift away from a reactive- disease oriented approach to a delivery model rooted in health promotion, disease prevention and patient engagement. The VHA strategic plan for 2013-2018 has as its number one goal to advance personalized, proactive, patient-driven care to "engage and inspire Veterans to their highest possible level of health and well-being." The Whole Health in Primary Care pilot study examined how personalized health planning can be implemented in primary care clinic settings as an operational model for delivering patient centered care marked by intensive patient engagement and shared decision making. The primary aim of this study was to study the feasibility of implementing personalized health planning within VHA primary care clinics to support a personalized, proactive, patient-driven care delivery model.

METHODS: After receiving training in personalized health planning, Clinicians and health care professionals in Patient Aligned Care Teams (PACTs) at five primary care clinics within the Boston and North Texas VA Health Care Systems designed and implemented clinical workflows that involved collaboration between patients and clinicians to create shared health goals, personalized health plans, care coordination, goal tracking, and as needed behavioral support.

RESULTS: Data from clinical teams were collected via structured group interviews at each participating primary care clinic. Researchers used qualitative methods to code themes to capture clinicians' feedback on their experiences implementing personalized health planning over the three-month pilot study. The approach resulted in greater clinician satisfaction, focused on the holistic health of the patients, and fostered a beneficial patient-clinician relationship.

CONCLUSION: Personalized health planning can be operationalized as a health care delivery model to support personalized, proactive, patient-driven care for Veterans. Future research should focus on determining the effect this approach has on health outcomes for different disease states and patient populations.

RELEVANCE STATEMENT: Primary care innovations that focus on patient engagement, shared decision making, and preventive medicine are of critical importance to shift the practice of medicine away from the traditional reactionary, disease-oriented approach to a more proactive model of care the focuses on health promotion, disease prevention, and effective chronic disease management. This study focuses on a new approach to the delivery of health care services that is a promising operational model for enabling these intended outcomes by establishing a collaborative relationship between the patient and their health care team.

ONLINE RESOURCE: http://www.va.gov/PATIENTCENTEREDCARE/

OP22 Clinic Responses to Transforming Outcomes for Medical home Evaluation and Redesign: a clustered randomized control trial to test high value elements

Bhavaya Sachdeva, MPH; David Dorr, MD, MS; Tracy Anastas; Elizabeth Waddell, PhD

BACKGROUND: Health care in the United States is in the midst of a near perfect storm: strong cost pressures, dramatic redesign efforts like Patient-Centered Medical Homes and Accountable Care Organizations, and a broad series of payment and eligibility reforms. To date, alternative models of care intended to reduce costs and improve outcomes have shown mixed effects in the U.S., in part due to the difficulty of performing rigorous evaluation studies that control for the broader transformation while avoiding other biases, such as organizational or clinic effect on individual patient outcomes.

METHODS: To prepare, stakeholders were interviewed, aligned with health reform, and proposed a pilot. Participants were primary care clinics engaged in reform. Study protocol required that both arms receive monthly practice facilitation, IT-based milestone reporting, and small financial incentives based on self-determined QI goals; intervention received additional prompting to choose high value elements (HVEs). Design was a cluster randomized controlled trial over 1 year with pre- and post-washout periods. Outcomes were unplanned utilization and costs, patient experience of care, quality, and team performance. Analysis is a multivariate difference-in-difference with adjustments for patient risk, intra-clinic correlation, and other confounders.

RESULTS: Data collection has been completed and results are being analyzed. Intervention clinics achieved on average six more HVEs than control groups. Other data will include pre- and post- clinician surveys and qualitative analyses of clinician exit interviews to determine barriers and facilitators to practice change.

CONCLUSION: The TOPMED study is a cluster randomized controlled trial focused on how primary care practices can change within health reform guidelines to achieve outcomes related to the Triple Aim. When compared to control clinics, intervention clinics were more likely to achieve HVEs. Quantitative and qualitative data from clinicians and staff will be used to identify barriers and facilitators to practice change.

RELEVANCE STATEMENT: The TOPMED study explores how to motivate clinic teams to achieve more challenging High Value Elements in their day to day practice to improve patients' health and reduce costs with incentives, practice facilitation, and IT reporting support.

ONLINE RESOURCE:

OP23 Evaluating the cost of patient-centered medical home transformation in small to medium size primary care practices

Robert Lieberthal, PhD; Ashok Vegesna, PharmD; Robert Lieberthal, PhD; George Valko, MD; Colleen Payton, MPH, Mona Sarfaty, MD, MPH

BACKGROUND: While there is ample information on the activities needed to transform into a patient-centered medical home (PCMH), previous research lacks focus on cost as an obstacle to transformation. This is particularly important in small to medium size primary care practices (<10 full-time equivalent [FTE] providers), which serve a large number of outpatients. Therefore, the objective of this study was to estimate the cost of achieving and sustaining PCMH recognition for small to medium size primary care practices.

METHODS: Using semi-structured interviews, we developed a cost collection tool and disseminated it to a self-selected cohort of 11 small to medium size primary care practices that had previously achieved PCMH recognition from the NCQA. We assessed the cost of transformation between 2008 and 2011 using the tool. The cost of transformation was divided into four categories: the cost of NCQA patient centered recognition activities, the application cost of obtaining recognition, the cost of changes to practice culture, and the cost of external collaborations. Costs were averaged and weighted by the number of FTE providers in each practice in order to make the results comparable across practices.

RESULTS: Three practices completed the tool. The weighted average cost of PCMH transformation was $35,508 per FTE provider in the year before recognition was achieved, and $38,218 in the recognition year itself. The most costly patient-centered activity (weighted average) in the pre-transformation year was "providing self-care support" ($4,863/FTE provider), while "measuring and improving performance" ($9,503/FTE provider) was the most costly in the transformation year.

CONCLUSION: The cost of recognition as a PCMH is a substantial but not insurmountable barrier to practice transformation. This information may be used by payers and policymakers to direct financial resources to primary care practices as they transform to the PCMH model. Indirect financial resources that assist in collecting cost data may also promote diffusion of the PCMH model.

RELEVANCE STATEMENT: This work can be used to help practices determine how much money practices will need to budget in order to acheive and maintain NCQA recognition as a patient-centered medical home. It also demonstrates the value of practices that have attained PCMH recognition.

ONLINE RESOURCE:

OP24 Digging In: Exploring the Cost of PCMH Level 3 Recognition in North Carolina

Jacqueline Halladay, MD, MPH; Kathleen Mottus, PhD; Kristin Reiter, PhD; C. Madeline Mitchell, MURP Katrina Donahue, MD, MPH

BACKGROUND: Efforts are ongoing to move the US primary care system toward the triple aim of delivering better outcomes through high quality, timely, patient centered, affordable care. The Patient Centered Medical Home (PCMH) recognition process supported by the National Committee for Quality Assurance (NCQA) provides an opportunity for practices to identify and implement key activities towards achieving the triple aim. Applying for and receiving NCQA PCMH recognition involves not only changing workflows, but also providing documentation that the changes have occurred. The work and time involved is substantial; therefore, in order to prepare, practices need to understand the associated costs. This abstract reports the results of an AHRQ-funded study aimed at identifying these costs among a sample of small primary care practices in North Carolina.

METHODS: Practice coaches from the NC Area Health Education Center (NC AHEC) helped identify 5 exemplar practices with fewer than 11 providers that had received PCMH level 3 recognition. Three pediatric and 2 family medicine practices were invited into the study and agreed to participate. From each practice, clinicians, administrators and information technology staff participating in the NCQA PCMH application process completed a 2-3 hour long semi-structured, on-site group interview.   Prior to each site visit, the research team reviewed each NCQA application and accompanying documents. Applying an activity-based costing approach, the NCQA application Standards, Elements and Factors were itemized on a data collection tool and interviewees were asked to report resource inputs into each activity. These inputs were categorized as: 1) non-personnel costs (supplies and materials), 2) staff time to develop new policies or processes, 3) staff time to implement new activities (including training), 4) staff time to maintain activities, 5) staff time to document the activities (screen shots), and 6) consultant costs. Staff time was the primary cost driver, thus interviewees were asked to report time spent on each activity by role. Costs were estimated by applying 2012 US mean hourly salaries. Only incremental costs were included in final cost estimates, and costs were standardized per full-time equivalent provider (pFTE). Because 2008 and 2011 PCMH standards differ significantly, the one practice receiving 2008 NCQA recognition was excluded from the results.

