

Research/Scientific Abstracts

OP1: Consultation, Coordination, and Collaboration: The Four Cs of Integrated Care in Advancing Care Together (ACT) Practices

BACKGROUND:

Compelling research evidence, healthcare reform initiatives, and provider and patient needs are driving the integration of primary care and behavioral health services. This integrated care model can be effective only when clinicians with diverse professional backgrounds (e.g., psychology, social work, medicine), and often opposing philosophical views, work together to provide care. Yet, little research has focused on understanding the strategies these clinicians use to deliver patient-centered integrated care. Therefore we undertook this study to describe the different strategies medical and behavioral health clinicians use to deliver integrated care, and the factors that facilitate or impede such interactions.

METHODS:

Qualitative comparative case study of 9 primary care and 2 mental health clinics participating in the Advancing Care Together (ACT) Program in Colorado and their clinic staff. Clinics vary on size, ownership, rurality, and experience delivering integrated care. Qualitative data included online implementation diaries by practice members, fieldnotes from observation visits, transcripts from interviews with practice staff, and practice photographs. Data were entered into Atlas.ti and analyzed by our multidisciplinary team using an immersion-crystallization approach.

RESULTS:

ACT clinics brought together primary care clinicians (physicians, nurse practitioners, physician assistants) and behavioral health clinicians (psychologists, social workers, health coaches) to implement innovative models of integrated care. Clinicians from different disciplines used three strategies to provide patient-centered integrated care – consultation, coordination, and collaboration. Consultation occurred when a clinician validated their plan for action or perception of a patient’s need with another clinical professional. Coordination involved two professionals working together asynchronously to deliver a component of the patient’s care and achieve a common goal. This was often the case when a patient’s needs were straight forward and had been experienced by the team before. Collaboration involved two or more professionals working together in real-time to discuss a patient’s presenting symptoms, describe their views on what treatment is needed, identify practice and community resources, and to jointly develop a course of action for care. Collaboration frequently resulted in an emergent course of action that was different from what either individual professional would have chosen if working alone. The need to collaborate frequently emerged when a patient’s case was complex or the situation had not been experienced by the clinicians working together before. These interactions produced treatment skills that could be used to coordinate care for subsequent patients. Clinicians occasionally needed to overcome feelings of competition before they could successfully interact to deliver these three modes of integrated care. A clinic’s integration model, physical layout, organizational culture, and other contextual features could support or hinder these interactions.

CONCLUSION:

Various approaches are used in integrated settings to deliver patient-centered integrated care. Practices integrating behavioral and primary care services may need adequate time and experience working together in order to learn which strategy is best for individual patients.

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OP2: Development and Validation of Assessment Tools for Care Coordination in a Safety-Net Primary Care Setting

BACKGROUND:

Community health centers are increasingly embracing the Patient Centered Medical Home (PCMH) model to improve quality, access to care, and patient experience while reducing healthcare costs. Care coordination (CC) is an important element of the PCMH model, but implementation and measurability of CC remains a problem within the outpatient setting. Assessing CC is an integral component of quality monitoring in health care systems, but few existing tools fit this need. This study was conducted to develop and validate tools for assessing CC that address the specific nature of care within a safety-net primary care setting and include the perspectives of both patients and primary healthcare teams.

METHODS:

A review of relevant literature was conducted and existing CC instruments were identified by bibliographic search and contact with experts. A conceptual model was developed after identifying all CC domains that could appropriately be assessed by primary healthcare team members and their patients. Items from existing published measures, along with newly developed items, were matched to these domains for inclusion in two questionnaires, one targeting patients and one targeting healthcare team members. A web-based modified Delphi technique was used to examine content validity. A ten-person panel guided item selection through three Delphi rounds. The patient questionnaire was administered via mail and phone to 232 patients at Community Health Center, Inc. All patients were adults, English-speaking, with identified care transition and/or complex chronic illness needs. The online primary healthcare team questionnaire was completed by 162 staff members from 12 health centers across the country. Both measures were validated from a psychometric approach for internal consistency, reliability and convergent validity. Two sets of scores corresponding to each domain, in both tools, were calculated along with total CC patient and provider scores.

