



**ACP Quality Connect: Chronic Pain**

*Spreading Practice Transformation that Achieves the Quadruple Aim in Primary Care Chronic Pain Management*

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Collaborators:

The Center for Health Services and Outcomes Research (CHSOR) at the Bloomberg School of Public Health  
Kentucky Chapter of the American College of Physicians

## **Abstract**

**Overall Goal:** To enhance and expand the ACP Quality Connect: Chronic Pain Program through implementation of practice transformation strategies in primary care systems that achieve the quadruple aim, focusing on high-quality, cost-effective chronic pain management that improves patient and health care provider satisfaction. Key objectives include:

- 1) Expand practice transformation resources focused on chronic pain management in primary care to promote improved patient function, care coordination with specialists and community resources, and team-based care workflows;
- 2) Implement the expanded resources among the practices in Kentucky engaged in the first round of chronic pain quality improvement (QI), measuring impact on performance measures; patient outcomes, provider satisfaction, and costs;
- 3) Train QI champions who will support the expansion of the ACP Quality Connect: Chronic Pain Program statewide; and
- 4) Translate the practice transformation tools and PDSA examples into a toolkit to be made available nationwide on ACP's website.

**Target Population:** The program will target practices from the previous Kentucky QI study as well as 4-6 primary care practice groups.

**Project:** The initiative will follow ACP's QI model, including collaborating with the state chapter for recruitment and program implementation. Assessment tools will be used to customize a practice transformation approach for each group. Interventions, including coaching calls, live programs, and webinars, will focus on evidence-based guidelines for chronic pain management, patient engagement, team-based care, and care coordination.

**Evaluation:** Program outcomes will be assessed using data from the practice assessment survey, provider surveys, performance measure data, healthcare utilization metrics, and patient outcomes.



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## **ACP Quality Connect: Chronic Pain**

### *Spreading Practice Transformation that Achieves the Quadruple Aim in Primary Care Chronic Pain Management*

**Overall Goals and Objectives:** The primary goal of this initiative is to enhance and expand the ACP Quality Connect: Chronic Pain program through the implementation of practice transformation strategies in primary care systems that achieve the quadruple aim, focusing on high-quality, cost-effective chronic pain management that improves patient and health care provider satisfaction. Key objectives of the program include:

- 1) Expand practice transformation resources focused on chronic pain management in primary care, including those promoting improved patient function, care coordination with specialists and community resources, and team-based care workflows;
- 2) Implement the expanded resources among the practices in Kentucky engaged in the first round of chronic pain management quality improvement (QI), measuring impact on performance measures, patient satisfaction, functional status, and quality of life as well as provider satisfaction and costs;
- 3) Train QI champions in chronic pain management in the state of Kentucky who will support the expansion of the ACP Quality Connect: Chronic Pain Program statewide; and
- 4) Translate the practice transformation tools and plan-do-study-act (PDSA) examples into a toolkit to be made available nationwide on the ACP website.

The proposed goals and objectives are designed to address the needs outlined in the RFP, which align with the triple aim: improve patient experience of care, improve health of populations, and reduce cost of care. The program will assess patient outcomes among practices engaged in the previous ACP Quality Connect: Chronic Pain study in Kentucky, including measures of patient satisfaction, quality of life, and functional status. The program also aims to improve patient health outcomes and experience through the expansion of the ACP Quality Connect program to a broader network of primary care providers by partnering with practice groups and health systems throughout the state. The program will promote the cost-effective, evidence-based management of chronic pain using a multi-modal, interdisciplinary approach that focuses on high value, patient-centered care coordination; community engagement; and patient self-management support. Additionally, the project will focus on implementing practice transformation strategies that address clinician satisfaction and work life, by promoting team-work and efficient workflows, in order to achieve the quadruple aim. The program will be scaled through the development of a toolkit that will be made available on the ACP website to promote effective chronic pain management strategies and support systems-based QI activities in primary care. Evaluation results and program outcomes will be disseminated through ACP's QI network, ACP publications, Kentucky ACP Chapter (KY-ACP) meetings and newsletters, and peer-reviewed publications.

**Technical Approach:** The program will follow the ACP QI model to achieve the stated program goals and priorities. This model includes collaboration with the KY-ACP to recruit primary care practice groups and health systems. Assessment tools will be used to customize a practice transformation approach to meet specific educational and QI priorities for each group. Three QI

champions from across the state will attend a training program focused on teaching the systems-based application of QI principles to achieve the quadruple aim. The champion training program will focus on implementing practice transformation, QI, and chronic pain management strategies that promote patient-centered care that enhances patient satisfaction, functional status, and quality of life. The program will also provide strategies to promote team-based care and improved workflow efficiency to reduce burnout and improve work life of primary care clinicians. Interventions will focus on evidence-based guidelines for chronic pain management, patient engagement, care coordination, and team-based care. Interventions will be taught through a mix of telephone coaching, live programs, and webinars.

**Current Assessment of Needs in Target Areas:** The overall goals of the project outlined in the RFP are to “improve clinical outcomes, enhance quality of life for patients with chronic pain, and ensure value in health care delivery through team, group and systems-based care.” The following section summarizes the need for improved chronic pain management in primary care systems to achieve project goals and align with the objectives of the quadruple aim.

