Taking the Closing the Referral Loop project to scale: enhancing patient safety through better ambulatory referral management

Project Summary

More than 105 million referrals of Medicare beneficiaries to specialists are made in the U.S. every year.\(^1\) The Wright Center Medical Group, PC (TWC) with the American Medical Association (AMA) as a sub-contractor, propose scaling a jointly developed Closing the Referral Loop (CRL) set of interventions created for and tested during 2014 by 12 participating primary care physicians (PCP) and specialist physicians (dyads) in Pennsylvania. The investigators will take the lessons of the pilot project to standardize the ambulatory referral process and thereby improve patient safety. The updated interventions will use existing electronic health record (EHR) platforms for direct end-to-end communication to manage referrals, improve care coordination, and enhance patient engagement. TWC and the AMA will enroll 40 dyads from TWC’s National Federally Qualified Health Center (FQHC)-based Teaching Health Center Graduate Medical Education Network Family Medicine Residency training. TWC’s American Osteopathic Association-accredited Family Medicine Residency Program trains residents at FQHCs in Washington, Oregon, Arizona, New York, Ohio, and Washington, D.C. These sites, in addition to one in Pennsylvania, will provide 40 dyads for this research study. Through their involvement, the residents will learn quality improvement techniques and become the next generation of physician leaders in performance improvement. Investigators and participants will focus on reducing redundant testing rates, closing more referrals, improving patient and family engagement; and reducing the number of “no shows.” The AHRQ Medical Office Survey on Patient Safety will be conducted before and after CRL implementation at participating clinics. Physician satisfaction with the referral process will also be evaluated. Burnout among primary care physicians is associated with increased rates of referrals for diagnostic and laboratory tests, as well as specialist consultations compared to family physicians with low levels of burnout.\(^2\) The Maslach Burnout Inventory will be used to measure physician burnout and the effect of CRL on physician job satisfaction. The investigators hypothesize that the CRL interventions will be associated with reductions in redundant testing, “no show” referrals, and with improved levels of patient and family engagement and safety.

References


Aims

This research study will test a scale and spread model of the Closing the Referral Loop (CRL) pilot project using the Institute for Health Care Improvement’s (IHI) Learning Collaborative Model including a set of interventions to improve care coordination, patient engagement and patient safety in the ambulatory referral management process. The research study hypothesis is that standardization of the referral process, building the infrastructure for enhanced electronic communication and referral management, and enhancing patient understanding of the process and purpose of the referral will significantly improve referral outcomes and patient safety. The aims of this project are listed below.

Aim 1: Engage with patients and families so they understand the purpose of the referral (e.g., importance of the clinical question) and their role(s) in care coordination, and identify the root causes of referral “no shows” and reduce the incidence of “no shows.”

Aim 2: Test existing and identify new health information technology-related innovations to guide meaningful use of the Electronic Health Record (EHR) as a tool to improve communication between PCPs, specialists and patients.

Aim 3: Reduce redundant testing by improving the completeness and efficiency of patient information exchange during the referral process.
Taking the Closing the Referral Loop Project to Scale: Enhancing patient safety through better ambulatory referral management

Project Narrative

Situation

Patients with multiple chronic conditions account for two-thirds of Medicare expenditures and the majority of their care is provided in the ambulatory setting.\(^1\) Care coordination and relationships between primary care physicians (PCPs), specialists and patients have increased in complexity as a consequence of multiple providers working in different settings, the shift to electronic health records (EHRs), and the use of hospitalists and intensivists in the inpatient setting. Specialists report that the purpose of a referral is often unclear and that the information sent to them from the referring PCP is oftentimes not what they need. PCPs also report that at times, they do not receive from the specialist an answer to the clinical question for which the patient was referred.\(^2,3\) Furthermore, adult patients report that they often experience a lack of care coordination and deficiencies in the transfer of information among their physicians.\(^4\) These observations suggest that poor care coordination may increase risk for patients in ways such as performance of redundant/unnecessary testing, delivery of inadequate treatment, and lower rates of self-care due to a general lack of understanding by patients and their families of their medical condition and treatment plan.

Research Strategy

This research study is an expansion of the successful Closing the Referral Loop (CRL) pilot project, a performance improvement initiative conducted to test interventions, develop a measurement system, and identify barriers and solutions to completing a patient referral in the ambulatory setting. The research study will be conducted through a collaboration of The Wright Center Medical Group PC (TWC) with the American Medical Association (AMA) as a subcontractor.