RESULTS:

Two final measures were developed and validated: a 13-item patient CC survey and a 32-item primary healthcare team CC survey. Employed was a sequence of exploratory and Confirmatory Factor Analyses (CFA) to test the domain structure as initially hypothesized and a more advanced combination of the two (Exploratory Structural Equation Modeling) was then used until a clear structure emerged. The final CFA models were based on standardized loadings and explained variance. Four CC domains were confirmed from the patient group and eight domains from the primary healthcare team group. All domains had high reliability (all Cronbach's α scores were above 0.8). Convergent validity was confirmed through sizeable correlations with measures of nursing care drawn from electronic health records.

CONCLUSION:

Patients experience the ultimate output of CC services, but primary healthcare members are best primed to perceive many of the structural elements of CC. This study is the first attempt to develop and formally validate a CC assessment tool for the primary care safety-net setting, from both perspectives, to provide a richer body of information for the continuous improvement of services. It shows promise as a valid and reliable assessment of the CC efforts. It is practical and easy to administer and can be used by ambulatory practices seeking to become or to maintain status as Medical Homes.

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OP3: Findings from the Demonstration of the Health Literacy Universal Precautions Toolkit

BACKGROUND:

Health literacy represents a person's ability to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Seventy-seven million Americans have limited health literacy, which is associated with more serious medication errors, higher rates of emergency room use and hospitalizations, worse preventative care and outcomes for their children, and increased mortality. There is growing understanding that health literacy is not only dependent on personal capacities, but is also dependent on the health-literacy demands placed on individuals by the healthcare system. AHRQ's Health Literacy Universal Precautions Toolkit was developed by the University of North Carolina to provide primary care practices with step-by-step guidance and 20 targeted tools for assessing and making changes to their practices' health literacy environment. A universal precautions approach to health literacy assumes that all patients may have some health literacy-related barrier, regardless of education level or socioeconomic status, and thus encourages practices to create an environment where patients of all health literacy levels can thrive. AHRQ commissioned the Demonstration of Health Literacy Universal Precautions Toolkit, which was conducted to better understand how primary care practices went about implementing the toolkit, the impact of toolkit implementation on a practice's health literacy environment, and needed refinements to the toolkit based on these findings.

METHODS:

Twelve interested, diverse primary care practices across the U.S. were recruited to implement the Health Literacy Universal Precautions Toolkit. Each practice received a stipend to participate in the study and was assigned four tools for implementation over a six-month period. All practices were site visited during the pre and post implementation phases, and key informant interviews were conducted during these visits. Practices participated in semi-structured check-in calls at 4 specified time points during the implementation period. In addition to serving a data collection function, targeted technical assistance was provided to practices during check-in calls. Data collected during site visits and check-in calls were transcribed and underwent qualitative analysis to understand the practices' toolkit implementation activities, including barriers and facilitators to implementation and recommended revisions to the toolkit.

RESULTS:

Considerable implementation variability occurred among practices. Some practices achieved close to full-implementation of their 4 assigned tools while others achieved minimal implementation of the tools. Four facilitating factors for implementation were observed: the presence of strong practice leaders, early efforts to raise practice staff awareness about the importance of health literacy, ability to implement related tools together, and linking tool implementation to other practice priorities, such as PCMH certification. Four barriers for implementation were observed: competing demands/interests, technological limitations, toolkit limitations, and lack of familiarity with the toolkit.

CONCLUSION:

The Demonstration of Health Literacy Universal Precautions Toolkit showed that primary care practices can effectively use the toolkit to take concrete, practical actions to improve their health literacy environment. It also points to further opportunities for toolkit refinements and further redesign of practices' health information systems, organizational objectives, infrastructure, policies and practices, and communication strategies to better serve the needs of individuals with limited health literacy.

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OP4: Family physicians in charge: Towards a model for engaging family physicians in primary care research.

