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## The Evaluation of the Impact of Controlled Substance Patient Education in the After Visit Summary on Patient Knowledge of Controlled Substance Medication

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Final DNP Project Report

The Evaluation of the Impact of Controlled Substance Patient Education in the After Visit

Summary on Patient Knowledge of Controlled Substance Medication

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College of Nursing

Fall 2018

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### **Dedication**

The work of my DNP project is dedicated to my family, who made sacrifices to lend a helping hand in my DNP journey. To my parents who said, “Do it!” and committed to hours of babysitting, countless cooked dinners, and essential emotional support and encouragement. To my brother John, the grammar king, who helped with Eli’s early mornings, household problems that I couldn’t fix and paper editing that needed his special touch. Finally, to Eli, my biggest joy, daily motivator and constant reminder to continue on this journey toward a brighter future for our family.

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## EVALUATION OF CONTROLLED SUBSTANCE PATIENT EDUCATION

emergency room is unique and special. I consider their support and investment my future practice as a nurse to be the ultimate compliment.

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## Abstract

The use of opioids is associated with risks for misuse, abuse, addiction and diversion, which are directly related to increased healthcare utilization, increased healthcare cost, and poor patient outcomes. The *purpose* of this study was to evaluate the impact of controlled substance (CS) patient education that was implemented into the electronic medical record. The objectives were to 1.) assess whether patients received the CS after visit summary (AVS) and 2.) assess differences in pain management knowledge between those who received the AVS and those who did not. *Methods* This descriptive correlational designed study examined the differences in pain management knowledge between those who did and did not receive the AVS. The study included patients that received care and a prescription for a controlled substance at a primary care office for management of chronic noncancerous pain. Knowledge of the patients' pain medication was measured via an anonymous written survey that was administered by the primary care office front desk staff. *Results* A total of 317 patients met inclusion criteria and therefore their names were given to the front desk staff to offer the survey. Thirty seven useable surveys were returned. There was no significant knowledge difference between the two groups and over all both groups were generally knowledgeable about controlled substances. *Conclusion* Although there was no significant difference in knowledge between the two groups in this study, the literature supports the use of written patient education. The addition of further controlled substance education utilizing different avenues of media would compliment the AVS and be helpful to increase patient knowledge.

# **Evaluation of the Impact of Controlled Substance Patient Education in the After Visit Summary on Patient Knowledge of Controlled Substance Medication**

## **Introduction**

The National Institutes of Health found an estimated 11.2% of adults suffer from pain every day (2015). As a result, more than 249 million opioid prescriptions were written in 2013 (Centers for Disease Control [CDC], 2016). The use of opioids is associated with risks for misuse, abuse, addiction and diversion (Hahn, K., 2011, SAMHSA, 2016). The abuse and misuse is directly related to increased healthcare utilization, increased healthcare cost, and poor patient outcomes (Hahn, K., 2011, SAMHSA, 2016). Patient education has proven to be an effective intervention to increase safety for those prescribed chronic pain medications. The purpose of this study is to evaluate the impact of controlled substance education in the after visit summary on patient knowledge of controlled substance medication.

## **Background**

In the United States, fatal opioid overdoses have increased at an alarming rate. Over 28,000 people died from an opioid overdose in 2014, and since 1999 the death rate from opioid overdoses has more than quadrupled (CDC, 2016). The opioid epidemic has been especially damaging in Kentucky, where the rate of opioid overdoses is almost double the national rate (see figure 1.) (National Institute on Drug Abuse, 2018). From 1999 to 2008, Kentucky reported a 26% increase in its opioid overdose mortality, compared to a national increase of only 10% (Kentucky State Epidemiology Outcomes Workgroup, 2011). The Council of Economic Advisors (CEA) reports that the cost of the opioid crisis is grossly underestimated (2017). When considering forgone earnings, criminal justice cost, increased healthcare utilization and lost

productivity, the CEA reports a low estimate of 221 billion dollars spent on the opioid crisis in 2015 (2017).

Legislation has been written with the intent to address prescription drug abuse. In 2012, House Bill 1 (HB1) was passed in Kentucky to create prescribing, dispensing and reporting standards and to develop a mandate for licensing boards to institute regulations around prescribing and dispensing controlled substances. HB1 required that prescribing providers utilize the state prescription drug-monitor program, Kentucky All Schedule Prescription Electronic Reporting (KASPER), to maintain prescribing awareness of patients' prescription controlled substance histories when making treatment decisions (Cabinet for Health and Family Services, 2018).

Data derived in a post intervention evaluation of HB1 found an expected overall decrease in narcotic prescribing by 4-8%, depending on specific drug, and a decrease in *doctor shopping*. Doctor shopping is defined as filling four or more CS prescriptions at four or more different pharmacies in a three-month period (Freeman, Goodin, Troske, & Talbert, 2015). However, an unintended consequence of HB1 was an increase in Kentucky's heroin overdoses and hospital discharges related to heroin (Freeman et al., 2015). Additionally, the effect HB1 has on patients with a legitimate medical necessity for CS's needs to be taken into consideration. There is qualitative evidence that some providers chose to completely stop prescribing controlled substances after HB1 was passed, thus affecting patients' pain management (Freeman et al., 2015). Other analyses argue patients with a medical necessity for CS have been unaffected (Freeman, et al, 2015). Even after implementation of HB1, controlled substance abuse and misuse continues to be a problem.