*Chronic Pain Management:* Chronic pain is a complex, biopsychosocial condition that is affected by biological, social, and psychological factors. Thus, effective chronic pain management requires an evidence-based, multi-modal, interdisciplinary approach that addresses all aspects of care<sup>1</sup> (see Appendix I for bibliography). The Institute of Medicine (IOM) published a report, *Relieving Pain in America*, assessing the state of chronic pain in America and recommending strategies to make advancements in pain research, education, prevention, and patient care.<sup>2</sup> The National Pain Strategy, which was recently developed based on guidance from the IOM report, highlights the need for primary care providers to be trained in comprehensive chronic pain assessment and care coordination involving interdisciplinary health care team members. Self-management support that gives patients the power to better manage and prevent pain and improve their quality of life through patient education and communication, is also an integral part of the National Pain Strategy’s recommendations for effective chronic pain management.<sup>1</sup> Effective chronic pain management includes assessment of pain and functional status as well as psychological and social factors including depression and risk of substance abuse. Chronic pain is complex in nature due to the high co-occurrence of psychiatric disorders and other comorbidities in patients, and requires coordinated care efforts for effective management. Coordination of care between primary care providers, pain specialists, and mental and behavioral health specialists is critical in the effective management of chronic pain. Effective care coordination plays a important role in improving levels of patient satisfaction and chronic pain self-management as well as decreasing costs due to reduced health care utilization.<sup>3,4</sup> A policy paper published by ACP concludes that a key solution to the chronic pain management problem is a broader therapeutic toolkit for primary care physicians that starts with strong patient–physician relationships and supportive systems of care.<sup>5</sup>

Yet, a number of challenges and barriers exist that prevent optimal care coordination for the effective management of chronic pain. Poor communication, fragmented care, poor documentation, and administrative burden are barriers to effective care coordination that can result in delays in care, treatment, and diagnosis; increased costs and hospitalizations; and poor

continuity of care.<sup>6</sup> Referrals for chronic pain management are more difficult in rural areas, where there are generally fewer pain specialists, behavioral healthcare and substance abuse treatment specialists, and other community resources. Kentucky's rural population exceeds 1.8 million people and accounts for more than 40% of the state's population.<sup>7</sup> The rural population in Kentucky is serviced by 187 rural health clinics and 21 Federally Qualified Health Centers. Healthcare providers in these health systems would benefit from access to referral resources to improve care coordination, improve health outcomes for chronic pain patients, and decrease health care utilization costs.

*The Economic Burden of Chronic Pain and Opioid Prescriptions:* Chronic pain is a highly prevalent chronic disease that affects 116 million Americans and accounts for up to 20% of all outpatient visits.<sup>2</sup> Chronic pain often affects patients' functional status and ability to work, therefore the economic burden of chronic pain is not limited to direct medical costs; it also extends to indirect costs due to lost economic productivity. Researchers estimate that chronic pain accounts for up to \$635 billion dollars per year in direct medical treatment and lost productivity costs. The economic burden of chronic pain is higher than that of most other chronic diseases including heart disease (over \$300 billion), cancer (over \$240 billion), and diabetes (over \$180 billion).<sup>8</sup> Direct health care costs, which include office visits, hospital outpatient visits, emergency department visits, hospital inpatient stays, and medication costs, account for over \$260 billion annually. Indirect costs are estimated to reach over \$11 billion for missed work days, over \$95 billion for hours of work lost, and over \$190 billion for lower wages.<sup>8</sup>

Opioid prescription drug misuse and abuse has a significant impact on the economic burden of chronic pain. Patients on prescription opioid therapies have a higher rate of emergency department visits, and health care costs for these patients are three times higher than that of patients who are not on opioid therapies.<sup>9</sup> The number of opioids prescribed has increased dramatically in the past decade with the number of opioid prescriptions nearly tripling from 76 million in 1999 to 219 million in 2011.<sup>10</sup> Kentucky has among the highest number of opioid pain medication prescriptions with an average 128 opioid painkiller prescriptions per 100 people in 2012—the fourth highest number of prescriptions in the US.<sup>11</sup> A report on prescription drug trends in Kentucky was published in 2011 by the Kentucky State Epidemiological Outcomes Workgroup (SEOW) in collaboration with the Kentucky Office of Drug Control Policy (ODCP), and the Division of Behavioral Health within the Kentucky Department for Behavioral Health, and Developmental and Intellectual Disabilities (DBHDID). The report found that prescription drug abuse and drug-related deaths in Kentucky were among the highest in the United States—the state had the highest rate of illicit opioid use in the US from 2008-09; opioid-related treatment admissions increased dramatically in state from 1 per 10,000 treatment admissions in 1999 compared to 10 per 10,000 admission in 1999; and Kentucky had the sixth highest rate of drug overdose mortality from 1999 to 2008 in the US.<sup>12</sup>

Kentucky has implemented a number of state regulations to address the growing opioid abuse and misuse problem. The Kentucky General Assembly passed House Bill 1 in 2012 to regulate the prescribing of controlled substances in Kentucky. Among these regulations include

controlled substance prescribing and dispensing standards, electronic monitoring of patients through the state's prescription drug monitoring program (KASPER), obtaining written consent from the patient for treatment with controlled substances, and discussing risks and benefits of controlled substance use.<sup>13</sup>

*Addressing Provider Satisfaction in Primary Care:* Primary care physicians are particularly at risk of experiencing burnout due to increasing administrative burden, regulatory demands, limited time, and fragmented care delivery.<sup>14,15</sup> Nearly half of physicians report experiencing symptoms of burnout, with nearly three-quarters of general internists saying in a 2014 survey that they would not choose the same specialty if starting their career anew.<sup>16</sup> The feelings of low enthusiasm, cynicism, and a reduced sense of personal accomplishment translate into early retirement and behavioral health problems in the face of not being able to achieve their primary professional goal – providing quality patient care. The challenge of a large and mounting public health crisis combined with an overwhelmed workforce threatens high quality and safe patient care while putting the triple aim—enhancing patient experience, improving population health, and reducing costs—at risk. In fact, leaders in medicine clamor for a quadruple aim, which adds the goal of improving clinician work life.

