

NIH Pain Consortium
Centers of Excellence in Pain Education



**Donald Williams: Interdisciplinary
Pain Management: Older Adult
Right Total Knee Arthroplasty**
Instructor Guide

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Course Overview

This is an interactive multimedia presentation designed to focus on pain management following an older adult following a total knee arthroplasty living alone. The presentation has a pretest and posttest, interactive activities and videos to help meet the learning objectives in pain education. The presentation demonstrates best practice and evidence based practice in the care of Donald Williams.

There are video and audio integrated in this learning module, please make sure your computer is equipped with speaker or headphone.

Navigation

As you go through the case scenario of Mr. Williams, you will go through 6 events to help you understand Mr. Williams and his situation. On the bottom right of the page, there are buttons that take you to the next item or previous item. You can navigate by clicking on one of the two buttons.

National Institute of Health (NIH) Consortium of Excellence in Pain Education (CoEPE)

In September 2015, the University of Iowa was named as one of eleven NIH Centers of Excellence in Pain Education (CoEPE). In the 2011 Institute of Medicine (IOM) Report Relieving Pain in America, an urgency related to improving pain education for undergraduate and graduate students was established as one strategy to address the healthcare system's deficiencies in managing pain. The creation of CoEPE's addresses this national need to improve pain education. According to NIH Director Dr. Francis Collins, "Virtually all health professionals are called upon to help patients suffering from pain. These new centers will translate current research findings about pain management to fill what have been recognized as gaps in curricula so clinicians in all fields can work with their patients to make better and safer choices about pain treatment."

NIH CoEPE Link:

https://painconsortium.nih.gov/NIH_Pain_Programs/CoEPES.html

University of Iowa's CoEPE Objective

To synergize the pain educational activities at the University of Iowa by bringing together faculty expertise, clinical experiences, coursework, and formal and informal educational opportunities and activities to inform, improve, and infuse education on pain assessment, measurement, and treatment into both collegiate curricula and clinical practice at Iowa.

University of Iowa CoEPE Main Activities

- To develop enduring e-learning pain modules as training and educational resources for medical, dental, nursing, mental health, physical therapy, pharmacy, and other health professions.
- To advance the assessment, diagnosis and safe treatment of pain.
- To implement, evaluate and disseminate educational advancements

University of Iowa CoEPE Link: <https://uiowa.edu/coepe/>

Case Development

At the University of Iowa CoEPE, our case was developed by an interdisciplinary team from nursing, physical therapy, pharmacy, medicine, nursing, psychology, social work and College of Public Health curriculum experts. The case learning objectives, competency review and activities were developed as a team.

Module Core Competencies

In the development of our interactive module, we focused on competencies which would reflect the interdisciplinary nature of the case. These competencies are taken from the Core Competences for Pain Management [1] and the Interprofessional Communication Competencies [2].

A. Core Competencies for Pain Management

Domain 2.4: Demonstrate empathic and compassionate communication during pain assessment.

Domain 3.4: Develop a pain treatment plan based on benefits and risks of available treatments.

Domain 4.4: Implement an individualized pain management plan that integrates the perspectives of patients, their social support systems, and health care providers in the context of available resources.

B. Interprofessional Communication Competencies

Domain 4: Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable.

Learning Objectives

At the end of this module, the learner will be able to:

1. **Demonstrate** knowledge of the pain healing process and expectations of pain during functional activities and activities of daily living for an older adult post total knee arthroplasty living alone.
2. **Apply** a risk/benefit analysis for treatment in an older adult post total knee arthroplasty with acute on chronic pain.
3. **Utilize** health promotion and self-management strategies for an older adult post total knee arthroplasty living alone.

Intended Audience

The intended audience for this course is pre-licensure students in medicine, nursing, social services, pharmacy, physical therapy and occupational therapy.

Interdisciplinary care coordination plays an integral role in post total knee arthroplasty case management. The healthcare team may have similar areas for assessment such as pain assessment, pain impact, safety assessment or home exercise program. Each discipline will evaluate the information to address different aspects of care patient care and discipline specific patient centered goals.

Length of Course

The length for this course is approximately 60 minutes depending on the individual use. Upon the completion of the course you will get a certificate of completion.

Case Summary

Donald Williams is a 77 year old male who is a Navy Veteran and he had a right total knee arthroplasty [3, 4] 5 days ago. He is a widower who lives in an independent living apartment. In this case you will follow Donald as he returns home from a stay in the hospital and a skilled care facility. You will follow him during his interaction with a pharmacist; home health services for nursing, social services, physical therapy and occupational; and a nursing follow-up visit. You will learn about pain assessment, risk-benefit analysis for pain management, medication review, family and community support, physical and occupational therapy assessment and home exercise programming.