About TWC

The mission of TWC is to continuously improve education and patient care in a collaborative spirit to enhance outcomes, access and affordability. TWC is engaged in practice transformation innovations at all primary care locations which are Level 3 NCQA-certified Patient Centered Medical Homes offering comprehensive, nondiscriminatory safety net services and robust inter-professional workforce development training opportunities. In 2013, The Wright Center for Primary Care Mid Valley (MVP) location was named a “30 top innovative primary care practices in the United States” by the Robert Wood Johnson Foundation and selected for the “Primary Care Teams: Learning from Effective Ambulatory Practices” national collaborative. MVP was specifically highlighted in this initiative for leading innovations in care coordination and effective EHR-driven referral management.
TWC’s Graduate Medical Education Consortium has a 35-year history of leveraging graduate medical education to enhance patient care and is the largest teaching health center consortium in the nation. Rooted in academic excellence and leveraging its GME expertise, TWC’s pioneering 2013 American Osteopathic Association-approved Family Medicine National Network residency program in six states – in partnership with A.T. Still University of Health Sciences’ School of Osteopathic Medicine in Arizona – aims to address the national shortage and misdistribution of physicians and health disparities by empowering communities as stewards of physician workforce renewal. All TWC clinical sites promote resident and faculty engagement in reflective practice driven Plan-Do-Study-Act (PDSA)-based continuous quality improvement projects to ensure scholarly work is relevant and responsive to individual and population-level patient care delivery and community health needs. TWC primary care residents played a crucial role in the successful CRL pilot project in Pennsylvania.

About the AMA

The AMA is the premiere national medical society for physicians and is the recognized convener of state and local medical societies and national medical specialty societies. The AMA’s mission is: To promote the art and science of medicine and the betterment of public health.

The AMA’s guiding principles set the aspirations that it endeavors to achieve:

- AMA is one enterprise, highly capable, well-coordinated and focused on high impact results.
- AMA believes that there is a national imperative to chart a successful course for health care delivery that will improve the health of the nation.
- AMA embraces the need for change and believes physician leadership is critical to the successful evolution of health care in a patient focused delivery system.
- AMA will build on its legacy of leading physician ethics, setting standards for medical education, and advancing medical science to serve as the premier voice for the core values of the medical profession.
- AMA has the unique combination of talent with practical skills and intellectual capabilities, the financial resources, and influential multi-sector relationships to be a leading voice in the transformation of health care.

As the nation’s health care system continues to evolve, the AMA is dedicated to ensuring sustainable physician practices that result in better health outcomes for patients. This work is captured in the AMA’s five-year strategic plan, which aims to ensure that enhancements to health care in the U.S. are physician-led, advance the physician-patient relationship, and ensure that health care costs can be prudently managed. The AMA’s plan emphasizes three areas of focus:

- Improving health outcomes
- Accelerating change in medical education
- Professional satisfaction and practice sustainability
The Wright Center Grant Submission
Funding Opportunity Number RFA-HS-15-002

The AMA-convened Physician Consortium for Performance Improvement® (PCPI®) is a leader in physician performance measurement in the U.S., as well as the force behind many data-driven innovations in the health care industry. Having developed more than 350 evidence-based performance measures, PCPI actively seeks input from patients, consumers, payers, employers, and informatics and process improvement experts in order to make guidance and resources as relevant and useful as possible.

AMA staff to the PCPI identified ambulatory referral as a key area for quality improvement through an extensive literature search and focus group of national improvement experts. The driver diagram, interventions and base measures were identified by a panel of improvement experts and representatives from organizations, which had each tested a single strategy to improve the referral process. These strategies were the basis for the set of interventions used in a subsequent pilot project. TWC participated in this meeting at the AMA and became a partner in the pilot project.