In 2016, the CDC responded to the opioid epidemic and lack of provider prescribing knowledge by publishing a guideline to ensure safe prescribing practices. The CDC (2016) Guideline for Prescribing Opioids for Chronic Pain recommends that providers discuss with patients the risks and benefits of therapy at the start and periodically during opioid treatment as a category A (strong evidence) recommendation. Additionally, the guideline addresses when to initiate and/or continue opioids, goals of treatment, alternate therapies, follow up, monitoring requirements, how to assess risks, and additional documentation that is needed when prescribing (CDC, 2016).

In response to the opioid epidemic in Kentucky and an increase in state and federal legislation, a Louisville area healthcare system acknowledged their responsibility to patients and the community by developing a multidisciplinary task force to evaluate the issue within their healthcare system. The group established a mission to guarantee appropriate, responsible and judicious prescribing of controlled substances to ensure patient safety and compliance with state and federal regulations. The task force works to achieve this mission by meeting the following goals: implementing system process changes, providing education and feedback via audits, giving lectures and communicating with providers about prescribing CS, implementing drug take backs, optimizing technology within care delivery and educating patients. The efforts of the group are evaluated at a monthly meeting. Overall the task force has seen a downward trend in the number of controlled substances prescribed by the healthcare system, which is especially significant due to a steady increase in the number of practicing providers.

The healthcare system had taken steps to educate providers about the CDC guideline and evaluate the systems prescribing trends, but had not provided educational resources for patients. Recognizing this gap, the task force utilized the 2016 CDC Guideline for Prescribing Opioids for

Chronic Pain to implement patient educational resources on controlled substances into the electronic medical record (EMR). The patient education was devised from the 2016 CDC guideline and peer reviewed by the task force, medical directors, and a literacy specialist within the system to ensure the content was complete and at a fifth grade reading level. Beginning in February of 2018, the CS patient education was attached to all patients' after visit summary (AVS) every time an opioid was prescribed. The AVS included safety highlights from the CDC guideline. Building CS discharge information into the EMR is a helpful way to reinforce the CDC guidelines regarding provider/patient discussion of therapy risk and benefits, side effects, and safe storage and disposal.

Addressing the issue of increasing opioid addiction and overdose begins with providing clear patient education about CS at the time the prescription is issued (Hahn, 2011; McCarthy et al., 2015; Hero, McMurtry, Benson, & Blendon, 2016; CDC, 2016). Written education has proven to be successful in increasing knowledge in safety areas such as driving and storage/disposal of medications (McCarthy et al., 2015; Rose et al., 2015). Patient education can influence a patient's decision to operate a motor vehicle while taking CS, decrease misuse behaviors, increase knowledge of safe use, storage and disposal and result in positive behavioral consequences (Rose, Sakai, Argue, Froehlich, & Tay, 2015; McCauley, Back, & Brady, 2013; McCarthy et al., 2015; Hero et al., 2016).

It is difficult to measure the potential effect of increased patient knowledge and safe CS usage because the effects of CS misuse and abuse are global. However, since evidence supports the notion that education increases patients' knowledge of storage, disposal, and use, (McCarthy et al., 2015; McCauley et al., 2013; Rose et al., 2015) one could hypothesize that CS diversion, related motor vehicle accidents, and misuse behaviors would be positively affected. Use of the

CS AVS could increase patient knowledge, thereby reducing opioid overdose and related problems.

Implementation of patient education is the first step to addressing patients' knowledge of their controlled substances. The Health Belief Model is based on the understanding that a person will take health related action if they believe a negative outcome can be avoided, that a recommendation can help, and that they can successfully implement the recommendation (Rosenstock, 1974). In applying the Health Belief Model to this project, one could argue that providing education to patients about how to safely use their prescribed CS would increase knowledge and awareness of potential negative outcomes, thus encouraging the patient to implement recommendations.

Abuse of CS's has increased nationally and specifically in the state of Kentucky. Interventions must be implemented to curb this problem. Integrating a controlled substance AVS compliments the CDC guideline by reiterating safety concerns discussed by the provider and could theoretically reduce morbidity and mortality.

The purpose of this project is to evaluate medication knowledge of a sample of adult primary care patients with chronic non-cancer pain currently prescribed a CS who have and have not received the CS AVS. The overall goal is to evaluate the effect of the AVS on patients' knowledge of controlled substances by meeting the following objectives:

Objective 1: Assess whether patients received the CS AVS

Objective 2: Assess differences in pain management knowledge between those who received the AVS and those who did not.

## **Methods**

This was a descriptive correlational design study to examine differences in pain management knowledge between those who did and did not receive the AVS. The study included patients that received care and a prescription for a controlled substance at a primary care office for the management of chronic pain.

### **Setting and Sample**

The study took place in two primary care offices located in Louisville, Kentucky (Jefferson County). The primary care offices were chosen for inclusion in the study because they are in the top five primary care offices in the healthcare system for prescribing CS. Both offices are located within Louisville but in different residential areas. One office is connected to a hospital and the other is located in a shopping center.

