

Running head: DEPRESSION SCREENING

Implementation of Depression Screening to Optimize Chronic Pain Management

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### Acknowledgements

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### Dedication

This work is dedicated to those with lingering pain experiences. Painful people need interested clinicians willing to try to give them relief and understand their suffering. The culmination of this work rests with the hope that more efforts are made to promote comfort to those hurting.

### Abstract

**Background:** Chronic pain affects millions of people worldwide, and the evidence demonstrates prevalent co morbidity of chronic pain and psychological issues such as anxiety, insomnia, and depression. The existence of psychological issues can have negative impact on pain management and compound the challenges inherent to successful management. Although clinical Practice Guidelines (CPG) recommend routine screening for depression, anxiety, and insomnia in all chronic pain patients, many primary care providers fail to routinely perform appropriate screening. The purpose of this project was to implement a practice change that would include screening for depression with chronic pain patients in a rural primary care practice that included seven primary care providers.

**Methods:** The practice change included development and implementation of a screening tool for psychological issues associated with chronic pain. The tool was designed as a technology prompt only found in pain templates within the electronic health record (EHR). The prompt window opens with a pain complaint, asking whether the patient has depression, sleep problems, or anxiety relating to pain. Prior to implementation of the screening prompt providers were introduced to the EHR modification with one to one educational briefing. **Results:** After eight weeks of use, one hundred chronic pain charts were reviewed to determine if the prompt was used and if psychological issues were identified, was appropriate treatment initiated. All seven providers used the prompt with varying degrees of frequency. The prompt was overridden six times. Thirty-one associated problems were discovered. Only two providers treated associated psychological problems when discovered. Depression was discovered four times and treated only

once; sleep problems were found in twenty-one patients but only treated six times; and anxiety was positive in six patients but only two were treated.

**Conclusions:** Initiation of a depression screening tool in the EHR increased the number of patient's psychological assessments during chronic pain evaluation compared to the baseline of zero. Depression screening and initiation of treatment did occur but not at a statistically significant rate. Sleep problems were discovered more than other pain related problems. However, once discovered, it appears that treatments associated problems were not being initiated by the providers. This project demonstrates that an EHR technology prompt can screen for problems associated with chronic pain but does not imply that providers are extensively treating the potentially related conditions when discovered.

**Keywords:** *Chronic pain; Pain management, Depression,*

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## Implementation of Depression Screening to Optimize Chronic Pain Management Opportunity for Improvement

Chronic pain is one of the most common complaints reported by patients seeking primary care (Upshur, Bacigalupe, & Luckmann, 2010). Primary care providers (PCPs) are often the first medical professionals to evaluate the patient with chronic pain, and will solely manage up to 50% of these patients (Anderson, Wang & Zlateva, 2012). In addition to chronic pain, PCPs are faced with co-existing psychological problems and mood disturbances (Upshur et al., 2010). Evidence demonstrates the risk of developing mood disorders and depression is increased in those suffering from chronic pain (Upshur et al., 2010).

Depression alone has been shown to be as high as 87% in patients with chronic pain (Poole, White, Blake, Murphy & Bramwell, 2009). The relationship between pain and depression is significant because poorly controlled pain may lead to depression and decreased effectiveness of pain therapy (Anderson, Wang & Zlaveta, 2012; Chaturvedi, Rao, Sarda, & Suryawanshi, 2014). In contrast, improvements in pain and depression outcomes are noted when both conditions are treated (Rezaei, Taher, Doost, Molavi, Abedi & Karimifar, 2014).

Also noteworthy is that the patient's perception of quality pain control is increased when psychological factors are addressed along with pain (Chaturvedi et al., 2014). While the prevalence of anxiety is less than depression, it is estimated to occur in 20-30% of chronic pain patients, and like depression it is under diagnosed and treated (Kroenke, et al. 2013; Reme, Lie & Eriksen, 2014).

Although evidence demonstrates the co-morbid status of chronic pain and mood disorders (Grattan, Sullivan, Saunders, Campbell, & Von Korff, 2012), screening for mood disorders is not consistently performed in patients experiencing chronic pain (Holmes, Christelis & Arnold,

2012). The American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine both recommend routine depression screening (American Society of Anesthesiologists, 2010). The Institute of Medicine (IOM) recommends providers tailor pain management to individual experiences and assess for underlying psychopathology (Institute of Medicine, 2011).