Significance

The estimated number of visits resulting in physician referrals increased from 40.6 million to 105 million from 1999 to 2009.\(^5\) On average, physicians in private practice interact with as many as 229 other physicians in 117 different practices just for their Medicare patient population.\(^6\) Medicare patients now see an average of seven physicians, including five specialists, split among four different practices.\(^7\) With the adoption of alternative payment arrangements as envisioned with accountable care organizations, referrals will likely become a more important focus of both policymakers and managers in their attempts to control health care spending and maintain referrals within organizations.\(^8\)

Gaps in the coordination of care relating to referral management have been reported in several studies. According to the Commonwealth Fund, one third of physicians said they had trouble receiving referral information in a timely manner. In another study, 68% of specialists reported receiving no information from the primary care provider prior to referral visits; 25% of primary care providers had yet to receive information from specialists to whom the patient was referred four weeks after the referral visit.\(^9\) From the patient perspective, 50% of adults report problems with care coordination, notification of test results and communication among their physicians. Further, 25% of patients said their health care provider had re-ordered tests to have the information needed to make a diagnosis; 24% reported that their doctor did not receive a report from a specialist following a visit; 23% said their doctors failed to provide important information about their medical history or test results to other doctors or nurses who should have had it.\(^10\)

Burnout among primary care physicians is associated with increased rates of referrals for diagnostic and laboratory tests, as well as specialist consultations compared to family physicians with low levels of burnout. They also talk to their patients less.\(^11\)
Although there is no single study that measures the impact of redundant testing or delayed care resulting from poorly coordinated care in the ambulatory setting, Jha et al. estimated that there were more than 33 million hospitalized patients at risk of redundant laboratory and radiology exams in 2004. Although their analysis was not intended to estimate potential harm, the authors estimated a cost of more than $8 billion due to redundant tests.\textsuperscript{12} Since there are 105 million ambulatory referrals annually, one can theorize that ambulatory patient safety is also jeopardized when redundant testing is performed and unnecessary costs are incurred. Referred patients may also experience harm if necessary diagnosis and treatment is delayed or does not occur. Singh and Weingart identified several issues related to subspecialty consultation, specifically, that the specialist may not adequately address the question asked by the referring physician or properly follow up with the referring physician. Conflicting diagnoses from different consulting physicians are also problematic. They note patient behaviors such as not seeking care and not adhering to care plans jeopardize safety.\textsuperscript{13}

The AMA’s, \textit{Research in Ambulatory Patient Safety 2000-2010: A 10-year review}, described studies in which some errors resulted in harm and others did not. Very few studies assessed preventable errors. Other studies focused on errors that resulted in missed, delayed or incorrect diagnoses. Diagnostic errors were frequently associated with harm. System, provider and patient factors were associated with diagnostic errors. Other studies explored patient factors and the importance of communication to patient safety. These factors will be considered during this research study in from the perspective of engaging the patient and families to understand the clinical question and its importance. The AMA report concludes that although more than 100 studies of ambulatory safety had been conducted, “…we still know very little about patient safety in the ambulatory setting, and next to nothing about how to improve it.”\textsuperscript{14}

**Innovation**

The pilot project hypothesis was that mapping of the dyad’s referral process, selection and application of appropriate interventions and using standard measures to benchmark would lead to an increase in timely, closed referrals, and an increase in patient and physician satisfaction with the process.

The CRL logic model shown below represents the project’s underlying assumptions and expectations related to how the selected interventions would result in outcomes of interest.
The pilot project focused on three areas of improvement identified in advance by experts in the ambulatory referral management process:

1. Did the referring (requesting) physician get the answer to their question/get the help they asked for/needed?
2. Did the specialist (receiving physician) get the information they needed to complete the referral in a timely manner?
3. Did the patient report experiencing care that was well coordinated?

The pilot project used the Institute for Healthcare Improvement’s (IHI) Learning Collaborative Model to test interventions within and across health care organizations. Twelve (12) dyads and their staff participated in the pilot project, collected data on a defined set of measures, attended monthly improvement webinars and attended two in-person meetings to share challenges, solutions and lessons learned. Coaching site visits were made to all dyad organizations. The dyads included physicians who were independent, and/or affiliated with systems or academic medical centers. Across these practice sites nine different EHRs where used. Participating dyads had access to a library of improvement information including documents related to the interventions to be tested (see Appendix A).

The project was overseen by a leadership team and a project team comprised of members from the collaborating partners (See Appendix B for leadership team members). TWC recruited participating dyads, provided team and meeting coordination, as well as data collection and analysis services. TWC primary care internal medicine residents and cardiology fellows were
trained and served as quality improvement coaches for the dyads and their staff, assisted sites with data collection and prepared storyboards for the in-person learning sessions. The AMA provided access to referral process experts, use of the IHI Learning Collaborative Model, as well as improvement and measurement system expertise. In addition, an IHI-trained improvement advisor was engaged to develop tools and educational materials for the pilot project.