For this study, inclusion criteria were adult (>18 years of age) primary care patients with chronic pain currently prescribed a controlled substance. The population for this study included all genders and ethnicities. Exclusion criteria were patients chronically prescribed a controlled substance for cancerous pain, pediatric patients (<18 years of age) and patients that were prescribed a controlled substance for an acute diagnosis (defined by the CDC as three months or less) (2016). Development of exclusion criteria was due to differences in pain management goals in these populations. Additionally, any new patients presenting to establish care were excluded so as not to add to the paperwork that needs to be filled out on the first visit. The addition of another document to complete when establishing care was seen as burdensome. New patients were also excluded because they did not have an established relationship with the office.

## Measures

Knowledge of the patient's pain medication was measured via written survey. Patients were surveyed from August 2018 to September 2018. To meet objective one, the survey included a question asking if the patient had ever received any information/education on the AVS or discharge paperwork about the management of their controlled substances. They were given the choice of yes, no or unsure.

To meet objective two, data was collected using the pain medication knowledge survey, which was developed for this project from two sources. The Patient Pain Questionnaire (PPQ) is a 16 question ordinal scale developed in 1987 to evaluate the knowledge and experience of basic chronic cancer pain management, and has been tested and proven reliable and valid (Ferrell, Rhiner & Rivera, 2003). The PPQ is divided into subscales: a nine-question knowledge section and a seven-question experience section. The nine-item questionnaire gave the patients the option to agree or disagree with the statement on an ordinal scale (0 = agree to 5 = strongly disagree).

For the purposes of this study, only some of the nine-question knowledge portion were utilized and adapted for use in chronic pain, and included all questions related to noncancerous pain. Additional questions added related to the recommendations of the 2016 CDC Guideline for Prescribing Opioids for Chronic Pain. The survey included ten questions in total, some from the PPQ, some derived from the CDC Guideline for Prescribing Opioids for Chronic Pain recommendations and one asking if they recalled receiving the AVS education.

## **Procedures**

Participants were recruited by reviewing daily patient schedules at both offices. The primary investigator (PI) reviewed both primary care offices' patient schedules weekly to determine if the patient met the above inclusion criteria. For those patients meeting inclusion criteria, the PI reviewed the medicine list for any controlled substances. If a controlled substance was listed on the patient's medication administration record (MAR), the PI then evaluated the diagnosis requiring treatment and how long the medication had been prescribed to ensure the inclusion criteria of chronic (>3months) noncancerous pain was met.

Once the patient was determined to meet inclusion criteria, the PI collected demographic data (age/sex/race). Demographic data was collected on all patients meeting inclusion criteria versus just those that chose to participate so patients could remain de-identified. The daily list of eligible patients was provided to the front office staff. When the patient presented to the office for their scheduled appointment, the office staff provided standard registration care and then presented the cover letter with the attached survey to the patient. If the patient chose to be included, they completed the survey and returned it to the office staff. The office staff placed the survey in a locked box and the PI picked up surveys weekly. If the patient did not want to participate for any reason, the survey could simply be thrown away. The survey was completely anonymous and had no patient identifiers on it. The PI had no way to know how many surveys were distributed by the front desk staff. The inability to document this number was due to IRB restrictions. Prior to the start of the study, approval from the University of Kentucky Institutional Review Board (IRB) and the Office of Research and Administration at the healthcare system was obtained.

## **Data Analysis**

All analysis was conducted in SPSS Version 22 and charts were constructed in Microsoft Word and Excel. Descriptive statistics were used to describe the demographic data of the 317 eligible patients including frequencies, standard deviations and means. A two sample T-test was utilized to compare the survey responses between the two groups, those that received the survey versus those that did not.

## **Results**

Between the two offices, a total of 317 patients met inclusion criteria, and therefore their names were given to the front desk staff to offer the survey. There were 47 surveys returned, ten of which were unusable because they were filled out incorrectly or incompletely, resulting in 37 useable surveys. The response rate was 12%.

Demographic data was collected on the 317 eligible patients from both offices and combined. The mean age was 61 years (SD=11.956), with the youngest patient 29 years old and the oldest 95 years old. Fifty eight percent (n=184) of the sample were female. Eighty four percent (n=265) were Caucasian, African Americans were 15% (n=48) and other ethnicities were 1% (n=4). Demographic data of the sample can be seen in Table 1.

Of the survey responses, 49% said they received the education and 51% answered they did not recall ever receiving any education about their controlled substances (objective one). When evaluating if there was a difference in knowledge between the two groups (objective two), the data showed no statistical significance between those that received the education and those that did not. Data on each question response is illustrated in Table 2.

Interestingly, there were some themes noted on specific questions. Of both the patients that received the education and those that did not, most strongly agreed with question six (I plan to dispose of extra, unused and expired medication) and question seven (I take medication as directed and prescribed). Alternatively, both groups most strongly disagreed with questions one (treatments other than medication can be effective i.e. alternative therapies), four (side effects include drowsiness, constipation and nausea), and question five (pain medication can affect breathing).

## **Discussion**

### **Demographics**

The sample demographics were obtained on all eligible patients via chart review and were similar at both offices. Examination of the sample showed that 58% were female, which is consistent with previous literature proving women utilize healthcare more often than men (Bertakis, 2000). Additionally, the sample was heavily Caucasian (84%). The remaining part of the sample was African American (15%) and 1% was considered other. The race and sex demographics of the sample are consistent with those in Jefferson County (US Census Bureau, 2017).

In this study both objectives were met by use of a survey. Patients were offered a ten-question survey by the primary care office to evaluate if the education was received (objective one) and if there was a difference in knowledge between those that received the education versus those that did not (objective two).

