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Enhancing the Safe and Effective Management of Chronic Pain in Accountable Care Organization Primary Care Practices in Kentucky

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Abstract

Chronic pain is a prevalent chronic condition with significant burden and economic impact in the United States. Chronic pain is particularly abundant in primary care, with an estimated 52% of chronic pain patients obtaining care from primary care physicians (PCPs). However, PCPs often lack adequate training and have limited time and resources to effectively manage chronic pain. Chronic pain management is complex in nature because of high co-occurrence of psychiatric disorders and other medical comorbidities in patients. This article describes a quality improvement initiative conducted by the American College of Physicians (ACP), in collaboration with the Kentucky ACP Chapter, and the Center for Health Services and Outcomes Research at the Johns Hopkins Bloomberg School of Public Health, to enhance chronic pain management in 8 primary care practices participating in Accountable Care Organizations in Kentucky, with a goal of enhancing the screening, diagnosis, and treatment of patients with chronic pain.

Keywords

chronic pain, primary care, performance improvement, quality improvement

Chronic pain is a prevalent chronic condition that affects more than 100 million individuals in the United States and costs more than $600 billion per year in direct medical costs and lost productivity.[1,2] Chronic pain is a complex condition that is affected by biological, social, and psychological factors. Effective chronic pain management requires an evidence-based, multimodal, interdisciplinary approach that addresses the multiple aspects of pain care and includes assessment of pain and functional status as well as psychological and social factors such as depression and risk of substance abuse.[3,4] A policy paper published by the American College of Physicians (ACP) concludes that a key solution to the chronic pain management problem would be a broader therapeutic toolkit for primary care physicians (PCPs) that starts with strong patient-physician relationships and supportive systems of care.[5] The patient-centered medical home model (PCMH) is an example of a health care delivery model that utilizes a multidisciplinary, supportive, team-based approach for the effective management of chronic conditions, including chronic pain.[6]

The majority of chronic pain patients are treated by PCPs; a 2010 study by Breuer et al found that 52% of chronic pain patients are seen by PCPs compared to only 2% who are treated by pain specialists.[7] However, PCPs face a number of challenges in effectively managing chronic pain, including limited or inadequate training; studies have found that PCPs report receiving limited to no education in pain management during medical school, residency, or postgraduate training.[8,9] PCPs also report low satisfaction with care of patients with chronic pain and uncertainties about appropriate prescribing of opioids.[10,11]

Opioids are powerful analgesics that are frequently used for the treatment of chronic pain. However, the long-term benefits and effectiveness of opioids as a treatment for chronic pain remain unproven.[12,13] Opioids also

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are commonly associated with negative side effects (eg, constipation, nausea, sedation) and carry risk of addiction and misuse. Despite these risks, the prescription of opioids for chronic pain treatment has increased over the past 2 decades.[14] An estimated 5 to 8 million patients in the United States are prescribed opioids for chronic pain treatment.[15] The number of opioid prescriptions for the treatment of pain has increased from 76 million in 1991 to 219 million in 2011.[15]

Kentucky has among the highest number per capita of opioid prescriptions, with an average 128 opioid prescriptions per 100 people in 2012—the fourth highest rate in the United States.[16] A 2011 report found that prescription drug abuse and drug-related deaths in Kentucky were among the highest in the United States. Kentucky had the highest rate of illicit opioid use in the United States from 2008 to 2009; opioid-related treatment hospital admissions increased from 1 per 10 000 admissions in 1999 to 10 per 10 000 in 2008; and Kentucky had the sixth highest rate of drug overdose mortality in the United States from 1999 to 2008.[17] In an effort 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.[18]

To address the needs of PCPs and patients for better management of chronic pain, the ACP's Center for Quality and Kentucky Chapter launched ACP Quality Connect: Chronic Pain Management Initiative. (ACP Quality Connect is a national quality improvement [QI] network that aims to create and sustain a learning community of physicians and health care professionals to improve health, care delivery, and outcomes. The ACP Quality Connect model includes partnering with state chapters, health systems, and practice teams to achieve improved outcomes. ACP has QI programs in adult immunization, diabetes, and chronic pain.) This initiative is a Pfizer-funded QI pilot that was launched from May 2014 through February 2015. The program aimed to improve the screening, diagnosis, and safe and effective treatment of chronic pain in primary care practices that are part of Accountable Care Organizations (ACOs) and/or are pursuing PCMH recognition. The specific objectives of the program included the following:

- Recruit ACO-participating PCPs pursuing PCMH recognition in Kentucky
- Enhance patient-centered, safe, and evidence-based screening, diagnosis, treatment, and referral of patients with chronic pain through the QI initiative
- Evaluate the impact on provider attitudes, knowledge, and practice as well as performance measure improvement
- Disseminate best practices

This article describes the pilot program and evaluates the program's impact.