BACKGROUND:

The slow progress in primary care research can be attributed in part to the challenge of family physician engagement. Without their involvement, serious knowledge gaps will develop as research in primary care expands. However, family physicians take an intermittent role in research and have difficulty adding research to their clinical duties. This study draws on lessons learned by the Family Medicine Department at Université Laval in Québec which has grouped its 12 family practice teaching units into a primary care practice-based research network (PBRN). Our objectives is to describe the challenges and insights in the development and implementation of these changes.were to (1) identify and characterize organizational changes that improved primary care research capacity among family physicians (2) characterize those family physicians who were assigned a leadership role.

METHODS:

Using a case study methodology, we conducted six semi-structured interviews with physicians in charge of research activities in six different FPTU in the Québec primary care practice-based research network. They were asked to describe the process of creating the family physician led practice-based research network at Université Laval and to identify and characterize the new research leaders in each FPTU.

RESULTS:

Of the six physicians contacted, all have agreed to participate. They identified two organizational arrangements that contributed most to improving research capacity in the Québec practice-based research network: (1) recruitment of a research coordinator linked the department of family medicine to mediate between clinicians and researchers; (2) identification of family physician leaders to engage in the research process in each FPTU. They identified three types of family physicians responsible for research: (1) the family physician who is also a clinical investigator involved in specific research projects, (2) the family physician interested and proactive in developing research and (3) the family physician with prior research training but who is overwhelmed by the workload and staff shortages.

CONCLUSION:

We identified the changes that contributed to improve primary care research capacity in a practice-based research network. The findings of this study will contribute to the development of strategies to enhance physician engagement across this PBRN and others. It could inform models and piloted interventions to promote and strengthen the commitment of clinicians to primary care research.

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OP9: Using Electronic Health Record Data for Population Health and Practice Based Research

BACKGROUND:

Electronic health records (EHRs) serve diverse purposes. While designed principally for documenting patient care, EHRs provide foundation for surveillance, data sharing, reporting of complex metrics and practice based research. Each of these extensions support data-driven public health efforts and the national effort in achieving the Triple Aim. The analytics potential of EHRs is especially promising given the complexities of medical care and need for timely clinical decision support. What is not receiving sufficient attention, however, is the need for a heightened level of data maturity in primary care.

METHODS:

The West Virginia Practice Based Research Network (WVPBRN), comprised of primary care centers, academic institutions, state government, local health and public health partners, helps advance use of data in primary care by: repurposing EHR data for population health and practice based research; addressing priority health disparities identified by WVPBRN partners; attending to EHR data quality; applying data to practice transformation; complementing national efforts in Patient Centered Medical Home and Meaningful Use.

RESULTS:

In a recent study, we standardized EHR data from disparate systems and analyzed for the purpose of diabetes prevention. Data from 14 WV primary care centers, caring for 130,021 active patients, were standardized in a clinical information system designed with features enabling identification of patients at-risk for diabetes based on data elements commonly recorded in EHRs. Of the 130,021 patients, 94,283 did not have a documented diagnosis of diabetes or prediabetes in their medical records. This study finds that 10,673 (11.3 percent) of the 94,283 established patients without a documented diagnosis of diabetes or prediabetes meet one or more inclusion criteria for diabetes risk. The strongest identifying criteria is being age 45 years or older with last recorded BMI greater than 25. This approach permits cross-site analysis of patient populations for the purpose of early detection and intervention without expenditure of significant resources or specialized data collection. Likewise, this approach supports prevention efforts in a way that is sensitive to the time constraints of primary care and complements data-driven quality improvement efforts. In a second study, we imported EHR data from 11 WV primary care centers into a clinical information system to examine data quality around diagnosis of essential hypertension; looking specifically at coded versus free text documentation of this condition. We found a statistically significant increase in identification of essential hypertension cases based on combined use of diagnostic and free-text coding (mean = 1,256.1, 95% CI 1,232.3–1,279.7) compared to diagnostic coding alone (mean = 1,174.5, 95% CI 1,150.5–1,198.3). Further, we found a statistically significant increase in potential cases based on the last two or more blood pressure readings being greater than or equal to 140/90 mm Hg (mean = 1,353.9, 95% CI 1,329.9–1,377.9). The implications for the impact of data are critical considerations for quality of care, analytics, and research.