RESULTS: The final study sample included four private practices from coastal and central North Carolina (1 family medicine and 3 pediatric clinics). Practices ranged in size from 2.5 to 10.5 pFTE and had payer mixes ranging from 7-31 % Medicaid and 55-88% commercially insured, respectively. All practices were eligible for an incentive payment from Blue Cross Blue Shield for achieving PCMH level 3 recognition. Total costs to make practice changes and submit the NCQA PCMH application were greater for the larger practices because of the involvement of more people in the process. Across the four practices, there was substantial variation in the distribution of costs among development, implementation and maintenance of PCMH activities; however, the total costs per provider were remarkably similar across the 4 practices ($11,453–$15,977 pFTE). Outside consulting costs ranged $750 – $2,700 per practice. The greatest single costs were those incurred for new hires to support extended services.

CONCLUSION: In this sample, despite variation in the distribution of activities, the per-provider costs to develop, implement and apply for NCQA PCMH recognition were quite consistent. All practices felt the work was valuable to staff and patients, but noted the financial incentive was key to their decision to apply. Previous experience with data reporting and population management initiatives was helpful. As expected, the costs to hire new care-management or other professional services were significant, yet highly valued as part of future valued-based payment systems.

RELEVANCE STATEMENT: Primary care practice transformation aims to improve the quality of patient care and patient health outcomes. Official recognition of this transformation may benefit a practice financially as well as enhance its reputation; however, the process of receiving such recognition is not without significant cost. Practices embarking on the recognition process are advised to plan ahead to minimize costs including personnel time.

ONLINE RESOURCE:

OP25 Spurring adoption of a patient portal to foster family and clinician engagement in managing asthma

Alexander Fiks, MD, MSCE; Nathalie duRIvage, MPH; Banita McCarn, MEd; Stephanie Mayne, MHS, Stacia Finch, MA, Kelli Giacomini, Michelle Ross, PhD, Christopher Lehmann, MD, and Robert W. Grundmeier, MD

BACKGROUND: This project was conducted to inform Stage 3 of the federal Meaningful Use Program (MU3) for electronic health records which emphasizes the use of portals to collect patient-generated health information. We evaluated the feasibility of achieving this objective in pediatric practice by testing an asthma portal. The portal that was studied promotes collaboration between clinicians and families by monitoring asthma control, tracking parents' preferences and goals, providing asthma education, and alerting clinicians and families when follow-up is needed.

METHODS: We conducted a mixed methods implementation study in 20 pediatric practices across 11 states from two EHR-based research networks (PeRC and ePROS). Families of asthmatic children between 6-12 years with a visit in the past year were invited to participate by mail, phone, or clinician referral. Enrolled families completed monthly surveys to communicate treatment concerns and goals and report symptom control, medication use, and side effects. Based on their responses they received automated decision support summarizing control and providing follow-up advice. Analyses described portal enrollment as well as participants' asthma control, side effects, and intended plans following survey completion. 30 qualitative interviews with parents and 10 focus groups with providers evaluated implementation success.

RESULTS: A total of 9,239 families were invited to use the asthma portal and 294 (3.2%) enrolled (1.2% to 13.6% per practice). Of those that enrolled, 88% completed the initial survey and 64% completed at least one follow up survey. Those who enrolled were more likely to have persistent than intermittent asthma (p=0.001) and private versus public insurance (p=0.001). There was not a significant difference in enrollment by child age, gender, or race. Portal users commonly planned action following portal use—contacting pediatricians (14%), adjusting medications (10%), and changing home environment (15%). In addition, 67% of portal users reported concerns regarding medication use (e.g. cost, side effects) that might not otherwise have been expressed. Qualitative results revealed the importance of practice organization (asthma coordinators, well-defined workflows) and family characteristics (concern about asthma, comfort with technology) to implementation success. Clinicians found the portal improved the asthma history and kept families engaged, and families found that the portal improved communication and increased their responsiveness to changes in asthma control. Many children identified as having active asthma from EHR data were not experiencing any problems related to asthma, which, for their families, mitigated interest in using the portal.

CONCLUSION: Results suggest that achieving high levels of portal adoption will require additional effort and practice redesign, but this may be warranted since portals increase the engagement of families and clinicians in ongoing disease management and improve care. In early implementation years, MU policies should maintain low enrollment thresholds for pediatricians to receive incentives for portal use.

RELEVANCE STATEMENT: A national study shows that a patient portal that engages both families and clinicians in managing pediatric asthma improves care, but that additional work is needed to increase use. Such portals may eventually support more effective partnerships between medical practices and the families they serve.

ONLINE RESOURCE:

OP26 ASSESSING FEASIBILITY AND STRATEGIES FOR CLINICIANS TO COMMUNICATE VIA SOCIAL MEDIA WITH ADOLESCENT PATIENTS ABOUT HPV VACCINATION

Tamera Coyne-Beasley; Rebecca Ortiz, PhD; Autumn Shafer, PhD; Joan Cates, PhD; Sarah M. Downs, BS

BACKGROUND: HPV is the most common sexually transmitted infection in the U.S. and can lead to genital warts and various types of cancer. Nearly all sexually active men and women will contract the virus at some point in their lifetime if not vaccinated. The HPV vaccination completion rates among U.S. adolescents lag behind those of other adolescent vaccines. Adolescents are often involved in the decision to get vaccinated, but many have misconceptions and lack general knowledge about the vaccine. The purpose of the study was to determine feasibility and strategies for using social media to promote HPV vaccination to patients in pediatric and adolescent clinics in North Carolina. The purpose of the study was to determine feasibility and strategies for using social media to promote HPV vaccination to patients in pediatric and adolescent clinics in North Carolina.

METHODS: Four initial focus groups were conducted with 13 females and 25 males between the ages of 11-21 (M=15.86) in four clinics in North Carolina. The groups ranged in size from 7-12 participants each, and the majority were black (N=31). Black youth were recruited heavily as rates of cervical and anal cancer are disproportionately higher among blacks than whites, and the aforementioned clinics included large populations of black patients. Two additional meetings were held with a sample of previous participants who became our advisory committee to confirm initial findings. All participants were active users of social media. Discussion topics included purpose for using social media, preferences for type of health information desired via social media (e.g., facts about HPV), willingness to receive health information through social media, and from what sources and why.

RESULTS: Participants were willing to receive information about HPV and the vaccine through social media if the source was: (1) well known or someone they knew personally, (2) credible, (3) liked, and (4) relevant to the topic. Clinicians were named as one of the top sources. Participants preferred receiving information through indirect avenues (such as social media news feeds) to ensure privacy of receipt. They felt messages (particularly about sexual health) posted directly on their social media page or sent through private messaging on social media may be seen by others and misinterpreted. Participants preferred messages in the form of short, interesting facts about a variety of health topics (i.e., not just HPV) that grab their attention and are written in a teen-friendly style. Paid advertising was not considered a trustworthy source, as it was associated with for profit drug companies.

CONCLUSION: Findings suggest that adolescents trust clinicians and are willing to receive health information from them in virtual spaces. Clinicians can create a presence in social media for adolescent patients that regularly provides interesting and relevant health information, including information about HPV and the vaccine. Adolescents are particularly interested in information originating from or about celebrities or peers with relevant experiences. Paid promotion on social media sites is discouraged.