Unfortunately, providers do not consistently consider the relationship and impact mental health disorders may have on the management of chronic pain (Butterfield, 2013; Holmes, Christelis, & Arnold, 2012). Why providers fail to assess for depression is not fully understood, but barriers such as inadequate training and time limitations have been noted (Upshur et al., 2010; Butterfield, 2013).

Barriers to depression screening in chronic pain patients have been examined. Primary care providers are not always trained or experienced with chronic pain management (Upshur et al., 2010). In addition, PCPs avoid comprehensive chronic pain management for other reasons, most notable because of a lack of time (Butterfield, 2013). It takes significant time to thoroughly evaluate the patient, establish a therapeutic relationship, and develop an individualized plan of care (Skaer, 2014). If barriers to asking about depression are minimized, patients with chronic pain may be treated for underlying depression, resulting in more effective pain treatment outcomes (Bocquier et al., 2013).

Recently, a lack of depression screening and treatment in chronic pain patients was observed in a primary care medical clinic in Southern Arizona. In the clinic it is usual practice for the providers (NPs, DOs, and MDs) to address complaints of pain. However, assessing for and treating depression and other mood disorders are not routinely done. Usual practice is to address only the chief complaint of pain during each visit. In the case of chronic pain, the pain is

addressed, but mood disorder problems are overlooked. The American Society of Anesthesiologists recommends a psychological and behavior health evaluation in patients with chronic pain (See Appendix A). Screening and potentially treating depression will likely improve chronic pain treatments.

This clinic setting has seven provider stakeholders providing frontline care to the local population within an ideal “microsystem” (White & Dudley-Brown, 2012)(p105). The clinic uses the NEXTGEN™ electronic health record (EHR) and is suitable for data collection determining whether depression is treated during pain assessments. Sample data was collected from providers chronic pain treatment encounters to support this observation. Thirty-five charts were reviewed where the patient had a diagnosis of chronic pain. Of the charts reviewed there was no documentation of depression or other mood disorder screening.

A clinical practice change is needed to facilitate screening of depression, anxiety, and insomnia in chronic pain patients. The change incorporates a screening prompt in the EHR. Implementation of the prompt will remind providers to screen for depression, insomnia, and anxiety, and will improve identification and treatment of mental health issues complicating chronic pain management.

### **Review of Literature**

An exhaustive literature search was undertaken to identify evidence that demonstrated improvements in chronic pain outcomes when depression was also treated. The clinical question guiding the search asked ‘In adult patients with chronic pain, does co-morbid depression affect pain management outcomes (medication effectiveness, pain scores, mobility, and quality of life)? Academic Search Complete, CINAHL Complete, MEDLINE, PsycArticles, and PsycINFO were selected for the search because they were most likely to include studies related to pain and



depression. The search was limited to English language, full text, participant age over 18, and publication years between 2007 and present. Key words used in the search included chronic pain, depression, and pain management. Ten studies were ultimately retained and included two randomized controlled trials, two open label studies, two observational cohort studies, three longitudinal questionnaire studies, and one qualitative study. Four key issues were identified across the retained studies: 1) multiple psychological conditions co-existed with chronic pain; 2) psychological conditions negatively impact chronic pain management; 3) management of psychological problems improves if chronic pain is controlled; and 4) a variety of depression assessment tools are successfully used in practice (see Appendices B, C, and D). These key issues underscore the relationship between depression and chronic pain, and the need for practice change to optimize care.

### **Intervention Plan and Implementation**

#### **Project Outcome**

The intent of this project is to demonstrate that, when prompted; providers will assess for depression, insomnia, and anxiety, and implement treatment plans for patients with existing chronic pain.

#### **Theoretical Constructs**

The micro-theory used to guide the project's specific area of practice is the *situation-specific* theory. This theory is focusing specifically on a narrow aspect of practice and the specific needs of a small group. The doctor of nursing practice (DNP) student sees value in the situation specific theory as it relates to practice (Moran & Burson, 2014).

## **Methods**

The content of the EHR technology prompt is derived from the chronic pain clinical practice guideline (CPG) developed by the ASA. The prompt opens as a box with three questions to be answered by the provider in the history of present illness (HPI) section of the EHR in patients presenting to the clinic with a chief complaint of pain. The prompt will seek a yes or no response to three questions: 1) Do you have depression related to your pain? 2) Do you have trouble sleeping related to your pain? and 3) Do you feel anxiety related to your pain? A final option reads *unable to assess at this time*, and may be used if the provider chooses not to respond to the prompt.

