

PROJECT NEXT STEPS:

**Improving the Quality of Chronic Pain
Care in a Statewide Community Health
Center**

Community Health Center, Inc.

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A. Overall Aim and Objectives

Project Next Steps aims to improve the quality of chronic pain management for medically underserved patients cared for in safety net health centers. By using technology and innovative educational strategies the proposed project will enhance the capacity of primary care medical and behavioral health providers to work collaboratively to care for patients with chronic pain. This intervention will combine two advanced nontraditional telemedicine technologies, eConsult platform (an electronic primary care-to-specialist consultation and referral system) and ECHO (Extension for Community Healthcare Outcomes) into an integrated, case-based, distance-learning collaborative system that delivers best practice, specialist expertise and guidance directly to the primary care team and enables them to provide pain care that is evidence-based, safe and effective. The project also has the additional long-term goal to develop a sustainable financial model to support this intervention in the future by bringing additional practices and collaborating with a managed care organization in Massachusetts.

Background: Chronic pain is an extremely prevalent and costly condition that is often overlooked despite the fact that it affects approximately 116 million Americans, with an estimated annual cost of up to \$635 billion in medical treatment and lost productivity (1)(2). Patients with painful conditions account for higher utilization and healthcare costs than those without pain (3-5). Over half of these patients may receive their care in a primary care setting (6). However, evidence suggests that primary care providers are not well-equipped to manage chronic pain effectively. Most PCPs express low confidence in their ability to effectively manage pain (7-11) and receive little or no pain management education during medical training (12-14). Studies show that there is wide variation in the adherence of primary care providers to guidelines for documentation and management of pain (15, 16).

Despite limited evidence for effectiveness (17, 18), opioids are commonly and increasingly being prescribed by primary care providers for the treatment of chronic noncancer pain (11, 19). Since 1990, the use of prescription opioids has increased by a factor of 10 (20), in large part driven by efforts to increase the appropriate recognition of pain through “pain as the 5th vital sign” initiatives. This increase has been associated with marked increase in opioid related morbidity and mortality (2, 20-22). Primary care providers feel caught between the competing needs to treat pain effectively and to avoid contributing to prescription drug abuse and diversion (23). Strategies are clearly needed to support primary care providers and enable them to safely and effectively care for patients with chronic pain.

Quality improvement interventions focused on pain care can improve pain outcomes (7, 24). A recent Washington State initiative aimed at reducing prescriptions for supratherapeutic doses of opioids resulted in a 50 percent decline in prescription opioid-associated deaths (25). In 1998, the Veterans Health Administration (VHA) released its National Pain Management designed to develop a comprehensive, systemwide approach to pain management that reduces

acute and chronic pain (26). Shortly after initiation of the strategy, a collaborative between VHA and the Institute for Healthcare Improvement showed rapid improvements in pain assessment, documentation, education and amount of pain (28). Many of these successes have been sustained (27). Based on this strategy, in 2008, the VHA established the Stepped Care Model for Pain Management (SCM-PM) as the standard of pain care nationwide (29). This model advocates for a stepped series of pain management interventions, starting with assessment and management in primary care and adding on additional levels of multidisciplinary support as patients increase in complexity. Research has supported its utility by evidence of improvements in patient outcomes, such as pain severity, function and depressive symptoms among people with chronic pain (30, 31).

Based on this model, Community Health Center, Inc. (CHCI), in collaboration with the VA Connecticut Health System, implemented Project STEP-ing Out, a three year project to improve the quality of pain care by adapting the SCM-PM to the local context of a large, multi-site community health center and maximizing access and adherence to evidence based care. A significant focus of the initiative was the development of a robust data infrastructure to support the identification of patients with chronic pain and the monitoring of pain-specific outcomes. This was accomplished by deriving and validating a complex identification algorithm for chronic pain and developing a chronic pain practice dashboard for all CHCI primary care providers. In addition, Project STEP-ing Out introduced a standardized approach for managing chronic pain that includes standard follow up visits and structured data collection in the electronic health record, the routine use of opioid agreements and urine toxicology screens, administration of NIH-developed outcome surveys, and oversight by an opioid review committee. In addition, a new service delivery model providing co-located chiropractic services was thoroughly pilot tested and now is being spread to multiple CHCI sites. Lastly, CHCI introduced a mandatory, bi-annual continuing medical education event focused on chronic pain management.

However, further interventions are needed. With the development of a firm foundation through Project STEP-ing Out, CHCI now needs to focus on providing additional support for primary care providers to care for more complex patients, particularly those with co-existent behavioral health needs. Primary care providers, particularly those working in safety net settings, have little or no access to pain specialty centers for consultation or support. Hence this intervention is focused on building the capacity of the primary care team to manage more complex cases. Further education and support is needed from specialists and from behavioral health providers. At CHCI, behavioral health and primary care are co-located and integrated through use of the same electronic medical record. However, cognitive behavioral health interventions specific for pain are not routinely offered to patients. Our current data suggests that less than 25 percent of patients with chronic pain are co-managed by behavioral health, and fewer still receive interventions focused on pain. Evidence is strong that behavioral health treatment can be an important component of pain care and can improve a wide range of

patient outcomes (32-34). The American Pain Society also made evidence-based recommendations on the beneficial use of interdisciplinary rehabilitation, including behavioral health interventions, to treat patients with chronic pain (35, 36).

Project Aims: This proposal, entitled Project Next Steps, is intended to support the continued improvement of chronic pain management, picking up where Project STEP-ing Out leaves off, by focusing on providing education and support for primary medical and behavioral health providers to better manage the more complex cases, spreading the model to other sites, and developing a sustainable financial model. Project STEP-ing Out developed the infrastructure and capacity to manage and monitor patients with less complex chronic pain. However, surveys from primary care providers and chart review data suggest that more support is needed to assist with the management of more complex cases, particularly those featuring both medical and behavioral health problems. Unlike traditional educational interventions, this project will focus on providing direct, case-based learning and case management for complex chronic pain cases by using technology to link primary behavioral health and medical providers to a multidisciplinary team of pain specialists. The intervention is intended to educate and promote the integration of primary care and behavioral health services. The primary care team will have access to two levels of educational support: 1) a weekly video conference between the pain center staff and all participating primary care and behavioral health staff during which cases are presented and discussed as a group, and 2) secure “peer to peer” email consultation for brief, straight forward consultative questions. The combination of these two interventions will provide the primary care staff with ready access to the specialty team and create a dynamic learning environment in which they gradually gain competency and confidence in managing complex pain cases through ongoing case-based learning and support. In addition, by having both the primary care and behavioral health providers working together, this initiative will further foster collaboration between the two disciplines and promote shared learning.

Our data suggests a significant need to provide more robust education and training for providers, and to promote better integration and co-management between medical and behavioral health providers for complex chronic pain cases. While formal CME programs can provide some degree of learning for providers, our proposal focuses on using technology to link primary care providers to specialists to provide direct, case-based learning using two evidence based models, eConsult and Project Extension of Community Health Outcomes (Project ECHO). We propose a novel adaptation of these two models to provide a two tiered mechanism for support, and to include both behavioral health providers and medical providers to further the goal of improving integration of care between these two disciplines.

Electronic consultation (e-Consults) projects have been developed to help address the issue of specialty access for underserved populations and to improve communication between specialists and primary care providers. These projects provide education and direct, case-based support for the primary care provider. Eliminating unnecessary in-person visits saves time,

money, and inconvenience for PCPs, specialist, patient and payors. The results from an eConsult program in San Francisco safety net clinics showed that the need for an actual “in person” consults fell by as much as 50 percent (37). Further, it strengthens the primary care provider’s knowledge and skills by providing expert feedback and teaching in the context of each consultation. CHC has successfully initiated a program of “eConsults” for cardiology referrals. The project utilizes a secure “peer to peer” communication module within the electronic health record. Currently, 20 consultations have successfully been completed using the new eConsult methodology. Although preliminary, our results suggest that primary care providers received enough advice and guidance from the eConsult to manage the case without a face to face consult in 90 percent of cases. For Project Next Steps we propose to extend this model to pain management and provide peer to peer e-consults between a multidisciplinary team of pain specialists and our primary care medical and behavioral health providers.