The ACP Quality Connect QI network's mission seeks to create and sustain a learning community of empowered physicians and other health care professionals, patients and caregivers, to improve health, care delivery and outcomes. Specific objectives of the ACP Quality Connect mission include focusing on patient engagement and adding value and joy to clinicians in practice. ACP Quality Connect: Chronic Pain promotes strategies that can enhance chronic pain management and dovetail with methods for enhancing physician satisfaction and practice efficiency. Implementing team-based care practices, following the chronic care model, along with strategies to enhance patient engagement and self-management support have been shown to save time for the busy primary care physician and health care team while promoting better patient outcomes. Further, practice transformation models, incorporating practice coaching and quality improvement methodologies, can support physicians and their teams as they move to team-based, patient-centered care.

Accordingly, ACP has prioritized an innovative, practice transformation initiative that supports primary care physicians and their teams in implementing quality improvement efforts that promote improved chronic pain care through QI champion training, practice assessment, coaching, and educational activities. This proposal summarizes the expansion of the ACP Quality Connect: Chronic Pain program, which will advance the effective elements of the program while measuring and seeking to improve costs and provider satisfaction, thus achieving the quadruple aim.

*Review of ACP Quality Connect: Chronic Pain Kentucky Program – Phase 1:* The program seeks to expand on a recently completed a QI initiative, ACP Quality Connect: Chronic Pain, which was conducted in partnership with the KY-ACP from April 2014 through February 2015. The initiative aimed to improve the safe and effective treatment of chronic pain in primary care practices that are part of Accountable Care Organizations (ACOs) and/or pursuing recognition of a patient-centered medical home (PCMH). The Phase 1 program used a tailored QI approach,

based on practice assessment survey and practice site visit data, to achieve improved chronic pain management in eight primary care practices.

The ACP Quality Connect: Chronic Pain Practice Assessment Tool was developed as a part of the initiative in order to assess each practice’s background, QI experience, and capacity, and current chronic pain management strategies. The practice assessment tool was developed based on a literature review of evidence-based assessment tools and chronic care management guidelines (ACIC, 2000;<sup>17</sup>; Joly et al., 2013;<sup>18</sup>; Hooten et al., 2013<sup>19</sup>). The assessment tool comprises three sections: I) practice background; II) QI goals and capacity; and III) chronic illness management. Parts I and II were designed to evaluate each practice’s background, organization, experience with implementing QI activities, and top QI priorities. Questions for Part III of the assessment tool were developed based on priorities identified by the ACP Quality Connect: Chronic Pain Management Advisory Group as well as the Institute for Clinical Systems Improvement (ICSI) guidelines for the assessment and management of chronic pain (2013). The practice assessment tool was completed by the physician QI champion from each participating practice. Results from the practice assessment survey were shared with ACP QI leaders and used to help develop tailored interventions and educational tools for the initiative.

The study focused on the following three performance measures to assess the impact of the program. These measures were selected based on input from the advisory group and results from the practice assessment survey:

1. *Screening for Clinical Depression*: Documentation of screening for clinical depression and follow up plan in adult patients
2. *Assessment and management of chronic pain*: Percentage of chronic pain patients with documentation of pain assessment completed at initial visit using a standardized tool that addresses pain intensity, location, pattern, current functional status, and follow-up plan
3. *Increase use of opioid agreement forms and urine toxicology tests*: Percentage of chronic pain patients who are prescribed an opioid who have an opioid agreement form and urine toxicology screen documented in the medical record

The program’s impact on providers’ practices in using these tools was assessed by comparing these measures at baseline and follow-up. Chi-squared tests or Fisher’s exact tests were used to test whether the differences were statistically significant. Data was analyzed from all eight participating practices together and also conducted the analysis by practice. Results of the analysis are found in the table below:

**Table 1: Performance Measure Data Analysis**

Percent of sampled patients receiving:	Depression Screening			Pain Assessment			Controlled Substance Agreement and Urine Drug Test		
	Baseline	Follow-up	P value	Baseline	Follow-up	P value	Baseline	Follow-up	P value
<b>Overall (10 physicians; 251 patients each for baseline and follow-up)</b>	60%	84%	<0.001	26%	75%	<0.001	57%	80%	<0.001

