



the  
central appalachia  
inter-professional  
pain  
education  
collaborative

## **CAIPEC Program Team:**

Roberto Cardarelli, DO, MPH (Principal Investigator, University of Kentucky)

William Elder, PhD (University of Kentucky)

Sarah Weatherford, MS (University of Kentucky)

Jennifer Schilling, MPH (University of Kentucky)

Kathryn Stewart, LMT

Dana King, MD (West Virginia University Health Science Center)

Sue Workman, BSMS, CCRP (West Virginia University Health Science Center)

Kim Chong, MD (West Virginia University Health Science Center)

William Betz, DO (University of Pikeville, College of Osteopathic Medicine)

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## Executive Summary

The Central Appalachia Inter-Professional Pain Education Collaborative (CAIPEC) delivered a multifaceted educational and implementation research program over a 15 month period that targeted a spectrum of learners related to the safe use of opioids in the management of chronic pain. The program reached 1,219 participants who accessed at least one of the various activities, including community roundtables, state conferences and webcasts. This resulted in 958 requested hours of continuing education credit. Learners included physicians, nurse practitioners, nurses, physician assistants, massage therapists, physical therapists, behavioral specialists and other health professionals. Between 85%-90% of the learners agreed that the activities increased their knowledge and that participation would improve their clinical performance in managing patients with chronic pain. More importantly, approximately 60% of the learners stated that they intend to make changes in their practice based on the learning content. Learners demonstrated statistically significant increases in confidence in all areas of chronic pain management from pre- to post-activity; post-activity scores also exceeded those of a control group that was not exposed to any CAIPEC educational activity. In addition, post-activity knowledge test scores for all learning activities exceeded both pre- activity and control group scores.

The nested quality improvement study involved 8 clinics and 20 healthcare providers across West Virginia and Eastern Kentucky and assessed management of chronic pain patients at baseline and 3 months after implementation of their chosen clinic processes. There were a total of 16 possible process outcomes in the study. Based on approximately 700 chart reviews, there was a statistically significant improvement in 10 out of 16 processes across all clinics and providers. These improvements included workflow implementation, urine drug testing, the use of controlled medication agreements, the use of non-opioid modalities, risk assessments, and mood, pain, and functional assessments. In fact, 7 of the participating 8 clinics significantly improved in their chosen process measure that was implemented.

The CAIPEC program has demonstrated significant improvements in educational and practice process outcomes through a collaborative and engaged implementation approach.

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## Abbreviations

APRN	Advanced Practice Registered Nurse
PA	Physician Assistant
KAN	Kentucky Ambulatory Network
PT	Physical Therapy
MT	Massage Therapy
BT	Behavioral Therapy

## DISSEMINATION OF KNOWLEDGE

### Overview

The Central Appalachia Inter-professional Pain Education Consortium (CAIPEC) is a multifaceted educational program for health professionals, with a nested quality improvement study, aimed at improving the safe use of opioids and the management of chronic pain. The program entailed a total of 8 community roundtables and 4 conference presentations in both Kentucky and West Virginia during 2015-2016. A website ([www.cecentral.com/caipec](http://www.cecentral.com/caipec)) was also developed that includes 8 webcasts with enduring materials, including a quality improvement toolkit. This program was a collaboration among several academic institutions and various health professional organizations. Please see Table 1 for a list of the various partners.

**Table 1.** CAIPEC partner organizations

#### Academic Organizations

- University of Kentucky College of Medicine, Department Family & Community Medicine
- University of Pikeville, Kentucky College of Osteopathic Medicine
- Appalachian Osteopathic Post-Graduate Training Institute Collaborative
- West Virginia Prevention Research Center/West Virginia University School of Medicine
- West Virginia Practice-Based Research Network/WV Clinical Translational Science Institute

#### Prescription Monitoring Agencies

- KASPER (Kentucky All Schedule Prescription Electronic Reporting)

#### Family, Osteopathic , & Internal Medicine Associations

- Kentucky & West Virginia Academies of Family Physicians
- Kentucky American Colleges of Physicians
- Kentucky & West Virginia Osteopathic Medical Associations
- Kentucky Primary Care Association

#### Other Community Organizations

- Kentucky and West Virginia AHECs
- Kentucky Academy of Physician Assistants
- The Kentucky Coalition of Nurse Practitioners and Nurse Midwives; West Virginia Nurses Association Advanced Practice Congress
- American Massage Therapy Association, National Office & KY/WV Chapters



The schedule of conference and roundtable events is detailed below.

**Conferences:**

Conference	Date of Conference	City	Location
Kentucky Academy of Family Physicians (KAFFP)	March 28, 2015	Lexington, KY	Campbell House 8am-Noon
West Virginia Academy of Family Physicians (WVAFP)	April 16, 2015	Charleston, WV	Embassy Suites 8am-11am
Kentucky Primary Care Association (KPCA)	May 8, 2015	Lexington, KY	Marriott Griffin Gate Resort 10:30am-4:30pm
23 <sup>rd</sup> Annual West Virginia Rural Health Conference (Non-REMS Presentation)	October 15, 2015	Roanoke, WV	Stonewall Resort 11:30am-12:45pm

**Kentucky Roundtables:**

Date	City	Location
August 20, 2015	Ashland, KY	Ashland Plaza Hotel and Convention Center, 1441 Winchester Avenue, Ashland, KY 41101
September 3, 2015	Pikeville, KY	Eastern Kentucky Expo Center, 126 Main Street, Pikeville, KY 41501
September 28, 2015	Morehead, KY	Center for Health Education and Research, 316 West Second Street, Morehead, KY 40351
October 8, 2015	Hazard, KY	Kentucky Office of Rural Health: UK Center of Excellence in Rural Health, 750 Morton Blvd. Hazard, KY 41701

**West Virginia Roundtables:**

Date	City	Location
September 24, 2015	Morgantown, WV	Family Medicine Center at the WVU Healthcare University Towne Centre, 6040 University Town Centre Drive, Morgantown, WV 26501
November 12, 2015	Charleston, WV	Robert C. Byrd Health Sciences Center Charleston Division, 3110 MacCorkle Ave SE, Charleston, WV 25304
February 3, 2016	Bridgeport, WV	United Hospital Center, 327 Medical Park Dr Bridgeport, WV 26330
February 4, 2016	Kingwood, WV	Preston Memorial Hospital, 150 Memorial Drive, Kingwood, WV 26537

## Reach Assessment



There were 1,219 participants or individuals who accessed the various activities including the roundtables, conferences and webcasts. A total of 958 hours of continuing education credit was requested by these learners. This report is a compilation of outcomes up **until February 28, 2016**. Table 2 provides detailed information about the number reached for the various activities and webcast modules.