Project Extension for Community Healthcare Outcomes (Project ECHO), is an evidence based intervention that uses videoconferencing, care coordination, and electronic health record technology to link primary care providers with specialists to improve outcomes for underserved patients who have difficulty gaining access to specialty care. A recent study of the impact of ECHO, published in the New England Journal of Medicine, found that the hepatitis C care delivered by community physicians who participated in ECHO was equivalent or even superior to that provided by specialists practicing in a state of the art academic health center (38). ECHO seeks to establish “communities of practice” that build expertise in primary care providers, improve access to specialty care for those requiring it, and improve retention of primary care providers in underserved communities through reducing isolation. ECHO is a low-cost, spreadable intervention that has the potential to have significant impact on health systems and patient outcomes across the country and around the globe. However, spread of the ECHO model has been limited by lack of financial support and lack of technological infrastructure. CHC has successfully replicated Project ECHO for hepatitis C and HIV care and has been conducting weekly sessions since January 2012. For Project Next Steps, we propose to extend Project ECHO to provide access to evidence-based pain management education across our statewide healthcare system and to evaluate the impact of the intervention on a variety of patient and organizational outcomes. We will recruit primary medical and behavioral healthcare providers from our health centers across the state to participate in a weekly ECHO clinic focused on treating patients with complex pain conditions. In so doing we will provide access to evidence based, multidisciplinary care to over 6,000 patients suffering from chronic pain across CHCI’s statewide primary care network. The pain specialty consultation will be provided by a nationally recognized pain center, the Integrated Pain Center of Arizona (IPCAZ). IPCAZ will conduct the weekly ECHO sessions with a multidisciplinary team of specialists via videoconference, with provider teams from each of CHCI’s practice sites across the state joining in.

Core Health, an Integrated Care Organization under the Massachusetts CMMI State Demonstration Project to Integrate Care for Dual Eligibles, expects to care for 7,000 patients in Massachusetts, focusing on the disabled, dually eligible population under the age of 65. Core Health supports an integrated care delivery systems across preventive, acute, behavioral health and home and community based supports. Chronic pain is a major concern in Core Health's population and as such, this organization will collaborate with CHCI's Project Next Steps to accomplish two main objectives: 1) to recruit additional practices in Massachusetts with large populations of Core Health patients to take part in the Next Steps intervention, and 2) to develop a financial model to sustain the project in the future. Core Health has committed to recruiting at least four additional practices in the Boston Metro area and to providing financial support for the expert pain team at IPCAZ and for each participating Massachusetts practice. Each new health center joining the project will be included in the evaluation using the same tools and outcomes.

Specific Objectives: The principal goal of Project Next Steps is to improve the quality of pain management provided to patients with chronic non cancer pain in primary care. This objective will be accomplished by improving the knowledge, competence, and self efficacy of the primary medical and behavioral health providers to work collaboratively to manage chronic pain. To accomplish this goal, Project Next Steps will have the following specific objectives:

1. Provide primary care providers with access to virtual "curbside" consultation from pain specialists by implementing an eConsult secure messaging system
2. Provide weekly "Project ECHO" case based learning via video conference between a team of pain management specialists and primary medical and behavioral health staff practicing in multiple sites in two different states
3. Increase the number of patients with chronic pain receiving integrated behavioral health and medical care
4. Spread the intervention to additional sites in Massachusetts in partnership with Core Health, a managed care organization caring for the dually eligible population in Massachusetts

B. Technical Approach

I. Baseline Data and Needs Assessment

Demographics: Pain is an extremely common complaint at CHCI. Using a newly developed chronic pain identification algorithm that incorporates coding data, medications, and pain scores, we derived a cohort of patients with chronic pain and analyzed clinical and demographic factors, comparing them to data from patients without chronic pain. **Figure 1** shows details of this cohort's characteristics. Results demonstrate that chronic pain was highly prevalent in the adult CHCI patient population. Of the 38,518 adult patients seen in the

measurement year, 7,491 (19 percent) had chronic pain as identified by our algorithm. These patients utilized primary care services at a much higher rate and accounted for over a third of all adult medical visits, with an average of 7.00 visits per year as compared to 2.90 per year for patients not in the cohort ($p<0.0002$). Patients with chronic pain were predominantly female (63 percent), between the ages of 30 and 59 (73 percent), and covered by Medicaid insurance (67 percent). Thirty-eight percent were Hispanic/Latino and 12 percent were Black. These results demonstrate that chronic pain care represents a significant portion of primary care at CHCI. With extremely limited access to pain specialists for patients with state insurance or without insurance, the vast majority of these patients will need to be managed in primary care, emphasizing the importance of the primary care provider being competent in pain management.

Provider Education: Using two validated surveys we assessed the knowledge, attitudes and beliefs of CHCI primary care providers regarding pain management (**Figure 2**). Surveys were collected at baseline and repeated annually, and results demonstrate a wide distribution of scores on the pain knowledge assessment, with an agency-wide average score of 150 out of a total possible score of 250. These results are similar to those seen in other primary care practices (40) and suggest need to improve pain care knowledge. Responses to the attitudes and beliefs survey questions provided important additional information regarding primary care providers' perspectives about pain care. Providers placed a high priority on being able to provide effective pain care but expressed dissatisfaction with pain management resources and support, and low confidence in their ability to effectively manage chronic pain. Based on these findings, we identified improving pain care knowledge and confidence as a critical need.

Behavioral Health Co-management: Only 19 percent of patients with chronic pain had a visit with a CHCI mental health provider in the past year or had been referred to an outside provider, despite the fact that patients with chronic pain were twice as likely to have a behavioral health diagnosis as patients in the overall clinic population. Given the high rate of coexistent mental health and substance abuse problems in patients with chronic pain, and the challenge of living with a chronic, painful condition, these numbers are extremely low. The Stepped Care Model includes behavioral health and addiction services as a key element of care for all but the most straightforward pain cases (29). We have identified the need for further collaboration between behavioral health and primary care as a principal area of need to further improve pain outcomes at CHCI.

Opioids: We observed wide variation in the use of opioids for pain care, and variable adherence to standards of care for opioid management. Opioids were commonly prescribed to patients with pain, with 43 percent of patients having received an opioid at least once in the measurement year, and 17 percent received 90 days or more of opioid analgesic medications. The number of patients in each provider's panel prescribed chronic opioids ranged from 0 to 110 out of an average patient panel size of 803. We calculated the "percent panel on chronic

opioids” (PPCO), defined as the total number of patients in a provider’s panel receiving 90 days or more of an opioid medication, over the total number of adult patients in that provider’s panel. Results ranged from 0 to 11 percent. Patients taking opioid medications chronically had a documented opioid agreement 68 percent of the time, and a documented toxicology screening test 66 percent of the time. This wide variation further confirms our observation that primary care providers need additional education and support for effective pain management.

Documentation: Review of over 600 patient charts using a rigorous abstraction protocol demonstrated substantial gaps in pain care documentation. Although presence, cause, and source of pain were documented fairly consistently, a functional assessment was rarely documented. In addition, follow up pain assessments at subsequent visits were infrequently performed. Pain treatment plans were present in 96% of charts reviewed for patients receiving chronic opioids for pain management, but 69% of these treatment plans contained only pain medications. Treatment plans rarely included patient education or referral to other specialists. **Figure 3** shows details of our chart review of over 600 patients.

Multimodal Care: Current guidelines recommend a multidisciplinary approach to treatment for patients with complex chronic pain conditions. Such an approach may include the involvement of specialists in physical medicine and rehabilitation as well as behavioral health and complementary/alternative medicine (CAM). Our results suggest that multi-modal care is the exception rather than the rule. Almost no patients with chronic pain were referred to CAM providers, and only 16 percent were referred to psychiatry or physical therapy. This may again reflect the particular difficulty of obtaining specialty referrals for patients cared for in safety net clinics. Alternatively, it may reflect patients’ unwillingness or inability to attend a specialty visit, or a lack of awareness of current guidelines by primary care providers. Surveys of primary care providers have revealed uncertainty about proper chronic pain management and in particular about indications for referrals (41). Taken together, these results demonstrate a significant opportunity to further improve quality of care for patients with pain. Project STEP-ing Out provided support for the development of a rigorous data infrastructure and the implementation of a state of the art practice dashboard as well as policies and procedures to bring structure and closer monitoring for chronic pain management. However, these results demonstrate the importance of building competency in primary care to manage pain effectively in safety net settings. Pain is extremely prevalent, and opportunities for outside specialty support are limited. Providers continue to express low confidence in their abilities to manage chronic pain, and score less than optimally on pain knowledge assessments.