Methods

Recruitment

The project team, consisting of ACP QI leaders and ACO leadership, recruited 8 primary care practices from 2 Kentucky-based ACOs in pursuit of PCMH recognition. A total of 41 providers, including 10 PCPs, participated in the program. Recruited practices received free access to the ACP Practice Advisor, an online practice management tool with chronic pain management and opioid risk management modules, and continuing medical education credit for attending web-based educational programs. Practices also were offered payment of up to $4000; a milestone payment structure was used to promote ongoing participation throughout the entire course of the program.

Advisory Group

The project team initiated the program with an advisory group meeting held in Louisville, Kentucky, in May 2014. The advisory group consisted of ACO leadership, including the medical director and pharmacy director, as well as national pain, QI, and evaluation experts. Additionally, self-nominated physician and nonphysician QI champions from each practice were included in the meeting to provide guidance on shaping the focus and approach of program implementation. The advisory group provided insight on project direction, work plan, evaluation criteria, and performance measures.

Practice Assessment Survey

The project team developed a practice assessment tool to evaluate each practice's background characteristics, QI experience and priorities, chronic pain management strategies, and educational priorities. Based on a literature review of evidence-based assessment tools and chronic pain management guidelines, the tool comprised 3 sections: (1) practice background; (2) QI experience, goals, and capacity; and (3) chronic illness management.[19-21] Part 3 of the assessment tool reflected priorities identified by the advisory group as well as the Institute for Clinical Systems Improvement guidelines for the assessment and management of chronic pain.[21]

Practice Site Visits

ACP QI leaders conducted site visits to each practice in August 2014. The goals of these site visits were to meet with practice QI champions, review baseline data, review office workflow to identify areas for improvement, and develop

Table 1. Quality Improvement (QI) Experience Results.

Question Items[a]	Percent Positive Responses[b] (n = 7-8)	Median	Range (Min-Max)
Our practice implements team huddles and other methods for enhancing team-based care.	25%	3	2-5
The impetus for improving quality in my practice is largely driven by external forces (eg, funders, accreditation, regulation, peer pressure).	50%	3.5	2-5
Leaders of my practice are trained in methods for evaluating and improving quality, such as plan-do-study-act (PDSA) cycles, Six Sigma, Lean, among others.	25%	2	1-5
My practice has implemented PDSA cycles or other QI initiatives in the last year.	14%	3	1-4
My practice has designated a QI officer or champion.	75%	4	1-5
My practice has the ability to easily extract data from our electronic health record or clinical charts to inform QI activities.	75%	4	1-5
My practice has participated in a performance reporting program in the past year (eg, Physician Quality Reporting System, Meaningful Use).	88%	5	1-5
Administrative burden is a barrier to QI in my practice.	50%	3.5	1-5

[a]Rated 1 to 5 from *strongly disagree* to *strongly agree* with higher values representing greater agreement.
[b]Percentage of respondent who chose 4 = *agree* or 5 = *strongly agree*.

initial plans for QI activities. During the visit, each practice identified top chronic pain management priorities and developed a preliminary action plan for their interventions.

Interventions

Each practice implemented 2 plan-do study-act (PDSA) cycles over the course of 4 months. Practice QI leaders selected the PDSA activities to align with the initiative's performance measures with guidance from ACP QI experts. A national QI expert provided further guidance through coaching calls with each practice. The project team organized educational programs and made resources available to all participating practices to help implement effective chronic pain management improvement strategies. Two educational webinars on pain and mental health assessments as well as controlled substance agreements and risk assessments were held. Content for the webinars was designed to meet the educational priorities identified in the practice assessment surveys.

Performance Measures

Each participating physician provided pre- and postintervention performance measure data for 25 randomly selected, de-identified patients with chronic pain, aged 18 years and older. The study focused on 3 chronic pain-related performance measures: (1) screening for clinical depression, (2) assessing and managing chronic pain, and (3) increasing use of opioid agreement forms and urine toxicology tests. The measures were selected by the advisory group members and physician QI leaders from each practice. Preintervention measure data were collected in August 2014; postintervention measure data were collected in December 2014.