<b>Table 2. Reach Analyses</b>		
<u>Activity</u>	<u>Number attended/Accessed*</u>	<u>Total CE requested</u>
Roundtables (8)	64	30
Conferences (4)	417	417
Webcast		
Module 1	70	70
Module 2	64	64
Module 3	60	60
Module 4	57	57
Module 5	56	56
Module 6	55	55
Module 7	55	55
Module 8	51	51
Clinical Toolkit	270	43
<b>Totals</b>	<b>1,219</b>	<b>958</b>

\*Same individuals may have accessed 1 or more webcasts

## Learner Profile

One of the goals of the CAIPEC program was to reach an inter-professional spectrum of learners. As Table 3 demonstrates, our program reached physicians, nurse practitioners, nurses, physician assistants, massage therapists, physical therapists, behavioral specialists, and other health professionals such as health administrators. The largest groups reached were nurse practitioners and nurses. These learners were predominantly from Kentucky and West Virginia; however, several learners who accessed the online webcasts were from other states.



Activity	Number attended/Accessed								Totals
	Physicians	Nurse Practitioners	Nurse	Physician Assistants	Massage Therapists	Physical Therapists	Behavioral Specialists	Other	
Roundtables (8)	23	10	7	6	6	6	0	6	<b>64</b>
Conferences (4)	102	20	0	6	0	0	0	6	<b>134</b>
Webcast									<b>0</b>
Module 1	5	24	37	1	0	0	1	2	<b>70</b>
Module 2	3	23	35	1	0	0	0	2	<b>64</b>
Module 3	4	23	30	1	0	0	0	2	<b>60</b>
Module 4	3	23	28	1	0	0	0	2	<b>57</b>
Module 5	2	23	29	0	0	0	0	2	<b>56</b>
Module 6	3	22	27	1	0	0	0	2	<b>55</b>
Module 7	3	21	28	1	0	0	0	2	<b>55</b>
Module 8	3	21	25	0	0	0	0	2	<b>51</b>
Toolkit	6	11	24	0	0	0	0	2	<b>43</b>
<b>Totals</b>	<b>157</b>	<b>221</b>	<b>270</b>	<b>18</b>	<b>6</b>	<b>6</b>	<b>1</b>	<b>30</b>	<b>709</b>

\*May not equal 1,219 due to non-response

### Conferences



Conferences were primarily attended by physicians who were mostly registered with the DEA. Over 70% reported prescribing schedule 2 or 3 medications. Over 50% of the participants had prescribed at least one Extended-Release and Long-Acting (ER/LA) Opioid Analgesics prescription in the past year. A majority of the participants have been in practice for more than 25 years and few managed a high number (i.e., >100) of acute pain or chronic pain patients. Approximately 43% of physicians and 14.3% of nurse practitioners reported that 10-25% of patients with chronic pain they cared for were also managed by non-physician providers such as physical therapy, massage therapy, and/or a behavioral specialist. Details of conference participants can be found in Table 4.

Are you registered with the DEA?	Physician	APRN	PA	Other	Total
No	3.0%	4.5%	2.3%	4.5%	14.3%
Yes	72.7%	10.6%	2.3%	0.0%	85.6%
Are you licensed by the FDA to prescribe schedule 2/3 drugs?					
No	4.5%	9.0%	2.3%	4.5%	20.3%

Yes	71.4%	6.0%	2.3%	0.0%	79.7%
Have you written at least one ER/LA opioid prescription in the past year?					
No	23.5%	13.6%	4.5%	4.5%	46.1%
Yes	53.0%	0.8%	0.0%	0.0%	53.8%
Number of years in practice					
≤5 years	12.0%	0.8%	0.8%	0.8%	14.4%
6-15 years	12.8%	2.4%	0.8%	0.0%	15.2%
16-25 years	17.6%	2.4%	0.0%	1.6%	21.6%
>25 years	33.6%	10.4%	2.4%	1.6%	48.0%
Patients managed for acute pain					
≤5	29.7%	6.3%	2.7%	1.8%	40.5%
6-15	21.6%	3.6%	0.9%	0.9%	27.0%
16-30	9.0%	1.8%	0.0%	0.9%	11.7%
31-60	5.4%	0.0%	0.0%	0.9%	6.3%
61-100	3.6%	0.9%	0.9%	0.0%	5.4%
100+	8.1%	1.8%	0.0%	0.0%	9.9%
Patients managed for chronic pain					
≤5	26.1%	4.3%	2.6%	2.6%	35.6%
6-15	8.7%	2.6%	0.9%	0.0%	12.2%
16-30	13.9%	1.7%	0.0%	0.0%	15.6%
31-60	8.7%	2.6%	0.0%	0.0%	11.3%
61-100	7.0%	0.9%	0.9%	0.9%	9.7%
100+	12.2%	2.6%	0.9%	0.0%	15.7%
Pain Patients also managed by non-physician provider (PT, MT, BS)					
0%	0.0%	14.3%		14.3%	28.6%
10-25%	42.9%	14.3%		0.0%	57.5%
26-50%	0.0%	0.0%		0.0%	0.0%
51-75%	14.3%	0.0%		0.0%	14.3%
>75%	0.0%	0.0%		0.0%	0.0%

### Roundtables

Surveys of the round table participants also demonstrated that physician providers were the predominant group prescribing schedule 2 or 3 medications and were registered with the DEA. This group ranged in number of years in practice from less than 5 years to more than 25 years. In addition, there was wide variation in the number of patients managed for acute pain and/or chronic pain. Most participants used non-physician providers in the management of chronic pain patients. See Table 5 for further details.



**Table 5. Learner Profile for Roundtables**

	Physician	APRN	PA	MT	PT	Other	Total
Are you registered with the DEA?							
No	4.8%	4.8%	4.8%	9.7%	12.9%	17.7%	54.8%
Yes	30.6%	9.7%	3.2%	0.0%	1.6%	0.0%	45.2%
Are you licensed by the FDA to prescribe schedule 2/3 drugs?							
No	5.1%	6.8%	5.1%	10.2%	15.3%	18.6%	61.0%
Yes	32.2%	3.4%	3.4%	0.0%	0.0%	0.0%	39.0%
Have you written at least one ER/LA opioid prescription in the past year?							
No	8.1%	14.5%	6.5%	9.7%	14.5%	17.7%	71.0%
Yes	27.4%	0.0%	1.6%	0.0%	0.0%	0.0%	29.0%
Number of years in practice							
≤5 years	14.5%	3.6%	3.6%	3.6%	3.6%	1.8%	30.9%
6-15 years	5.5%	5.5%	0.0%	1.8%	3.6%	3.6%	20.0%
16-25 years	7.3%	1.8%	3.6%	1.8%	1.8%	3.6%	20.0%
>25 years	5.5%	1.8%	1.8%	0.0%	3.6%	3.6%	16.4%
Patients managed for acute pain							
≤5	14.9%	4.3%	0.0%	6.4%	2.1%	4.3%	31.9%
6-15	4.3%	4.3%	2.1%	4.3%	8.5%	0.0%	23.4%
16-30	10.6%	0.0%	2.1%	0.0%	4.3%	2.1%	19.1%
31-60	4.3%	2.1%	0.0%	2.1%	0.0%	4.3%	12.8%
61-100	2.1%	2.1%	2.1%	0.0%	2.1%	0.0%	8.5%
100+	2.1%	2.1%	0.0%	0.0%	0.0%	0.0%	4.3%
Patients managed for chronic pain							
≤5	6.1%	6.1%	0.0%	2.0%	2.0%	4.1%	20.4%
6-15	10.2%	0.0%	4.1%	8.2%	10.2%	2.0%	34.7%
16-30	10.2%	0.0%	0.0%	0.0%	2.0%	0.0%	12.2%