## **Objective I**

Of the sample, 49% reported they received the written education in the after visit summary. The other 51% percent of the sample reported they did not receive the education or were unsure.

Interestingly, when the AVS was implemented into the electronic medical record it was formatted to automatically attach when any controlled CS was prescribed. The implementation of the AVS was in February of 2018 and patients were surveyed in August and September of 2018. Because their prescribing providers see chronic CS patients every three months, all the patients should have received the education.

The fact that only 49% reported receiving the education, yet the entire sample should have received the education on their AVS, may speak to the avenue that the education was delivered. Approximately 51% of patients were unaware, did not see, or did not understand the education. The literature indicates that written education, audio/video tapes and lectures have a positive effect on patient knowledge and have proven to be more effective than solitary discussion or verbal education (Friedman, Cosby, Hatton-Bauer, and Turnbull, 2010; Trevena, L., Davey, H., Barratt, A., Butow, P., & Caldwell, P., 2006, Theis and Johnson, 1995; Dunn, K., Yopez-Laubach, C., Nuzzo, P., Fingerhood, M., Kelly, A., Berman, S., and Bigelow, G. 2017). Pervious studies implementing written and computerized CS education found increases in knowledge for those participating (Dunn et al., 2017 & Rose, 2015). Employing multiple educational strategies and addressing patients' specific needs resulted in better patient outcomes (Friedman et al., 2010, Theis, 1995; Jeste, Dunn, Folsom, and Zisook, 2006).

Additionally when utilizing written patient education, consideration for literacy levels can increase knowledge (Friedman et al., 2010). Structured and tailored education with the

addition of illustrations aids understanding (Trevena et al., 2006). The AVS was reviewed and edited by a literacy expert within the healthcare system to ensure it was readable at a 5<sup>th</sup> grade level, but no illustrations were included.

## **Objective II**

When evaluating the knowledge of the sample, there was no significant difference between the two groups, and overall the group was knowledgeable about their controlled medications. This raises the question of whether the sample received education from another source. The CDC guideline outlines discussion points that providers must have with patients at the start of and periodically during treatment so the sample could have received education from the prescribing provider (2016). The literature indicates written education that is summarized verbally can increase effectiveness and retention of knowledge (Friedman et al., 2010; Trevena, 2006). This study did not evaluate if the patient received additional controlled substance education, so provider education or other means could be confounding variables effecting patient knowledge.

The purpose of the education was not to be a resolution to the opioid epidemic, but rather a measure to increase patient safety in hopes to prevent further misuse, addiction, and diversion of CS. Because prescription opioids are often diverted for improper use and can be a bridge to less expensive illicit drugs such as heroin, safe use of controlled substances is of great importance (SAMHSA, 2016). Additionally, research shows that for each dollar invested in prevention, a savings of up to \$10 in treatment for alcohol or other substance abuse can be seen (National Institute of Drug Abuse [NIDA], 2003). Although there was not great significance in knowledge differences between the two groups in this study, the Health Belief Model argues that

repeated and continued education on the topic can only help reinforce the awareness of potential negative outcomes, thus encouraging the patient to implement recommendations (Rosenstock, 1974).

## **Limitations**

A limitation to this study included the small sample size. Two of the top five prescribing offices within this healthcare system were included in this study, but the results could be more generalizable if all five offices were included. The feasibility of this would be difficult for a sole investigator due to the time needed to review charts for eligible patients.

An additional limitation was the low response rate of 15%. The PI presented a list of eligible patients to the front desk staff daily but it was not routine for front desk staff to offer surveys to specific patients, making it easily forgotten on busy days. Additionally, some patients declined to answer the survey, which was expected due to the sensitive nature of the topic. In future studies with a similar design, adding an electric flag to eligible patient charts in the EMR may be a helpful way to remind the front desk to offer the survey.

The fact that the survey was adapted and designed for this study versus a validated survey also presents a limitation. There was no available validated survey to meet the needs of this project. Implications for future research would be the development of a validated survey to evaluate controlled substance knowledge of patients that are chronically prescribed controlled substances for noncancerous pain.

A final limitation was that responses were self-reported. It should be considered that patients might have answered questions differently out of concern for loss of therapy. The question, 'I take my medication as prescribed by my provider,' was the most strongly agreed

response. Was this accurate or were patients responding with what they thought the provider would want to hear? This limitation was considered when developing the design of the study. The survey was anonymous and no demographic information was asked on the survey with the hopes that patients would feel more comfortable to respond truthfully.

## **Research Implications**

The demographics of this study were not diverse. The sample was more heavily female and Caucasian. If future research is done on the subject, including a larger sample from different areas of Jefferson County would be helpful to greater understand the educational needs of the area.

There was no significant difference in knowledge between the two groups and they were generally knowledgeable about their controlled substances. This raises the question of what are the most effective educational methods for patients to learn. Although research has been done on the effectiveness of educational methods it would be interesting to evaluate what methods patients within this healthcare system find most helpful. Because this sample was knowledgeable about their controlled medications, it would be relevant to research where patients received their knowledge and what methods they found helpful to obtain this knowledge.