Evaluation

The evaluation design was a pre-post comparison developed in partnership with the Center for Health Services and Outcomes Research at the Johns Hopkins Bloomberg School of Public Health (JHU). The JHU team evaluated the impact of the project based on outcomes from performance measure data and practice assessment surveys. Data analysis used Stata version 13.1 (StataCorp LP, College Station, Texas). The evaluation used secondary data analysis of a de-identified, not publicly available data set. The project received a non–human subjects research determination exemption from the Chesapeake Institutional Review Board.

Results

Program engagement was high throughout the program. QI champions from 7 of the 8 practices attended the advisory group meeting. All 8 practices completed the practice assessment survey, participated in practice site visits, attended educational webinars, participated in coaching calls, and collected baseline and follow-up performance measure data.

QI Experience and Capacity

Preintervention QI experience and capacity varied across the participating practices. Table 1 shows the percentage of practices that responded positively (a 4 or 5 on a scale from 1 to 5) for each question in "Part II: QI Experience and Capacity" of the practice assessment. All but one practice reported having participated in a performance reporting program. Most of the practices also had a QI champion and were capable of using extracted electronic

Table 2. Description of Tool Use for Chronic Pain Care at Baseline (n = 8).

	Pain Assessment	Mental Health Assessment	Controlled Substance Agreement	Risk Screening	Urine Drug Testing
Administration of a pain assessment/risk screening tool					
Yes, to all patients	50%			75%	
Yes, but no systematic method	38%			0%	
No	12%			25%	
Use of a mental health screening tool/controlled substance agreement					
Always		38%	63%		
Sometimes		50%	25%		
Rarely		12%	0%		
Never		0%	12%		
Administration of urine drug test					
Yes, to all chronic patients					88%
Yes, to high-risk chronic patients					12%
No					0%
Frequency of tool administration					
At every patient visit	13%	0%		0%	
Every 3-6 months	63%	12%		38%	
Once a year	0%	63%		24%	
No particular systematic method is used	12%	0%		0%	
Not applicable	12%	25%		38%	
Tool used	• Brief Pain Inventory: n = 1 • Numeric rating scale: n = 3 • Verbal descriptive scale: n = 4 • Other (ie, tool in EHR): n = 1	• PHQ-2: n = 2 • PHQ-9: n = 4 • Other (eg, MMSE, anxiety screen, GAD): n = 2		• Opioid Risk Tool: n = 2 • Other (eg, verbal pain scale, face scale): n = 1	

Abbreviations: EHR, electronic health record; GAD, Generalized Anxiety Disorder; MMSE, Mini Mental State Examination; PHQ, Patient Health Questionnaire.

health record data to inform QI efforts. However, fewer reported positive responses for exposure to certain known QI tools or methods, such as team huddles for enhancing team-based care (25%) and PDSA cycles (14%). Half of the practices agreed that their QI activities were mostly motivated by external forces, such as funders, accreditation, regulation, and peer pressure.

Prior to the intervention, practices identified 2 QI priorities from a list of 15. More than half of the practices (n = 5+) identified the following 3 areas as top priorities: meeting performance reporting/reimbursement requirements for ACOs; meeting requirements for the Physician Quality Reporting System; and enhancing team-based care.

Chronic Pain Management Strategies

Table 2 shows which tools for chronic pain care practices were used at baseline, including pain assessment, mental health assessment, controlled substance agreement, risk screening, and urine drug testing. Participating practices had diverse experience with using these tools and tests, with varied administration frequency and choice of instrument.

Table 3. Changes in Performance Measures.