31-60	6.1%	4.1%	2.0%	2.0%	0.0%	0.0%	14.3%
61-100	2.0%	2.0%	2.0%	0.0%	0.0%	4.1%	10.2%
100+	4.1%	4.1%	0.0%	0.0%	0.0%	0.0%	8.2%
Pain Patients also managed by non-physician provider (PT, MT, BS)							
0%	6.3%	4.2%	2.1%	0.0%	0.0%	6.3%	18.8%
10-25%	18.8%	4.2%	2.1%	2.1%	6.3%	4.2%	37.5%
26-50%	8.3%	2.1%	0.0%	0.0%	2.1%	0.0%	12.5%
51-75%	4.2%	4.2%	2.1%	6.3%	2.1%	0.0%	18.8%
>75%	0.0%	2.1%	2.1%	4.2%	4.2%	0.0%	12.5%



**CAIPEC**

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**Sponsors**



**Welcome**

The University of Kentucky Division of Community Medicine of the Department of Family & Community Medicine is excited to be partnering with CE Central to offer online community medical education to practicing clinicians. The target audience of this content extends to varying professions and disciplines that care for Central Appalachians throughout the chronic pain spectrum. These include physicians, advanced practice providers (APP), massage and behavioral therapists (MT and BT), and physical therapists (PT).

**Acknowledgement:**

This was possible with the help and collaboration of our partners listed below:

University of Kentucky (UK) with the Kentucky Ambulatory Network (KAN), West Virginia University (WVU) and the WV Practice-Based Research Network, Kentucky All Schedule Prescriptions Electronic Reporting Agency (KASPER) and West Virginia RxDataTrack Controlled Substance Automated Prescription Program (CSAPP) prescription monitoring agencies, Pikeville Kentucky College of Osteopathic Medicine, Kentucky and West Virginia Area Health Education Centers (AHEC). This program was developed with an unrestricted grant from the Pfizer Consortium.

**Course Overview:**

The Central Appalachia Inter-Professional Pain Education Collaborative (CAIPEC): The central goal of CAIPEC is to improve the delivery of chronic pain management to Central Appalachia residents through an evidence-based and inter-professional approach. The intention of CAIPEC is to advance knowledge on team-based care and processes and the appropriate management of chronic pain through pharmacologic and non-pharmacologic modalities. CAIPEC will deliver multi-faceted continuing education (CE) interventions (including web-based modules, roundtables and conference presentations) to a professionally diverse group of healthcare providers caring for individuals with chronic pain. The target audience for the CAIPEC continuing education activities includes physicians, advanced practice providers (APP), Medical Doctors (MD), Doctors of Osteopathic Medicine (DO), Nurse Practitioners (NP), Physicians Assistants (PA), Behavioral Scientist (BS) massage and behavioral therapists (MT and BT), and physical therapists (PT).

**Web-based Modules:**

Seven live and archived webcasts have been conducted for an interdisciplinary and inter-professional target audience. There are seven web-based lectures, each focused on one of the seven modules with its targeted learning objective.

**The seven modules covered are:**

- Epidemiology of Chronic Pain
- The Biopsychosocial Aspects of Chronic Pain
- Risk Management
- Chronic Pain History and Shared Decision making Approaches
- Examination and Diagnostic Testing in Patients with Chronic Pain
- Non-Pharmacologic and Pharmacologic Treatment Options

**Declarative Impact Statements**

Conferences

Participants were asked whether the activity would impact their overall knowledge, clinical performance, and patient outcomes. As Table 6 demonstrates, 92.1% of participants agreed that the activity increased their knowledge and 86.4% agreed that the activity will improve their performance in managing patients with chronic pain. In addition, 81.4% of participants agreed that the activity will help improve patient outcomes in their practice.

**Table 6. Conference Activity Impact Statements**

	Physician	APRN	PA	Other	Total
Did this activity increase knowledge?					
Agree	69.8%	13.5%	4.8%	4.0%	92.1%
Neutral	6.3%	1.6%	0.0%	0.0%	7.9%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%

Did this activity improve performance?					
Agree	66.4%	12.0%	4.8%	3.2%	86.4%
Neutral	8.8%	3.2%	0.0%	0.8%	12.8%
Disagree	0.8%	0.0%	0.0%	0.0%	0.8%
Did this activity improve patient outcomes?					
Agree	63.7%	9.7%	4.8%	3.2%	81.4%
Neutral	10.5%	5.6%	0.0%	0.8%	16.9%
Disagree	1.6%	0.0%	0.0%	0.0%	1.6%

### Roundtables

Roundtable participants also agreed that the activity will impact their overall knowledge, improve their performance in managing patients with chronic pain, and improve patient outcomes. Over 85% of participants agreed that the activity increased their overall knowledge about chronic pain management. In addition, over 78% of participants agreed that the activity will help improve their performance in managing their patient population. 77% of participants agreed that the activity will help improve patient outcomes in their practice.

<b>Table 7. Roundtable Activity Impact Statements</b>							
	Physician	APRN	PA	MT	PT	Other	Total
Did this activity increase knowledge?							
Agree	29.5%	14.8%	8.2%	8.2%	9.8%	14.8%	85.2%
Neutral	3.3%	0.0%	0.0%	1.6%	4.9%	1.6%	11.5%
Disagree	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
Did this activity improve performance?							
Agree	31.7%	15.0%	6.7%	5.0%	8.3%	11.7%	78.3%
Neutral	1.7%	0.0%	1.7%	5.0%	6.7%	3.3%	18.3%
Disagree	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%
Did this activity improve patient outcomes?							
Agree	27.9%	14.8%	6.6%	4.9%	9.8%	13.1%	77.0%
Neutral	4.9%	0.0%	1.6%	4.9%	4.9%	3.3%	19.7%
Disagree	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%

### **Declarative Intent to Change practice**

Program participants were asked if they intended to make changes in various domains as a result of participating in the activity. They were also asked if they would make changes in several specific domains including patient management, monitoring therapy, patient education, and assessing risk factors for opioid use. Each domain had a list of proposed changes and participants were asked to mark all that applied. These data are shown in Table 8a; the mean number of proposed changes per domain was also calculated and is presented in Table 8b.

### Conferences

Over 58% of conference participants stated that they intended to make changes in managing patients with chronic pain as a result of participating in the activity. Approximately 24% were not sure, but were considering making changes as a result of participating in the activity. On average, participants stated that they will make an average of 1.5 changes in the area of risk factor management, 4 changes in patient management factors, just over 1.7 changes in monitoring therapy, and approximately 0.5 changes in the area of patient education related to chronic pain and opioid use.