**CRL Measures**

Data for each measure listed below was aggregated by each clinic site so that no personal health information (PHI) was received by TWC or the AMA. The site-level data was aggregated for project reporting purposes.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Results from Pilot</th>
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<tbody>
<tr>
<td>1. Total Number of referrals by types</td>
<td>Number of patients referred (all referrals) from the PCP to the Specialist during that month</td>
<td>Total Monthly Referrals: 110 to 240&lt;br&gt;Urgent: 24% to &lt; 5%&lt;br&gt;Priority: 10% to &lt; 5%&lt;br&gt;Routine: 65% to 95%</td>
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<tr>
<td>2. Status of all Referrals</td>
<td>Total number of referrals from the PCP to the Specialist (Dyad) during each month that are open or have been closed (a report from the Specialist has been received during the measurement period)</td>
<td>Open: 60% to 30%&lt;br&gt;Closed: 40% to 70%</td>
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<tr>
<td>3. Number of Referrals “Closed” in a timely manner</td>
<td>Defined as compliant when specialist note received by PCP within 7 days of appointment, irrespective of the type of referral</td>
<td>Increased from 40% to 70% by the end of one year</td>
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<tr>
<td>4. Number of Referrals with answer to Clinical Question posed by the PCP</td>
<td>PCP documents that the clinical question was answered by the specialist</td>
<td>Increased from 50% to 75%</td>
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<tr>
<td>5. Rate of completion of Care Compacts by the dyads</td>
<td>Successful care agreements with role identification by the dyads</td>
<td>100% within few months of implementation</td>
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No change in patient satisfaction was found over the course of the collaborative. The pilot project, although originally designed to assess patient satisfaction, focused on improvement within and among the dyad sites. A summary of the learnings from the pilot project and a list of refinements to the interventions that will be used in this research study are found below.

**Topline lessons**
- A clear and concise clinical question improves the value and relevancy of the referral.
- Standardizing the location of the clinical question/response within the referral request promotes consistency and accuracy.
- Spreading the referral processes within the dyad offices (PCP and Specialist) has improved workflow, consistency, organization, and completion of EHR Meaningful Use Stage 2 standards.
- Identifying a referral data management expert (i.e., “Referral Coordinator”) to improve referral workflow, consistency, and organization within the office.
- Creating a “Centralized Data/Referral Processing” department across several system practices improved referral workflow, consistency, tracking, and completion.
- FQHC contracting for on-site cardiology services increased access among homeless patients to specialty care physicians.

**Refinements**
- Make sure that a collaborative Shared Care Compact agreement between the PCP and specialist is completed in writing prior to the start of the collaborative.
- Assure staff members are included on the site-level improvement team and participate in conference calls and in-person learning sessions.
- Upgrade the standard patient satisfaction survey to gain more effective evaluation of patient engagement in the referral.
- Create a standard process for patient engagement based on drivers of “no shows.”
- Implement quicker spread of the new referral processes to all specialists in the dyad referral group and to all PCPs in the dyad primary care office.
- Develop and use standard definitions of time-stratified referrals.
• Increase focus on patient engagement through analysis of the patient’s role in the referral process and creating and implementation of strategies to include patients and their families in the referral process with special emphasis on patients that do not attend the specialist visit.

Approach

Focusing on the aims of this research study, we will identify additional key factors that affect primary care and specialty offices’ ability to close the referral loop in a timely manner by applying new interventions to engage patients and their families in the referral process, facilitating quicker adoption of adaptations required within the EHR for end to end provider connectivity for electronic communication and a reduction in redundant testing by defining information needs through the Shared Care Compact.

PCPs from FQHCs and the community-based specialists to whom they refer will comprise the seven study sites. The FQHCs currently use five different EHRs. Additional EHRs may be used by the specialist offices.

The logic model, interventions and lessons learned from the CRL pilot project will guide the proposed research study. This project will evaluate the ability to effect change more quickly with a larger number of sites (scale) and the transferability (spread) of successful interventions from the CRL pilot project. The research study will deploy the interventions from the pilot project (see Appendix A), as well as the following enhancements.