RELEVANCE STATEMENT: Findings suggest that adolescents trust clinicians and are willing to receive health information from them in virtual spaces. Clinicians can create a presence in social media for adolescent patients that regularly provides interesting and relevant health information, including information about HPV and the vaccine. Adolescents should be included in the development of content of social media venues for their use as this may greatly increase their interest and acceptance of the site.

ONLINE RESOURCE:

OP27 Use of Fine-Scale Mapping Analysis to Inform a Practice Network's Understanding of Lead

Joel Davidson, MD; Laura Schuch, MPH; Andrew Curtis, PhD

BACKGROUND: Lead toxicity has always been and will always be about environmental exposure. Primary prevention requires the identification of sources and pathways of exposure which vary spatially. Previous approaches using geographic information systems (GIS) to map health information, including blood lead levels (BLL), aggregated data to census tracts or zip codes. Analysis at this coarse scale does not allow for contextual understanding of health at the neighborhood or parcel level and limits intervention. Using the context of childhood lead poisoning, the purpose of this work is to demonstrate the ability to use protected health information to map data at a fine-scale, show the ability to combine that data with other available community information including geonarratives and spatial video in order to improve prediction and intervention strategies all while protecting patient confidentiality.

METHODS: Akron Children's Hospital operates 24 regional general pediatric practices, the primary sites for the screening blood lead levels used in this study. Data was extracted from the electronic medical record (EMR) in use throughout the hospital enterprise from 2012 to 2014. Geocoded addresses were limited to Summit County, Ohio. To protect patient confidentially a proxy for lead exposure was developed using an index of lead test results coded to a property's parcel. Fine-scale hotspots were identified using a GIS. Geonarratives, a technique in which community member conversations are recorded while driving around a neighborhood, were mapped within hotspots using novel coding methods and layered with data depicting environmental conditions from spatial video.

RESULTS: 15,024 lead test results from 12,275 patients were extracted from the EMR during the study period. 502 (4.1%) patients had at least one BLL >5 . Analysis revealed clusters of elevated blood lead level in 4 primary neighborhoods in Akron, OH. A fine-scale map down to the block-level was developed. The largest of which is a region densely populated by resettled refugees from Southeast Asia.   Geonarratives and spatially encoded video added contextual layers helping to explain community and environmental influences on elevated BLL within these hotspots. The presentation of this data shows the utility of these methods in providing specific community context to health problems at a level where intervention is possible.

CONCLUSION: Protected health information from the EMR need not be limited to coarse scale analysis of the zip code or census tract level. Fine-scale mapping approaches can be employed to evaluate neighborhood level information. Geonarratives and spatial video are tools which can add to the understanding of contextual factors affecting a disease state. Fine-scale mapping and geonarratives can improve a practice network's ability to inform change at the practical level of the neighborhood. Specifically for lead this technique and data allows for true primary prevention opportunities. Future work includes the need to test the proxy method used here to prove this method protects patient confidentiality at an even finer aggregated parcel level.

RELEVANCE STATEMENT: This work demonstrates how to use health information from the medical record and map it while maintaining confidentiality. The maps created identify elevated blood lead level hotspots and combine data sources from video and community member comments to increase understanding of the environmental characteristics leading to elevated blood lead levels. This work will help guide interventions at the neighborhood level.

ONLINE RESOURCE:

OP28 Clinician Recommendations for Adolescent Vaccines; Differences and Similarities

Paul M. Darden, MD; Christi A. Madden, MPA; James R. Roberts, MD, MPH; Erin Hinton BS, Elizabeth O'Brien RN, Brianna Rogacki MPH, David Thompson PhD, Charlene Pope PhD, RN, Robert M Jacobson MD, Boyd Davis, PhD

BACKGROUND: A clinician's recommendation for a vaccine is associated with vaccination across ages and vaccines. Clinician recommendations for vaccines are usually measured by a retrospective surveys of the patient or parent. Objective: To describe the associations between age, gender, recommendation type and vaccine during patient communication in this mixed methods study.

METHODS: We recruited adolescents, 11-17 years old, who had vaccines due and were attending well visits at 6 practices in 2 practice-based research networks, Oklahoma Child Health Research Network (OCHRN) and South Carolina Pediatric Practice Research Network (SCPPRN). We audio-recorded and transcribed portions of the visits. Trained staff coded the transcriptions using grounded theory. Codes were sorted into predominant categories for descriptive analysis, with vaccine recommendations characterized as none (no mention), any recommendation (any mention without presumption) or presumptive ("today you will get …"). Immunization data was collected through Medical record reviews.

RESULTS: In the sequential quantitative arm, we obtained usable transcripts from 107 visits (range per practice 15-20), with 58 due for MCV4, 49 for Tdap and 101 for HPV vaccine with 88%, 82% and 82%, respectively, receiving the needed vaccine. Most, 54%, were due more than one vaccine with 41% due for all three. For MCV and HPV vaccine the distribution of recommendations did not differ by gender or age. For Tdap, male patients were more likely than female to receive a presumptive recommendation (41% v. 14%; P=0.04) but we found no difference by age. For HPV vaccine the distribution of receipt of vaccine did not differ by sex or age. For both MCV and Tdap, male gender and younger age were associated with receipt of vaccine. The odds of vaccine receipt among those who received any recommendation (including a presumptive one) were 40.0 (95% CI 5.3, 299.2) times higher for MCV4, 15.4 (2.6, 90.0) times higher for Tdap and 5.3 (0.98, 29.0) times higher for HPV than among those receiving no recommendation. The odds of receipt when recommendation was considered an ordinal variable were 28.9 (95% CI 4.0, 206.5) times higher for MCV4, 11.8 (2.4, 59.2) times higher for Tdap and 7.3 (1.9, 27.8) times higher for HPV vaccine, for each increase from no recommendation to any recommendation to presumptive. In multivariable logistic modeling along with recommendation, younger age was associated with receipt of Tdap but not in MCV or HPV vaccine.

CONCLUSION: Clinician recommendation and presumptive provision of vaccines are successful in adolescents. Variations in recommendation by the age and gender of the patient seem to impede vaccine provision. Clinicians should articulate their recommendations about vaccines consistently across all vaccines and patients.

RELEVANCE STATEMENT: Vaccine communication is critical to the acceptance of adolescent vaccines. A recommendation should be given and it should to consistent. A presumptive recommendation appears most effective.

ONLINE RESOURCE:

OP29 Influence of Pediatrician Preventive Counseling on Infant Weight Trajectory

Maheen Quadri, MD, MS; Adolfo Ariza, MD; Noah Schwarz, BA; Soyang Kwon, PhD; Victoria Charicki, BS; Helen Binns, MD, MPH

BACKGROUND: Rapid infant weight gain is a risk factor for future obesity. It is unclear how much influence pediatrician counseling has on infant weight trajectory. The goal of this study was to determine relationship between preventive counseling routines applied at health supervision visits between 0-2 years and patient body mass index (BMI) trajectory.

METHODS: 36 pediatricians representing 8 practices were surveyed on counseling routines (breastfeeding, solid food, sugar-sweetened beverages, soothing, and sleep). Responses were used to determine practice routines; practices applied the strategy if ≥50% of the group routinely used it. Three theme areas were also identified: promotion of responsive feeding (PRF), shared parent-infant feeding responsibility (SFR), and healthy diet (HD). Demographics and anthropometrics between 0-2 years were extracted from 692 patients' records (48-115 per practice). Group-based trajectory analysis was used to identify 5 BMI percentile trajectory patterns. Two trajectories with similar initial BMI percentile (~50th percentile) were evaluated using multivariate logistic regression to assess influence of counseling strategies, adjusted for sex and insurance type.