	Percentage 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*
Overall (10 physicians; 251 patients each for baseline and follow-up)	60%	84%	<.001	26%	75%	<.001	57%	80%	<.001
Practice 1 (3 physicians; 75 patients each for baseline and follow-up)	95%	100%	.120	63%	65%	.734	87%	100%	.001
Practice 2 (1 physician; 25 patients each for baseline and follow-up)	20%	92%	<.001	0%	88%	<.001	60%	80%	.123
Practice 3 (1 physician; 25 patients each for baseline and follow-up)	56%	76%	.136	0%	68%	<.001	48%	60%	.395
Practice 4 (1 physician; 26 patients each for baseline and follow-up)	69%	84%	.214	0%	72%	<.001	69%	68%	.925
Practice 5 (1 physician; 25 patients each for baseline and follow-up)	0%	88%	<.001	0%	77%	<.001	88%	88%	.959
Practice 6 (1 physician; 25 patients each for baseline and follow-up)	4%	28%	.049	76%	84%	.480	0%	24%	.022
Practice 7 (1 physician; 25 patients each for baseline and follow-up)	100%	100%	—	0%	100%	<.001	0%	100%	<.001
Practice 8 (1 physician; 25 patients each for baseline and follow-up)	68%	76%	.529	0%	60%	<.001	40%	80%	.004

*P values calculated from χ^2 tests or Fisher exact tests.

Each practice also was asked to identify their top 2 QI project priorities for the program. Pain assessments were listed as the top priority for the majority of practices (n = 6), followed by controlled substance agreements (n = 4) and mental health screenings and risk screenings (n = 3 for each).

Performance Improvement Outcomes

Performance measure data showed that the application of pain assessments, depression screenings, controlled substance agreements, and urine toxicology tests among patients with chronic pain increased significantly after the 4-month intervention period (Table 3).

Use of depression screening tools increased by 24% between baseline and follow-up ($P < .001$); use of pain assessments increased by 49% of patients by follow-up ($P < .001$); and use of the controlled substance agreement and urine drug tests also increased by 23% during the same time period ($P < .001$). 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 randomly sampled patients with chronic pain at baseline, while none of the sampled patients were screened for depression in Practice 5. However, in the follow-up data, all 3 tools were applied to the majority of patients in all 8 practices, except in Practice 6, where use of depression screening, controlled substance agreements, and urine drug testing still revealed considerable room for improvement.

Performance improvement was strongly linked to the specific project priorities selected by the practices (Figure 1).

Changes in Provider Attitudes

Providers completed surveys assessing their beliefs and attitudes toward chronic pain management pre- and post-intervention. Generally, respondents reported higher scores in the attitudes questions (1-5 scale from *disagree strongly* to *agree strongly*) post intervention compared to baseline. Improvements in 2 questions were statistically significant. After the intervention, providers had stronger beliefs that they put all their patients with chronic pain on appropriate drugs or therapies ($P = .045$). They also were more confident that they make appropriate and timely referrals of chronic pain patients to pain subspecialists and mental health providers ($P = .022$).

Discussion

The initiative showed promising results in terms of increased use of pain assessments, depression screening

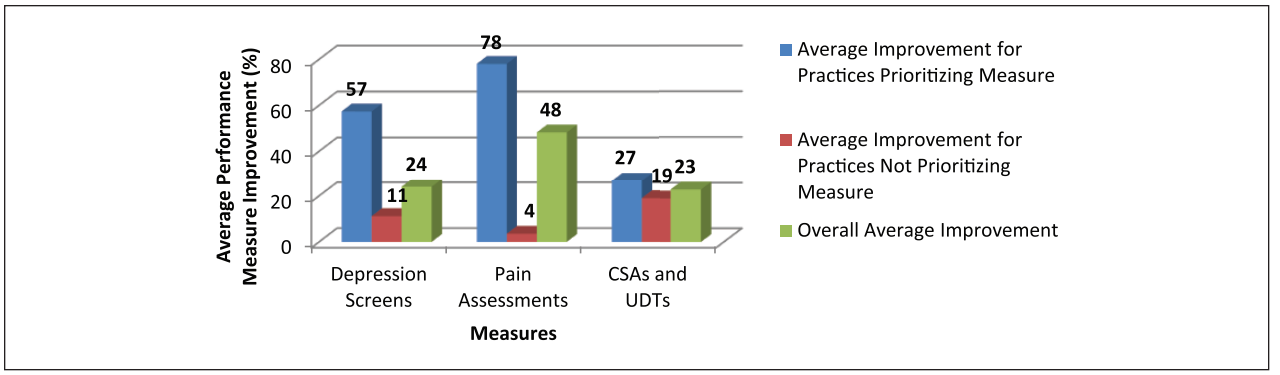

Figure 1. Linking practice assessment data to performance measure outcomes.
Abbreviations: CSA, controlled substance agreement; UDT, urine drug test.

tools, controlled substance agreements, and regular urine testing. Results suggest that the program successfully increased providers' use of these evidenced-based tools for chronic pain care regardless of baseline performance. The most significant increase was seen with the pain assessment measure. These results are in line with the top project priorities identified by each practice on the practice assessment survey: The majority of practices (n = 6) selected pain assessments as a top priority. This may reflect the high motivation to improve often observed when clinicians have the opportunity to select the QI areas in which to work.