## **Intervention Development**

Clinic policy requires all clinical practice changes to be approved by the Director of Clinical Services. Authorization to modify any aspect of the EHR is reviewed by the medical group staff and written permission is pending. Input of the prompt was done in collaboration with the NEXTGEN™ software engineer after project approval (2015). The prompt was developed as a box screening questionnaire and employed by the IT engineer (see Appendix F)

The project stakeholders have been identified as the Director, seven providers, the EHR technology administrator, and one senior executive. A planning and implementation meeting with the Director of Practice Management and the providers took place in the August 2015 staff meeting. At that time the providers were informed of the technology prompt, its purpose, and when it would be available. One-on-one training using consistent language will be provided just prior to implementation (see Appendix G).

**Population**

The participants in the project are primary care providers ( $N = 7$ ) employed by the medical group. The provider mix includes three NPs, two DOs, and 2 MDs. All providers have been employed by the medical between 3 and 7 years. These providers will receive education on the use of the EHR prompt in a one-on-one briefing by the DNP student (see Appendix E). The providers were made aware they are participating in a graduate education project aimed at improving pain treatment.

**Setting**

A primary care medical group setting in southern Arizona was selected to implement the scholarly project. This is a family practice medical group caring for a wide age range. However, the bulk of patients (60%) are in retirement age 55 years and older. There are remaining mixes of younger ages through adult patients who have lower clinic visit frequencies. This group schedules about 2000 appointments monthly. The clinicians are providing primary care to a population catchment area of 55,586 (U. S. Census, 2014).

**Ethical Issues**

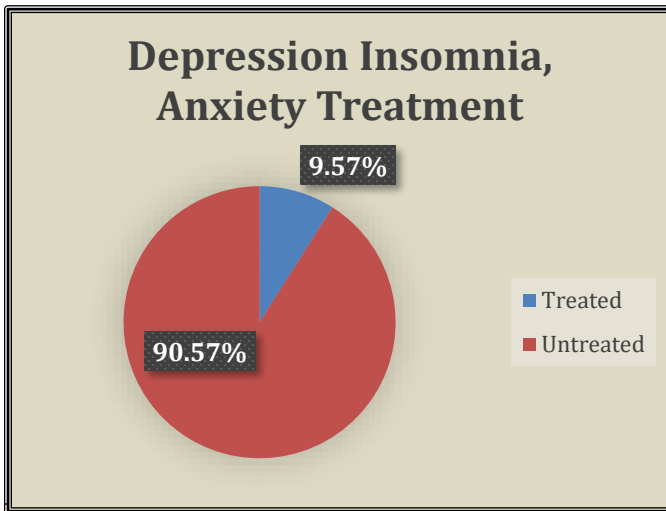
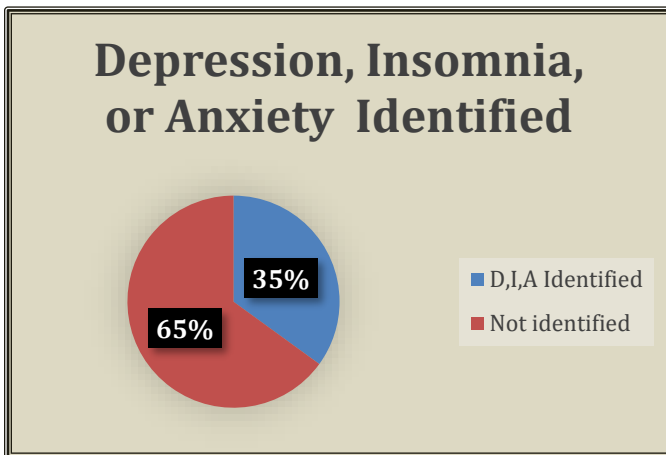
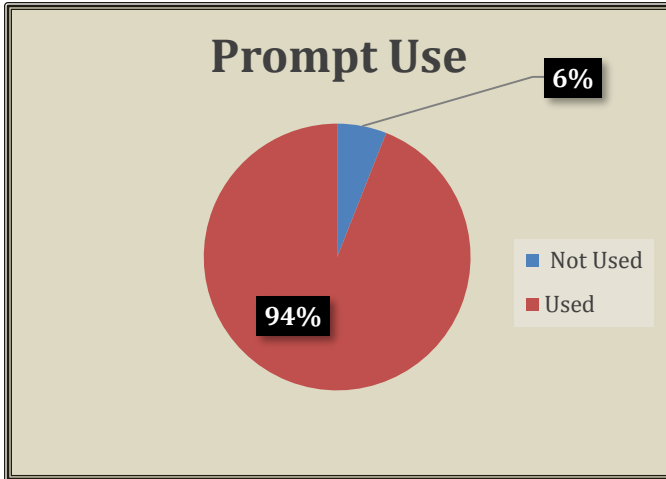
IRB approval was not required. No human experiments were performed. Informed consent was not needed because the participating providers are all employees of the medical group, which has authorized implementation of this practice change. No compensation was given to the providers. Patient confidentiality is protected through de-identification of all data collected and reporting findings in aggregate. The identity of the charts under review is protected by the IT environment security. No individuals except for the project administrator had open access to query the IT data base.