RESULTS: Practices were assessed as routinely providing counseling on breastfeeding, solid food, sugar-sweetened beverages, soothing, and sleep; and on theme areas PFR (55%), SFR (67%), and HD (22%). BMI percentile trajectory patterns were: Group 1, start low/end low (16% of patients); Group 2, start low/end high (17%); Group 3, start middle/end lower (16%); Group 4, start middle/end higher (28%); Group 5, start high/end high (23%). Groups 1 and 2 and Groups 3 and 4 started at similar BMI percentiles (20th and 55th). Odds ratio (OR) of being group 3 vs. 4 was 2.4 (95% confidence interval [CI], 1.1–4.8) for sleep counseling, 2.6 (95% CI, 1.3–5.2) for soothing counseling at 6-12 months, 2.2 (95% CI, 1.1–4.7) for PRF, and 2.6 (95% CI, 1.3–5.2) for SFR. ORs of being group 1 vs. 2 were not significant for any counseling strategy/theme investigated (Figure 1).   Figure 1. BMI Percentile Trajectories 0-20 months

CONCLUSION: For infants starting around the 50th BMI percentile, pediatrician counseling routines seem to influence BMI trajectory patterns. However, pediatrician counseling routines did not significantly influence the BMI trajectory patterns of infants that started at high or low BMI percentiles. These findings hold promise for future investigations directed at the prevention of too rapid infant weight gain.

RELEVANCE STATEMENT: When pediatricians routinely discussed certain prevention topics with the parents of average-weight infants, those infants had less rapid (healthier) weight gain. These topics included sleep hygiene, soothing techniques, responding to infants' feeding cues, and healthy feeding practices.

ONLINE RESOURCE:

OP30 Parent and Specialist Agreement on the Results of Referral Visits in Two Pediatric Networks

Christopher Stille, MD, MPH; Steven Lockhart, MPH; Monica McNulty, MS; Julie Maertens, PhD; Christi Madden, MPA; Hilary Conn, RN; Crystal Turner, MPH; Paul Darden, MD

BACKGROUND: When a child needs specialty care, most parents prefer to take an active role with their child's physicians during the care process. Engaging parents in this role requires basic knowledge of the results of visits. The degree to which they have this knowledge has not been well studied, especially in an environment using electronic health records (EHRs). The objective of the work to be presented was to assess agreement between parents and specialty physicians (SP) about basic diagnostic and treatment plans after children are seen for SP consultation.

METHODS: The Parent-Provider Partnerships in Referral Communication (P3RC) study examined care provided to children referred from community pediatric primary care practices to academic SP practices in four specialties within two pediatric practice-based networks (COCONet and OCHRN) in Colorado and Oklahoma. Parents were prospectively enrolled at the time of primary care referral to a SP. As part of the study, post-consult questionnaires were sent to parents and SPs about the results of the SP visit. Parent-SP agreement on whether any medications were prescribed, whether any diagnostic tests were ordered, and what types of tests (blood work, diagnostic imaging, or other) were ordered was assessed.

RESULTS: 105 of 158 enrolled parents had complete parent and SP questionnaire data (66%). All SP practices had a standard practice to give parents an EHR-generated visit summary including tests and medications ordered. SP reports showed that 47% prescribed medications and 63% ordered tests (19% blood tests, 38% diagnostic imaging, 39% other). There was moderate parent-SP agreement about whether medications were prescribed (kappa=.55) and substantial agreement about whether any tests were ordered (kappa=.66), but slightly less agreement on the types of tests (kappa=.50 for tests in the "other" category).

CONCLUSION: Parents and specialists agree about most, but not all, basic information about subspecialty referral outcomes, even in an environment with EHR-generated visit summaries. Interventions beyond provision of a visit summary for children requiring specialty care, such as parent coaching or use of a patient navigator, are likely needed to achieve optimal parent understanding of their child's specialty visits.

RELEVANCE STATEMENT: While parents usually do a good job of understanding the results of specialty visits when their child is referred to a specialist, even the provision of a visit summary is not sufficient to achieve full understanding. Additional supports are needed.

ONLINE RESOURCE:

OP31 Development of a modified TRANSLATE assessment tool for the TRANSLATE-CKD Study

Vanessa Nguyen; Kris Neuhaus, MD, MPH; Victoria Hall, RN, MPH;

NEEDS & OBJECTIVES: Chronic kidney disease (CKD) affects more than 26 million adults in the United States. The prevalence of CKD has increased 30% in the past decade, and this upward trend is expected to continue. Treatment for end-stage kidney disease is the largest single cost to Medicare, and primary care settings are critically important to the early detection of CKD and prevention of progression to renal failure. The objective of the study is to help practices implement guideline-concordant chronic kidney disease (CKD) care, using the TRANSLATE model.

SETTING & PARTICIPANTS: The TRANSLATE-CKD study is a pragmatic randomized controlled trial being conducted at 33 primary care practice sites throughout the United States. Sites were block-randomized at the organization level, into a control arm which receives only computer deci

DESCRIPTION: The TRANSLATE model, first introduced by Peterson, is an acronym for nine components considered important to successful transform practice. For the TRANSLATE-CKD study, these nine elements were revised slightly, and now include team-based care. Additionally, a rating system based on natural, incremental steps was introduced, creating a numerical score for each element. This presentation will describe the use of the TRANSLATE rubric as a tool for incorporating study-defined elements of practice change, and the process by which it was developed it into the current version, balancing the various needs of study participants, facilitators, and the rest of the research team.

EVALUATION: The CKD-modified TRANSLATE template introduced at the start of the study was found to be of limited utility to facilitators and to lack salience for practice partners. In response to this, LANet study team members derived a set of concrete components and steps for successful implementation of TRANSLATE elements based on the study's Key Driver Model. Facilitators then cross-walked these with the TRANSLATE-CKD elements, using concepts from Normalization Process Theory (NPT) and the RE-AIM (Reach Effectiveness Adoption Implementation Maintenance) framework, to incorporate components deemed most important to success in each element of the TRANSLATE rubric. The revised TRANSLATE tool is considered more useful by study practice partners because it elicits concrete, actionable, contextual information necessary to achieving shared study objectives. We are currently evaluating the correlation between TRANSLATE elements and the degree of practice engagement in a facilitation model in which all interaction is conducted remotely.

DISCUSSION/REFELCTIONS/LESSONS LEARNED: Study facilitators determined that the initial TRANSLATE-CKD assessment tool was too non-specific to be useful in helping practices achieve study objectives. The revised TRANSLATE assessment tool has the potential to focus communication and therefore enhance engagement, and therefore goal-directed activities, for the study's practice-based research partners. The revised template was designed for the TRANSLATE-CKD study objectives but is easily adaptable to any project. The next step will be to evaluate potential relationships between TRANSLATE elements or sub-elements and study performance measures.

RELEVANCE STATEMENT: Practices generally know what they should be doing but often struggle to implement research and quality improvement projects because of time limitations. We modified an existing practice transformation tool to make it more useful to practices and to facilitators.

ONLINE RESOURCE:

OP32 Practice Facilitation and Academic Detailing Improves Colorectal Cancer Screening Rates in Safety Net Primary Care Clinics

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BACKGROUND: Large segments of the US population fail to receive colorectal cancer (CRC) screening despite evidence supporting it as an effective preventive measure. Practice facilitation, supported by academic detailing, is one method through which primary care providers can reengineer their practices to deliver more cancer screening and track patient screening completion. We implemented a grant-funded intervention using practice facilitation and academic detailing to increase CRC screening rates within primary care practices, and to assess the outcomes and barriers to intervention success. The project was conducted within a large multi-organizational framework, led by the Studying-Acting-Learning-Teaching Network (SALT-Net, SUNY Upstate Medical University) in partnership with the Upstate New York Network (UNYNET - University at Buffalo) and the Greater Rochester PBRN (GR-PBRN - University of Rochester Medical Center), under the auspices of the Upstate New York Translational Research Network (UNYTE).