II. Primary Audience

Project Next Steps will address these observed opportunities by providing virtual access to pain specialists to directly coach and support primary care medical and behavioral health providers, who will serve as the primary audience for this intervention. Primary medical and behavioral health providers from each CHCI and Core Health site will be recruited to participate in this one

year intervention and will attend weekly ECHO sessions during which they will present cases and listen to other cases presented by their colleagues. Engagement by the target audience will be assessed by collecting survey data, practice data from the electronic health record, monitoring attendance for ECHO sessions, and conducting chart reviews. Three separate surveys will be administered. Data on Project ECHO pain clinics will be collected each week to monitor the number of clinics attended per clinician, the number of cases presented per clinician and the manner in which each participant connects to the conference (e.g. conference call, teleconference, personal computer, tablet, smartphone).

III. Intervention Design and Methods

Study Design: This will be a non-randomized, controlled trial

Provider Recruitment: We will recruit primary care providers and behavioral health providers from each participating practice site, and recruit additional, case matched control primary care providers not taking part in the intervention. All primary care providers who care for adult patients, including internists, family physicians, and family nurse practitioners will be eligible to participate. All behavioral health providers treating adult clients will be eligible to participate including psychologists, social workers, marriage and family therapists, psychiatrists, and advanced practice registered nurses.

Patients: All patients with chronic pain, identified by our newly validated algorithm, cared for by the intervention provider and the control provider will be included in the analysis. This algorithm (Figure 4), combines data from the electronic health record including opioid medication use, pain scores, and ICD9 scores to identify the presence of chronic pain more accurately than using any of these criteria individually. Pain scores are collected by trained medical assistants as part of the intake process for every patient. Opioid prescribing data is captured through the electronic health record “e-prescribing” tool.

Project ECHO Intervention: The intervention will occur over the course of one year on a weekly basis. Each ECHO session will consist of a half-hour didactic presentation followed by 1.5-hours of case presentation. Outcomes we will observe include provider practice variables, patient outcomes, and organizational outcomes. Over the course of the intervention year, the Project ECHO pain clinic participants will be asked to submit cases to be presented at the weekly clinic. Working together, the primary care provider and the behavioral health provider will choose cases from their shared patient panel for which they have questions and desire a multidisciplinary consultation. Three days prior to the ECHO clinic, providers will record the relevant aspects of the history and identify the principal consult questions using a standardized case presentation form. These forms will be transmitted to the pain center via fax or secure web portal for review prior to the ECHO conference. During the ECHO clinic, each primary care provider/behavioral health provider team will present their cases to the pain center team via video conference. The team will discuss the cases and assist the provider in developing an

appropriate plan of care. The primary care provider will then be responsible for carrying out the plan of care.

eConsult Intervention: In addition to participating in weekly Project ECHO sessions, each primary care and behavioral health provider will be able to send brief “eConsults” to the members of the pain specialty team. These eConsults will be submitted using the eConsult pathway within the electronic health record which has been previously pilot tested and successfully implemented for cardiology consults as part of a separate study protocol. eConsults for pain will be created in the same way that standard referrals are created, with attachment of a treatment summary, relevant results, documents, and specification of the consultative question. The eConsult will be received by the pain specialty team and reviewed within 48 hours. The result will be received by the primary care provider who will be responsible for acting appropriately on the pain team’s recommendations.

Study Outcomes: The principal study outcomes will include provider specific outcomes, patient outcomes, and operational measures to fully assess the impact of the intervention.

i. Provider outcomes

1. Primary care provider knowledge about pain care:
 - a. Pain care knowledge scores (KnowPain 50 assessment)
 - b. Project ECHO knowledge survey
2. Primary care provider self efficacy
 - a. Pain care beliefs survey (Dobscha)
3. Adherence to standards of care for chronic opioid management
 - a. Percent of patients using currently using opioids for 90+ days with an opioid agreement completed/reviewed in the past year
 - b. Percent of patients using currently using opioids for 90+ days with toxicology screening test completed within the past 6 months
 - c. Adherence to charting/documentation guidelines for chronic pain follow up (VA chart abstraction tool)

ii. Patient Outcomes

1. Pain scores, functional assessment, and quality of life
 - a. # of patients with current pain score ≥ 4 and/or ≥ 8 during the intervention year
 - b. # of patients with average pain score in the past month ≥ 4 and/or ≥ 8 during the intervention year
 - c. Average pain interference scores
 - d. Pain Quality of life score

iii. Operational Outcomes

1. Project ECHO: Data on Project ECHO pain clinics will be collected each week to monitor the number of clinics attended per clinician, the number of cases presented per clinician and the manner in which each participant connects to the

conference (conference call, teleconference, personal computer, tablet, smartphone) and process of implementation.

2. eConsult: We will collect operational data on all consults for the intervention and control providers. These data will include the date of each consult request, the date of the consult appointment and/or eConsult response, as well as the recommendations of each eConsultation

Data management: CHCI has an electronic health record system that includes all patient health records. The present study will use data elements from the system. Types of data collected from this source and included in the present study will include primary care performance measures, chart review data, pharmacy prescribing data, referral data, lab data and utilization data (outpatient visits, urgent visits). Extraction methods and privacy and confidentiality procedures will ensure that patient privacy is protected. All patient-level data will be de-identified and aggregated. Patient identifiers are removed and a study ID is assigned to protect patient confidentiality once data are accessed.

IV. Evaluation Design

For the evaluation we will use a quasi-experimental design, mixed methods and a composite of metrics. We will conduct a non-randomized, pre-post intervention with control group design at twelve FQHCs in the state of Connecticut. The intervention period will be 12 months. A pre/post-intervention will be utilized as a measurement system to analyze changes that occurred as a result of the intervention for the intervention and control groups. We will implement matching by key variables (e.g. age, sex, etc) to minimize selection bias between the control group and the intervention group. We will also use quantitative and qualitative methods in combination to provide greater validity and enhanced understanding of the results of the intervention.

The research analysis and evaluation of this multimodal intervention will be done by research staff from CHCI's Weitzman Center for Research and Innovation in Primary Care, and will be focused on the primary goals of the intervention. We will determine the impact of the intervention on a variety of outcomes including provider practice variables, patient outcomes, and organizational outcomes. CHCI will monitor the intervention and its impact on provider and patient measures. Operational data on ECHO Pain sessions and eConsults will be collected prospectively and reviewed regularly by the Principal Investigators, with ongoing evaluation and process improvement during the intervention period.

The evaluation will be guided by questions about the implementation and the scope and impact of the Next Steps Educational Intervention. Quality of chronic pain care will be evaluated by analyzing both patients' and providers' measures. An important aspect of this evaluation design is the use of the same data collecting tools and procedures that provide data on the same metrics we specify in our needs assessment. This will allow us to collect, analyze and report on

data with the same metrics pre- and post- intervention, making it easier to compare data and results. Data will be collected in a cross-sectional manner at the baseline and the end of this pre/post controlled educational intervention. Some of the data collected during the needs assessment will also be used as baseline data.

1. Evaluation Questions:

We propose the following evaluation questions and hypotheses to be tested:

Question 1. Will a multi-modal educational intervention for primary care and behavioral health providers (eConsultation platform, Project ECHO, and enhancing the competencies of behavioral health providers) improve quality of chronic pain care as measured by both patients' and provider's outcomes and experiences of care?

Hypothesis 1: Implementing the multi-modal educational intervention will result in improved quality of chronic pain management by participating providers through:

- a. Improved provider pain management knowledge and self-efficacy
- b. Increased use of multidisciplinary treatment for pain
- c. Decreased inappropriate use of chronic opioid medications for chronic pain
- d. Increased adherence to pain care treatment guidelines for safety/monitoring of opioids
- e. Increased efficiency of referral to Behavioral Health for patients with chronic pain.
- f. Increased percentage of patients with chronic pain who satisfactorily complete a Behavioral Health consultation

Hypothesis 2: Implementing the educational intervention will result in a reduction of pain, improvement in functioning and quality of life for patients with chronic painful conditions managed by providers taking part in the educational intervention.

Question 2. What changes did providers participating in the intervention actually perceive?

Question 3. What are the barriers and benefits of the program as they were experienced by participating providers?