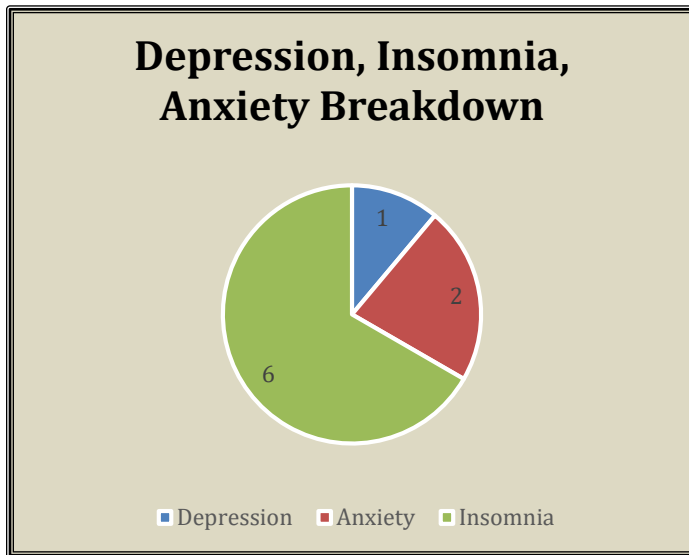
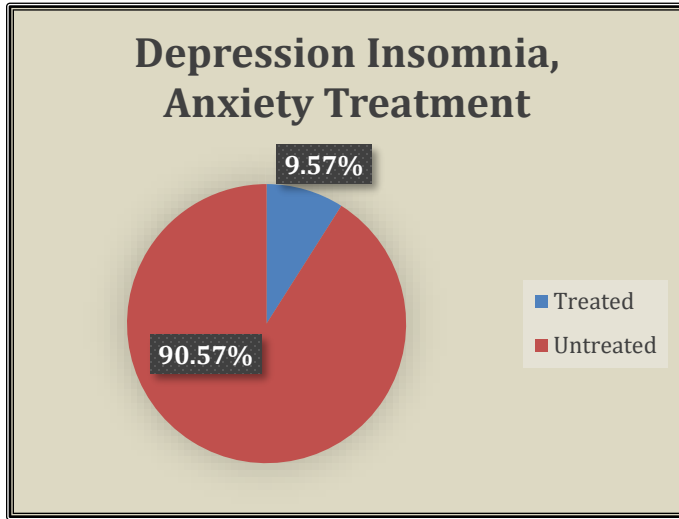
### **Data Collection Plan**

A review of charts was completed eight weeks following implementation. Inclusion criteria for chart review included: 1) an existing diagnosis of chronic pain; 2) the office visit must include a chief complaint of pain; and 3) age over 18. Patients with a pre-existing diagnosis of depression will be excluded. One hundred charts were reviewed. Data was collected on the following: 1) the number of times the prompt was used; 2) the provider seeing the patient; 3) responses to each of the three questions included in the prompt; and 4) initiation of treatment for each of the items in the prompt; depression, anxiety, or insomnia. Treatment is defined as initiation of medication or the referral for behavioral/mental health counseling.

### **Results**

One hundred charts were reviewed during December 15<sup>th</sup>, 2015– January 15<sup>th</sup>, 2016 from the providers chronic pain encounters. The data was collected using a tool (Appendix F). Percentile calculations determined prompt use rates and identification and treatment of co-morbid psychological conditions. The prompt was used 94% of the time. All providers used the prompt with varying degrees of frequency. The prompt was overridden six times. Depression, insomnia, or anxiety was identified in 35% of those screened. Depression was discovered four times and treated only once. Sleep problems were found in 21 patients but only treated six times. Anxiety was positive in six patients but only two were treated. Only two providers treated associated psychological problems when discovered. In total, only 9.5% received treatment for a psychological problem when discovered by the screening prompt.