METHODS: Nine primary care practices in Western and Central New York received a 1-hour academic detailing session on CRC screening guidelines, as well as two months of practice facilitation services to implement evidence based strategies to increase patient screening. The impact of the intervention was assessed through pre-post CRC screening rates, pre-post provider surveys, and the assessment of qualitative data gathered through post-intervention focus groups.

RESULTS: Intervention activities completed by participating practices included efforts to consistently record CRC screening as discrete data within practice electronic health record systems, provider audit and feedback activities, streamlining of provider reminder systems, and patient education and outreach interventions. The difference between mean pre- and post-intervention CRC screening rates was statistically significant (mean pre-rate 24.78% (SD 20.59%) vs. mean post-rate 26.43% (SD 20.93%), p=0.040).

CONCLUSION: This project evaluates the efficacy of a targeted intervention to implement evidence-based practices in a primary care setting to increase CRC screening rates, and provides tangible information on facilitators and barriers to implementing these practices in safety net clinics. Practice facilitation is one method through which practices can achieve systems-level changes that enable them to better manage patient population health. Staff dedication and the alignment of quality improvement project tasks with existing office workflows are essential for primary care practices to increase screening rates within a context of limited resources.

RELEVANCE STATEMENT: Practice facilitation is one method through which practices can achieve systems-level changes that enable them to better manage patient population health.

ONLINE RESOURCE:

OP33 Strategies to engage primary care practices in ongoing quality improvement

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BACKGROUND: While involvement in quality improvement (QI) initiatives has the potential to improve the performance of primary care practices, it can be challenging to engage practices in QI—a new endeavor for many already busy practices—even when the potential benefits to the practices and their patients are clear. Because primary care clinicians and staff often feel intense time pressures, and practices often operate on thin profit margins, the perceived costs of engaging in QI may seem to outweigh the anticipated benefits. Even when practices recognize the importance of improving their performance, or are financially incentivized to do so, they may be uncertain about how to begin QI activities, or how to make QI an integral and systematic part of their work. Even the most determined practice is likely to benefit from assistance in developing new skills to meet its improvement goals, including identifying areas for improvement, understanding and using data, planning and making system-level changes, and tracking performance over time. Recommendations for PBRNs and others who support practices in redesign and QI efforts have not previously been systematically presented. Therefore, this paper shares lessons learned for engaging practices in ongoing QI efforts, based on strategies experts in the field suggest might be helpful for meaningful QI efforts, with the hope that conference attendees will also share insights from their own work with practices.

METHODS: (1) A targeted literature search; (2) a technical expert panel with six nationally recognized experts in providing technical assistance and support to primary care practices as they undertake QI initiatives to discuss their experiences; and (3) interviews with four experts (from a payer, a QI organization, a State Department of Health, and an academic institution) to discuss their organizations' approaches to initiating QI activities. These 10 experts have honed their approaches through working on QI and practice redesign initiatives with more than 6,000 practices in 44 States.

RESULTS: The paper provides a conceptual background and a framework for thinking about how to engage primary care practices in QI and then provides several tactical strategies for those who support practices in QI and redesign efforts. While the current use of these techniques may vary, they may be useful to PBRNs who are considering how to engage new practices or how to begin efforts that require widespread engagement from practice clinicians and staff. First, experts suggested setting the stage for a future relationship with practices not yet ready to engage. For example, experts discussed how to get a foot in the door by focusing on making it easy for a practice to turn to them for support when they are ready, acting as a consistent source of helpful information to stay on the practice's radar. Second, experts found it useful to build trusted relationships with practices; for example, through partnering with an organization already trusted by the practice or working with early adopters or opinion leaders. Third, experts noted the importance of identifying the most appropriate practice leaders who are responsible for decisionmaking in the practice—regardless of their titles. Then, practice staff can be brought on board gradually, working first with key opinion leaders who can help involve others in the practice. Fourth, experts suggested messaging strategies that are specifically tailored to clinicians, office managers, and other practice staff are often most effective. Peer-to-peer education can often be an effective tool in delivering these tailored messages to clinicians and staff. Finally, appropriate messaging techniques to effectively reach practice staff include using data feedback and benchmarking to provide practices with information on their performance; engaging in storytelling to illustrate the ways in which QI efforts can be successful; identifying "pain points" and offering solutions; and drawing on a practice's core values and larger mission.

CONCLUSION: This paper provides insights from experts that PBRNs can consider as they continue to support primary care practices in developing an orientation toward systematic, continuous QI and practice redesign to improve the outcomes of primary care in the United States.

RELEVANCE STATEMENT: PBRNs can review this information to identify insights for their own work with practices on QI and practice redesign efforts, with the ultimate goal of improving performance and health outcomes.

ONLINE RESOURCE:

OP34 Enhancing the mental health care experience of patients with common mental disorders and chronic medical conditions: perceived needs, barriers and facilitators

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BACKGROUND: The prevalence of depression and anxiety disorders is particularly elevated in patients with chronic diseases, and the reciprocal relationship between mental disorders and chronic physical diseases is well documented. Recent studies demonstrate the importance of understanding how the detection and treatment of depression and anxiety disorders in patients with chronic diseases can be optimized. We conducted a study to document the challenges related to the delivery of mental health services for patients with chronic diseases, and the factors associated with the implementation of practice changes in primary care. The objectives are (1) to study the needs and challenges perceived by clinicians and patients concerning the delivery of care for anxiety and depressive disorders in patients with chronic diseases in primary care, and (2) to examine the facilitators and barriers associated with the adoption of evidence-based-practices.

METHODS: This multiple case study was conducted in the context of the Quebec Knowledge Network (Réseau-1 Québec), a network of primary health care researchers, clinicians and patients which aims to generate and apply patient-oriented knowledge in priority health domains. The project is the start-up project of the Université de Sherbrooke Department of Family Medicine and Emergency Medicine's PBRN, and it involves two Family Medicine Units from its local network and one Family Medicine Unit from McGill University's PBRN. Participants included 18 clinicians (family doctors, nurses, and other mental health professionals) who provide care to patients with chronic diseases in one of the three Family Medicine Units, and 10 patients with co-occurring chronic diseases and anxiety and/or depressive disorders. A stratified purposeful sampling approach was adopted to ensure adequate representation of professionals and patients. Participants took part in an individual interview. The themes explored in the semi-structured interview guides included clinician factors (e.g., attitudes, perception of roles, interprofessional collaboration, management of clinical priorities) and patient factors (e.g., needs, preferences, access to services such as psychotherapy, communication with health professionals) associated with the delivery of care.

RESULTS: Project results highlight a number of quality improvement strategies for patient services which relate to interprofessional collaboration, detection of mental disorders, treatment adherence, access to psychotherapy, as well as communication and coordination of services within the FMU and the local network. Patients corroborated issues raised by the clinicians, particularly in the areas of whole-person care, service accessibility and care management.

CONCLUSION: The results of this start-up project will contribute to the development of an intervention to improve the organization of primary care mental health services for patients with chronic diseases and co-occurring depression and/or anxiety disorders which will be based on both research evidence and the needs and preferences expressed by patients and clinicians.

RELEVANCE STATEMENT: The mental health care experience of patients with common mental disorders and chronic medical conditions can be enhanced by implementing strategies to increase interprofessional collaboration, care coordination and service accessibility.