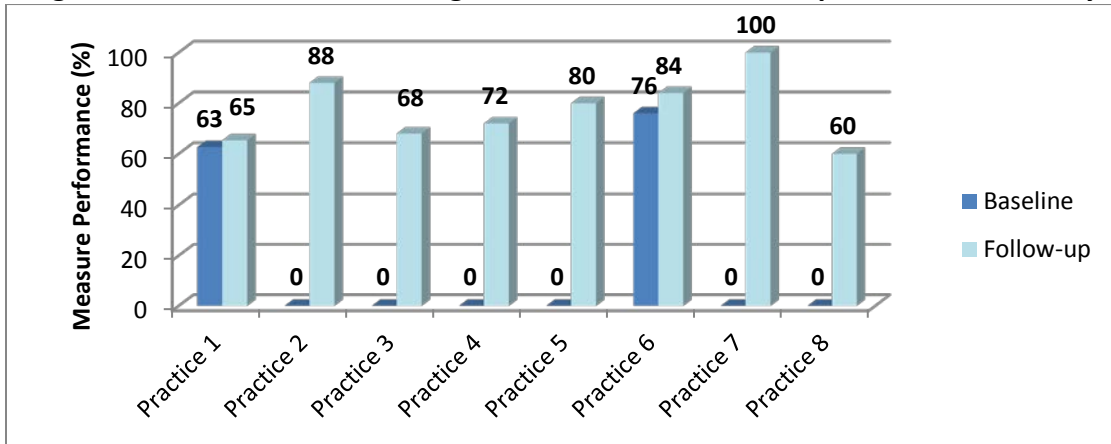


Practice 1 (3 physicians; 75 patients each for baseline and follow-up)	95%	100%	0.120	63%	65%	0.734	87%	100%	0.001
Practice 2 (1 physician; 25 patients each for baseline and follow-up)	20%	92%	<0.001	0%	88%	<0.001	60%	80%	0.123
Practice 3 (1 physician; 25 patients each for baseline and follow-up)	56%	76%	0.136	0%	68%	<0.001	48%	60%	0.395
Practice 4 (1 physician; 26 patients each for baseline and follow-up)	69%	84%	0.214	0%	72%	<0.001	69%	68%	0.925
Practice 5 (1 physician; 25 patients each for baseline and follow-up)	0%	88%	<0.001	0%	77%	<0.001	88%	88%	0.959
Practice 6 (1 physician; 25 patients each for baseline and follow-up)	4%	28%	0.049	76%	84%	0.480	0%	24%	0.022
Practice 7 (1 physician; 25 patients each for baseline and follow-up)	100%	100%	-	0%	100%	<0.001	0%	100%	<0.001
Practice 8 (1 physician; 25 patients each for baseline and follow-up)	68%	76%	0.529	0%	60%	<0.001	40%	80%	0.004

The results showed that application of pain assessments, depression screenings, controlled substance agreements, and urine toxicology tests increased significantly after the program. Sixty percent of the patients at baseline and 84% of the patients in the post-program period received depression screening; use of a pain assessment increased from 26% to 75% of patients; and use of the controlled substance agreement and urine drug tests were also increased from 57% to 80%. Moreover, the use of these tools varied extensively at baseline. For example, providers at Practice 1 and Practice 7 screened for depression in almost all of their patients at baseline, while none of the sampled patients were screened for depression in Practice 5. In the follow-up data, however, all three measures were applied to the majority of the patients in all eight practices, except in Practice 6, where use of depression screening, controlled substance agreements and urine drug testing still reveals considerable room for improvement. The results suggest that the program has successfully increased providers' use of these three evidenced-based tools for chronic pain care among the participating practices.

The most significant increase was seen with the “assessment and management of chronic pain” (pain assessment) measure, which rose from 26.29% at baseline to 74.50% at follow-up—showing an improvement of 48.2% over the course of four months. These results are in line with the top project priorities identified by each practice on the practice assessment survey: six out of eight practices selected pain assessments as a top priority for this QI initiative. The pain assessment measure had the lowest initial performance among the practices, starting at 26.29% compared to 60.16% for clinical depression screening and 56.80% for increasing use of opioid agreement forms and urine toxicology tests. As a result, this measure also had the largest room for improvement. A summary of performance improvement for the pain assessment measure by practice is summarized in the following chart:

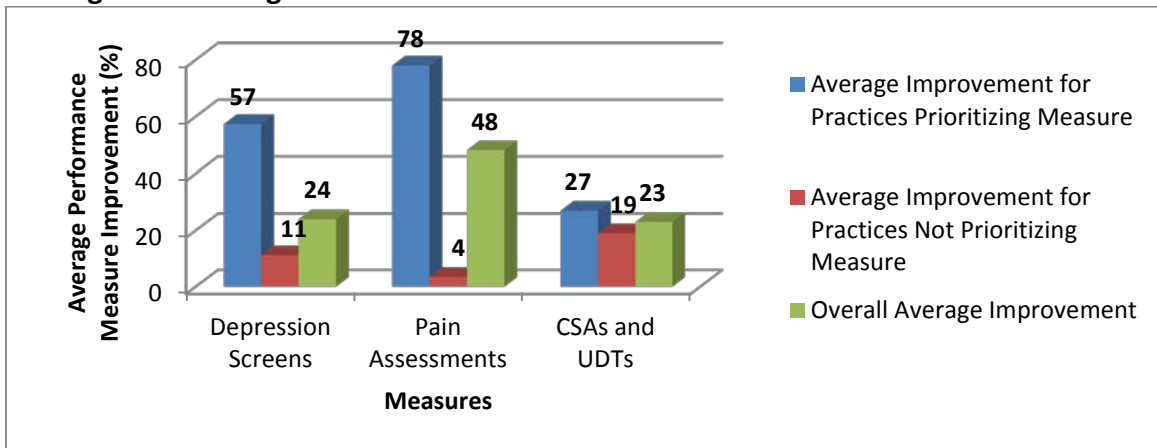
**Figure 1: Assessment and Management of Chronic Pain - Improvement Summary**