2. Inclusion and Exclusion Criteria:

Providers: Primary care providers and behavioral health providers at participating practices will be invited to take part in the study. All providers who care for adult patients, including internists, family physicians, family nurse practitioners, and behavioral health clinicians will be eligible to participate, if they are not already participating in an ECHO clinic, do not plan on leaving their respective health center for the duration of the study period, and their employment status is at least .8 FTE. We expect 24 eligible primary care providers and 10

behavioral health clinicians to participate in the study. All participants will be assigned an anonymous and unique study identification number which will be used on all study forms. In order to prevent selection bias, providers will have to agree to register in the study all their known chronic pain patients based on predetermined selection criteria. Chronic pain patients will be identified using electronic searching in the electronic health records system. Patient data will be collected through the electronic health records system.

Patients: All patients with chronic pain from both the intervention and control primary care providers' panels will be part of the evaluation. There is no standard definition for "chronic" pain, and no standard mechanism to identify such patients from administrative data exists. CHCI has successfully pilot tested a method using pain scores, ICD-9 codes, and opioid prescribing data. Pain scores are collected by trained medical assistants as part of the intake process for every patient at CHCI. Opioid prescribing data is captured through the electronic health record "e-prescribing" tool. For purposes of the study, chronic pain will be defined through a complex algorithm developed by CHCI that combines pain scores, ICD9 codes, and opioid prescribing data (**Figure 4**). All patients identified as having chronic pain using this algorithm will form the chronic pain cohort for this evaluation.

3. Data Sources and Collection Methods:

Data on a variety of outcomes will be collected at baseline and at the end of the intervention period and will include operational measures, knowledge and attitudes surveys, as well as provider treatment outcomes and patient outcomes. New diagnostic tools, including two new NIH-developed patient assessment tools and a new pain performance dashboard, will be used to evaluate the impact of this project.

The impact of the project will be assessed using the following qualitative and quantitative measures, all of which we have demonstrated the capacity to collect:

- Pain Care Knowledge, Attitudes, and Beliefs: KnowPain-50 Survey (**Appendix A**), (a validated tool for assessing physician pain management knowledge), an 11 item survey assessing attitudes and beliefs about pain care (**Appendix B**), and a pain knowledge survey created by the University of New Mexico Project ECHO program (**Appendix C**).
- Provider practice patterns: pharmacologic management, referrals, adherence to care standards
- Demographics and utilization: demographics, co-morbidity, referrals, behavioral health, clinic utilization, and medication usage, health care costs and utilization
- Patient Pain outcomes: standard pain score (1-10), a new, validated eight question function/quality of life survey (**Appendix D**) and a newly developed survey assessing risk for abuse/misuse of opioids (the COMM survey, **Appendix E**)

Electronic Health Records: CHCI uses the eClinicalWorks (ECW) Electronic Medical Record (EMR) in conjunction with GE Centricity Practice Solution for billing and scheduling management. All data will be retrieved from these two systems, de-identified, and analyzed by the study team. All data retrieval queries will be validated by random chart reviews of at least 25 records. Data elements will include the patient's primary care provider name and degree, their demographics, patient self-reported pain scores, medication prescribing records, laboratory results, opioid agreement use, and behavioral health and medical referrals. The data will be cleansed extensively to adjust for variation in free text charting, particularly in data fields containing medication frequency and dosages. As additional practices in Massachusetts are added we will collaborate with them and with Core Health to collect similar data from their respective systems.

Survey instruments and administration: The KnowPain-50 Survey is a validated tool for assessing physician pain management knowledge (40). To gain contextual information on primary care provider's attitudes and beliefs regarding pain care we added eleven survey questions taken from a VHA-developed survey (7) to the KnowPain-50. Provider perspectives about the intervention will be evaluated using survey tools pre and post implementation. The goal will be to determine baseline and post-intervention experience and perceptions regarding the intervention on multiple domains, including communication with specialists and impact on clinical care of patients.

Chart Reviews: Manual chart reviews will be conducted to determine adherence to current guidelines for documenting care for patients with chronic pain. Additional data sources for the project will include a variety of CHCI operations data and quality measures from the practice management system and electronic health record. We will also be collecting data from CHCI's electronic health record system that includes all patient health records. Types of data collected from this source and included in the present study will include primary care performance measures, chart review data, pharmacy prescribing data, and utilization data (e.g. outpatient visits, urgent visits).

4. Analysis:

Appropriate statistical analyses will be undertaken to test for statistically significant differences between the two study groups. Primary study hypotheses regarding between-group differences on provider measures (e.g. pain management knowledge, attitudes and beliefs about pain care scores, and self-efficacy scores) as well as patient measures (e.g. pain scores, quality of life and functional assessment scores, COMM survey scores) will be examined. The impact of the intervention on different providers' measures including their chronic pain patients' measures will be tested statistically using a 2x2 mixed factorial analyses with an inter factor (intervention group versus control group) and an intra factor (pre- versus post- intervention). We will report on main effects and group \times time interactions.

To determine factors associated with group differences that emerged over time, we will develop regression models for pain scores, quality of life and functional assessment scores with significant group \times time interactions. We will estimate change in the scores from data at the two time points of the study, pre- and post-. These change scores will serve as dependent variables in multiple regression analyses. To establish regression models, we will consider baseline scores, as well as the provider and intervention implementation variables for inclusion as potential predictor variables. Only those variables that correlate with the change scores at a probability of 0.20 or lower will be included. An alpha level of 0.05 will be adopted as the criterion for significance.

5. Methods to control for other factors outside this intervention:

We will take the following steps to filter out any confounding variables: we will use a control group; we will closely match the study's intervention and control groups prior to the intervention; the control group will not receive the intervention. Subjects who decline to participate in the intervention will not be included in the control group. The intervention/control groups and outcome measures will be chosen before the intervention is delivered. Evaluation of chronic pain management knowledge will be made before and after the educational intervention. If we find differences in the characteristics of participants in the intervention and control groups that might influence how they respond to the educational intervention, we will apply more sophisticated techniques that allow a correction of these differences.

Among the quasi-experimental study designs the pre-post control design is the soundest in terms of establishing causality. This design is an improvement on pre-experimental designs in that we can determine whether there is a change in provider knowledge and patient outcomes after the intervention and thus decrease the chances of confounding due to other factors. Therefore, there will be considerable confidence that any differences between intervention group and control group will be due to the intervention. The design allows for many comparisons (i.e. between groups, pre- to post-intervention in one group). Using pre-post control design is also a useful way of ensuring that the study has a strong level of internal validity because the pre-intervention ensures that the groups are equivalent, thus filtering out confounding variables. Additionally, the statistical power can be increased by using the pretest measure as a covariate to statistically equate the groups.

V. Detailed Workplan and Deliverables Schedule

Project Next Steps will be divided into three main phases: Phase 1 (3 months) will be the development phase, Phase 2 (12 months) the intervention phase, and Phase 3 (9 months) the evaluation phase.

Phase 1 (October 2012 to December 2012): Phase one is condensed to three months. This aggressive timeline is feasible given the fact that both Project ECHO and eConsult pilots are already developed and being conducted for other conditions (hepatitis C/HIV and Cardiology). In addition, each of the evaluation tools that will be used during the analysis have been previously pilot tested as well during Project STEP-ing Out. Project Next Steps will pick up directly where STEP-ing Out has left off and will leverage our current experience collecting data on pain management and conducting a thorough evaluation. During phase one, the project team will start by hiring necessary staff and orienting them to CHCI and Project Next Steps. Secondly, CHCI and IPCAZ will work together to finalize the details of the intervention, including development of didactic material, creating a case submission protocol, and establishing and testing the eConsult linkage using Peer to Peer messaging. Video conferencing equipment is already present and fully functional at all CHCI sites and at IPCAZ. Additionally, the study team will present the research project to CHCI's onsite Institutional Review Board for review and approval. Recruitment of primary care and behavioral health care staff for intervention and matched control groups will then be conducted via onsite meetings, emails, and phone contact with the provider teams. After recruitment, the research team will conduct random chart reviews of each intervention and control provider's chronic pain patients and administer baseline surveys.

Phase 2 (January 2013 to December 2013): During phase 2, the team will conduct the intervention, monitor adherence to the study protocols, and collect data on eConsults and ECHO sessions. Data integrity will be carefully monitored to detect early any threats to completion of the research protocol. Additionally, during Phase 2 the project team will collaborate with Core Health to identify no less than four additional Massachusetts practices to join the intervention. Recruitment will be preceded by Core Health's creation of a reimbursement structure that will directly compensate the pain center specialists and provide incentives for primary care practices to join Next Steps as well.