• Employ the use of an enhanced survey to gain an understanding of the role of patients and their family in the referral process (patient and family engagement).
• Conduct structured interviews to gain an understanding of the causes and drivers of “no shows” for specialist appointments (patient engagement, socioeconomic determinants of health and a patient-safety risk).
• Identify strategies to increase patient and family engagement using interview responses, site level “no show” rates and patient survey responses.
• Identify barriers and strategies to reduce redundant testing (patient safety risk)
• Use standardized definitions of referral time frame.

Forty dyads will be recruited by TWC through its residency program and affiliated FQHCs in Washington, Oregon, Arizona, New York, Ohio, and Washington, D.C. The principal investigator, Jignesh Sheth, MD, who participated in a dyad during the pilot project, will create a new site in Pennsylvania (making a total of seven sites) and participate in a dyad for this research study through TWC Primary Care Mid Valley. Expanding the scope nationally will test how well the model and lessons from the pilot project apply to a geographically and demographically diverse set of populations in preparation for broader, nation-wide spread. New EHRs in the proposed project beyond the nine included in the pilot will add national scale value for future spread.
Leveraging the improvement and data management infrastructure from the pilot project, dyads and their staff will be coached to develop their improvement plan, complete Shared Care Compacts, conduct process mapping, begin data collection and select initial interventions based on their assessment of local improvement needs. Interventions identified through as a result of the evaluation of patient engagement (described above) will be added to the interventions when available. Next, mechanisms for direct end-to-end provider connectivity to enhance electronic communication will be implemented within the dyad clinics and community practices. Finally, inter-site spread will be encouraged to “hard wire” the successful local interventions at each site (see Appendix B for more detail).

The project will use the IHI Learning Collaborative Model in which the dyads and their staff will complete pre-work including pre-test surveys. They will then participate in an in-person kick-off meeting following by monthly webinars during action periods. Two in-person follow-up learning meetings approximately six months apart will be conducted. Webcasts will be recorded and posted online for future reference. An online library of implementation information and information about data and the interventions will be available. Dyads will submit data monthly for research study measures. Residents trained as QI coaches, will provide on-site mentoring for the dyads in the use of the IHI Model for Improvement, implementation of the interventions, assistance with data collection and storyboard creation. As such, these residents will become the next generation of physician leaders in performance improvement.

The research study will be overseen and implemented by a leadership team consisting of staff from TWC, the AMA and the improvement advisor who will meet in person five times throughout the study and by teleconference bi-weekly on average. TWC will provide overall project management, training and supervision of residents and data collection support. The AMA will provide improvement and collaborative model expertise, staff support to develop and support the in-person meetings, and a dissemination strategy for the research study’s results. TWC, the AMA and the improvement advisor will work together on re-designing the patient survey and structured interview instruments, devising and executing the evaluation tools, curriculum development, faculty identification, data analysis, identification of research study learnings, as well as deployment of strategies to overcome barriers encountered by the dyads. Finally, a dissemination strategy will be developed and implemented by the leadership team.
**High-level Work Plan**

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Planning and recruitment</td>
<td>January to April 2016</td>
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<tr>
<td>Launch: Pre-work and site preparation for Learning Session I</td>
<td>May 2016</td>
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<tr>
<td>Measurement begins</td>
<td>June 2016</td>
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<tr>
<td>Learning Session I</td>
<td>August 2016</td>
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<tr>
<td>Action period I – Process mapping; shared care compacts; EHR compatibility assessment</td>
<td>September 2016 to February 2017</td>
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<tr>
<td>Learning session II</td>
<td>March 2017</td>
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<tr>
<td>Action period II – No shows; patient engagement strategies</td>
<td>April to July 2017</td>
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<tr>
<td>Learning session III</td>
<td>August 2017</td>
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<tr>
<td>Repeat surveys; data analysis, wrap up; and final report preparation</td>
<td>August to Dec. 2017</td>
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<tr>
<td>Disseminate lessons for broader spread**</td>
<td>January to July 2018</td>
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*An outline of the project work plan noting preparation for launch, learning sessions and activities during the action periods including monthly webcasts, coaching calls, technical assistance with data collection, etc. is included in Appendix C.