ONLINE RESOURCE:

OP35 Observational evaluation of preventive care services in fee-for-service vs. value-based arrangements

Ariel Caplan; Eric Havens; Jonathan Pena; Vanessa Olson; Worthe Holt, MD

BACKGROUND: The healthcare system is moving away from traditional fee-for-service reimbursement models that revolve around acute care, towards value-based arrangements where physicians are financially rewarded for managing population health and improving health outcomes. As this transition takes place, it is increasingly important to understand how the patient experience may be changing. Accordingly, this observational study evaluated compliance with various preventive care measures and health services utilization, by physician payment model, within a population insured by a Medicare Advantage plan. The value-based payment model evaluated in this study promotes evidence-based care that is associated with improved outcomes and supports primary care providers (PCPs) with a cadre of resources including care management, clinical integration, financial management, and patient engagement. The value-based reimbursement model is a continuum that is adaptable to the level of complexity in a given practice, aligning shared savings and care coordination opportunities as well as a full shared-risk program for providers with full accountability.

METHODS: Individuals insured by a large Medicare Advantage health plan were attributed to a single provider based on an algorithm that factors in variables such as visit count, timing of visit, and patient selection of PCP. Individuals were then categorized as fee-for-service with no incentive (FFS) or value-based payment based on their attributed provider's contractual relationship with the payer. Final 2013 measurement year Healthcare Effectiveness Data and Information Set (HEDIS) data for thirteen preventive care measures were obtained from medical claims, pharmacy claims, laboratory claims, and supplemental data to determine HEDIS measure eligibility and compliance. Compliance rates for the HEDIS measures were compared between value-based and FFS groups using chi-square tests of significance. The mean number of hospital admissions per-thousand-per-year (APT) and emergency room visits per-thousand-per-year (ER VPT) were calculated on a morbidity-adjusted basis and compared between the value-based and FFS groups.

RESULTS: Compliance rates for HEDIS "Chronic Care" measures were higher in the value-based group when compared against the FFS group (p≤0.01 for all) for all measures assessed: Diabetes care — Blood Sugar Controlled 83% vs. 76%, Cholesterol Controlled 60% vs. 52%, Cholesterol Screening 92% vs. 86%, Eye Exam 69% vs. 62%, Kidney Disease Monitoring 93% vs. 90%; Cardiovascular Care — Cholesterol Screening 92% vs 87%. For "Screening and Monitoring" HEDIS measures, compliance was higher in the value-based group (p<0.01 for all) for Osteoporosis Management for Women Following a Fracture 38% vs. 22%, Colorectal Cancer Screenings 71% vs. 64%, and Adult Body Mass Index Assessments 96% vs. 91%. However, for the Rheumatoid Arthritis Management measure compliance rates in the FFS group were higher (76% vs. 79%, p<0.01). HEDIS measure compliance for care for "Older Adults" measures was higher for value-based providers for Medication Review (93% vs 85%) and Functional Status Assessment (90% vs. 88%), but not Pain Screening (93% vs. 94%), where p<0.01 for all comparisons. Individuals with providers in value-based relationships experienced 7% fewer emergency room visits (383 vs. 410 ER VPT) and 4% fewer hospital inpatient admissions (258 vs. 268 APT) than those in traditional, FFS models.

CONCLUSION: People receiving care from providers who were in value-based relationships had higher preventive care compliance rates, as well as fewer hospitalizations and ER visits, than those in FFS care settings. These findings may be subject to potential selection bias arising from better-performing practices opting into value-based arrangements, and future work should investigate practice selection.

RELEVANCE STATEMENT: This study gives evidence that the reimbursement model aligned to a physician practice may have a meaningful impact on patient preventive care and quality of healthcare outcomes.

ONLINE RESOURCE:

OP36 Measuring the patient experience in primary care: comparing email and waiting room survey delivery

Morgan Slater, PhD; Tara Kiran, MD, MSc

BACKGROUND: Measuring the patient experience is an important step towards understanding and improving the quality of primary care. Traditional methods of collecting patient experience data include surveys delivered in clinic waiting rooms, via telephone, or by mail; however, these methods can be costly and burdensome to primary care practices. Electronic surveys sent via email offer a low-cost alternative for regularly surveying patients. However, it is unclear whether patients responding to emailed surveys are representative of a practice population and whether their responses are different from patients surveyed through more traditional modes.

METHODS: We compared two modes of survey distribution: [1] an online survey, sent to patients via email and [2] a survey of patients in clinic waiting rooms conducted on tablet computers with assistance from staff. Surveys were conducted by the St. Michael's Hospital Academic Family Health Team (SMHAFHT), a large, urban interprofessional primary care organization with five clinic locations serving 35,000 enrolled patients in the inner city of Toronto, Canada. As part of their quality improvement work, the SMHAFHT developed a short patient experience survey that captures patient perspectives on access and patient-centredness. Both the emailed on-line survey and waiting room survey were hosted on FluidSurveysTM. Survey responses are anonymous but capture some demographic information including age, gender, postal code and self-rated health. The Statistics Canada Postal Code Conversion File was used to link patient postal code and census data to determine their neighbourhood income quintile. We compared the characteristics of patients who responded to the email and waiting room surveys using Chi-square tests and compared these characteristics to the demographic profile of patients enrolled to the SMHAFHT. In addition, we compared the demographic characteristics of enrolled patients with and without an email address on file to understand if the sampling frame for the email survey was representative of the practice population. Responses for key survey questions were compared between the email and waiting room survey. Multivariate logistic regression models compared the effect of the survey mode, adjusting for differences in patient demographics. All analyses were conducted using SAS version 9.4 (SAS Institute, Cary, NC).

RESULTS: Five hundred and ninety-four email surveys were completed between January 1 and June 30, 2014 (response rate 21.2%). During the months of July and August 2014, 606 patients in clinic waiting rooms completed the same patient experience survey via a tablet computer (response rate 75.7%). There were no significant differences in the gender or self-rated health of survey respondents but patients responding to the email survey were more likely to live in higher income neighbourhoods and had a different age distribution than those responding to the waiting room survey. When compared to the practice population, both survey modes underrepresented children and young adults (0-24 year olds), over-represented those age 24-35 years, and over-represented female patients. The email survey under-represented patients living in the low income neighbourhoods while these patients were over-represented in the waiting room survey. Patients with an email address documented in their chart were more likely to be between 25 to 64, female, and live in a high income neighbourhood. There were significant differences in responses by survey mode for one of three questions related to access and one of three questions related to patient-centredness. Patients responding by email were less likely to report being able to see a provider the same or next day when they were sick and needed care (53.4% email versus 60.6% waiting room, p=0.0183) but more likely to report their provider always or often spent enough time with them (89.0% versus 84.9%, p=0.0480). These differences disappeared after adjustment for patient demographics.

CONCLUSION: We found that patients who responded to an online survey sent via email had a different age distribution and were less likely to come from low income neighbourhoods compared to patients responding to the same survey delivered in the waiting room using tablet computers. The differences seen in patient responses were explained by the differences in the characteristics of patients responding to the two types of surveys.

RELEVANCE STATEMENT: Measuring the patient experience is an important step in improving the quality of care delivered in primary care practices. Practices should be mindful that the mode of survey delivery influences the demographics of respondents which can impact survey responses. New modes of delivery that require electronic literacy offer a convenient, low-cost method for measuring the patient experience but may under-represent patients from low-income neighbourhoods.

ONLINE RESOURCE:

OP37 Do Stakeholders Matter? The Impact of Pre-Award Engagement on the Implementation of a State-Wide Shared Decision Making Intervention

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NEEDS & OBJECTIVES: Despite continued advances in medical knowledge, translation of research findings into clinical practice remains slow, and health disparities are common across the U.S. Shared decision making is a valuable tool in chronic disease self-management that is associated with improved asthma-related outcomes. We previously developed a shared decision making toolkit associated with improved outcomes such as reduced hospitalizations for patients with asthma and also developed a facilitated approach to implementation into primary care practices. In order to study best practices for dissemination we wanted to study the implementation of the shared decision making toolkit across geographically diverse practices in North Carolina. Through a stakeholder engagement process we partnered with a Medicaid asthma workgroup, a consortium of practice based research networks (PBRNs), and provider and patient partners. Our objective is to describe our stakeholder partnership building process.