Phase 3 (January 2013 to October 2013): Phase 3 will be dedicated to conducting a comprehensive, mixed methods evaluation of the intervention. This evaluation will include detailed analysis of study variables collected through chart review, surveys, and electronic database queries as well as a qualitative assessment based on focus group interviews with study participants.

	Deliverable	Due Date
Phase 1	Hire and orient RA and RC positions	11/15/12
	Convene a CHCI project advisory committee	11/15/12
	IRB final application	11/25/12
	Develop and finalize brief didactic curriculum	12/1/12
	Create case submission form	12/1/12
	Add IPCAZ providers to CHCI ECW referral list for Peer to Peer eConsults, test linkages	12/1/12
	Recruitment of PCP intervention providers and behavioral health providers	12/15/12
	Recruitment of matched provider control group	12/15/12
	Administration of baseline survey to all intervention and control providers	12/30/12
	Chart reviews for all intervention and control group providers pre-intervention	1/30/12
	Train all intervention providers in eConsult submission	12/30/12
	Train IPCAZ staff in eConsult receipt and response	12/30/12
Phase 2	Case submission for presentation at Project ECHO pain first session	1/5/13 and weekly ongoing
	Cases forwarded to IPCAZ for review prior to each	1/5/13 and weekly ongoing

	session	
	Project ECHO 2 hr session	1/10/13 and weekly ongoing
	eConults “activated” for all intervention staff	1/1/13
	Work with Core Health to finalize financial reimbursement model for Next Steps	3/1/13
	Recruit additional practices in Massachusetts to join the intervention	6/1/13
Phase 3	Adminster 1 yr post intervention surveys	12/30/13
	Conduct 1 yr post intervention chart reviews	3/1/14
	Conduct primary care provider focus group interviews	3/1/14
	Conduct IPCAZ focus group	3/1/14
	Primary Data analysis pre-post and matched control groups	6/1/14
	Prepare final presentation	9/1/14
	Manuscript development	9/1/14

Figure 1: Patient Demographics

		Chronic Pain Cohort	%	Patients not in Chronic Pain Cohort	%	All CHC Patients	%	P-Value, Two-Tail
Demographics	Total Patients	7491		31027		38518		
Sex	Male	2739	37%	12819	41%	15558	40%	<0.0002
	Female	4752	63%	18201	59%	22953	60%	<0.0002
Age	Age 18-29	832	11%	8674	28%	9506	25%	<0.0002
	Age 30-39	1360	18%	6871	22%	8231	21%	<0.0002
	Age 40-49	2131	28%	6545	21%	8676	23%	<0.0002
	Age 50-59	2049	27%	5160	17%	7209	19%	<0.0002
	Age 60-69	821	11%	2642	9%	3463	9%	<0.0002
	Age 69+	298	4%	1135	4%	1433	4%	0.1892
Race	Caucasian	3399	45%	12216	39%	15615	41%	<0.0002
	Black	895	12%	3704	12%	4599	12%	0.9816
	Hispanic	2823	38%	11961	39%	14784	38%	0.167
Visits	1-5 Medical Visits	3200	43%	27505	89%	30705	80%	<0.0002
	6-10 Medical Visits	3015	40%	3103	10%	6118	16%	<0.0002
	11-15 Medical Visits	969	13%	335	1%	1304	3%	<0.0002
	16-20 Medical Visits	235	3%	63	0%	298	1%	<0.0002
	20+ Medical Visits	72	1%	21	0%	93	0%	<0.0002
	Avg Visits/Yr	7.00		2.90		3.70	0%	<0.0002
Pain Scores	Pain $\geq 4 \times 2$	5677	76%	2128	7%	7805	20%	<0.0002
	Pain ≥ 8	5568	74%	6781	22%	12349	32%	<0.0002
Opioids	Any Opioid Rx	3231	43%	2041	7%	5272	14%	<0.0002
	90+ Days Opioid	1308	17%	0	0%	1308	3%	<0.0002
Mental Health	Behavioral Health (BH) Visits	1734	23%	3144	10%	4878	13%	<0.0002
	Referrals to Any BH	1391	19%	3239	10%	4630	12%	<0.0002
	Referral to CHCI BH	1252	17%	2869	9%	4121	11%	<0.0002
Pain Referrals	Physical Med and Rehab	1040	14%	518	2%	1558	4%	<0.0002
	Rheumatology	229	3%	163	1%	392	1%	<0.0002
	# Pts w/ at Least One Referral	3482	46%	2189	7%	5671	15%	<0.0002
Insurance	Medicaid	3110	42%	8185	26%	11295	29%	<0.0002
	Medicare	1248	17%	2909	9%	4157	11%	<0.0002
	Uninsured	660	9%	6804	22%	7464	19%	<0.0002

Figure 2: Primary Care Provider Pain Survey Results

Item Statement	Mean		Std. Deviation		P-value
	<i>Baseline 2011</i>	<i>Time 1 2012</i>	<i>Baseline 2011</i>	<i>Time 1 2012</i>	
<i>Skilled chronic pain management is a high priority for me.</i>	3.74*	4.09	.966	.973	.049**
<i>My management of chronic pain is influenced by experience with addicted patients.</i>	1.15	1.29	.884	1.121	.755
<i>My management of chronic pain is influenced by fear of contributing to dependence.</i>	1.36	1.49	.965	1.160	.733
<i>I have adequate time to manage most patients with chronic pain.</i>	1.81	1.18	1.191	1.248	.006**
<i>Fear of narcotic regulatory agencies/administration influences my decisions regarding chronic pain management.</i>	2.04	2.36	1.318	1.246	.325
<i>Analgesic side effects hinder my efforts to treat patients with chronic pain.</i>	2.17	2.64	1.204	1.151	.060
<i>Patients I treat become addicted to opioids.</i>	2.55	2.87	1.212	1.036	.332
<i>I use an opioid agreement with my patients.</i>	4.45	4.53	1.100	.661	.757
<i>I use a pain assessment or monitoring tool.</i>	3.77	3.11	1.088	1.352	.019**
<i>I am confident in my ability to manage chronic pain.</i>	2.77	2.24	1.220	1.300	.050**
<i>I am satisfied with the quality of resources available to help me manage patients with chronic pain.</i>	1.53	1.78	1.231	1.204	.274
<i>Knowledge assessment score (KP50, total possible score = 250)</i>	150	150			

Figure 3: Chart Review Results

	Baseline 2011		Time 1 2012	
	<i>Opioid Cohort</i>	<i>Pain ≥ 4 Cohort</i>	<i>Opioid Cohort</i>	<i>Pain ≥ 4 Cohort</i>
<i>Presence of pain documented</i>	65.3%	68.3%	71.3% ***	62.7% ***
<i>Provider's functional assessment documentation</i>	6.7%	10.7%	10.7%	8.7%
<i>Provider's cause/source documentation</i>	64.0%	70.7%	66.7%	66.7%
<i>Diagnostic test reviewed</i>	4.7%	5.3%	8.7%	6.7%
<i>Pain medication ordered</i>	100% ***	80.7% ***	100% ***	80.0% ***
<i>Pain consult</i>	10.7%	13.3%	10.7%	14.0%
<i>Documentation of treatment plan</i>	96% ***	85.3% ***	95.3% ***	81.3% ***
<i>Patient education provided</i>	16.0% ***	9.3% ***	18.7%	14.0%
<i>DI ordered</i>	22.0%	30.0%	28.0%	26.7%
<i>Pain reassessed</i>	20.0%	16.0%	28.7% ***	14.0% ***

Appendix

Appendix A: KnowPain-50 Survey

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
1 If my opioid prescribing was investigated tomorrow, I am confident I would pass.	1	2	3	4	5	6
2 When I see consistently high scores of pain rating scales in the face of minimal or moderate pathology, this means that the patient is exaggerating their pain.	1	2	3	4	5	6
3 There is good medical evidence that interdisciplinary treatment of back pain is effective in reducing disability, pain levels, and in returning patients to work.	1	2	3	4	5	6
4 Physical exercise will typically worsen pain and function in patients with arthritis.	1	2	3	4	5	6
5 Under federal regulations, it is not lawful to prescribe an opioid to treat pain in a patient with a diagnosed substance use disorder.	1	2	3	4	5	6
6 Pain complaints and degree of disability always correlate well in patients with chronic pain.	1	2	3	4	5	6
7 Antidepressants usually do not improve symptoms and function in chronic pain patients.	1	2	3	4	5	6
8 A placebo can be used to determine if pain is real.	1	2	3	4	5	6