	Physician	APRN	PA	Other	Total
Intend to make changes?					
Yes	48.4%	6.3%	3.1%	0.8%	58.6%
Not sure, considering	15.6%	6.3%	0.8%	1.6%	24.2%
No, already practice it	10.2%	2.3%	0.8%	1.6%	14.8%
No, not interested/willing to make change	1.6%	0.8%	0.0%	0.0%	2.3%
Will address barriers?					
N/A	12.7%	6.7%	0.7%	0.7%	20.9%
Yes	26.9%	3.7%	2.2%	3.0%	35.8%
No	32.1%	2.2%	1.5%	0.7%	36.6%



Specific domain in which willing to make change	N	Risk Factors	Patient Management	Monitoring Therapy	Patient Education
Physician	102	1.71	4.03	1.70	0.57
APRN	20	1.10	3.70	1.45	0.25
PA	6	1.33	6.00	2.83	0.50
Other	6	0.50	3.00	1.67	0.33
Total	134	1.54	4.02	1.71	0.51

**Roundtables**



Approximately 69% of roundtable participants stated that they will make a change in practice in one or more areas related to chronic pain patients and opioid use. 24.1% of the participants were not sure but were considering making changes. Approximately 23% of participants stated that they will work to address barriers in making these changes. Most changes are planned in the domains of patient management and assessing risk factors for opioid use. Areas marked for intent to change are shown in Table 9a; the mean number of proposed changes per domain is presented in Table 9b.

	Physician	APRN	PA	MT	PT	Other	Total
Intend to make changes?							
Yes	27.6%	8.6%	6.9%	6.9%	8.6%	10.3%	69.0%
Not sure, considering	5.2%	5.2%	0.0%	3.4%	6.9%	3.4%	24.1%
No, already practice it	5.2%	1.7%	0.0%	0.0%	0.0%	0.0%	6.9%
No, not interested/willing to make change	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Will address barriers?							
N/A	12.9%	1.6%	3.2%	3.2%	4.8%	8.1%	33.9%
Yes	4.8%	4.8%	3.2%	1.6%	4.8%	3.2%	22.6%
No	16.1%	8.1%	1.6%	3.2%	4.8%	6.5%	40.3%

	N	Risk Factors	Patient Management	Monitoring Therapy	Education
Physician	22	2.00	5.00	2.59	0.45
APRN	9	1.56	2.00	1.11	0.56
PA	5	1.80	6.20	2.80	0.40
MT	6	0.50	1.50	0.50	0.67
PT	9	1.00	2.11	0.89	0.44

## Declarative Impact of Learning Objectives

Participants were asked whether the learning objectives of the activity impacted various actions that are undertaken in the management of patients with chronic pain and/or opioids. These included assessing patients for the treatment of pain with ER/LA opioid medications, assessing patients for risk of abuse, incorporating other non-opioid or non-pharmacologic mechanisms, and others as listed.

### Conferences

As Table 10 shows, a majority of the participants agreed that the learning objectives of the activity will impact their assessment of patients for treatment of pain with ER/LA opioid medications, assessing patient's risk of abuse, identifying state and federal regulations, incorporating counseling for the safety of opioids, utilizing different providers in the management of these patients, and developing a clinic workflow plan to better manage patients with chronic pain. Participants also agreed that the learning objectives of the activity will impact managing the psychosocial aspects of chronic pain.

	Physician	APRN	PA	Other	Total
Assess for treatment of pain with ER/LA opioids					
Agree	66.9%	12.1%	4.0%	4.0%	87.1%
Neutral	7.3%	2.4%	0.8%	0.0%	10.5%
Disagree	1.6%	0.8%	0.0%	0.0%	2.4%
Assess patients risk of abuse					
Agree	69.1%	12.2%	3.3%	3.3%	87.8%
Neutral	5.7%	3.3%	0.8%	0.8%	10.6%
Disagree	1.6%	0.0%	0.0%	0.0%	1.6%
Identify state and federal regulations					
Agree	65.6%	11.5%	4.1%	3.3%	84.4%
Neutral	9.0%	3.3%	0.8%	0.8%	13.9%
Disagree	0.8%	0.0%	0.0%	0.0%	0.8%
Strategy to start, modify and stop ER/LA opioids					

Agree	60.2%	9.8%	4.1%	4.1%	78.0%
Neutral	13.0%	5.7%	0.8%	0.0%	19.5%
Disagree	1.6%	0.0%	0.0%	0.0%	1.6%
Manage ER/LA opioids					
Agree	56.1%	8.1%	4.1%	3.3%	71.5%
Neutral	17.9%	6.5%	0.8%	0.8%	26.0%
Disagree	1.6%	0.8%	0.0%	0.0%	2.4%
Incorporate counseling for safe use of ER/LA opioids					
Agree	62.0%	10.7%	4.1%	3.3%	80.2%
Neutral	13.2%	4.1%	0.8%	0.8%	19.0%
Disagree	0.8%	0.0%	0.0%	0.0%	0.8%
General and specific drug information					
Agree	59.8%	11.5%	4.1%	3.3%	78.7%
Neutral	14.8%	4.1%	0.8%	0.8%	20.5%
Disagree	0.8%	0.0%	0.0%	0.0%	0.8%
Utilize different providers					
Agree	50.0%	33.3%	0.0%	16.7%	100.0%
Neutral	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Develop clinic work plan					
Agree	50.0%	33.3%	0.0%	0.0%	83.3%
Neutral	0.0%	0.0%	0.0%	16.7%	16.7%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%
Manage psychosocial aspects					
Agree	50.0%	33.3%	0.0%	16.7%	100.0%
Neutral	0.0%	0.0%	0.0%	0.0%	0.0%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%

### Roundtables

While the majority of participants in the roundtables reported similar results as those who participated in conferences, lower numbers were observed in several areas, as shown in Table 11. This was expected as roundtables were case-based presentations and did not as deeply explore the specific details as the three-hour conference presentations. For example, less depth was offered in roundtable discussions about specific ER/LA opioid use or management.

<b>Table 11. Roundtables-Declarative Impact of Learning Objectives</b>							
	Physician	APRN	PA	MT	PT	Other	Total
Assess for treatment of pain with ER/LA opioids							
Agree	27.1%	14.6%	10.4%	0.0%	4.2%	14.6%	70.8%
Neutral	4.2%	2.1%	0.0%	8.3%	6.3%	0.0%	20.8%
Disagree	4.2%	0.0%	0.0%	0.0%	4.2%	0.0%	8.3%
Assess patients risk of abuse							
Agree	32.7%	16.3%	10.2%	4.1%	12.2%	14.3%	89.8%
Neutral	2.0%	0.0%	0.0%	4.1%	4.1%	0.0%	10.2%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Identify state and federal regulations							
Agree	24.5%	14.3%	8.2%	2.0%	4.1%	8.2%	61.2%
Neutral	2.0%	0.0%	2.0%	6.1%	12.2%	6.1%	28.6%
Disagree	8.2%	2.0%	0.0%	0.0%	0.0%	0.0%	10.2%
Strategy to start, modify and stop ER/LA opioids							
Agree	24.5%	14.3%	10.2%	2.0%	4.1%	10.2%	65.3%
Neutral	2.0%	0.0%	0.0%	6.1%	6.1%	4.1%	18.4%
Disagree	8.2%	2.0%	0.0%	0.0%	6.1%	0.0%	16.3%
Manage ER/LA opioids							
Agree	27.1%	14.6%	8.3%	2.1%	4.2%	8.3%	64.6%
Neutral	2.1%	0.0%	2.1%	6.3%	6.3%	6.3%	22.9%
Disagree	6.3%	0.0%	0.0%	0.0%	6.3%	0.0%	12.5%
Incorporate counseling for safe use of ER/LA opioids							
Agree	27.1%	12.5%	8.3%	2.1%	4.2%	10.4%	64.6%
Neutral	8.3%	2.1%	2.1%	6.3%	8.3%	4.2%	31.3%
Disagree	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%	4.2%
General and specific drug information							
Agree	26.5%	14.3%	10.2%	2.0%	4.1%	14.3%	71.4%
Neutral	4.1%	2.0%	0.0%	6.1%	6.1%	0.0%	18.4%
Disagree	4.1%	0.0%	0.0%	0.0%	6.1%	0.0%	10.2%
Utilize different providers							