**See section on Dissemination Strategy for more details.

**Evaluation Strategy**

Several evaluation tools will be used to measure the research study participant’s progress compared to the participants in the pilot project, and to evaluate new areas of focus related to patient engagement and the reduction of redundant testing to facilitate creation of new interventions. These tools are listed below. A detailed grid for the evaluation strategy is included as Appendix D.

- Measures from the pilot project (see Innovation section): monthly
- AHRQ Medical Office Survey on Patient Safety: pre- and post-study
- Maslach Burnout Inventory: pre- and post-study
- Physician satisfaction with the referral process survey: pre- and post-study
- Survey to assess patient and families understanding of referral: offered to all referred patients
• Structured interviews to identify characteristics of patients who do not attend specialist appointment compared to completed referrals: mid-study
• Structured interview with dyads about EHR changes implemented: post last action period

Dissemination Strategy

AMA has direct access to a significant portion of the approximately one million physicians in the US through its many communication channels. As of the end of 2014, the AMA has 232,000 members. The AMA reaches member and non-member physicians across the country regularly through the following publications and channels.

• AMA Wire reaches more than 64,000 physicians every month
• AMA Morning Rounds, a daily news round-up, has nearly 400,000 subscribers
• AMA Morning Rounds Weekend Edition has more than 160,000 subscribers, and
• AMA social media channels including: Facebook: 245,000 page likes, Twitter: 440,000 followers, LinkedIn: 10,500 followers
• AMA MedEd Update, a monthly round-up of medical education news, has more than 26,000 subscribers
• PCPI Announcements, a bi-weekly publication, reaches more than 2,000 leaders in performance improvement

TWC is actively engaged in the leadership of the American Association of Teaching Health Centers (AATHC), an organization of more than 50 HRSA-funded teaching centers, which partner with FQHCs across the country. AATHC provides semi-annual training conferences and a learning network for its members. AATHC has agreed to work with TWC and AMA to distribute lessons and identify additional partners for further spread.

Other dissemination strategies and channels will be considered during the planning phase of the research study. It will leverage the AMA’s broader network, as well as publishing and presenting the research findings in peer-reviewed journals and meetings.

Data, Copyright and Publishing

TWC will submit an application to its Institutional Review Board (IRB) for this research study through an expedited review process. No personal health information (“PHI”) as defined under the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), and revisions to HIPAA made in 2009’s Health Information Technology for Economic and Clinical Health (“HITECH”) is expected to be collected or provided to AHRQ. Aggregated, de-identified data based on data collected from surveys may be used by TWC, AMA and AHRQ.

TWC and the AMA will hold joint copyright on all materials created and first as produced as part of this study as permitted under the Federal Acquisition Regulation (FAR) Clauses. This includes methodological tools, measures, software with documentation, literature searches and
data analyses. With respect to pre-existing copyrighted materials, including any products and tools to be used in the work, AHRQ would acknowledge that the copyright owner(s) including AMA and TWC retain copyright in such materials and in any derivative works of such. TWC and AMA require permission to use such copyrighted materials in work under the Grant and in their respective activities as permitted under applicable FAR Clauses. AHRQ and others acting on their behalf will receive a broad, royalty-free non-exclusive license to use data and materials first produced in connection with the Grant pursuant to the applicable FAR or other clauses.

It is proposed that AHRQ, TWC and AMA shall offer the other parties the opportunity to collaborate on articles to be submitted for publication related to the study. For all articles that are developed by two or more parties, the collaborating parties will approve the articles prior to submission for publication. In the event one or more parties does not want to collaborate on a particular article, the party(ies) proposing the article, prior to submitting such articles for publication, shall submit the article for review by the non-participating party(ies), shall have the right to opt-out of the participation in writing and who will provide attribution language for inclusion in the article.

Further details of all of the foregoing would appear in appropriate contracts if the award is granted.