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9	It is illegal for a physician to prescribe methadone for pain, unless he/she is certified in addiction medicine.	1	2	3	4	5	6
10	An MRI is a good test to identify patients with painful degenerative disc disease because certain findings are consistently predictive of pain.	1	2	3	4	5	6
11	The spinal cord and higher CNS are often involved in generating the symptoms and signs of neuropathic pain, including sensitivity to touch.	1	2	3	4	5	6
12	I can assess patient function and activity status in my office with careful questioning of the patient.	1	2	3	4	5	6
13	Chronic myofascial pain syndrome of the gluteal muscles can cause referred pain down the leg with a similar distribution and feeling as sciatica.	1	2	3	4	5	6
14	I believe that patients who complain of pain out of proportion to its cause are usually drug abusers.	1	2	3	4	5	6
15	Under federal regulations, it is permitted to issue prescriptions that are post-dated.	1	2	3	4	5	6
16	In chronic pain, the assessment should include measurement of the pain intensity, emotional distress, and functional status.	1	2	3	4	5	6
17	Elderly patients cannot tolerate medications such as opioids for pain.	1	2	3	4	5	6
18	I have a good understanding of the general indications for surgery for acute herniated disc.	1	2	3	4	5	6

19	Selective serotonin re-uptake inhibitors (SSRI) are effective treatment for neuropathic pain.	1	2	3	4	5	6
20	I believe that chronic opioid analgesic therapy in a patient over age 40 without past history of addiction is associated with a high risk of opioid addiction.	1	2	3	4	5	6
21	There is good evidence that psychosocial factors predict outcomes from back surgery better than the patient's physical characteristics.	1	2	3	4	5	6
22	Nerve injuries are particularly likely to producing chronic neuropathic pain states.	1	2	3	4	5	6
23	Patients may sleep in spite of severe pain.	1	2	3	4	5	6
24	I know how to obtain information about both state and federal requirements for prescribing opioids.	1	2	3	4	5	6
25	I feel comfortable taking a pain history and writing orders for pain medication.	1	2	3	4	5	6
26	I am confident that I understand state and federal requirements for prescribing opioid analgesics for chronic pain.	1	2	3	4	5	6
27	Chronic, daily pain that has persisted in an unchanging way for years is unlikely to have a clear cause or cure.	1	2	3	4	5	6
28	Early return to activities is one of my primary goals when treating a patient with recent onset back pain.	1	2	3	4	5	6
29	Morphine-induced sedation is only a transient problem and will <i>usually</i> clear with continued use.	1	2	3	4	5	6

30	If the patient can be distracted from her/his pain, this usually means that she/he does not have high pain intensity.	1	2	3	4	5	6
31	In the majority of cases, we have the technology to determine the precise pathologic cause of chronic pain.	1	2	3	4	5	6
32	Long-term use of NSAIDs in the management of chronic pain has higher risk for tissue damage, morbidity, and mortality than long-term use of opioids.	1	2	3	4	5	6
33	When back pain radiates down one or both legs, EMG and nerve conduction studies are usually useful for making a diagnosis.	1	2	3	4	5	6
34	I believe that chronic pain of unknown cause should not be treated with opioids, even if this is the only way to obtain pain relief.	1	2	3	4	5	6
35	Anticonvulsants have established analgesic efficacy for musculoskeletal, nociceptive, or idiopathic pain.	1	2	3	4	5	6
36	The presence of a physiologic basis for pain should be the primary factor when deciding to prescribe opiates.	1	2	3	4	5	6
37	The management of chronic pain with analgesics and adjuvant drugs only is effective in most patients.	1	2	3	4	5	6
38	I understand how to diagnose and treat different types of pain.	1	2	3	4	5	6
39	I feel comfortable calculating conversion doses of commonly used opioids.	1	2	3	4	5	6
40	Changes in vital signs (BP, P, R, T) are reliable indicators of pain severity.	1	2	3	4	5	6

41	Cognitive behavioral therapy is very effective in chronic pain management and should be applied as early as possible in the treatment plan for most chronic pain patients.	1	2	3	4	5	6
42	There is a limit or "ceiling" to the dosage of pure agonist opioids (e.g., morphine) that can be used to control a patient's pain.	1	2	3	4	5	6
43	Persons who fit the profile of a likely drug abuser should never be treated with opioids.	1	2	3	4	5	6
44	I believe the analgesic tolerance to opioids usually limits long-term use.	1	2	3	4	5	6
45	Under federal regulations, there are limits on the number of dosages of opioids that can be prescribed at one time.	1	2	3	4	5	6
46	A 33-year old woman complains of pain "all over" with pain intensity ratings ranging from 4 to 8 on a 0-10 scale, fatigue, forgetfulness, poor sleep, headaches, and dizziness. This symptom complex is most consistent with which of the following? <input type="checkbox"/> Fibromyalgia syndrome <input type="checkbox"/> Chronic fatigue syndrome <input type="checkbox"/> Chronic myofascial pain syndrome <input type="checkbox"/> Depression <input type="checkbox"/> Pain disorder with psychological factors <input type="checkbox"/> Don't know						
47	Which of the (one) following statements is true regarding selective COX-2 inhibitors? <input type="checkbox"/> They cost twice as much as non-selective NSAIDs <input type="checkbox"/> Gastrointestinal injury risk is similar to non-selective NSAIDs <input type="checkbox"/> There is no increased risk for acute myocardial infarction or congestive heart failure <input type="checkbox"/> They are no more effective as an analgesic than non-selective NSAIDs <input type="checkbox"/> Low dose daily aspirin for cardiovascular prophylaxis is not needed when selective COX-2 inhibitors are used <input type="checkbox"/> Don't know						

48 Anticonvulsants and analgesic antidepressants obtain about a 50% response rate (pain intensity reduction in half of patients treated) in neuropathic pain. Which of the following drug classes obtains similar results?

- ☐ Benzodiazepines
- ☐ NSAIDs
- ☐ COX-2 inhibitors
- ☐ Opioids
- ☐ Phenothiazines
- ☐ Don't know

49 Which of the following therapies for fibromyalgia syndrome has been shown to yield the most consistent improvement?

- ☐ Massage
- ☐ Trigger point injections
- ☐ Acupuncture
- ☐ Aerobic exercise
- ☐ Transcutaneous electrical nerve stimulation (TENS)
- ☐ Don't know

50 By far the most common adverse effect of opioid therapy is:

- ☐ Constipation
- ☐ Nausea and vomiting
- ☐ Sedation and cognitive dysfunction
- ☐ Respiratory depression
- ☐ Don't know

Appendix C: Project ECHO™ Chronic Pain Clinic Self-Efficacy Questionnaire

Profession/Role:

Date:

Organization:

1	2	3	4	5	6	7
None or no skill	Vague knowledge, skills or competence	Slight knowledge, skills, or competence	Average among my peers	Competent	Very competent	Expert, teach others

Please use the scale shown above to rate your skills, knowledge or competence in the following issues and topics related to Project ECHO™ Chronic Pain Clinics. Please indicate ? (N/A) if a question does not apply to your position/organization.

Please **fill in** the most appropriate rating bubble for each statement. (N/A↓)

[illegible]

Please **fill in** the most appropriate rating bubble for each statement.

[illegible]

Please rate your skills, knowledge or competence in the following issues and topics related to Project ECHO Chronic Pain Clinics. Please indicate N/A if a question does not apply to your position.

Please fill in the most appropriate rating bubble for each statement.

	1 None or no skill	2 Vague knowledge, skills or competence	3 Slight knowledge, skills, or competence	4 Average among my peers	5 Competent	6 Very competent	7 Expert, teach others	N/A
18. I am confident in my ability to formulate a differential diagnosis for neck pain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I am confident in my ability to formulate a differential diagnosis for low back pain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I understand the concept of “equi-analgesic” dosing of opiates.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I am confident in my ability to communicate effectively with patients and community members about chronic pain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What content area in this clinic has been most helpful to you?

In what content areas would you like additional emphasis to increase your learning in this clinic?

Appendix D: Assessment of the Impact of Pain on Daily Function

English Version

How would you rate your pain **TODAY**?