Agree	34.7%	14.3%	8.2%	4.1%	10.2%	12.2%	83.7%
Neutral	0.0%	2.0%	2.0%	4.1%	6.1%	2.0%	16.3%
Disagree	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Develop clinic work plan							
Agree	33.3%	14.6%	8.3%	4.2%	6.3%	10.4%	77.1%
Neutral	0.0%	2.1%	0.0%	4.2%	10.4%	4.2%	20.8%
Disagree	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%
Manage psychosocial aspects							
Agree	32.7%	14.3%	10.2%	6.1%	8.2%	14.3%	85.7%
Neutral	0.0%	2.0%	0.0%	2.0%	6.1%	0.0%	10.2%
Disagree	2.0%	0.0%	0.0%	0.0%	2.0%	0.0%	4.1%

## Confidence Assessment

Activity participants were asked a series of questions related to their confidence in managing various aspects of chronic pain. These areas included assessing risk of abuse, misuse, or other aberrant behavior, managing pain with a team-based approach and with other non-physician providers, and/or non-opioid and opioid regimens, including other areas of management. We assessed the impact of the activities by asking these confidence questions prior to the start of the activity, and again post-activity. Furthermore, we assessed the post-activity responses by comparing them to a control group of 54 family medicine providers who did not participate or experience any CAIPEC activities.

### Conferences

As shown in Table 12, statistically significant changes in confidence were observed in all areas when comparing pre- to post-activity responses. When compared to the responses of a control group, post-activity responses were also higher, showing greater confidence in most categories. However, there was not a significant change in confidence in managing pain with non-opioid analgesics. This is believed to be secondary to already high initial confidence thresholds in managing pain with non-opioid options.

<b>Table 12. Conferences-Learner Confidence Impact*</b>							
<b>How confident are you...</b>	<b>Conferences</b>						
	<b>Baseline to Post-activity</b>			<b>Education vs. Control group</b>			
	<b>mean diff.</b>	<b>SE</b>	<b>p-value</b>	<b>mean diff.</b>	<b>SE</b>	<b>p-value</b>	
Assessing risk of abuse, misuse or pother aberrant behavior?	0.92	0.08	<.001	0.63	0.18	0.001	
Managing pain with a team-based approach?	1.54	0.23	<.001	0.78	0.30	0.01	
Managing pain with other non-physician providers?	1.52	0.25	<.001	0.41	0.30	0.18	
Managing pain with non-opioid analgesics?	0.87	0.12	<.001	0.36	0.21	0.06	
Managing pain with immediate release opioids?	1.36	0.14	<.001	0.64	0.23	0.006	

Managing pain with ER/LA opioids?	1.43	0.16	<.001		0.76	0.26	0.003
Recognizing signs of aberrant drug related behaviors?	0.71	0.10	<.001		0.56	0.17	0.001
Managing chronic pain patients in your practice?	1.39	0.23	<.001		0.84	0.26	0.002
In prescribing naloxone to opioid users for potential overdose emergencies?	2.71	0.81	0.02		2.19	0.68	0.002
*Based on Likert scale (1=No confidence to 7=Very confident)							
**Comparison of scores from an independent control group to post-activity scores.							

## Roundtables

Roundtable participants also showed statistically significant changes pre to post-activity in all areas of confidence as shown in Table 13. When compared to a control group of participants, roundtable participants showed significantly higher post-activity confidence measures in the areas of assessing risk of abuse, managing pain with team-based approaches, recognizing signs of aberrant drug related behaviors, and overall management of chronic pain patients in practice. There were no significant differences in the area of managing pain with non-opioid analgesics, immediate release opioids, or with ER/LA opioids. As previously stated, roundtable presentations were primarily focused on the areas of risk abuse assessment and overall management of chronic pain. There were no detailed discussions related to specific medications, which may account for the nonsignificant results in these domains.

How confident are you...	Roundtables					
	Baseline to Post-activity			Education vs. Control group**		
	mean diff.	SE	p-value	mean diff.	SE	p-value
Assessing risk of abuse, misuse or other aberrant behavior?	1.36	0.17	<.001	0.54	0.22	0.02
Managing pain with a team-based approach?	1.02	0.18	<.001	0.56	0.28	0.048
Managing pain with other non-physician providers?	1.25	0.28	<.001	0.48	0.28	0.08
Managing pain with non-opioid analgesics?	1.15	0.29	<.001	-0.31	0.28	0.27
Managing pain with immediate release opioids?	1.72	0.29	<.001	0.18	0.31	0.56
Managing pain with ER/LA opioids?	1.58	0.29	<.001	0.52	0.32	0.11
Recognizing signs of aberrant drug related behaviors?	1.31	0.24	<.001	0.49	0.22	0.03
Managing chronic pain patients in your practice?	1.18	0.29	<.001	0.67	0.27	0.02
*Based on Likert scale (1=No confidence to 7=Very confident)						
**Comparison of scores from an independent control group to post-activity scores.						
***Not asked in all activity assessments						



## Competence/Knowledge Assessment

Knowledge and competence in chronic pain management were assessed using a multiple-choice knowledge test that was administered before activities and then again post-activity. In addition, participants were compared to a control group of providers that did not participate in any CAIPEC activity. As shown in Table 14, there were significant changes in scores in the knowledge test for roundtables, conferences, and webcasts. Moreover, activity participants had significantly higher scores compared to the control group for all activities.

	Baseline (% correct)		Post-activity (% correct)		p-value	Control group*		
	mean	SE	mean	SE		mean	SE	p-value
Roundtables (n=62)	64.5%	2.6%	76.3%	2.0%	<.001	62.1%	1.5%	<.001
Conferences (n=136)	53.6%	1.2%	70.2%	1.4%	<.001	62.1%	1.5%	0.001
Webcasts (n=46)	37.8%	2.4%	86.2%	2.8%	<.001	62.1%	1.5%	<.001
All activities (n=244)	53.4%	1.2%	74.6%	1.1%	<.001	62.1%	1.5%	<.001

\*Comparison of scores from an independent control group to post-activity scores.