Interestingly, this sample of patients did not feel that use of alternate therapies were effective in the relief of their chronic pain. Previous literature on alternate therapies had mixed findings. Systematic reviews of interventions for chronic pain, such as Pilates, Tai Chi, acupuncture, and herbal medicines, found a short term clinically relevant effect on pain but had difficulty providing any strong recommendations due to the lack of studies with adequate sample sizes free of bias (Rubinstein, S., Middelkoop, M., Kuijpers, T., Ostelo, R., Verhagen, A., Boer,

M., Koes, B. & Tulder, M., 2010; Wells, C., Kolt, G., Marshall, P., Hill, B. & Bialocerkowski, A., 2014). This may explain why this patient population found alternative therapies unhelpful when treating their chronic pain.

Alternatively, to the above findings there were some positive results in regard to psychological interventions in the treatment of chronic pain. Interventions such as mindfulness and cognitive behavioral therapy have seen reductions in healthcare utilization, patient reported pain, and self care techniques to manage pain, but further research is needed on the most efficacious dose and delivery methods of these modalities (Pike, A., Hearn, L. & Williams, A., 2016; Berman, R., Iris, M., Bode, R. & Drengerberg, C., 2009; Knoerl, R., Laviorie Smith, E. & Weisberg, J., 2016; Wetherell, J., Petkus, A., Alonso-Fernandez, M., Bower, E., Steiner, A. & Afari, N., 2015).

### **Practice Implications**

Although all of the patients in this study should have received the education, only half of the sample recalled receiving the AVS. Written instruction allows the patient to decide whether or not to read the education provided. This presents an opportunity for providers to highlight and directly draw attention to the AVS so patients are aware of the education. Adding additional verbal instruction was found to be more effective than just one teaching method (Friedman et al., 2010; Trevena et al., 2006). Furthermore, the research supports access to other forms of education in addition to the AVS to increase patient knowledge (Friedman et al., 2010; Trevena et al., 2006; Theis et al., 1995; Jest et al., 2006; Dunn et al., 2017). There is an opportunity to help implement additional educational resources on CS for patients.

Side effects were a knowledge deficit for both groups. It is possible that this sample of chronic pain patients were tolerant or complacent to the medication's side effects such as nausea, constipation and drowsiness. Another consideration is that a clear knowledge deficit is present. A practice implication for healthcare providers would be to focus on this area when educating patients about CS.

### **Conclusion**

Opioid addiction, misuse, and diversion continue to be a health concern for the state of Kentucky and the nation. Preventative measures and patient education must be provided when controlled substances are prescribed. This study demonstrated no significant difference in patient knowledge of controlled substances between those that received the after visit summary education and those that did not. The literature supports the use of written patient education but notes there is an increased effectiveness with more than one form of education. Further implementation of resources for patients to learn about controlled substances and research on the topic is needed.

## Appendix A

### Copy of After Visit Summary

#### Management of Controlled Substance Patient Education

##### What You Need To Know:

You have been given a controlled substance prescription. A controlled substance is a medicine that is monitored or regulated by the government because they can be improperly used or abused. People can become addicted to these medicines. Controlled substance medicines are often used for:

- Pain
- Sleeping problems
- Worry
- Anxiety
- Cough or colds

There are risks to taking these types of medicines including the possibility of:

- Physical drug dependence – You may not be able to stop using the medications. When you try to stop, you may have withdrawal symptoms and strong cravings for the medications.
- Drug tolerance - When you need to use more medications, or use them more often, to get the effects you want.
- Addiction – When a person uses the controlled substance to get high instead of using them to control the medical problem. You will have the urge to continue using the medications even when you know the risks.
- Drug overdose - When a person takes more medications than their body can handle. This may be a small amount or a large amount of medication.

The risks are greatest when the medicine is taken for long periods of time or not taken correctly.

The goal of treatment is to improve pain, function and help you feel better. These medications will not completely relieve all your pain or cure your medical problem.

It is important to discuss with your health care provider the goal of treatment with these medicines. You need to have a plan to stop the medicine as soon as your medical problem is better.

##### Safety Measures:

- These medicines should only be taken as directed by your healthcare provider.
- Keep medicines locked up and out of reach of children.
- Do not take medication in front of children as they are likely to mimic your behavior.
- Do not drink alcohol while taking these medicines. Drinking alcohol with a controlled substance can cause your breathing to slow or stop.
- Do not drive while taking these medicines. You can become drowsy and fall asleep.

- Taking a controlled substance while pregnant can be harmful to your baby. Let your provider know you are pregnant immediately to discuss possible risks.
- When medicines are no longer needed, you should safely dispose of the medicines. Studies have shown that many people who become addicted to these medications used someone else's medication found in their home. In Louisville, medication drop boxes are located at:

Jefferson County Sheriff's Office  
 531 Court Place  
 Louisville, KY  
 (502) 574-5400  
 Monday-Friday 8am-4pm

St Matthew's Police Department  
 3940 Grandview Ave  
 Louisville, KY  
 (502) 893-9000  
 Monday- Friday 8am-4pm

Find other locations at:

-Kentucky Drug Disposal Location Look Up <https://odcp.ky.gov/Pages/Prescription-Drug-Disposal-Locations.aspx>

-DEA Drug Disposal Location Look Up <https://apps.deadiversion.usdoj.gov/pubdispsearch/spring/main?execution=e1s1>

-Walgreen Pharmacies – Some Walgreens have a safe disposal program. Look up the closest location at [www.walgreens.com/storelocator/find.jsp?RxDisposal=true](http://www.walgreens.com/storelocator/find.jsp?RxDisposal=true)<<http://www.walgreens.com/storelocator/find.jsp?RxDisposal=true>>

If you are unable to access these locations, there are ways to safely throw away medications at home. Some medicines can be flushed to prevent unintended access by others.