**Key Staff**

- Principal Investigator: Jignesh Sheth, MD, Vice President of Quality and Safety, TWC
- Linda Thomas, MD, President and CEO, TWC
- Brian Ebersole, BA, Senior Vice President for Mission, TWC
- Courtney Dempsey, BS, Clinical Innovation Specialist, TWC
- Dana Richardson, RN, MHA, Director, PCPI Operations and Strategic Initiatives, AMA
- Stephen L. Davidow, MBA-HCM, CPHQ, APR, Project Manager II - Quality Improvement Program, Performance Improvement, AMA
- Connie Sixta, RN, MSN, MBA, PhD, Independent Improvement Advisor

**Additional Staff**

- Nadene Chambers, PhD, Project Manager II - Measure Implementation and Informatics, AMA
- Joy Jin, Project Manager - Measure Implementation and Informatics, AMA
- Vickie Grosso, Meeting Planning Assistant, AMA

**References**

See Appendix E.
Appendix A – CRL Pilot Project and Research Study Interventions

Shared Care Compact
The compact between the PCP and specialist that outlines the expectations for both physicians during the referral process (e.g., to gain agreement regarding referral types and definitions, role expectations, electronic functionality highlighting the clinical question and communications expectations). Patient information that should be included with each referral should be defined. Compacts will define expectations for communication between the dyad as well as with the patient being referred. This compact will specify the process of electronically posing and answering the clinical question. The agreements will evolve during the project and be reviewed and updated every 6 months.

Patient Engagement
A patient referral checklist will be given to patients by the PCP prior to their specialist visit. The document provides information to prepare patients for their upcoming specialist appointment and specifically highlights the clinical question and reason for the specialist visit.

Clinical Question
The clinical question the PCP is asking the specialist to answer will be included in each electronic referral and also noted in the specialty returned noted by the specialist with the answer to the clinical question.

Referral Definition
Urgent, emergent and routine referrals definitions including timeframe are defined by the project and documented within the Shared Care Compact.

Electronic Communication
The electronic health record system(s) (EHR) used by each dyad member will be used to send and receive all patient information to and from the PCP and specialist including the clinical question. Mechanisms to enhance interoperability such as direct provider to provider messaging and health information exchange methods.

Process Mapping
Process mapping will be performed by each dyad member to identify hand off issues and redundancies in the referral process that have led to poor coordination, untimely care and increase patient safety risk.

Referral Tracking System
An electronic tracking system that records information about each referral will be implemented at each site and accessible to the participating physicians and clinic staff.
Referral Reporting System
Data for project measures would be obtained from the EHR, aggregated and sent to the project office (TWC) for benchmarking and improvement tracking at the individual dyad sites and overall project levels.

Referral Coordinator Responsibilities (Optional)
A role specifically designated in the PCP and specialist office to manage and track all referrals and “no shows.”

Quality Improvement Training
Quality Improvement training, including process mapping, root-cause analysis, improvement idea generation, PDSA, and sustainment will be provided to the residents and dyad collaborative participants.

Participation in the Collaborative
Participation in the collaborative will focus attention on the factors affecting closing the referral loop, provide a learning environment, as well as instruction and peer support in making improvements.
Appendix B – Closing the Referral Loop (CRL) Pilot Project Leadership Team

The following individuals were responsible for the leadership of the CRL pilot project.

- Linda Thomas, MD, Chief Executive Officer, TWC
- Brian Ebersole, Senior Vice President of Mission Delivery, TWC
- Jignesh Sheth, MD, Vice President of Quality and Safety, TWC
- Teresa Lacey, Vice President of Operations, TWC
- Courtney Dempsey, BS, Clinical Innovation, Specialist, TWC
- Dana Richardson, RN, MHA, Director PCPI Operations and Strategic Initiatives, AMA
- Marcela Myers, Director, Pennsylvania Department of Health
- Jennifer Miller, Assistant Director, Pennsylvania Department of Health

TWC = The Wright Center
AMA = American Medical Association
## Appendix C – Project Planning and Implementation Timeline