SETTING & PARTICIPANTS: This project is state-wide across North Carolina involving the North Carolina Network Consortium of PBRNs (NCNC); the CCNC asthma workgroup, and provider and patient partners.

DESCRIPTION: The North Carolina Consortium (NCNC) holds regular monthly calls to collaborate in practice based research. In thinking about methods for further dissemination of our toolkit, a Community Care of North Carolina (CCNC) partnership was considered a vital next step. Coincidentally, when we contacted CCNC they were just forming an asthma workgroup to address quality metrics, practice support, and advance a shared decision making approach to asthma care. CCNC has targeted asthma as a priority condition since the late 90s, with previous success at reducing ED visits and hospitalizations and was targeting asthma as a priority condition. CCNCs Informatics Center identified 298 practices with greater than 100 asthma patients. As the application for a grant submission to PCORI was put together, the CCNC Asthma Workgroup, NCNC and our patient and physician advisors informed the protocol development process.The monthly CCNC Asthma Workgroup meeting was attended by members of the research team who helped the workgroup develop new asthma materials including some parts of the shared decision making toolkit. After a pilot step at 6 practices, the pediatrics QI specialists shared these materials with practices across all CCNC networks. After we received PCORI funding, the partnership continued – we were invited to present at state-wide asthma events such as the spring Asthma Summit held by the NC Asthma Alliance. CCNC Asthma workgroup partner members were key in helping us recruit by endorsing us to practices, giving us contact information for appropriate people to contact, and widely distributing recruitment fliers to practices.

EVALUATION: Although no formal evaluation of partnerships was undertaken, through partnership formation we were able to successfully recruit, randomize and implement the intervention at 30 diverse practices statewide.

DISCUSSION/REFELCTIONS/LESSONS LEARNED: Establishing a mutually beneficial long-standing relationship with our stakeholder partners was key to building trust. The participatory nature of collaborating on various projects of interest before, during, and after grants can bridge the chasm that can occur when partnerships are solely focused on one grant.

RELEVANCE STATEMENT: Translation of research into practices is challenging. Shared decision making is a valuable tool in disease self-management that is associated with improved asthma-related outcomes. We previously developed a shared decision making toolkit associated with improved outcomes such as reduced hospitalizations for patients with asthma. We also developed a way of bringing shared decision making to practices using trained workers to go into the practice over several weeks to help practice transform care. Here we describe the scale up of this implementation method across 30 geographically diverse practices in North Carolina. We also describe the stakeholder engagement process where we partnered with a CCNC asthma workgroup that was interested in our shared decision making toolkit, practice based research networks (PBRNs), and provider and patient partners. We describe the impact of those partnerships that helped us during practice recruitment and rollout of the intervention.

ONLINE RESOURCE:

OP38 Using CBPR to engage a transitioning immigrant community in improving access to primary care and increasing social capital

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BACKGROUND: Traditional health service delivery models have had little effect ameliorating health disparities and improving access to care for vulnerable populations. We partnered with two geographically distinct high-risk neighborhoods to develop and host Community Wellness Fairs (CWFs). Our initial three aims were to: (1) engage Latino immigrant community members and stakeholders to better understand their health related needs as well as the underlying social and spatial determinants of health; (2) characterize the health status of the predominantly immigrant population with limited health care access; and (3) appropriately connect individuals with mental and physical health needs to both primary care and social services. A fourth aim that organically arose through community engagement and feedback was the development of lay health groups as a way to a way to build leadership capacity and expand social networks in the neighborhoods. Here, we describe the differences in the population and lessons learned while developing, implementing, and evaluating this community-based intervention.

METHODS: Principles of community-based participatory research were used to engage stakeholders and design the series of CWFs within two high-risk census tracts. Stakeholders were identified through existing relationships with community based organizations. The design and implementation of the CWFs involved an iterative process with feedback from service providers, volunteers and community members, with project oversight from a Community Advisory Board. Recruitment strategies included direct mailings to residents of target communities, announcements via school communication, and neighborhood flyers. The primary outcome was examined by participant follow-up surveys, which included reporting of primary care and social service utilization. Focus groups were implemented to get feedback about the CWFs. Along with the implementation of the fairs, lay health groups were developed and met on a bi-weekly basis.

RESULTS: 230 Hispanic participants were enrolled from the 9 Community Wellness Fairs in both areas and then followed prospectively for 1 year after enrollment. Data is currently being analyzed to compare the retention rate of the participants in both areas, changes in utilization, as well as the feedback of the fairs. Also, a total of 23 community members were engaged in the lay health groups. The group from the south tract continues to meet and has implemented a number of educational workshops for their group and other members of the community.

CONCLUSION: Various methods of engagement are necessary to understand the nuances of groups of people living in geographically distinct neighborhoods. Community Wellness Fairs are an effective mechanism for: (1) recruiting participants from a high-risk neighborhood; (2) identifying community members who need additional services, (3) connecting community members with to needed primary care and social services; and (4) developing self-sufficient community groups with the goal of creating and sustaining behavior change. The results were different in each neighborhood and there are a number of variables that impact the success. Lessons from previous engagement should inform, but not define future engagement with vulnerable communities around health interventions focused on improving community and population health at the neighborhood scale.

RELEVANCE STATEMENT: It's important to take different apporaches when engaging groups of people living in different neighborhoods. Community Wellness Fairs are a good way of engaging community members and identifying those who need additional services and connecting them to those services. Also, working to develop community groups can be a way of not only encouraging and sustaining behaviour change, but also spread additional information about resources to others in their community.

ONLINE RESOURCE:

OP39 Challenges in Recruiting for an Inter-Disciplinary PBRN Research Initiative: Implications for Research and Healthcare

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BACKGROUND: In 2013, the Academy of Nutrition and Dietetics (Academy) received a grant from the Agency for Health Care Quality and Research to conduct a small cluster-randomized trial using social media to disseminate evidence-based nutrition practice guidelines for heart failure to family medicine physicians and registered dietitian nutritionists (RDNs).The goal was to evaluate, using surveys and electronic medical record data, whether social media messages increased the referral rate of heart failure patients to RDNs and subsequently improved outcomes. An expert advisory group from family medicine, cardiology, nutrition, dissemination, and social media was convened to assist with the study.

METHODS: Six family medicine physician/RDN dyads were needed for randomization. RDNs were contacted through the Academy's Dietetics Practice Based Research Network (n=1600), and invited to participate. Eligible RDNs spoke to the investigators over the phone and then were asked to obtain support from the physician practice. Physician/RDN dyads then spoke to the investigators to confirm their commitment and feasibility of the project. Central IRB approval was obtained by the investigators and was available as a template for sites with a local IRB.

RESULTS: Over 18 months, the investigators spoke to 36 RDNs from the DPBRN who had expressed interest in participating in the trial by completing a survey or emailing the investigators. Twenty-two spoke with the investigators; only six progressed to a dual physicians/RDN phone call. Three of these sites initially signed agreements to participate but two subsequently dropped out. Other contacts were made via the investigators' personal networks of physicians and RDNs, and a regional family medicine PBRN. Reasons for lack of participation were: too much expected of facilities compared to incentives provided, family medicine physicians seeing fewer heart failure patients due to a shift to cardiology or nurse-directed care and IRB challenges at the site level.

CONCLUSION: Recruiting for PBRN studies is challenging, and developing inter-professional dyads adds an extra layer of complexity. Health care can change between the time a grant is submitted and when implementation occurs, and this may not be predicted even by an expert group of advisers. Going forward, consideration of the timeframe for research and grants vs. health care changes must be considered. The development of a multi-disciplinary PBRN within existing dyads or care teams could increase the feasibility of recruiting for future studies.

RELEVANCE STATEMENT: Recruiting practices for research studies requires an understanding of the health care landscape, which sometimes changes more quickly than researchers plan. In addition, while health care is becoming more multi-disciplinary and inter-professional, there are still additional challenges in recruiting for inter-professional studies.