## Quality Improvement Clinic Study

The nested quality improvement study involved 8 clinics and 20 providers across West Virginia and Kentucky. Our practice facilitators were trained to work with clinics in implementation processes related to the management of patients with chronic pain. All clinics were primary care clinics and members of the Kentucky Ambulatory Network or the WV Practice-Based Research Network. The process included building a multidisciplinary team within the clinic, identifying areas of improvement through a workflow development process, and implementing a QI process within the clinic. In addition to assessments of the QI initiative (Tables 17-23), we measured 16 process outcomes (Table 15), pain levels (Table 16), team functioning measures (Table 24), and an organizational “readiness for change” measure (Table 25). Below are the results of the overall project (8 clinics and 695 chart reviews) on each of these evaluative components.

### Process measures

Overall, we found statistically significant improvements in **10 process measures out of 16**. We saw a 91% improvement in workflow implementation, 12.9% increase in UDS tests ordered in the previous 12-months, and a 10.7% improvement in controlled medication agreements in the charts. We also observed a significant increase in the use of adjuvant medications (11.8%), alternative therapies (8.5%), and other specialists (16.1%). Finally, we found significant improvements in risk assessment (11.9%), mood disorder assessment (8.2%), pain level assessment (15%), and functional assessment (16.2%). Table 15 shows results of the measured process outcomes.

In total, **7 of 8 clinics** significantly improved in at least one (if not all) the process measures that they chose to intervene and improve upon.

<b>Process measure</b>	<b>Baseline</b>	<b>3-month Post intervention</b>	<b>p-value</b>
Use of a clinic opioid policy	99.7%	100%	0.29
<b>Use of a clinic workflow</b>	<b>5.2%</b>	<b>96.2%</b>	<b>&lt;.001</b>
Pain specific physical examination	97.8%	98.4%	0.61
<b>UDS test within last 12 months</b>	<b>44.9%</b>	<b>57.8%</b>	<b>0.001</b>
<b>Controlled medication agreement in chart</b>	<b>38.5%</b>	<b>49.2%</b>	<b>0.004</b>
<b>Use of non-opioid adjuvant medication</b>	<b>71.7%</b>	<b>83.5%</b>	<b>&lt;.001</b>
<b>Use of alternative therapies</b>	<b>38.8%</b>	<b>47.3%</b>	<b>0.02</b>
Use of diagnostic testing	83.4%	86.5%	0.25
Referred to pain management	25.5%	29.7%	0.22
<b>Referred to other specialists</b>	<b>41.2%</b>	<b>57.3%</b>	<b>&lt;.001</b>
Use of pain specific progress note	6.5%	4.3%	0.21
Goals were discussed with patient	7.1%	9.2%	0.31
<b>A mood disorder tool used</b>	<b>32.6%</b>	<b>40.8%</b>	<b>0.03</b>
<b>A risk assessment tool used</b>	<b>4.9%</b>	<b>16.8%</b>	<b>&lt;.001</b>
<b>A pain measure was documented</b>	<b>16.6%</b>	<b>31.6%</b>	<b>&lt;.001</b>
<b>A functional assessment was used</b>	<b>18.4%</b>	<b>34.6%</b>	<b>&lt;.001</b>

### Patient Pain Levels

There were no significant changes in overall patient levels from baseline to 3-month post-QI intervention. This is thought to be secondary to a short 3-month interval period that did not allow adequate time to appreciate any potential pain level changes. Future studies need to allow adequate time for the intervention to occur to assess for pain level changes as this is typically a delayed outcome measure.

	<b>Baseline</b>	<b>3-month Post Intervention</b>	<b>p-value</b>
Pain level (0-10), mean (SE)	6.2 (0.28)	6.5 (0.20)	0.33

## Learner Profile

The Quality Improvement study included providers who were mostly registered with the DEA. Table 17 shows that over 80% of respondents reported prescribing schedule 2 or 3 medications, and over 75% had prescribed at least one ER/LA opioid prescription in the past year. A majority of the participants have been in practice for 6-15 years and few managed a high number (>100) of acute pain or chronic pain patients. Approximately 45% of physicians and 15% of physician assistants reported that approximately 10-25% of their patients with chronic pain were also managed by non-physician providers such as physical therapy, massage therapy, and/or a behavioral specialist.

Are you registered with the DEA?	Physician	APRN	PA	Total
No	0.0%	5.0%	5.0%	10.0%
Yes	75.0%	0.0%	15.0%	90.0%
Are you licensed by the FDA to prescribe schedule 2/3 drugs?				
No	0.0%	5.0%	15.0%	20.0%
Yes	75.0%	0.0%	5.0%	80.0%
Have you written at least one ER/LA opioid prescription in the past year?				
No	0.0%	5.0%	20.0%	25.0%
Yes	75.0%	0.0%	0.0%	75.0%
Number of years in practice				
≤5 years	15.0%	5.0%	5.0%	20.0%
6-15 years	50.0%	0.0%	10.0%	60.0%
16-25 years	10.0%	0.0%	0.0%	10.0%
>25 years	5.0%	0.0%	5.0%	10.0%
Patients managed for acute pain				
≤5	20.0%	0.0%	0.0%	20.0%
6-15	40.0%	0.0%	15.0%	55.0%
16-30	10.0%	0.0%	0.0%	10.0%
31-60	0.0%	5%	0.0%	5.0%
61-100	0.0%	0.0%	5.0%	5.0%
100+	5.0%	0.0%	0.0%	5.0%
Patients managed for chronic pain				
≤5	5.0%	0.0%	0.0%	5.0%
6-15	0.0%	0.0%	15.0%	15.0%
16-30	20.0%	5.0%	5.0%	30.0%
31-60	45.0%	0.0%	0.0%	45.0%
61-100	5.0%	0.0%	0.0%	5.0%
100+	0.0%	0.0%	0.0%	0.0%
Pain Patients also managed by non-physician provider (PT, MT, BS)				
0%	0.0%	0.0%	0.0%	0.0%
10-25%	45.0%	0.0%	15.0%	60.0%
26-50%	20.0%	5.0%	5.0%	30.0%

51-75%	10.0%	0.0%	0.0%	10.0%
>75%	0.0%	0.0%	0.0%	0.0%

### Declarative Impact Statements

Participants were asked whether the implementation they participated in will impact their overall knowledge, clinical performance, and patient outcomes. As reflected in Table 18, 80% of participants agreed that the QI process activity increased their knowledge, will improve their performance in managing patients with chronic pain and will help improve patient outcomes in their practice.

	Physician	APRN	PA	Total
Did this activity increase knowledge?				
Agree	65.0%	5.0%	10.0%	80.0%
Neutral	10.0%	0.0%	0.0%	10.0%
Disagree	0.0%	0.0%	10.0%	10.0%
Did this activity improve performance?				
Agree	70.0%	0.0%	10.0%	80.0%
Neutral	5.0%	5.0%	10.0%	20.0%
Disagree	0.0%	0.0%	0.0%	0.0%
Did this activity improve patient outcomes?				
Agree	65.0%	5.0%	10.0%	80.0%
Neutral	10.0%	0.0%	10.0%	20.0%
Disagree	0.0%	0.0%	0.0%	0.0%

### Declarative Intent to Change practice

As shown in Table 19, over 65% of quality improvement participants stated that they intended to make changes in managing patients with chronic pain as a result of participating in the activity. Approximately 20% were not sure, but were considering making changes as a result of participating in the activity.