-Refer to the FDA website to check your specific medicine [www.fda.gov](http://www.fda.gov)<<http://www.fda.gov/>>

-The Kentucky Poison Control Center ([www.kypoisoncontrol.com](http://www.kypoisoncontrol.com)<<http://www.kypoisoncontrol.com/>>) can answer questions. Medical staff are available through the hotline 24 hours a day at 1-800-222-1222.

Medication Side Effects:

- Breathing too slow or stopped
- Drowsiness/tiredness
- Dizziness
- Constipation
- Nausea and vomiting
- Itching
- Dry mouth

It is important to talk with your healthcare provider about any side effects you experience.

CALL 911 or have a family member call if:

- Breathing is slower than normal
- You cannot be awakened
- You have a seizure

Talk with your healthcare provider about other ways to manage pain:

- Apply heat on the area of pain 20-30 minutes every 2 hours as directed to help decrease pain and muscle spasms.
- Consider other Medications. Talk to your healthcare provider about different medication options.
- Go to physical therapy as directed. Physical therapist help teach you exercises to decrease pain and improve your quality of life.
- Exercise for 30 minutes, 3 times a week. Regular physical activity can decrease pain and improve movement and strength.
- Get enough sleep. Create a bedtime routine. Go to sleep and wake up at the same time every day. Avoid afternoon caffeine.
- Talk with a counselor or therapist. Untreated depression or anxiety can worsen pain symptoms. A type of counseling called cognitive behavioral therapy (CBT) can help your pain by changing the way you think about it. CBT can also improve your mood, sleep, and the way you move.

Follow Up With Your Healthcare Provider:

- You will need to go to your provider often when taking these medicines. The provider will need to check to see how the medicine is working. Make sure you go to all appointments.
- Call your provider if:
  - o Your medical problem has changed
  - o You are having side effects that are concerning to you. Some of the side effects can be helped by changing the dose of the medicine.
  - o You have any questions or concerns

## Appendix B

### Copy of Patient Survey

#### Controlled Medication Survey

**Directions:** There are nine short questions. Read the question and decide if you agree or disagree with the statement. Then circle a number to indicate the degree to which you agree or disagree. All questions are scored on a 0-5 scale. 0 is you agree and 5 meaning you disagree.

#### Questions

**1. Treatments other than medications (such as massage, heat and relaxation) can be effective for relieving pain.**

Agree 0 1 2 3 4 5 Disagree

**2. There is a risk of dependence and addiction when taking controlled substances.**

Agree 0 1 2 3 4 5 Disagree

**3. The goal of treatment is to improve pain and function but complete relief of pain may not always be likely.**

Agree 0 1 2 3 4 5 Disagree

**4. Side effects of my medication include drowsiness, constipation, and nausea.**

Agree 0 1 2 3 4 5 Disagree

**5. Pain medication can be dangerous and effect breathing.**

Agree 0 1 2 3 4 5 Disagree

**6. I plan to dispose of extra, unused or expired medications at a disposal sight.**

Agree 0 1 2 3 4 5 Disagree

**7. I take my medication as directed and prescribed by my healthcare provider.**

Agree 0 1 2 3 4 5 Disagree

**8. I keep my medications locked up.**

Agree 0 1 2 3 4 5 Disagree

**9. I do not drive while taking my controlled substance.**

Agree 0 1 2 3 4 5 Disagree

**10. Have you ever had any information/education on your After Visit Summary or Discharge paperwork about your controlled medication?**

YES \_\_\_\_\_ NO \_\_\_\_\_ UNSURE \_\_\_\_\_

*You have completed the entire survey. Thank you greatly for your time and thought. All these responses will be kept completely confidential. If you have any questions at a later time you have my contact information and feel welcome to call or email me.*