ONLINE RESOURCE:

OP40 Patient Engagement and Perspectives on Tobacco Use Treatment in Primary Care

Jacqueline Halladay, MD, MPH; Maihan Vu, DrPH, MPH; Adam Goldstein, MD, MPH; Carol Ripley-Moffitt MDiv, CTTS, Sachin K. Gupta, MD, Christine Omeara, MD

BACKGROUND: Evidence-based tobacco cessation interventions increase quit rates, yet most smokers do not use them. Every primary care visit offers the potential to review such options, but communications can be tricky for patients and provider alike. We explored smokers' personal experiences of interacting with health care providers with a view to identifying feasible and appealing interventions to test in primary care settings and to generate stakeholder informed patient centered outcomes for use in future trials.

METHODS: Three 90-minute focus groups, including a total of 33 patients from three primary care clinics, were conducted. Participants were current or recent (quit within 6 months) smokers. Topics included tobacco use, quit attempts, and interactions with providers, followed by more pointed questions exploring specific actions patients want from providers and outcome measures that would be meaningful to patients.

RESULTS: Results: Using inductive coding techniques, four themes were identified, namely: 1) the experience of being tobacco user (inconvenience, shame, isolation, and benefits), 2) the medical encounter (expectations of providers, trust and respect, and positive, targeted messaging), 3) high value actions (consistent dialogue, the addiction model, point of care nicotine patches, educational materials, carbon monoxide monitoring, and infrastructure), and 4) Patient-centered outcomes.

CONCLUSION: Conclusions: True patient-centered research requires that the patient voice be sought early in the planning process. The overall message we heard from patients is the desire for honest, consistent and pro-active discussion and action about a serious and deleterious addiction. Several practical interventions arose that could be implemented with minimal burden in busy primary care settings. Finally, patients offered a generous list of creative, patient-centered outcome measures.

RELEVANCE STATEMENT: This work offers insights into what smokers face in an ever increasingly smoke free society and what patients need from their clinical teams and communities to help support their efforts to becoming tobacco free. It also provides stakeholder recommended outcome measures to test in future effectiveness trials performed in primary care settings.

ONLINE RESOURCE:

OP41 Flipping the "Patient Engagement in Research" Paradigm: Learning from Research-Engaged Community Organizations

Barbara Norton, DrPH; Laurene Tumiel-Burhalter, PhD; Lyndee Knox, PhD; Zsolt Nagykaldi, PhD

BACKGROUND: Community engagement in research is essential to assuring relevance and later adoption of evidence. To this end, considerable effort has been expended over 15+ years to promote and improve ways that communities are engaged in the research endeavor. These efforts have included widely adopted approaches like community-based participatory research (CBPR), new research infrastructures like practice-based research networks (PBRNs) and Clinical and Translational Research Award (CTSA) Community Engagement Core networks, as well as new institutions like the Patient-Centered Outcomes Research Institute (PCORI) – all of which have served as drivers of practice and scholarship on incorporation of consumer and community voices. That said, the vast majority of patient/health consumer-engaged research remains largely initiated and guided by academic investigators in response to funding opportunities, where researchers engage patients and community representatives as participants, collaborators, or partners in project-specific and, often, disease-specific research. Less attention has been paid to longitudinal engagement, prevention and primary care questions of broad population interest, or to the capacity being built by some health consumer and community organizations to initiate and define their own research priorities. The Patient-Driven Queries Network (PDQNet) Project flips the common engagement paradigm in which researchers seek ways to involve patients or community members in research to one where research-engaged organizations – those which broadly represent health consumers and community members – share the what, why, and how they have engaged themselves in the research enterprise. Such organizations care about clinical questions of pressing importance to community members, but they also seek evidence-based knowledge in pursuit of a community-framed Triple Aim – better individual health, better economic vitality for the community, and better community health.

METHODS: The three-year project uses qualitative methods to address gaps in patient-centered outcomes research (PCOR) methods, specifically those in the areas of engagement and prioritization. The study team consists of leaders of research-engaged community organizations, PBRNs, and researchers. Together the project will undertake an environmental scan to: 1) identify community organizations that are "exemplars" in conducting research on their own behalf and engaging members of the research community to partner with them; 2) conduct key-informant interviews and concept mapping processes with both the exemplar organizations and practice-based research partners to identify "best practices" in flipped engagement; 3) describe current methods used by research-engaged organizations to prioritize needs and opportunities and to identify and test strategies for improvement; and 4) develop a "toolkit" based on the study's findings and disseminate and to community organizations to build their capacity to initiate research of importance to their communities and to researchers to more effectively partner with research-engaged organizations.

RESULTS:

CONCLUSION:

RELEVANCE STATEMENT: Broad-based consumer and community engagement in health research is essential for identifying questions that matter, yielding results that can be used in the real world, and translating findings into practical use in community settings. One way to help achieve this is to learn from research-engaged community organizations themselves. The results of the PDQNet Project will produce knowledge to help health consumer and community organizations and practice-based research networks play a leading role in the patient-centered knowledge generation in the U.S.

ONLINE RESOURCE:

OP42 The Monitor Trial: Challenges and Lessons Learned in Successful Engagement of Industry and Health Delivery Network Stakeholders

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BACKGROUND: Currently no standard of care exists describing the role of glucose self-monitoring (SMBG) in patients with non-insulin treated (NIT) type 2 diabetes (T2DM). Health care provider recommendations vary widely from daily testing to never testing for NIT T2DM. Numerous stakeholders have an interest in this debate; amongst them are health care delivery systems and glucose meter manufacturers. Both hold important perspectives that can help inform a contemporary answer to this age-old debate. We share strategies and lessons learned for engaging both a large network of primary care practices and our industry partner, a glucose meter manufacturer, in the design and implementation of the MONITOR Trial.

METHODS: The MONITOR Trial is a PCORI-funded, pragmatic trial to determine the effectiveness of SMBG in patients with NIT T2DM. We are currently recruiting 450 participants from 11 NCNC primary care practices in a large, health care delivery network, who are randomized to one of three treatment arms: no SMBG testing, SMBG testing with standard feedback, or SMBG testing with enhanced feedback via real-time, tailored messaging through the glucose meter. Our co-primary outcomes include glycemic control and quality of life.

RESULTS: Engaging health care delivery systems and industry partners from the onset, during study design, is critical. We have learned: 1) feedback from health care providers within the practice network can meaningfully inform the grant application; 2) working with the health care system administration during the application process helps to build a true partnership; 3) adequately compensating the health care system for their participation solidifies the partnership; and 4) working with industry partners during the study design phase helps to ensure that the technical needs of the study are feasible. The relationships forged between the study team and the stakeholders during the study design phase serve as the foundation upon which successful study implementation occurs. During study implementation stakeholder engagement continues to be valuable. Key lessons learned include: 1) minimize practice burden of recruitment by having study staff take on this responsibility; 2) maintain an ongoing presence within practices without disrupting the day to day clinical staff activities; 3) invite interested clinic staff to participate as authors on manuscripts; 4) maintain open lines of communications with industry partners so that problems can be addressed in a timely and effective manner. We meet with all stakeholders via teleconference several times per year. These calls keep stakeholders abreast of study developments and serve as an open forum for stakeholders to provide feedback to the study team. Our biggest challenge to date has been high personnel turnover at selected practices and with key contacts at the glucose meter manufacturer. Having a memorandum of understanding in place has helped to ensure successful implementation of our trial.

CONCLUSION: Engaging all stakeholders, including less traditional entities like industry partners and health care delivery systems, is possible and allows for addressing challenges that inevitably come up during research implementation.

RELEVANCE STATEMENT: Working with stakeholders during grant planning as well as implementation helps with making the grant more feasible, and addresses the inevitable implementation obstacles along the way.

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