	Physician	APRN	PA	Total
Intend to make changes?				
Yes	60.0%	0.0%	5.0%	65.0%
Not sure, considering	10.0%	5.0%	10.0%	20.0%
No, already practice it	5.0%	0.0%	15.0%	15.0%
No, not interested/willing to make change	0.0%	0.0%	0.0%	0.0%
Will address barriers?				
N/A	35.0%	5.0%	15.0%	55.0%
Yes	35.0%	0.0%	5.0%	40.0%
No	5.0%	0.0%	0.0%	5.0%

Table 20 shows that on average, participants stated that they will make 2.15 changes on average in the area of risk factor management, 6.75 changes in patient management factors, just over 2.95 changes in monitoring therapy, and approximately 0.6 changes in the area of patient education related to chronic pain and opioid use.

Specific domain in which willing to make change	N	Risk Factors	Patient Management	Monitoring Therapy	Patient Education
Physician	15	2.73	7.26	3.27	0.64
APRN	1	3.00	13.00	6.00	1.00
PA	4	1.00	2.67	1.00	0.17
Total	20	2.15	6.75	2.95	0.60

### Declarative Impact of Learning Objectives

A majority of participants agreed that the learning objectives of the QI initiative will impact the areas shown below in Table 21.

	Physician	APRN	PA	Total
Assess for treatment of pain with ER/LA opioids				
Agree	65.0%	5.0%	15.0%	85.0%
Neutral	10.0%	0.0%	5.0%	15.0%
Disagree	0.0%	0.0%	0.0%	0.0%
Assess patients risk of abuse				
Agree	50.0%	5.0%	15.0%	75.0%
Neutral	10.0%	0.0%	5.0%	15.0%
Disagree	10.0%	0.0%	0.0%	10.0%
Identify state and federal regulations				
Agree	70.0%	5.0%	15.0%	90.0%
Neutral	5.0%	0.0%	5.0%	10.0%
Disagree	0.0%	0.0%	0.0%	0.0%
Strategy to start, modify and stop ER/LA opioids				
Agree	55.0%	5.0%	15.0%	75.0%
Neutral	15.0%	0.0%	5.0%	20.0%
Disagree	5.0%	0.0%	0.0%	5.0%

Manage ER/LA opioids				
Agree	70.0%	0.0%	5.0%	75.0%
Neutral	5.0%	5.0%	15.0%	25.0%
Disagree	0.0%	0.0%	0.0%	0.0%
Incorporate counseling for safe use of ER/LA opioids				
Agree	60.0%	0.0%	10.0%	70.0%
Neutral	15.0%	5.0%	10.0%	30.0%
Disagree	0.0%	0.0%	0.0%	0.0%
General and specific drug information				
Agree	60.0%	0.0%	10.0%	70.0%
Neutral	10.0%	5.0%	10.0%	25.0%
Disagree	5.0%	0.0%	0.0%	5.0%
Utilize different providers				
Agree	60.0%	0.0%	15.0%	75.0%
Neutral	10.0%	5.0%	5.0%	20.0%
Disagree	5.0%	0.0%	0.0%	5.0%
Develop clinic work plan				
Agree	55.0%	0.0%	15.0%	70.0%
Neutral	10.0%	5.0%	5.0%	20.0%
Disagree	10.0%	0.0%	0.0%	10.0%
Manage psychosocial aspects				
Agree	55.0%	0.0%	10.0%	65.0%
Neutral	15.0%	5.0%	10.0%	30.0%
Disagree	5.0%	0.0%	0.0%	5.0%

### Confidence Assessment

As shown in Table 22, statistically significant changes in confidence were observed in all areas, comparing pre to post-implementation responses. There was not a significant change in confidence in managing pain with non-opioid analgesics or immediate release opioids. This is believed to be secondary to high initial confidence thresholds in managing pain with non-opioid options.



<b>Table 22. Quality Improvement-Learner Confidence Impact*</b>			
<u>How confident are you...</u>	<b>Baseline to Post-activity</b>		
	<u>mean diff.</u>	<u>SE</u>	<u>p-value</u>
Assessing risk of abuse, misuse or pother aberrant behavior?	0.95	0.21	<.001
Managing pain with a team-based approach?	1.00	0.28	=.002
Managing pain with other non-physician providers?	1.26	0.37	=.003
Managing pain with non-opioid analgesics?	0.79	0.52	=.148
Managing pain with immediate release opioids?	0.84	0.45	=.080
Managing pain with ER/LA opioids?	1.11	0.51	=.043
Recognizing signs of aberrant drug related behaviors?	0.47	0.21	=.035
Managing chronic pain patients in your practice?	0.95	0.21	<.001
In prescribing naloxone to opioid users for potential overdose emergencies?***	Na	Na	Na
*Based on Likert scale (1=No confidence to 7=Very confident)			
***Not asked in all activity assessments			

### Competence/Knowledge Assessment

Knowledge and competence in chronic pain management was assessed using a multiple-choice knowledge test that was administered before implementation and then again post-implementation. In addition, participants were compared to a control group of providers that did not participate in any CAIPEC activity. As shown in Table 23, there were significant changes in scores in the knowledge test for the Quality Improvement study. Moreover, activity participants had significantly higher post-implementation scores compared to scores provided by the control group for all activities.

<b>Table 23. Quality Improvement Knowledge Impact (n=18)</b>									
	<b>Baseline (% correct)</b>		<b>Post-activity (% correct)</b>		<u>p-value</u>	<b>Control group*</b>			<u>p-value</u>
	<u>mean</u>	<u>SE</u>	<u>mean</u>	<u>SE</u>		<u>mean</u>	<u>SE</u>		
QI Team	71.1%	3.3%	81.7%	2.7%	=.048	62.1%	1.5%		<.001

### Team Functioning

In Table 24 you will find mean team functioning scores (on a scale of 1-7) for all clinics combined. Many clinics chose to complete each survey as a group, limiting our ability to assess statistical significance, and contributing to possible ceiling effects. The largest increases were found with “I can comfortably disagree with others,” and “I frequently interpret information.”

<b>Table 24. Team Functioning Survey All Clinics (n= 37)</b>		
<b>Item</b>	<b>Pre</b>	<b>Post</b>
I frequently contribute information	5.82	5.86
I frequently interpret information	4.53	5.56
I can comfortably disagree with others	4.10	5.77
I feel free to participate actively	6.02	6.08
I usually propose alternatives	4.87	5.01
I usually evaluate alternatives	5.38	5.24

I frequently participate in making decisions	4.68	5.35
Overall, our team has done its work well this last month	5.68	5.46
In general, our patients receive high quality care	5.93	6.09
Members of our team depend on each other to do our jobs	5.87	5.78
We clearly are a team of people with a shared task – not a collection of individuals who have their own particular job to do.	5.50	5.52
In general members of our team would agree that we have worked well as a team this past month	5.65	5.67
Overall, the difference patient-related jobs and activities that everyone does on this team fit together well.	5.83	5.73

## Readiness for Change

Scores on the Organizational Readiness for Change (ORCA) Survey are presented in Table 25. Values are shown for Kentucky and West Virginia clinics, as well for as all clinics combined. Overall, there was indifference (high response rate to “neither agree/disagree”) on the “evidence”-based items, which evaluated whether participants believe there is a need for change in chronic pain management. This indifference was also shown in the items that made up the “context” assessment score, an evaluation of whether the clinic did or did not frequently work together. After implementation, these scores both increased in each state and in the combined overall score of all clinics. This reveals that after the QI initiative, the clinic participants felt more strongly that there is evidence of a need for chronic pain management and that they can successfully work together to implement the evidence found.