CONCLUSION:

Attending to the fundamentals of data management, analysis, interpretation, and action add value to clinical decision support tools afforded through health analytics and provide a natural foundation for population health and practice based research efforts. Results from our studies of EHR data quality and repurposing data for prevention support a more expansive and rigorous use of EHR data.

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OP10: Learning from Primary Care Meaningful Use Exemplars

BACKGROUND:

Submission of data on clinical quality measures (CQM) is one of three major requirements for providers to receive meaningful use (MU) incentive payments under the 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act. Some argue that CQM are the most important component of MU, since they are tools that help measure and track the quality of healthcare services and a focus on health outcomes is a critical requirement for re-engineering our healthcare system. Developing an evidence base for how practices can successfully use EHRs to achieve improvement in outcomes is essential, and may benefit from the study of exemplars, those who have successfully implemented EHRs and demonstrated high performance on CQM.

METHODS:

The study, conducted in PPRNet, a national primary care practice-based research network used a multi-method approach combining an EHR-based CQM performance assessment, a provider survey, and focus groups among high CQM performers. Practices whose providers had attested for Stage 1 of MU were eligible for the study. Performance on 22 CQM included in the 2014 MU CQM set and a summary measure was assessed as of October 1, 2013 through an automated data extract and standard PPRNet analytic procedures. The web-based provider survey, conducted in November to December 2013, assessed provider agreement, staff education, use of EHR reminders, standing orders, and EHR based patient education related to the 22 CQM. It also had more general questions about the practices' use of EHR functionality and quality improvement approaches, and the respondent's beliefs about the value of their EHR. Statistical analyses using general linear mixed models assessed the associations between responses to the survey and CQM performance. The three focus groups, held in early 2014, provided an opportunity for clinicians to provide their perspectives on the validity of the statistical analyses and to provide context-specific examples from their practice that supported their assessment.

RESULTS:

Seventy-one practices completed the study, and 319 (92.1%) of their providers completed the survey. There was wide variability in performance among the 22 CQM among the practices. Mean performance ranged from 12.9% for chlamydia screening to 89.8% for tobacco use screening and counseling. In bivariate analyses more positive associations were found between CQM performance and staff education, use of standing orders, and EHR reminders than for provider agreement or EHR based patient education. In multivariate analyses, EHR reminders were most frequently associated with CQM performance. Variables positively associated with the summary measure of CQM performance included use of registries, EHR customization, clinician belief in EHR value, practice leadership commitment to MU, practice team knowledge about QI priorities and progress, and belief that participation in PPRNet helped motivate improved care. Focus group findings largely validated the quantitative findings.

CONCLUSION:

Purposeful use of EHR functionality coupled with staff education in a milieu where QI is valued and supported is associated with higher performance on CQM.

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OP11: Planning for Action: The Integration of an Electronic Asthma Action Plan Tool into Cerner at Carolinas HealthCare System

BACKGROUND:

Asthma is a high impact chronic lung disease associated with disparities in health outcomes, poor medication compliance and high healthcare costs. Its complexity makes it difficult to manage, prompting the need for new approaches to care delivery that incorporates technology to improve patient outcomes and reduce costs through the facilitation of guideline adherence. The goal of this project was to develop and integrate an electronic Asthma Action Plan / Decision Support Tool (eAAP) within the Cerner electronic medical record (EMR) across Carolinas HealthCare System (CHS) to provide evidence-based guidance for providers and an individualized asthma action plan handout for patients to promote self-management.