<table>
<thead>
<tr>
<th><strong>Timeline</strong></th>
<th><strong>January 2016 through May 2016</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>Planning and recruitment</strong></td>
<td></td>
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<tr>
<td>• Create recruitment package and detailed information about study for FQHCs</td>
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<tr>
<td>• Apply for IRB review</td>
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<tr>
<td>• Set up Data Safety Monitoring Board</td>
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<tr>
<td>• Recruit sites</td>
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<tr>
<td>• Identify faculty</td>
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<tr>
<td>• Secure FQHC business agreements</td>
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<tr>
<td>• Finalize survey instruments and data collection methodology</td>
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<tr>
<td>• Develop curriculum plan and schedule</td>
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<tr>
<td>• Prepare tools, finalize interventions and create pre-work material</td>
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<tr>
<td>• Prepare presentation materials</td>
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<tr>
<td><strong>Pre-work; site preparation for Learning Session 1</strong></td>
<td><strong>May 2016</strong></td>
</tr>
<tr>
<td>• Pre-work webcast</td>
<td></td>
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<tr>
<td>• Collect individual site demographics and team contact information</td>
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<tr>
<td>• Complete clinic safety survey and physician surveys</td>
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<tr>
<td>• Provide individualized orientation and site follow up/assistance</td>
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<tr>
<td>• Set up data collection at sites</td>
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<tr>
<td><strong>Measurement begins</strong></td>
<td><strong>June 2016</strong></td>
</tr>
<tr>
<td><strong>Learning Session I</strong></td>
<td><strong>August 2016</strong></td>
</tr>
<tr>
<td>– On-location, in-person meeting with sites</td>
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<tr>
<td>• Review report-out story boards</td>
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<tr>
<td>• Provide didactic education</td>
<td></td>
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<tr>
<td>• Q&amp;A</td>
<td></td>
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<tr>
<td>• Define next steps</td>
<td></td>
</tr>
<tr>
<td><strong>Action period I</strong> – Process mapping; Shared Care Compacts; EHR compatibility assessment, identify initial interventions</td>
<td><strong>August 2016 through February 2017</strong></td>
</tr>
<tr>
<td>• Topic-specific monthly webcasts</td>
<td></td>
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<tr>
<td>• Coaching visits by residents</td>
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<tr>
<td>• Individual site visits</td>
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<tr>
<td>• Monthly data submission and reports</td>
<td></td>
</tr>
<tr>
<td><strong>Data Safety Monitoring Board Review</strong></td>
<td><strong>December 2016</strong></td>
</tr>
</tbody>
</table>
Learning session II – On-location, in-person meeting with sites
- Review report-out story boards
- Share site experiences
- Provide didactic education
- Site Q&A
- Define individual site next steps

Action period II – No shows; patient engagement strategies
- Topic-specific monthly webcasts
- Coaching by residents
- Individualized site visits
- Monthly data submission and reports
- Review site reports

Learning session III – On-location, in-person meeting with sites
- Review report-out story boards
- Coaching by residents
- Share site experiences
- Provide didactic education
- Site Q&A
- Define individual site next steps

Finalize data collection
- Repeat surveys
- Analyze data
- Wrap up
- Prepare final report

Data Safety Monitoring Board Review
- December 2017

Implement Dissemination Plan
- January to July 2018

Data Safety Monitoring Board Review
- December 2018

*Timeline may be modified after planning begins and throughout course of project as new information becomes available, as well as to meet the needs of the dyads.*
## Appendix D – Evaluation Strategy

<table>
<thead>
<tr>
<th>Strategies</th>
<th>For Whom</th>
<th>Purpose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures from the pilot project (identified in Innovation section)</td>
<td>PCPs Specialists</td>
<td>Compare performance against pilot project; assess improvement from start to completion of research study</td>
<td>Monthly</td>
</tr>
<tr>
<td>AHRQ Medical Office Survey on Patient Safety</td>
<td>PCPs Specialists</td>
<td>Assess culture of safety</td>
<td>Pre- and post-study</td>
</tr>
<tr>
<td>Maslach Burnout Inventory</td>
<td>PCPs Specialist</td>
<td>Assess burnout in physicians, a measure of physician satisfaction</td>
<td>Pre- and post-study</td>
</tr>
<tr>
<td>Patient understanding of referral survey (enhance and validate current survey instrument)</td>
<td>Patients</td>
<td>Assess understanding of the importance of clinical question to their medical condition and improvement</td>
<td>Offered to all referred patients</td>
</tr>
<tr>
<td>Structured interviews with patients that do not attend the specialist appointment</td>
<td>Patients</td>
<td>Assess reasons why patients do not follow through with specialist appointments to be basis for developing countermeasures</td>
<td>Mid-study</td>
</tr>
<tr>
<td>Structured interviews with dyads on EHR changes</td>
<td>PCPs Specialists Staff</td>
<td>Understand changes implemented within EHR to facilitate closing referrals</td>
<td>Post last action period</td>
</tr>
</tbody>
</table>
Appendix E – References

7. Ibid Pham et al.
10. Ibid Audet et al.