The pain assessment measure is the only measure out of the three included in this study that is not aligned with performance reporting or state regulatory requirements, which may contribute to the lower average baseline performance. Six out of eight practices did not use any standard pain assessments with their chronic pain patients. During the practice site visits, many of the physician QI champions explained that they assess pain verbally; however, they did not have a formal system in place to assess and document their patients’ pain levels. Many of these practices chose to focus on using the Brief Pain Inventory assessment tool to assess and manage their patient’s chronic pain.

Performance improvement was strongly linked to project priorities identified in the practice assessment survey data. Practices that selected pain assessments as a top priority saw an increase of 78% for this measure, compared to 4% for those that did not prioritize this topic. Practices that selected depression screening as a priority saw a 57% improvement for this measure, compared to 11% for those that did not prioritize this topic. And practices that selected controlled substance agreements as a priority saw an average improvement of 27% compared to 19% for those that did not prioritize this topic. A summary of the improvement results linked to performance priorities are provided in the chart below:

**Figure 2: Linking Practice Assessment Data to Performance Measure Outcomes**



Analyses led to the conclusion that tailoring improvement strategies to the needs and characteristics of participating practices along with practice coaching were key elements to the improvement. Results from this program have been disseminated through various channels including: 1) presentation by Dr. Greg Hood, the primary investigator, at ACP's Internal Medicine 2015 Annual Meeting pre-conference workshop on practice transformation on April 29, 2015; 2) poster session at the 2015 American College of Medical Quality annual meeting on March 27, 2015; and 3) presentation by Dr. Greg Hood at a monthly partner meeting for the Quality Independent Physicians ACO. Further dissemination plans include peer-reviewed journal publications, ACP publications (*e.g.*, ACP Internist) that are disseminated to more than 141,000 members nationwide, and a presentation at the KY-ACP meeting in November 2015. Additionally, a series of QI videos on pain and mental health assessments, risk assessments, and controlled substance agreements have been developed and will be made available on the ACP website.

**Project Design and Methods:** This document proposes expansion of the ACP Quality Connect: Chronic Pain program in Kentucky. The program aims to improve upon the proven model of success in Kentucky by providing an extended package of interventions and reaching a broader network of providers through partnership with physician groups and health systems. In addition, a more intensive evaluation that assesses patient satisfaction and quality of life as well as economic impact and provider satisfaction will be implemented. These project goals and objectives will be achieved through expansion of the ACP Quality Connect: Chronic Pain program, based on ACP's QI network approach as summarized below:

*Advisory Group Meeting:* The initiative will begin with a one-day meeting of an advisory group to review the design of the initiative and provide guidance on how best to expand and evaluate the ACP Quality Connect model in Kentucky. The advisory group will reconvene original physician and non-physician QI champions from the Phase 1 ACP Quality Connect: Chronic Pain study in Kentucky and also include content experts in QI, chronic pain management in the primary care setting, program evaluation, and patient engagement. The advisory group will review the Phase 1 program outcomes including discussion of program successes and impact as well as sustainability of changes implemented in each practice. The advisory group will identify priorities for the Phase 2 program expansion in Kentucky, which will incorporate a greater focus on patient engagement; care coordination and referral to specialists and community resources; and team-based workflows. The program will also evaluate impact on cost as well as patient and provider satisfaction. The ACP Quality Connect: Chronic Pain Practice Assessment Tool will also be updated based on guidance from the advisory group. The updated practice assessment tool will include additional questions on chronic pain management practices, patient engagement and shared decision making, team-based care, and provider satisfaction as well as other priorities identified by the advisory group.

*QI Interventions:* Practice groups will engage in at least two PDSA cycles targeting chronic pain management over a six to twelve month period. QI interventions will be built from the ACP Quality Connect: Chronic Pain Management Practice Assessment Tool, guidance from advisory group members and national faculty experts, and input from QI champions. Participants of the

initial ACP chronic pain study will be the first practice groups to implement the QI interventions. Intervention steps will include:

1. **Practice Assessment:** physician QI champions from the Phase 1 chronic pain project will complete the updated practice assessment survey, which will provide information on their practice characteristics and background, QI experience, current chronic pain management strategies, and Phase 2 project priorities. Information from the practice assessment survey will be used to inform QI interventions.
2. **ACP Practice Advisor:** Each practice will be given additional one-year free access to the ACP Practice Advisor, an online practice management tool built on the principles of the patient-centered medical home model. The ACP Practice Advisor has two relevant clinical modules including the Chronic Pain Management and Opioid Risk Management modules. Within these modules, participants will be able to find and implement tools for pain screening, ongoing pain assessment, risk assessment tools for initiating chronic opioid treatment, urine drug test protocols, depression and substance abuse screening tools, patient education resources, self-management support, and policies and procedures documents for team-based management and creation of a referral network, including to pain specialists, behavioral healthcare and substance abuse treatment specialists, and others.
3. **PDSA Cycles:** The practice will engage in at least two PDSA cycles targeting the agreed upon approaches by the practice staff and QI champions. The champions will manage the activities, providing QI materials as appropriate (*e.g.*, screening tools and patient education tools) and creating and distributing run charts for the staff to understand their progress. Many tools are available on the ACP Practice Advisor for screening, assessment, risk management, and patient education, some of which are named below.