METHODS:

The need for an electronic asthma action plan was initially identified by the research team who created a prototype generator that provided decision support. In order to embed this tool into the Cerner EMR, a multidisciplinary team within The Mecklenburg Area Partnership for Primary Care Research (MAPPR) PBRN was assembled. Physicians, advanced care practitioners, nurses, information technology specialists, administrators and quality specialists partnered with the researchers to develop the eAAP. The improvement process involved PDSA cycles utilizing provider feedback to make modifications. Each resulting output was reviewed and tested to ensure proper functioning with positive feedback confirming success. The eAAP was then piloted at 5 outpatient facilities from December 2012 through July 2013 with continual enhancements before widespread implementation at over 100 primary care practices across the healthcare system in August 2013.

RESULTS:

The eAAP provides: 1- rapid determination of peak flow expectations, 2 - assessment of asthma severity or control, 3 - the ability to satisfy asthma appropriate care expectations, 4 - guideline-based decision support, 5 - electronic prescribing and, 6 - generation of an individualized asthma action plan patient handout to support self-management. To date 2,692 asthma patients have had an eAAP completed in the ambulatory setting at CHS, 84% of which were children. Data show a 53% decline in the percentage of pediatric eAAP users with an asthma-related emergency department (ED) visit from 3.2% in the 6 months prior eAAP to 1.5% in the 6 months post eAAP ($p = 0.052$). Findings for adult patients were non-significant. Pediatric patients also saw a significant decline of 42% in any exacerbation (ED visit, inpatient hospitalization or outpatient oral steroid prescription order for asthma) from 18.0% in the 6 months prior eAAP to 10.4% in the 6 months post eAAP. Both adult and pediatric patients using the eAAP showed significant declines in use of outpatient oral steroids in the 6 months post eAAP, 65% and 41% respectively.

CONCLUSION:

Offering evidence-based care for asthma has the potential to improve quality of care while increasing patient engagement and satisfaction. It is estimated that asthma control saves \$4,000+ per patient; CHS cares for over 60,000 patients with asthma. In combination with other initiatives to improve outcomes, continued use of the eAAP has the potential to save the healthcare system \$96 million dollars through reduced exacerbations.

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OP12: Designing Stepped Wedge Trials in Community and Practice-Based Settings

BACKGROUND:

In parallel group cluster randomized trials (CRTs) potentially beneficial interventions are often withheld from control practices or communities. The stepped wedge CRT is a single-crossover design in which all practices/communities eventually receive the intervention. Additionally, study power is minimally affected by intraclass correlation, thus requiring fewer practices/communities.

METHODS:

We will describe methods involved in designing stepped wedge CRTs for two studies currently in the field. Study 1 goal is to implement the AHRQ SMS Library/Toolkit across four participating networks and 16 practices using Boot Camp Translation in a stepped-wedge design and assess the impact of implementation on practice staff and patients engaged in chronic care management. Study 2 goal is to implement a joint parent-provider referral communication/ care planning intervention for children with special healthcare needs who require subspecialty referral in 9 pediatric practices in Colorado and Oklahoma. The number of intervention initiation steps relevant to number of practices/communities, anticipated subject accrual and followup time, trial outcomes, analytic approaches, and power analysis were used to design the studies.

RESULTS:

Study 1: Four PBRN networks (4 practices each, 20 patients per practice) were randomized to 4 implementation steps with a maximum of 10 months wait-time and 80% power to detect a .30 effect size difference between control and intervention patients. In contrast, this sample size would provide only 62% power to detect an equivalent effect size difference in a cluster randomized design (assuming ICC of .02). In Study 2, nine pediatric practices are randomized to four implementation steps with a maximum of 12 months wait-time and 80% power to detect a .29 effect size difference between control and intervention groups. Power to detect an equivalent effect size would only be 53% in a parallel group design (assuming ICC of .02).

CONCLUSION:

Stepped wedge designs are particularly relevant to community-based participatory (CBPR), PBRN, and patient-oriented outcomes (PCOR) research in which it is problematic to withhold efficacious interventions from practices and communities. Also, these designs provide greater power to detect intervention effects with fewer practices/communities.

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