Clinics	Pre		Post	
	Evidence	Context	Evidence	Context
KY	3.3	3.4	↑ 4.0	↑ 3.9
WV	3.5	3.9	↑ 4.5	↑ 4.1
All	3.4	3.7	↑ 4.2	↑ 4.0

\***Evidence** items evaluate whether clinic team members agree/disagree that a change in chronic pain management is necessary. **Context** items evaluate the extent to which the team does (or does not) frequently work together.

\*1 strongly disagree, 2 disagree, 3 neither agree/disagree, 4 agree, 5 strongly agree, 99 don't know/NA (\*99 is assigned a score of 0)

## Population Impact Assessment

Kentucky All Schedule Prescription Electronic Reporting (KASPER) data was obtained from the Kentucky Cabinet for Health and Family Services. Monthly opioid prescription numbers by county were provided from January 2014 to the end of January 2016. Based on county populations, an opioid prescription rate per 10,000 population was derived by month and for each county. Appalachia and non-Appalachia counties were delineated based on the Appalachian Regional Commission (ARC) designations. Intervention counties were defined as those counties that had a residing participant from either a roundtable event or conference event. The pre-activity time period was designated from January 2014 to March 2015. The post-activity time period was designated from April 2015 to the end of January 2016, which encompassed the time period that CAIPEC activities were performed.

Event participants were approximately evenly distributed between non-Appalachia and Appalachia counties. There were approximately 23 counties representing the intervention region. Table 26 shows opiate prescriptions in each of these categories

Overall, Appalachia counties had significantly higher rates of opioid prescribing compared to non-Appalachia regions (1,512 vs. 942 per 10,000 population,  $p < 0.001$ ). When comparing intervention versus nonintervention regions, there were no significant changes in opioid prescribing rates. There were also no significant changes in opioid prescribing rates within intervention regions when comparing the pre- and post-time periods. In addition, there were no significant differences in opioid prescribing rates within the Appalachia region when comparing pre- and post-time periods. The short time intervals between educational activities and prescription rate measures may have contributed in the lack of significant findings. Moreover, there may be a delayed period to appreciate changes in provider prescription practices after being exposed to an educational activity. Interestingly, it was in the non-Appalachia region that statistically significant increases were found in opioid prescribing rates between pre-time to post-time periods ( $p = 0.02$ ). The regions defined as non-Appalachia and non-intervention also showed this increase ( $p = 0.01$ ). While definitive statements cannot be made, and while no impact of the educational activities was shown on opioid prescribing rates within intervention regions, we may at least have *curbed* the tide of prescribing rates as compared to non-Appalachia and non-intervention regions.

<b>Table 26. Population Impact on monthly opioid prescribing rates (per 10,000 population)</b>				
	<b>n (counties)</b>	<b>Mean (per 10,000 pop.)</b>	<b>SE</b>	<b>p-value</b>
Appalachia region*	53	1512	74.4	<0.001
Non-Appalachia region	68	942	30.6	
Intervention region**	23	1162	103.3	0.75
Non-Intervention region	98	1199	50.0	
Intervention regions only				
Pre-time period***	23	1156	101.5	0.22
Post-time period***	23	1170	106.4	
Non-Intervention regions only				
Pre-time period	97	1211	49.8	0.80
Post-time period	97	1212	47.9	
Appalachia regions only				
Pre-time period	53	1514	75.4	0.69
Post-time period	53	1510	73.3	
Non-Appalachia regions only				
Pre-time period	67	952	27.4	0.02
Post-time period	67	962	28.0	
Appalachia and Intervention regions only				
Pre-time period	11	1447	152.6	0.21
Post-time period	11	1471	162.9	
Appalachia and Non-Intervention regions only				
Pre-time period	42	1531	87.1	0.35
Post-time period	42	1520	83.0	

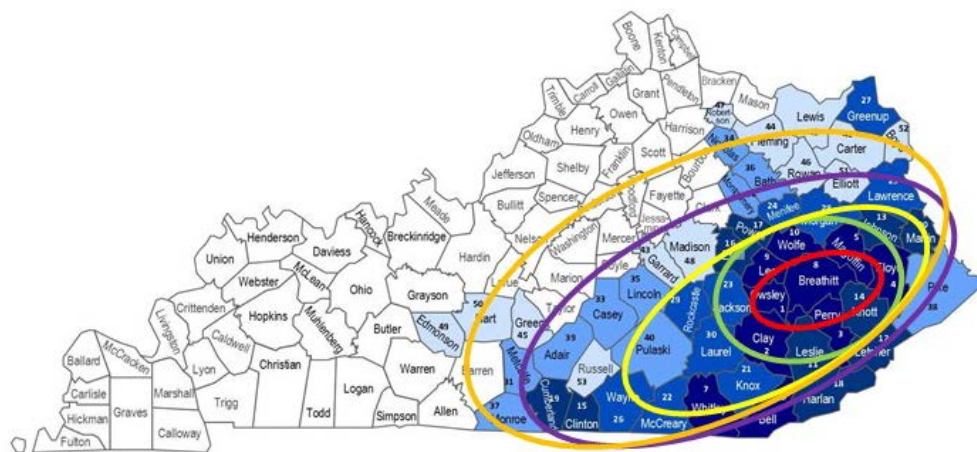
Non-Appalachia and Intervention regions only				
Pre-time period	12	889	80.8	0.71
Post-time period	12	895	82.4	
Non-Appalachia and Non-Intervention regions only				
Pre-time period	55	966	28.5	0.01
Post-time period	55	978	29.1	
*As defined by the Appalachia Regional Commission (ARC)				
**Defined as counties with residing participants of either the CAIPEC roundtable or conference events				
***Pre-period: January 2014 to March 2015; Post-period: April 2015 to January 2016				

The county opioid prescribing rates provided by KASPER were also used to identify “hot spots” in Eastern Kentucky for future targeted interventions. Figure 1 identifies a potential ripple effect with a central cluster of counties having the highest opioid prescription rates and concentric clusters of counties that have lower rates the further removed from this central cluster. Correlation analyses between county opioid rates and concentration of primary care providers and pain management specialists found no significant correlations.

**Figure 1.** Hot spot map of Eastern Kentucky and county opioid prescription rates.

January 2014-January 2106 Kasper Data

Averages:	Rank:	Opioid Rx Rate (per 10,000 people per month)
	1-10	2,938-2,024
	11-20	2,018-1,640
Appalachia 1,512 →	21-30	1,539-1,301
State 1,192 →	31-40	1,285-1,169
Non-Appalachian 942 →	41-53	1,024-442



Kanidinen 4/15/2016