Initiation of a depression screening tool in the EHR increased the number of patient’s psychological assessments during chronic pain evaluation compared to the baseline of zero. Depression screening and initiation of treatment did occur but not at a statistically significant rate. Sleep problems were discovered more than other pain related problems. Using EHR technology to prompt providers to screen for associated psychological conditions associated with chronic pain did occur most of the time. However, employed treatments to discovered co-morbid pain conditions were lacking greatly.

## **Discussion, Conclusions, and Recommendations**

### **Discussion**

This project demonstrates that an EHR technology prompt can screen for problems associated with pain but does not imply that providers are extensively treating the potentially related conditions when discovered. It is unclear exactly why providers do not always treat co-morbid conditions when discovered during screening. Potentially, providers need enhanced understanding of the value of the data from positive responses and to questions of co-morbid conditions then enact treatment. Advanced Practice Nursing will benefit from the implementation and use of technology screening tools that look for problems known to be associated with chronic conditions. Specific lessons to be learned from the implementation of new technology screening tools are with monitoring the use rate. Observations with frequency of the use of the screening tool and review of responses will improve the value of the technologies outcome toward treatment goals.

### **Conclusion**

Significant evidence in the recent literature has pointed out the need for improved chronic pain care. Using an EHR technology prompt to screen for mood problems with pain assessments has the ability to more completely capture problems often associated with chronic pain. Providers may experience beneficial outcomes for their patients by screening for mood issues and offer potential treatments along with a pain treatment.

### **Recommendations**

Technology prompts are useful tools and should be implemented to screen for co-morbid conditions relating to chronic problems. Education of the providers as well as ancillary staff using technology prompts must be employed. Ancillary staff inclusion in training of new

screening technology will likely improve the rate of usage and communication with positive responses.



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## Appendix A

## Current Clinical Practice Guideline for Chronic Pain

**Guideline Title**

Practice guidelines for chronic pain management. An updated report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine.

**Bibliographic Source(s)**

American Society of Anesthesiologists Task Force on Chronic Pain Management, American Society of Regional Anesthesia and Pain Medicine. Practice guidelines for chronic pain management: an updated report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine. *Anesthesiology*. 2010 Apr;112(4):810-33. [1 reference] [PubMed](#) 

- I. Patient evaluation:
  1. Medical records review or patient condition
  2. Physical examination
  3. **Psychological and behavioral evaluation**
  4. Interventional diagnostic procedures

***Psychosocial evaluation:*** The psychosocial evaluation should include information about the presence of psychological symptoms (e.g., anxiety, depression, or anger), psychiatric disorders, personality traits or states, and coping mechanisms. An assessment should be made of the impact of chronic pain on a patient's ability to perform activities of daily living. An evaluation of the influence of pain and treatment on mood, ability to sleep, addictive or aberrant behavior, and interpersonal relationships should be performed.

## Appendix B

## Synthesis Table 1

*Table 1**Co-morbid Psychological Conditions of Study Participants with Chronic Pain*

Condition	Studies examined									
	1	2	3	4	5	6	7	8	9	10
Insomnia	☐		☐	☐	☐					
GAD	☐	☐	☐	☐	☐	☐				☐
SAD	☐						☐			
PTSD	☐									
Panic disorder	☐									☐

Generalized anxiety disorder (GAD); Social anxiety disorder (SAD); Post-traumatic stress disorder (PTSD).

Studies: 1) Kroenke, et al., 2013; 2) Wetherall et al., 2011; 3) Karp et al., 2010; 4) Navarro et al., 2010; 4) Gianni et al., 2011; 6) Lowe et al., 2008; 7) Bair et al., 2009; 8) Panjabi et al., 2008; 9) Chang, et al., 2007; 10) Smeeding et al., 2010.