<b>Table 2: Chronic Pain Management QI Tools on ACP Practice Advisor</b>	
Initial Pain Assessment Tool	Chronic Opioid Therapy Worksheet
Brief Pain Inventory	Modified Morisky Tool (for monitoring adherence)
Joint Pain Check List	Multi-modal Treatment Tool (Patient education tool)
Depression Screening and Management Policies and Procedures	Medication Safety Reminder (Patient education tool)
Drug and Alcohol Use Screening Tools	Controlled Substance Safety Assessment
Chronic Pain Policies and Procedures Worksheet	Patient Agreement for Opioid Maintenance Therapy for Non-Cancer/ Cancer Pain
Established Patient Visit Form	Controlled Substance Patient-Provider Agreement
Numeric Pain Assessment	Current Opioid Misuse Measure
Pain Assessment and Documentation Tool (PADT)	

4. **Educational programs:** Additional educational programs, including live and web-based programs, will be held throughout the course of the initiative. Educational content will be tailored to meet the educational needs and priorities of participating practices based on practice assessment data.

5. Coaching calls: Bi-monthly coaching calls with expert faculty will be used to provide guidance on the implementation of PDSA cycles. Coaching calls will be coordinated by national ACP and Ms. Paula Straub, Pharmacy Director of the Quality Independent Physicians ACO, and regional project manager of the previous chronic pain study. The one-hour calls will provide educational content along with an opportunity to discuss with an expert QI interventions in the practice.
6. Provider surveys: As part of the program evaluation, a provider survey will be developed and administered to all members of the practice. The survey will assess attitudes, knowledge, and barriers along with provider satisfaction, based on the work of Linzer and colleagues.<sup>20,21</sup> The survey will be developed by our evaluation partners at the Johns Hopkins University Bloomberg School of Public Health.

ACP Quality Connect: Chronic Pain Program Toolkit: As a part of this initiative, a comprehensive toolkit will be developed and made available on the ACP website to support the improvement of chronic pain management in primary care. The toolkit will include the following elements:

1. Care coordination tool built on the Patient-Centered Medical Neighborhood (PCMN) model
2. Referral resource map featuring regional pain and behavior health specialists
3. Chronic pain practice improvement toolkit, with practice assessment survey, sample PDSAs, other practice tools and videos to assist practices nationwide in implementing the program.

Care coordination toolkit: ACP will coordinate and provide logistic support for a one-day meeting of advisory group content experts to develop the chronic pain care coordination toolkit. ACP developed a high value care coordination (HVCC) toolkit based on recommendations made in ACP’s 2010 policy paper on the Patient-Centered Medical Home Neighbor.<sup>22</sup> This toolkit will be modified by the advisory group and tailored to support patient-centered communication between primary care providers and pain and behavioral health specialists, and community support groups. The HVCC toolkit comprises the following elements:

<b>Table 3: HVCC Toolkit Elements<sup>23</sup></b>	
Pertinent data sets	Highlights relevant patient information that should be included in referral requests to ensure effective engagement with outpatient specialists.
Model Specialty Out-Patient Referral Request and Response Checklists	Includes generic physician referral checklist and generic referral response checklist
Facilitating a Patient- and Family-centered Discussion with a Patient	Provides recommendations for physicians to engage in patient and family-centered referrals
Care Coordination Agreements	Sample agreements between primary care practices and hospital care teams and subspecialists are provided. These agreements are designed to promote care coordination and integration by clearly defining expectations and

	responsibilities for practices involved in the referral relationship.
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Referral Resource Map: ACP will engage the ACP state chapter and regional project manager to identify referral resources for each state that will be used to develop a comprehensive referral resource map for state providers. The resources will include pain and behavioral health specialists, substance abuse specialists, chiropractors, physical therapists, acupuncturists, rehabilitation programs, health and wellness programs, and local patient support groups.

Performance Improvement Toolkit: The toolkit will provide primary care providers with essential resources to develop and implement a strategy to improve chronic pain management in their practices. The performance improvement toolkit will comprise the ACP Quality Connect: Chronic Pain Management practice assessment survey, a library of sample PDSAs that have been implemented by past ACP Quality Connect participants, and sample worksheets to help providers develop an action plan. The toolkit will also include the following educational resources including:

1. Educational webinar recordings
2. QI videos on pain and mental health assessments; risk assessments; and controlled substance agreements
3. Patient education brochure on controlled substance agreements that can be downloaded and modified to include the practice’s logo

Statewide Expansion: ACP will work with the KY-ACP, advisory group members, and the regional program manager, Ms. Paula Straub, the Pharmacy Director for the Quality Independent Physicians ACO, and KY-ACP champions to implement the expansion of the program throughout the state. Ms. Straub was the regional support for the Phase 1 chronic pain study in Kentucky; she played an integral role in recruiting practices, coordinating coaching calls and webinars, and providing regional practice support. Statewide expansion of the program will involve the following steps:

Practice Group Recruitment: ACP will collaborate with the KY-ACP, the advisory group, regional project manager, and state champions to recruit a broad network of providers to participate in this program. The recruitment strategy will focus on engaging 4-6 physician groups, including independent physician associations, large practice groups (10+ providers), and health systems, to participate in the ACP Quality Connect: Chronic Pain initiative.