The pain assessment measure had the lowest initial performance among the practices; as a result, this measure also had the largest room for improvement. Pain assessment is the only measure included in this study that is not aligned with performance reporting or state regulatory requirements, which may contribute to the lower average baseline performance. The majority of practices (n = 6) did not use standard pain assessments with their patients with chronic pain. During the practice site visits, many of the 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.

The initiative also resulted in significant improvements in providers' attitudes about placing their patients with chronic pain on appropriate drugs or therapies. Providers also had increased confidence in making appropriate and timely referrals of their patients with chronic pain. These improvements address some of the core challenges facing effective chronic pain management among the PCP community. PCPs often have low confidence levels in appropriate prescribing practices with opioids.[10,11] Increased self-efficacy among PCPs regarding appropriate drug therapies (eg, opioids) is a critical step to improving chronic pain management.

Limitations

It is important to note limitations that may affect interpretation of these data. Primarily, the sample size is small (as is typical for pilot studies at the clinic level), which reduces the chances of being able to detect small statistical effects of the intervention. In addition, the time frame for intervention was short (4 months), and additional effects may accrue over time as the intervention continues. The practices were all ACO participants and pursuing PCMH recognition; therefore, generalizability of the study's results is another limitation. Furthermore, there is no comparison group for this study and it is possible that changes over time may be related to secular trends. However, the notable improvements in the specific areas the practices chose as priorities suggest targeted change efforts rather than general trends toward improvement.

Follow-up studies are planned for 2016 to further study the impact of QI interventions on patient engagement and patient-level outcomes (eg, changes in pain, functional, quality of life scores). Additionally, follow-up studies will assess the impact of these chronic pain management strategies on overall costs, hospitalizations, and number of opioid prescriptions.

Conclusion

The pilot study provided a successful model for implementing QI interventions to improve effective chronic pain management in primary care practices, which will be used as the foundation for further QI studies. Incorporating the use of evidence-based tools in the practice workflow are critical processes for safe and effective chronic pain management in primary care. Use of standard pain assessments allow providers to better document and track patients' pain management over time. Increased use of depression screening tools and

urine drug tests allow providers to identify high-risk patients and detect potential substance use disorders. Use of controlled substance agreements allows providers to engage patients and help them to better understand the risks and benefits of taking controlled substances to treat chronic pain.

A number of driving factors appeared to contribute to the overall success of the QI pilot program, in terms of participation and outcome. One was the engagement of QI champions at the early stages of the initiative. Inviting physician and nonphysician QI champions to the advisory group meeting helped ensure that the educational content was relevant and the program design would address their top educational and QI priorities. Advisory group members were able to get direct feedback from the participating QI champions and work collaboratively to develop a project work plan moving forward.

The model of partnering a national support team with the state ACP chapter and ACO leadership proved successful in the recruitment phase of the initiative. Strong commitment to the QI program from the ACO's leadership positively affected practice engagement. Involving a regional project manager, who was familiar with each practice through her role as ACO Pharmacy Director and was able to provide regional support throughout the course of the initiative, also was a key element to the success.

Providing tailored QI interventions appeared to be another key component of this initiative. The practice assessment tool and follow-up site visits provided critical information about each practice's background, QI knowledge, and baseline chronic pain strategies used. These data, along with baseline performance data, allowed the project team to provide tailored guidance on the implementation of QI activities in each practice. Follow-up coaching calls were scheduled with each practice to check in on the status of their QI activities, encouraging continuous commitment during the length of the intervention and hopefully promoting sustainment of gains.

Declaration of Conflicting Interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr Schneider reports personal fees from Novo Nordisk, Janssen, and Lilly outside the submitted work. The following authors have no conflicts of interest to disclose: Ms Wubu, Dr Hall, Ms Straub, Dr Bair, Dr Marsteller, Dr Hsu, and Dr Hood.