0 1 2 3 4 5 6 7 8 9 10
Least Worst

What was your **range of pain** over the **last month**? Mark the scale **twice**: once for **least pain**, and then for **worst**.
0 1 2 3 4 5 6 7 8 9 10

		Not at all	A little bit	Somewhat	Quite a bit	Very much
1	How much did pain interfere with your day to day activities?	1	2	3	4	5
2	How much did pain interfere with work around the home?	1	2	3	4	5
3	How much did pain interfere with your ability to participate in social activities?	1	2	3	4	5
4	How much did pain interfere with your enjoyment of life?	1	2	3	4	5
5	How much did pain interfere with the things you usually do for fun?	1	2	3	4	5
6	How much did pain interfere with your enjoyment of social activities?	1	2	3	4	5
7	How much did pain interfere with your household chores?	1	2	3	4	5
8	How much did pain interfere with your family life?	1	2	3	4	5

Please respond to each question or statement by circling one number per row. In the past 7 days...

Please describe **how your pain affects your daily life** by answering these questions

- Have you been to the emergency room, urgent care, or other health care practitioner for your pain since your last visit in this clinic? ☐ No ☐ Yes
- Do you have an appointment with a health care practitioner for your pain? ☐ No ☐ Yes If yes, WHO? _____
- Is your pain relief adequate? ☐ No ☐ Yes If no, please list specific goals that you feel have not been yet achieved on the reverse side of this paper.

MEDICATION

- PAIN RELIEF: On the average, by what percentage do your medications reduce your pain? (0% = no relief, 100% = complete relief)**

Please circle: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- Since your last visit with us have you experienced any of the medication side effects (circle any that apply):**

Nausea sweating drowsiness poor concentration shakiness increased joint pain itching
feeling drunk poor sex drive poor coordination flushing increased tiredness rash
dizziness new headache difficulty urinating constipation new or increased leg or foot swelling

Spanish Version

¿Cómo calificaría su dolor **HOY**?

0 1 2 3 4 5 6 7 8 9 10
Mínimo Lo peor

¿Cuál era su rango de dolor en **el último mes**? Marque la escala **dos veces**: una por el dolor mínimo, y luego para lo peor.

0 1 2 3 4 5 6 7 8 9 10
Mínimo Lo peor

Responda a cada pregunta o declaración marcando una casilla por línea.

En los últimos 7 días ...		Nada	Un poco	Algo	Mucho	Muchísimo
1	¿En qué medida el dolor interfirió en sus actividades diarias?	1	2	3	4	5
2	¿En qué medida el dolor interfirió en el trabajo en el hogar?	1	2	3	4	5
3	¿En qué medida el dolor interfirió en su capacidad para participar en actividades sociales?	1	2	3	4	5
4	¿En qué medida el dolor interfirió en su capacidad para disfrutar de la vida?	1	2	3	4	5
5	¿En qué medida el dolor interfirió en las actividades que hace habitualmente para divertirse?	1	2	3	4	5
6	¿En qué medida el dolor interfirió en su capacidad para disfrutar de actividades sociales?	1	2	3	4	5
7	¿En qué medida el dolor interfirió en sus tareas domésticas?	1	2	3	4	5
8	¿En qué medida el dolor interfirió en su vida familiar?	1	2	3	4	5

Por favor describa cómo el dolor afecta su vida cotidiana respondiendo a estas preguntas:

- ¿Ha estado en la sala de emergencias, atención de urgencia, u otro profesional de atención médica para el dolor desde su última visita en esta clínica? ☐ No ☐ Sí
- ¿Tiene una cita con un profesional de la salud para su dolor? ☐ No ☐ Sí, En caso afirmativo, ¿QUIÉN? _____
- ¿Es adecuado el alivio del dolor? ☐ No ☐ Sí Si no, por favor liste las metas específicas que usted siente que no ha logrado todavía en el reverso de este documento.

MEDICAMENTOS

- ALIVIO DEL DOLOR:** En promedio, por qué porcentaje sus medicamentos le reducen el dolor? (0% = no hay alivio, el 100% = alivio completo)

Marque con un círculo: 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

- Desde su última visita con nosotros ha experimentado alguno de los efectos secundarios de los medicamentos (marque lo que corresponda):

Náusea Transpiración Modorra Falta de concentración Temblor Aumento del dolor articular
Picazón Sensación de embriaguez El deseo sexual pobre Falta de coordinación Lavado Erupción
Aumento del cansancio Mareo Nuevo dolor de cabeza Dificultad para orinar Estreñimiento nueva o aumentada inflamación de la pierna o el pie

Appendix E: COMM Survey

English Version

In the past 30 days...		Never 0	Seldom 1	Sometimes 2	Often 3	Very Often 4
1	How often have you had trouble with thinking clearly or had memory problems?	0	0	0	0	0
2	How often do people complain that you are not completing necessary tasks? (i.e., doing things that need to be done, such as going to class, work or appointments)	0	0	0	0	0
3	How often have you had to go to someone other than your prescribing physician to get sufficient pain relief from medications? (i.e., another doctor, the Emergency Room, friends, street sources)	0	0	0	0	0
4	How often have you taken your medications differently from how they are prescribed?	0	0	0	0	0
5	How often have you seriously thought about hurting yourself?	0	0	0	0	0
6	How much of your time was spent thinking about opioid medications (having enough, taking them, dosing schedule, etc.)?	0	0	0	0	0
7	How often have you been in an argument?	0	0	0	0	0
8	8. In the past 30 days, how often have you had trouble controlling your anger (e.g., road rage, screaming, etc.)?	0	0	0	0	0
9	How often have you needed to take pain medications belonging to someone else?	0	0	0	0	0
10	How often have you been worried about how you're handling your medications?	0	0	0	0	0
11	How often have others been worried about how you're handling your medications?	0	0	0	0	0
12	How often have you had to make an emergency phone call or show up at the clinic without an appointment?	0	0	0	0	0
13	How often have you gotten angry with people?	0	0	0	0	0
14	How often have you had to take more of your medication than prescribed?	0	0	0	0	0
15	How often have you borrowed pain medication from someone else?	0	0	0	0	0
16	How often have you used your pain medicine for symptoms other than for pain (e.g., to help you sleep, improve your mood, or relieve stress)?	0	0	0	0	0
17	How often have you had to visit the Emergency Room?	0	0	0	0	0

Total score (sum of score for each question) _____

Spanish Version

En los últimos 30 días...		Nunca 0	Rara vez 1	A veces 2	A menudo 3	Muy a menudo 4
1	¿Con qué frecuencia ha tenido inconvenientes para pensar con claridad o ha tenido problemas de memoria?	0	0	0	0	0
2	¿Con qué frecuencia alguien se ha quejado de que usted no cumple con sus responsabilidades (por ejemplo, cumplir con lo que debe hacer, como ir a clase, al trabajo o a una cita)?	0	0	0	0	0
3	¿Con qué frecuencia ha tenido que recurrir a otra persona (que no sea el médico que le receta su medicación) para lograr suficiente alivio del dolor con medicamentos (es decir, otro médico, la sala de emergencias, amigos, en la calle)?	0	0	0	0	0
4	¿Con qué frecuencia ha tomado sus medicamentos de manera diferente de como se los recetaron?	0	0	0	0	0
5	¿Con qué frecuencia ha pensado seriamente en hacerse daño?	0	0	0	0	0
6	¿Con qué frecuencia ha pensado en los medicamentos para el dolor (si tenía suficientes, en tomarlos, el horario de administración de las dosis, etc.)?	0	0	0	0	0
7	¿Con qué frecuencia ha tenido una discusión?	0	0	0	0	0
8	¿Con qué frecuencia ha tenido inconvenientes para controlar la ira (p. ej., enojarse al conducir, gritar, etc.)?	0	0	0	0	0
9	¿Con qué frecuencia ha tenido que tomar medicamentos para el dolor que eran de otra persona?	0	0	0	0	0
10	¿Con qué frecuencia se ha preocupado por la manera en que maneja sus medicamentos?	0	0	0	0	0
11	¿Con qué frecuencia otras personas se han preocupado por la manera en que maneja sus medicamentos?	0	0	0	0	0
12	¿Con qué frecuencia ha tenido que hacer una llamada telefónica de emergencia o acudir a la clínica sin cita?	0	0	0	0	0
13	¿Con qué frecuencia se ha enojado con otras personas?	0	0	0	0	0
14	¿Con qué frecuencia ha tenido que tomar una mayor cantidad de medicamento que la recetada?	0	0	0	0	0
15	¿Con qué frecuencia ha pedido prestados medicamentos para el dolor a otra persona?	0	0	0	0	0
16	¿Con qué frecuencia ha usado su medicación para aliviar síntomas que no eran de dolor (p. ej., como ayuda para dormir, para mejorar el estado de ánimo o para aliviar el estrés)?	0	0	0	0	0
17	¿Con qué frecuencia ha tenido que acudir a la sala de emergencias?	0	0	0	0	0