QI Champion Training: The statewide expansion of the program will also include a one-day practice champion training for three QI champions throughout the state. The practice champion training arm was added to the ACP QI model with the aim of extending the reach of ACP staff and developing a cohort of physician QI champions around the country and in ACP state chapters. The model invokes a design of “Learn. Do. Coach.,” which translates into: an extensive educational program that trains the volunteers in practice transformation and QI; subsequent telephonic practice coaching and onsite educational offerings; each champion-in-training being required to implement two PDSA cycles; and future opportunities for

championing QI. ACP has successfully launched practice champion training programs in other ACP Quality Connect QI programs, including projects in adult immunization (AI) and diabetes. These programs have proven successful in engaging champions to implement PDSA cycles in their practice settings. Evaluation results from both the diabetes and AI champion training programs reveal high levels of engagement and enthusiasm from participants. The AI training evaluation results show that 100% of participants are excited the project and their impact on increasing AI rates. The diabetes evaluation revealed that 100% of participants would recommend the program to a colleague and over 80% of participants planned to take immediate action in their practice to improve diabetes care as a result of the program. Following the champion training program, several champions from the diabetes program led the implementation of PDSA cycles in their practices and were invited to report on the success of their projects at the ACP Internal Medicine Annual Meeting practice transformation and QI pre-conference workshop, held on April 19, 2015 in Boston, Massachusetts.

ACP will organize and provide logistical support for a one-day QI champion training program to be held at the ACP Internal Medicine 2016 pre-conference workshop on practice transformation and QI. The program will include a combination of educational presentations from national experts and small-group working sessions led by faculty experts to assist champions in developing action plans for their practice groups. The training program will feature presentations from national ACP QI leaders and QI methods; practice transformation strategies; patient engagement and communication; care coordination; and team-based care.

QI champions will be asked to complete the ACP Quality Connect: Chronic Pain practice assessment survey on behalf of each of their practice groups. Results from the practice assessment will be shared with champion training faculty to provide information on their practice background characteristics, QI experience, current chronic pain management strategies, and program priorities. Faculty experts will use practice assessment data to help champions identify improvement goals and guide the development and implementation of the first PDSA cycles for each recruited practice. Following the training program, QI champions will take a leadership role in coordinating the implementation of QI activities in their practice groups and sustaining efforts beyond the scope of the program. The program leaders in each state will be recognized in ACP's national QI network reception and be invited to author/co-author presentations and publications concerning their work.

Educational Launch Programs: Each participating system will be supported in having a live or virtual onsite educational program, in which two experts will provide a formal presentation along with a brainstorming session for the champion, the team, and the experts to consider the optimal design of their practice transformation activity and its implementation. The educational program not only provides practical guidance that translates into a specific plan, but also serves to engage and motivate all of the health care providers in the system and team - a key ingredient to practice transformation. Additionally, ACP will coordinate webinars and coaching calls to provide education on evidence-based guidelines for chronic pain management and the implementation of QI programs focused on improving chronic pain management in primary care.

**Evaluation Design:** Investigators at JHU will lead the evaluation and obtain IRB approval for the evaluation upon finalization of the design and instruments. The lead investigator for the evaluation of the program will be Dr. Jill Marsteller, who has extensive experience in quantitative and qualitative evaluation of QI project and served as the lead evaluator for the previous chronic pain study in Kentucky. The program evaluation will test the following hypotheses: *Hypothesis 1:* The initiative will enhance clinicians' chronic pain management attitudes, knowledge, and uptake of QI and chronic pain management methods and tools among participating primary care groups and health systems. *Hypothesis 2:* The initiative will result in practice changes aimed to achieve better chronic pain management as well as improved patient and health care provider satisfaction and decreased cost.

Several data sources will inform the analysis, including performance measures, practice assessment results, provider surveys, and any additional measures identified by the advisory group. Qualitative summation and analysis will detail the approaches used by the practice groups to manage chronic pain and look for trends in QI cycle activities and improvement outcomes. We will survey clinicians among participating practices at baseline and six months after full program implementation to assess attitudes, knowledge, and practices concerning chronic pain management improvement. Similarly, to determine the effect of the program on chronic pain management processes, we will compare performance measure data pre- and post-intervention. Based on results from the Phase 1 chronic pain study, we expect to see a 15-30% increase over baseline performance over the course of the program.

Additional analyses will be planned around:

- Qualitative assessment of champion training impact, including practice assessment, PDSA implementation, and champion activities.
- Impact of performance improvement and care coordination toolkit through provider survey data.
- Linkage between the practice assessment survey results and practice transformation engagement and outcomes.
- Impact of cost savings using healthcare utilization metrics identified by the advisory group (*e.g.*, medication costs, emergency department (ED)/hospital admission rates, and patient visits).
- Impact of the program on patient satisfaction, experience, and quality of life through use of patient surveys.
- Impact of program on provider satisfaction through use of provider surveys.