## References

- Berman, R., Iris, M., Bode, R. & Drengerberg, C. (2009). The effectiveness of an online mind-body intervention for older adults with chronic pain. *The Journal of Pain*, 10(1), 68-79. doi: 10.1016/j.jpain.2008.07.006
- Bertakis, K. (2000). Gender difference in the utilization of health care services. *The Journal of Family Practice*, 49(2), 147-152.
- The Cabinet for Health and Family Services Office of Inspector General. (2018). KASPER controlled substance reporting guide. Retrieved from [https://ekasperupload.chfs.ky.gov/KASPER\\_Controlled\\_Substance\\_Reporting\\_Guide.pdf](https://ekasperupload.chfs.ky.gov/KASPER_Controlled_Substance_Reporting_Guide.pdf)
- Centers for Disease Control and Prevention. (2016). CDC guideline for prescribing opioids for chronic pain. Retrieved from <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm>
- The Council of Economic Advisors. (2017). The underestimated cost of the opioid crisis. Retrieved from <https://www.whitehouse.gov/sites/whitehouse.gov/files/images/The%20Underestimated%20Cost%20of%20the%20Opioid%20Crisis.pdf>
- Dunn, K., Yopez-Laubach, C., Nuzzo, P., Fingerhood, M., Kelly, A., Berman, S., and Bigelow, G. (2017). Randomized controlled trial of a computerized opioid overdose education intervention. *Drug and Alcohol Dependence*. 173, 39-47. doi: 10.1016/j.drugalcdep.2016.12.003
- Ferrell, B., Rhiner, M., & Rivera, L. (2003). 62. In B. Redman, *Measurement Tools in Patient Education* (2nd ed. (pp. 327-331). Retrieved from [https://books.google.com/books?id=UujPKWzRuGAC&pg=PA327&lpg=PA327&dq=betty+r.+ferrell+and+patient+pain+questionnaire&source=bl&ots=\\_jcQBcyRsP&sig=T-JkC\\_ASABN2MvPeXBRGMbWrXeQ&hl=en&sa=X&ved=0ahUKewjYrZqmionVAhXJVD4KHZokDgkQ6AEIQDAF#v=onepage&q=betty%20r.%20ferrell%20and%20patient%20pain%20questionnaire&f=false](https://books.google.com/books?id=UujPKWzRuGAC&pg=PA327&lpg=PA327&dq=betty+r.+ferrell+and+patient+pain+questionnaire&source=bl&ots=_jcQBcyRsP&sig=T-JkC_ASABN2MvPeXBRGMbWrXeQ&hl=en&sa=X&ved=0ahUKewjYrZqmionVAhXJVD4KHZokDgkQ6AEIQDAF#v=onepage&q=betty%20r.%20ferrell%20and%20patient%20pain%20questionnaire&f=false)
- Freeman, P., Goodin, A., Troske, S., & Talbert, J. (2015). House bill 1 impact evaluation: Executive Summary: Kentucky Cabinet for Health and Family Services. Retrieved from <http://www.chfs.ky.gov/NR/rdonlyres/842D66B1-612C-4A26-9FE2->
- Friedman, A., Cosby, R., Hatton-Bauer, J., and Turnbull, G. (2010, March). Effective teaching strategies and methods of delivery for patient education: A systematic review and practice guideline recommendations. *Journal of Cancer Education*, 26, pp12-21.

- Hahn, K. (2011, March/April). Strategies to prevent opioid misuse, abuse, and diversion that may also reduce the associated costs. *American Health and Drug Benefits*, 4, 107-113.
- Hall, A., Copsey, B., Richmond, H., Thompson, J., Ferreira, M., Latimer, J. & Maher, C. (2017). Effectiveness of Tai Chi for chronic musculoskeletal pain conditions: Updated systematic review and meta-analysis. *Physical Therapy*, 97(2), 227-238.
- Hero, J., McMurtry, C., Benson, J., & Blendon, R. (2016, November/December). Discussing opioid risks with patients to reduce misuse and abuse: Evidence from 2 surveys. *Annals of Family Medicine*, 14.
- Jeste, D., Dunn, L., Folsom, D. and Zisook. (2006). Multi-media educational aids for improving consumer knowledge about illness management and treatment decisions: a review of randomized controlled trials. *Journal of Psychiatric Research*. 42(1), 1-21.
- Kentucky State Epidemiology Outcomes Workgroup. (2011). Prescription drug trends in Kentucky short report REACH evaluation. Retrieved from <http://chfs.ky.gov/nr/rdonlyres/87074e8c-69f5-426d-a3e2-5ba341f7252a/0/prescriptiondrugtrendsinkentuckyshortreport.pdf>
- Knoerl, R., Laviorie Smith, E. & Weisberg, J. (2016). Chronic pain and cognitive behavioral therapy: An intergrative review. *Western Journal of Journal Research*, 38(5), 596-628. doi: 10.1177/0193945915615869
- McCarthy, D., Wolf, M., McMcConnell, R., Sears, J., Chevrier, A., Engel, K., ... Courtney, M. (2015, March). Improving patient knowledge and safe use of opioids: A randomized controlled trial. *Society for Academic Emergency Medicine*, 22, 331-339. <http://dx.doi.org/10.1111/acem.12600>
- McCauley, J., Back, S., & Brady, K. (2013). Pilot of a brief, web-based educational intervention targeting safe storage and disposal of prescription opioids. *Journal of Addictive Behaviors*. 38(6), 2230-5.
- The National Institute on Drug Abuse. (2018). Kentucky opioid summary; Opioid related deaths. Retrieved from <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-summaries-by-state/kentucky-opioid-summary>
- National Institute of Drug Abuse. (2003). Preventing drug use among children and adolescents. Retrieved from <https://www.drugabuse.gov/publications/preventing-drug-abuse-among-children-adolescents-in-brief/chapter-4-examples-research-based-drug-abuse-prevention-programs>