Total score (sum of score for each question)

References

1. Fontaine P, Flottemesch T, Solberg LI, Asche S. Is consistent primary care within a patient-centered medical home related to utilization pattern and costs? *J Ambul Care Manage*. 2011;34(1):10-9.
2. Primary care: America's health in a new era. 1996;395.
3. Kuehn BM. Opioid prescriptions soar: Increase in legitimate use as well as abuse. *JAMA*. 2007;297(3):249-51.
4. Rittenhouse DR, Casalino LP, Shortell SM, et al. Small and medium-size physician practices use few patient-centered medical home processes. *Health Aff (Millwood)*. 2011;30(8):1-10.
5. Landon BE, LeRoi SH, O'Malley AJ, et al. Improving the management of chronic disease at community health centers. *N Engl J Med*. 2007;356:921-34.
6. Rittenhouse DR, Shortell SM, Gillies RR, Casalino LP, Robinson JC, McCurdy RK. Improving chronic illness care: Findings from a national study of care management processes in large physician practices. *Med Care Res Rev*. 2010;67(3):301-20.
7. Holtrop JS, Jordam TR. The patient-centered medical home and why it matters to health educators. *Health Promot Pract*. 2010;11(5):622-8.
8. Rosal MC, Olendzki B, Reed GW, Gumieniak O, Scavron J, Ockene I. Diabetes self-management among low-income spanish-speaking patients: A pilot study. *Ann Behav Med*. 2005;29:225-35.
9. Shin P, Ku L, Jones E, Rosenbaum S. Analysis of the proposed rule on designation of medically underserved populations and health professional shortage areas. April 2008:1-20.
10. Shortell SM, Gillies RR, Siddique J, Rittenhouse D, Robinson JC. Improving chronic illness care: A longitudinal cohort analysis of large physician organizations. *Med Care*. 2009;47(9):932-9.
11. Poleshuck EL, Bair MJ, Kroenke K. Patients presenting with somatic complaints: Epidemiology, psychiatric comorbidity and management. *Int J Methods Psychiatr Res*. 2003;12(1):34-43.
12. Sinsky CA. The patient-centered medical neighbor: A primary care physician's view. *Ann Intern Med*. 2011;154(1):61-2.
13. Solberg LI. How can we remodel practices into medical homes without a blueprint or a bank account? *J Ambul Care Manage*. 2011;34:3-9.

14. Solberg L, Asche S, Flottemesch T, Averbek B, Salazar N, Fontaine P. C-B3-01: Medical homes - relation to quality, cost, and patient satisfaction. Clin Med Res. 2010;8:197.
15. Gilfillan RJ, Tomcavage J, Rosenthal MB, Davis DE, Graham J, Roy JA. Value and the medical home: Effects of transformed primary care. Am J Manag Care. 2010;16:607-14.
16. Solberg LI, Asche SE, Fontaine P, Flottemesch TJ, Pawlson LG, Scholle SH. Relationship of clinical medical home scores to quality and patient experience. J Ambul Care Manage. 2011;34(1):57-66.
17. Stange KC, Nutting PA, Miller WL, Jaen CR, Crabtree BF, Flocke SA. Defining and measuring the patient-centered medical home. J Gen Intern Med. 2010;25(6):601-12.
18. National Association of Community Health Centers. State funding to health centers: Overview 2004-2008. March 2008;0308:1-2.
19. Goldberg DG, Kuzel AJ. Elements of the patient-centered medical home in virginia. Ann Fam Med. 2009;7(4):301-8.
20. American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, American Osteopathic Association. Joint principles of the patient-centered medical home. 2007:1-3.
21. Addington-Hall JM, MacDonald LD, Anderson HR, Chamberlain J, Freeling P, Bland JM. Randomised controlled trial of effects of coordinating care for terminally ill patients. BMJ. 1992;305:1317-22.
22. Redesigning the practice model for general internal medicine. A proposal for coordinated care: A policy monograph of the society of general internal medicine. J Gen Intern Med;22:400-9.
23. Starfield B, Lemke KW, Herbert R, Pavlovich WD, Anderson G. Comorbidity and the use of primary care and specialist care in the elderly. Ann Fam Med. 2005;3:215-22.
24. Dobscha SK, Corson K, Perrin NA, et al. Collaborative care for chronic pain in primary care: A cluster randomized trial. JAMA;301(12):1242-52.
25. Matthias MS, Parpart AL, Nyland KA. The patient-provider relationship in chronic pain care: Provider's perspective. JAMA. 2010;11:1688-97.
26. . 2007 program assessment: health centers. Available at: <http://georgewebush-whitehouse.archives.gov/omb/expectmore/summary/10000274.2007.html>. Accessed July 5, 2011.
27. Stille CJ, Jerant A, Bell D, Meltzer D, Elmore JG. Coordinating care across diseases, settings, and clinicians: A key role for the generalist in practice. Ann Intern Med. 2005;142:700-8.

28. Sullivan MD, Edlund MJ, Zhang L, Unutzer J, Wells KB. Association between mental health disorders, problem drug use, and regular prescription opioid use. *Arch Intern Med*;166(19):2087-93.
29. Sullivan MD, Leigh J, Gaster B. BRIEF REPORT: Training internists in shared decision making about chronic opioid treatment for noncancer pain. *J Gen Intern Med*. 2006;21(4):360-2.
30. Unutzer J, Katon W, Callahan CM, Williams JW, Jr., Hunkeler E, Harpole L. Collaborative care management of late-life depression in the primary care setting: A randomized controlled trial. *JAMA*. 2002;288:2836-45.
31. 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(6):652-5.
32. Reid RF, Coleman K, Johnson EA, Fishman PA, Hsu C, Soman MP. The group health medical home at year two: Cost savings, higher patient satisfaction, and less burnout for providers. *Health Aff (Millwood)*. 2010;29(5):835-43.
33. Reid RJ, Fishman PA, Yu O, Ross TR, Tufano JT, Soman MP. Patient-centered medical home demonstration: A prospective, quasi-experimental, before and after evaluation. *Am J Manag Care*. 2009;15(9):e71-87.
34. Potter M, Schafer S, Gonzalez-Mendez E. Opioids for chronic nonmalignant pain: Attitudes and practices of primary care physicians in the UCSF/Stanford collaborative research network. *J Fam Pract*. 2001;50(2):145-51.
35. Rittenhouse DR, Casalino LP, Gillies RR, Shortell SM, Lau B. Measuring the medical home infrastructure in large medical groups. *Health Aff (Millwood)*. 2008;27(5):1246-58.
36. Reschovsky JD, O'Malley AS. Do primary care physicians treating minority patients report problems delivering high-quality care? *Health Aff (Millwood)*. 2008;27(3):w222-31.
37. Varkey AB, Manwell LB, Williams ES, Ibrahim SA, Brown RL, Bobula JA. Separate and unequal: Clinics where minority and nonminority patients receive primary care. *Arch Intern Med*. 2009;169(3):243-50.
38. Wiedemer NL, Harden PS, Arndt IO, Gallagher RM. The opioid renewal clinic: A primary care, managed approach to opioid therapy in chronic pain patients at risk for substance abuse. *Pain Med*. 2007;8(7):573-84.
39. Harris JM, Jr, Fulginiti JV, Gordon PR, et al. KnowPain-50: A tool for assessing physician pain management education. *Pain Med*. 2008;9(5):542-54.
40. Wolfson D, Bernabeo E, Leas B, Sofaer S, Pawlson G, Pillittere D. Quality improvement in small office settings: An examination of successful practices. *BMC Fam Pract*. 2009;10:14.

41. Yee HR,Jr. The patient-centered medical neighbor: A subspecialty physician's view. Ann Intern Med. 2011;154(1):63-4.

42. Dobscha SK, Corson K, Flores JA. Veterans affairs primary care clinicians' attitudes toward chronic pain and correlates of opioid prescribing rates. Pain Med. 2008;9(5):564-71.