## Appendix C

## Synthesis Table 2

Table 2

*Positive Impact of Treatments on Chronic Pain Control and Depression*

Treatments	Studies examined									
	1	2	3	4	5	6	7	8	9	10
CBT	√§	√§								
Duloxetine			√§							
Pregablin				√§						
Buprenorph					√§					
Self-efficacy						√§				
Self-management							√			
Morphine								√§		
Pain adjustment									√	
IHCP										√§

√ = positive impact

§ = statistically significant change

**IHCP**=Integrative Health Clinic and Program **CBT**=Cognitive Behavioral Therapy

Studies: 1) Kroenke, et al., 2013; 2) Wetherall et al., 2011; 3) Karp et al., 2010; 4) Navarro et al., 2010; 4) Gianni et al., 2011; 6) Lowe et al., 2008; 7) Bair et al., 2009; 8) Panjabi et al., 2008; 9) Chang, et al., 2007; 10) Smeeding et al., 2010.



Appendix D

Synthesis Table 3

*Table 3*  
*The Effect on Mood Symptoms from Each Studies Pain Treatment*

	Studies examined									
	1	2	3	4	5	6	7	8	9	10
Chronic depression	↓						↓		↓	
Insomnia						↓				
GAD				↓						
SAD		↓			↓			↓		↓
PTSD			↓						↓	

↓□ = Decrease in symptoms

Properly managed pain is defined as:

Generalized anxiety disorder (GAD); Social anxiety disorder (SAD); Post-traumatic stress disorder (PTSD).

Studies: 1) Kroenke, et al., 2013; 2) Wetherall et al., 2011; 3) Karp et al., 2010; 4) Navarro et al., 2010; 4) Gianni et al., 2011; 6) Lowe et al., 2008; 7) Bair et al., 2009; 8) Panjabi et al., 2008; 9) Chang, et al., 2007; 10) Smeeding et al., 2010.

## Appendix D

## Synthesis Table 4

*Table 4*  
*Tools Used to Assess Pain and Depression*

Treatments	Studies examined									
	1	2	3	4	5	6	7	8	9	10
BPI	☐	☐	☐				☐			
GAD-7	☐									
Beck-20		☐						☐		☐
MADRS			☐							
McGill			☐	☐						
Hospital; EQ-5D				☐		☐				
HAMD-17					☐					
Visual Analogue				☐	☐			☐		
Hopkins							☐			
PPI								☐		
MPI									☐	
PCS									☐	
GDS-SF									☐	

BPI: Brief Pain Inventory; GAD: Generalized Anxiety Disorder; Beck-20: Beck Depression Inventory-II-20-item; MADRS: Montgomery Asberg Depression Rating Scale; McGill: McGill Pain Questionnaire (short); Hospital: Hospital Anxiety and Depression Scale; EQ-5D: ?????; HAMD-17: Hamilton Depression Scale-17-item; Hopkins: Hopkins Symptom Checklist-20 for depression; PPI: Psychosocial Pain Inventory; MPI: Multidimensional Pain Inventory; PCS: The Pain Coping Scale; GDS-SF: Geriatric Depression scale.

Studies: 1) Kroenke, et al., 2013; 2) Wetherall et al., 2011; 3) Karp et al., 2010; 4) Navarro et al., 2010; 4) Gianni et al., 2011; 6) Lowe et al., 2008; 7) Bair et al., 2009; 8) Panjabi et al., 2008; 9) Chang, et al., 2007; 10) Smeeding et al., 2010.