- The National Institutes of Health. (2015). NIH analysis shows Americans are in pain: Report examines the prevalence, severity and duration of pain. Retrieved from <https://www.nih.gov/news-events/news-releases/nih-analysis-shows-americans-are-pain>
- Pike, A., Hearn, L. & Williams, A. (2016). Effectiveness of psychological interventions for chronic pain on health care use and work absence: systematic review. *Pain Journal*, 157(4), 777-785. doi: 10.1097/j.pain.0000000000000434
- Rose, P., Sakai, J., Argue, R., Froehlich, K., & Tay, R. (2015, October). Opioid information pamphlet increase postoperative opioid disposal rates: A before versus after quality improvement study. *Canadian Journal of Anesthesia*, 63, 31-37. <http://dx.doi.org/10.1007/s12630-015-0502-0>
- Rosenstock, I. (1974). Historical origins of the health belief model. Retrieved from <https://doi.org/10.1177%2F109019817400200403>
- Rubinstein, S., Middelkoop, M., Kuijpers, T., Ostelo, R., Verhagen, A., Boer, M., Koes, B. & Tulder, M. (2010). A systematic review of the effectiveness of complementary and alternative medicine for chronic non-specific low-back pain. *European Spine Journal*, 19, 1213-1228. doi: 10.1007/s00586-010-1356-3
- Shields, L., Nasraty, S., Bell, A., Vinayakan, A., Gudibanda, R., Hester, S., & Honaker, J. (2016, November/December). Primary care providers' prescribing practices of opioid controlled substances. *Journal of Opioid Management*, 12, 397-403. <http://dx.doi.org/10.5055/jpm2016.0359>
- Substance Abuse and Mental Health Services Administration Website. (2015). <http://www.samhsa.gov>
- Theis, S. and Johnson, J. (1995). Strategies for teaching patients: A meta-analysis. *Clinical Nurse Specialist*, 9(2), 100-120.
- Trevena, L., Davey, H., Barratt, A., Butow, P., & Caldwell, P. (2006). A systematic review on communicating with patients about evidence. *Journal of Evaluation in Clinical Practice*, 12, 1, 13-23.
- United States Census Bureau. (2017). Quick facts. Retrieved from <https://www.census.gov/quickfacts/jeffersoncountykentucky>
- Wells, C., Kolt, G., Marshall, P., Hill, B. & Bialocerkowski, A. (2014). The effectiveness of pilates exercise on people with chronic low back pain: A systematic review. *PLoS ONE*, 9(7), 1-14. doi: 10.1371/journal.pone.0100402

Wetherell, J., Petkus, A., Alonso-Fernandez, M., Bower, E., Steiner, A. & Afari, N. (2015).  
Age moderates response to acceptance and commitment therapy vs. cognitive behavioral  
therapy for chronic pain. *Geriatric Psychiatry*, 31(3), 301- 308.

**Table 1**

**Demographic characteristics of the study sample (N = 317)**

Characteristic	Mean (SD) or n (%)
Age	61 (SD = 11.956)
Gender	
Male	133 (42%)
Female	184 (58%)
Race	
White	265 (84%)
Black	48 (15%)
Other	4 (1%)
Office	
Site 1	107 (34%)
Site 2	210 (66%)

**Table 2****Survey Responses**

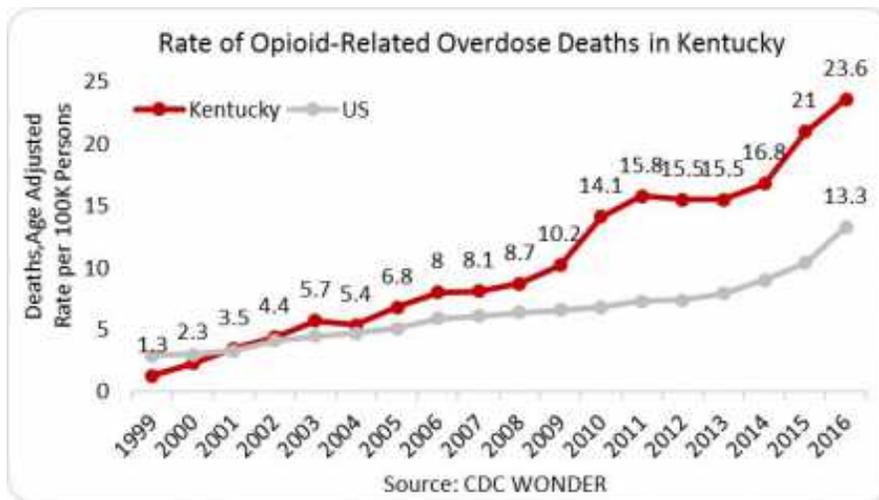
Comparison of Knowledge for Those That Received Education vs. Those That Did Not Receive Education

	Received Education (n=18) Mean (SD)	Did not Receive Education (n=19) Mean (SD)	p
1. Treatments other than medication can be effective for relieving pain	3.11 (1.079)	2.42 (1.465)	.11
2. There is a risk of dependence and addiction when taking controlled substances	2.11 (1.937)	2.00 (1.667)	.85
3. The goal of treatment is to improve pain and function but complete relief of pain may not always be likely	1.39 (1.539)	1.21 (1.398)	.71
4. Side effects of my medication include drowsiness, constipation, and nausea	3.12 (1.799)	2.56 (1.790)	.36
5. Pain medication can be dangerous and effect breathing	3.06 (1.519)	2.74 (1.790)	.57
6. I plan to dispose of extra, unused or expired medications at a disposal site	.94 (1.697)	.67 (1.029)	.56
7. A take my medications as directed and prescribed by my healthcare provider	.71 (1.649)	.21 (.419)	.24

8. I keep my medications locked up	1.39 (1.883)	1.16 (1.385)	.67
9. I do not drive while taking my controlled substance	1.94 (2.155)	1.21 (1.357)	.22

**Figure 1**

**Figure 1:** Rate of Opioid-Related Overdose Deaths in Kentucky



(National Institute on Drug Abuse, 2018)