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References

1. Institute of Medicine. *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*. Washington, DC: National Academies Press; 2011.
2. Gaskin DJ, Richard P. The economic costs of pain in the United States. *J Pain*. 2012;13:715-724.
3. American Academy of Pain Medicine. Patient satisfaction with pain management relies most on coordination of care. http://www.sciencedaily.com/releases/2015/03/150324153509.htm. Published March 24, 2015. Accessed June 18, 2015.
4. Sehgal N, Manchikanti L, Smith HS. Prescription opioid abuse in chronic pain: a review of opioid abuse predictors and strategies to curb opioid abuse. *Pain Physician*. 2012;15(3 suppl):ES67-ES92.
5. Kirschner N, Ginsburg J, Sulmasy LS; , Health and Public Policy Committee of the American College of Physicians. Prescription drug abuse: executive summary of a policy position paper from the American College of Physicians. *Ann Intern Med*. 2014;160:198-200.
6. Cheatle MD, Klocek JW, McLellan AT. Managing pain in high-risk patients within a patient-centered medical home. *Transl Behav Med*. 2012;2(1):47-56.
7. Breuer B, Cruciani R, Portenoy RK. Pain management by primary care physicians, pain physicians, chiropractors, and acupuncturists: a national survey. *South Med J*. 2010;103:738-747.
8. O'Rorke JE, Chen I, Genao I, Panda M, Cykert S. Physicians' comfort in caring for patients with chronic nonmalignant pain. *Am J Med Sci*. 2007;333:93-100.
9. Wolfert MZ, Bilson AM, Dahl JL, Cleary JF. Opioid analgesics for pain control: Wisconsin physicians' knowledge, beliefs, attitudes, and prescribing practices. *Pain Med*. 2010;11:425-434.
10. Upshur CC, Luckmann RS, Savageau JA. Primary care provider concerns about management of chronic pain in community clinic populations. *J Gen Intern Med*. 2006;21:652-655.
11. Jamison RN, Sheehan KA, Scanlan E, Matthews M, Ross EL. Beliefs and attitudes about opioid prescribing and chronic pain management: survey of primary care providers. *J Opioid Manag*. 2014;10:375-382.
12. Noble M, Treadwell JR, Tregear SJ, et al. Long-term opioid management for chronic noncancer pain. *Chocrane Database Syst Rev*. 2010;(1):CD006605.
13. Chou R, Fanciullo GJ, Fine PG, Miaskowski C, Passik SD, Portenoy RK. Clinical guidelines for the use of chronic opioid therapy in chronic noncancer pain. *J Pain*. 2009;10:113-130.
14. Sullivan MD, Edlund MJ, Fan MY, Devries A, Brennan Baden J, Martin BC. Trends in use of opioids for noncancer pain conditions 2000-2005 in commercial and Medicaid insurance plans: the TROUP Study. *Pain*. 2008;138:440-449.
15. Reuben DB, Alvanzo AA, Ashikaga T, et al. National Institutes of Health pathways to prevention workshop: the role of opioids in the treatment of chronic pain. *Ann Intern Med*. 2015;162:295-300.

16. Centers for Disease Control and Prevention. Vital signs: opioid painkiller prescribing infographic. http://www.cdc.gov/vitalsigns/opioid-prescribing/infographic.html. Accessed June 2015.
17. Kentucky State Epidemiological Outcomes Workgroup. Prescription drug trends in Kentucky. http://chfs.ky.gov/nr/rdonlyres/87074e8c-69f5-426d-a3e2-5ba341f7252a/0/prescriptiondrugtrendsinkentuckyshortreport.pdf. Published December 2011. Accessed June 2015.
18. Kentucky Board of Medical Licensure. Summary of House Bill 1. http://kbml.ky.gov/hb1/Documents/KBML%20Summary%20of%20HB1.pdf. Accessed June 2015.
19. The MacColl Center for Health Care Innovation, Group Health Cooperative. The Assessment of Chronic Illness Care. http://www.improvingchroniccare.org/index.php?p=The_MacColl_Center&s=93. Accessed February 27, 2016.
20. Joly BM, Booth M, Mittal P, Shaler G. Measuring QI in public health: the development and psychometric testing of a QI maturity tool. *Eval Health Prof*. 2012;35:119-147.
21. Hooten WM, Timmings R, Belgrade M, et al. Institute for Clinical Systems Improvement. Assessment and management of chronic pain. https://www.icsi.org/_asset/bw798b/ChronicPain.pdf. Updated November 2013. Accessed June 10, 2014.