## Appendix E

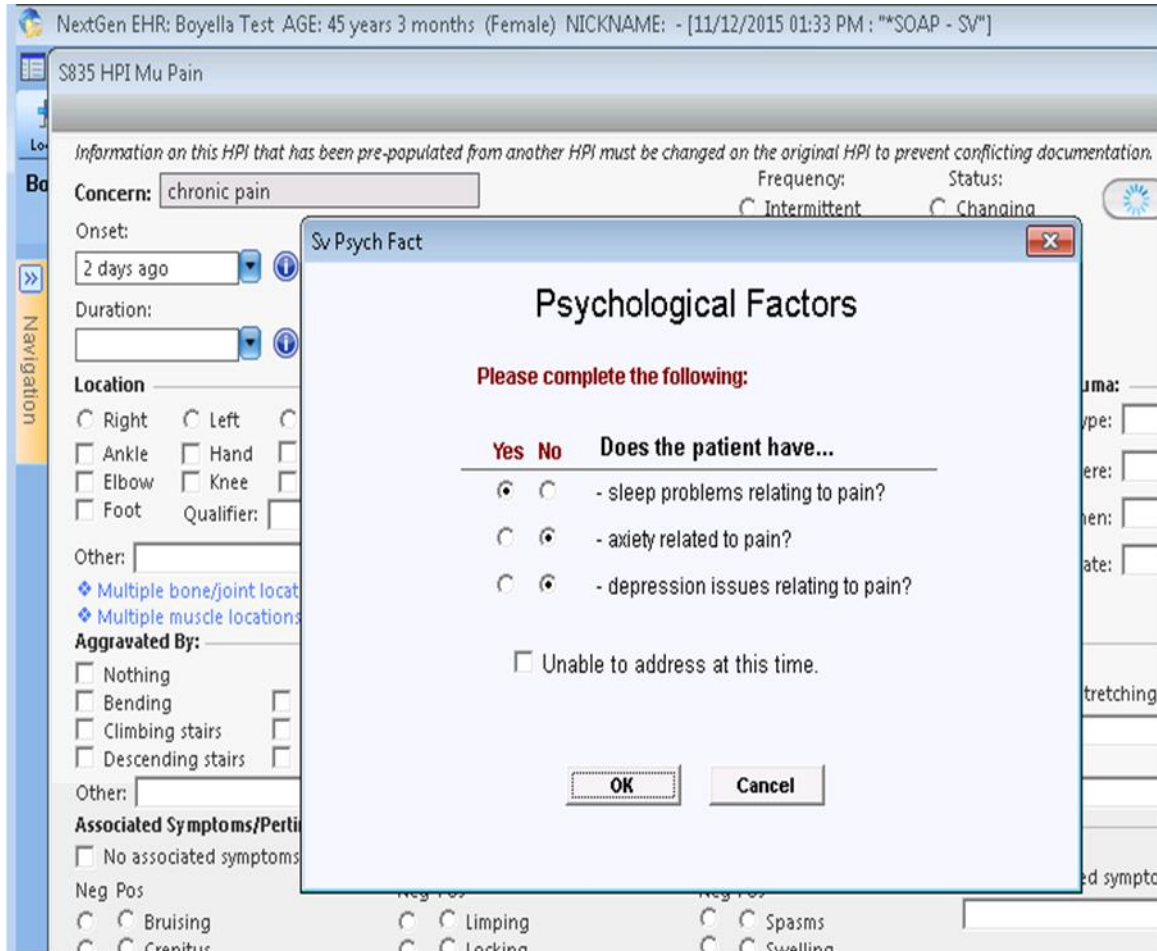
## Provider Training Script

A clinical practice change will be incorporated into the NEXTGEN™ electronic health record. In the month of September, 2015, primary care providers in the medical group will have the opportunity to ask chronic pain patients about psychological issues which may be associated with their pain complaints.

When a patient presents with a complaint of chronic pain noted in the Chief Complaint the provider will see a prompt appear in the History of Present Illness. This prompt will ask (1) *Do you have trouble sleeping because of your pain?* yes or no (2) *Do you feel depressed because of your pain?* yes or no (3) *Do you have anxiety related to your pain?* yes or no. Or, *unable to assess at this time.*

The provider is able to ask about psychological factors associated with chronic pain in a timely manner by acknowledging the EHR prompt.

Appendix F



## Appendix G

Variables Provider Charts reviewed	ST - D	ST - I	ST - A	ST - O	D +	I +	A +	T - D	T - I	T - A
	1DOSL	1	1	1	0	0	0	0	0	0
2RQMD	4	4	4	0	0	0	1	0	0	1
3ZNPB	27	27	27	2	3	17	3	1	6	1
4PNRL	9	9	9	2	0	2	0	0	0	0
5MNOP	15	15	15	0	0	1	1	0	0	0
6FDMB	41	41	41	2	0	0	0	0	0	0
7LPTN	3	3	3	0	1	1	1	0	0	0

Provider variable entered as 1-7 (this de-identifies the providers)

ST - D Screened for depression

ST - I Screened for insomnia

ST - A Screened for anxiety

ST - O Prompt overridden

D + Depression present

I + Insomnia present

A + Anxiety present

T - D Depression treatment initiated

T - I Insomnia treatment initiated

T - A Anxiety treatment initiated

Defined treatment for:

1. Depression= initiation of a mood stabilizing medication or referral to Behavioral Health
2. Insomnia = initiation of a sleep medication or referral to Behavioral Health
3. Anxiety = initiation of an anxiolytic medication or referral to Behavioral Health