Patient outcomes will be measured to assess the program's impact on their levels of satisfaction, functional status, and quality of life. Patient functional status and quality of life will be assessed pre- and post-intervention through use of validated assessment tools (*e.g.*, Brief Pain Inventory (BPI), Pain Disability Index (PDI), Roland and Morris Disability Index (RMD), and Medical Outcomes Study Short Form-36).<sup>24</sup> Patient satisfaction and experience will be assessed through patient surveys based on a review of evidence-based patient satisfaction assessment



tools (e.g., Report Card model by Starck et al.<sup>25</sup> and the American Pain Society's Patient Outcomes Questionnaire<sup>26</sup>).

The evaluation of the program's impact on cost will be based on healthcare utilization metrics as determined by the advisory group. Relevant metrics that will be considered in the evaluation include number of ED visits, hospital admissions, and primary care and specialty care office visits. Prescription medication costs will also be assessed through the state's prescription drug monitoring program, KASPER.

We will use a pre-post comparison design to evaluate the program. We will compare each outcome between baseline and six months later. Student's t tests (for continuous, normally distributed outcome measures), Wilcoxon rank-sum tests (for continuous, not normally distributed outcome measures; or ordinal outcome measures), and chi-squared tests (for binary and categorical outcome measures) will be conducted to assess whether the differences between baseline and six months later are statistically significant. Regression models will be used to adjust for practice-level and/or provider-level clustering if intraclass correlation (ICC) coefficients suggest a certain level of clustering ( $ICC > 0.1$ ). To evaluate any potential bias created by non-response, we will examine whether characteristics of respondents with missing responses are similar to those with complete responses. We will also conduct a sensitivity analysis by including only respondents with data for both baseline and 6 month. Results will be considered statistically significant at  $P < 0.05$ .

*Dissemination:* The program outcomes will be disseminated through ACP's QI network, including presentations at the ACP Internal Medicine Annual Meeting pre-conference workshop on practice transformation and recognition of QI champions at ACP's annual QI Network Reception. ACP will collaborate with the KY-ACP to present program outcomes at the annual chapter meeting and through the Chapter's newsletter publication, website, and social media outlets. Additional dissemination targets will include peer-reviewed journals, as well as ACP's electronic, social media, and print outlets.

**Detailed Workplan and Deliverables Schedules:** The proposed program will be implemented over the course of 20 months. The timeline for project implementation and deliverables is summarized in the section below. The table outlining the detailed project workplan and deliverables schedule can be found in Appendix II.

Advisory Group Meeting (Weeks 1-8): The initiative will launch with an advisory group meeting reconvening the physician and non-physician QI champions from the Phase 1 chronic pain study, as well as content experts in pain, QI, patient engagement, and evaluation. ACP will work with the KY-ACP and regional project manager to coordinate and implement the meeting.

Resource Development (Weeks 8-16): The advisory group will update and develop resources in the two month period following the advisory group meeting. This process will include updating the ACP Quality Connect: Chronic Pain Practice Assessment Tool and development of the chronic pain care coordination toolkit. The regional project manager, Ms. Straub, will take the

lead in the development of the referral resource map. ACP will provide logistic support for a one-day meeting of the advisory group to finalize development of the toolkit and review the referral resource map. Finalized toolkits and resources will be made available on the ACP website.

Performance Improvement and Practice Support- Cycle 1 (Weeks 16-40): The first cycle of performance improvement activities, including completion of the practice assessment survey, 2 PDSA cycles, coaching calls, and educational webinars will be implemented over a six month period with the original eight practices from the Phase 1 chronic pain study. ACP will work with the regional program manager to coordinate coaching calls with national QI experts. Webinars will be planned to address educational priorities outlined from the practice assessment survey.

Statewide Expansion and QI Champion Training (Weeks 20-40): ACP will collaborate with the KY-ACP and regional project manager to recruit 4-6 primary care practice groups to participate in the expansion of the program. Live or virtual educational programs will be planned at each practice group site to facilitate the development and implementation of a systems-based practice transformation strategy to achieve the stated project goals. Three QI champions from across the state of Kentucky will be invited to attend a QI champion training session at the ACP Internal Medicine Annual Meeting in 2016. ACP will work faculty experts to develop program content for the champion training program.

Performance Improvement and Practice Support - Cycle 2 (Weeks 20-60): Following the live educational programs, ACP and the regional project manager will provide support to practice groups implementing performance improvement activities over a 6-12 month period. Practice support in the form of coaching calls and webinars will be provided by ACP.

Evaluation Design (Weeks 1-12): In the first 3 months of the program, evaluation partners at JHU will develop an evaluation plan and materials, including provider and patient surveys. The evaluation plan will be reviewed and approved by the advisory group and ACP.

Data Collection (Weeks 14-60): Data will be collected throughout the course of the initiative, including pre- and post-intervention performance measure data, provider surveys, and patient outcomes assessment tools. Additional data on health care utilization metrics will also be collected to assess impact.

Data Analysis and Evaluation of Impact (Weeks 60-70): Investigators from the Center for Health Services and Outcomes Research at the Johns Hopkins University Bloomberg School of Public Health will conduct data analysis and write up an evaluation report on the impact of the program.

Dissemination (Weeks 70-80): Program outcomes will be disseminated through ACP's QI network, the KY-ACP annual meeting and newsletter publications, peer-reviewed publications, as well as ACP print, electronic media, and social media outlets.