Presentation Options

This interactive module is designed to be presented in multiple ways. It is able to be presented as best suits your needs for your course. Options include:

1. Independent learning – having the students work through the case independently; anticipating it will take approximately 60 minutes to complete.
2. Course presentation – it is able to be presented as an instructor led course, anticipating it can be taught in a 60 minute session, two 30 minute sessions or even be taught one event at a time, taking up to 8-10 minutes per event.
3. There are places in the instructor guide for you to write *notes* after the pretest/posttest questions and with the activities and videos.

Pretest

The pretest contain 10 questions with multiple choice answers. We have included the questions, answers.

Test Question 1

1. What is the goal of nutritional counseling for an older adult with a body mass index of 23.1, who has postsurgical acute pain and is undergoing rehabilitation?
 - a. Begin weight loss
 - b. Focus on weight gain
 - c. Three meals per day
 - d. Maintain current weight

Answer Question 1 d. Maintain current weight meal preparation as he did prior to surgery.

Test Question 2

2. Following a unilateral total knee arthroplasty, what is the most significant predictor for severe post-operative movement pain?
 - a. Preoperative severe movement pain
 - b. Preoperative low activity level
 - c. Body mass index greater than 30
 - d. Preoperative diagnosis of depression

Answer Question 2 a. Preoperative severe movement pain

Test Question 3

3. What means would be appropriate for helping an older adult, undergoing postsurgical rehabilitation, maintain nutritional status?
 - a. Nutritional drink supplement once a day
 - b. Meals on Wheels delivery 3 times a day
 - c. Self-preparation of meals 3 times a day
 - d. Family preparation of meals 3 times a day

Answer Question 3 b. Meals on Wheels delivery 3 times a day

Test Question 4

4. What type of home exercise program best reduces pain in an older adult one week postsurgical total knee arthroplasty?
 - a. Strengthening of the involved extremity
 - b. Passive motion of the involved extremity
 - c. Repetitive stair climbing with the involved extremity
 - d. High impact aerobic exercise with involved extremity

Answer Question 4 a. Strengthening of the involved extremity

Test Question 5

5. What is the primary benefit of band resistance in an exercise program?
- Maintaining balance
 - Improving range of motion
 - Strengthening activity
 - Improving coordination

Answer Question 5 c. strengthening activity

Test Question 6

6. What is the least risk/most benefit treatment for pain management you can provide for an older adult with anxiety and postsurgical total knee arthroplasty?
- Opioid medications
 - Non-Opioid medications
 - Deep relaxation techniques
 - Transcutaneous electrical nerve stimulation (TENS)

Answer Question 6 c. Deep relaxation techniques

Test Question 7

7. What is the best safety measure to teach an older adult at home who is taking opioids for pain management?
- Tell neighbors about the medications
 - Avoid use with benzodiazepines
 - Store opioids in medication cabinet
 - Do not use stairs while taking opioids

Answer Question 7 b. Avoid use with benzodiazepines

Test Question 8

8. You would expect that an older adult undergoing postsurgical rehabilitation would need opioids for pain management based on CDC guidelines for what time period?
- 1 day
 - 1-2 weeks
 - 2-3 weeks
 - 2-3 months

Answer Question 8 b. 1-2 weeks

Test Question 9

9. What non-pharmacological strategy would you recommend for pain management in an older adult one week postsurgical total knee arthroplasty?
- Talking about the patient's concerns
 - Immobilizing the surgical site
 - Swimming to increase activity
 - Reducing overall activity

Answer Question 9 a. talking about the patient's concerns

Test Question 10

10. A pharmacist has reviewed medications with an older adult living at home and concerns about medication compliance. What is the next step for the pharmacist in a home health interdisciplinary care model?
- Call physical therapist
 - Call occupational therapist
 - Call nurse case manager
 - Call social worker

Answer Question 10 c. Call nurse case manager

Course Content

Interdisciplinary Pain Management: Older Adult Right Total Knee Arthroplasty (Donald)

Welcome

Hello, welcome to the interdisciplinary pain management module for the consortium of excellence in pain education. Our scenario will be an interactive case presentation about a 77 year old veteran with osteoarthritis and an old football injury to his right knee. He has just undergone a right knee total arthroplasty 5 days ago. He will tell you more in a little bit. Please type in your name and then click BEGIN when you are ready.

Instructions

As you go through the module, we want you to be able to move through the module as you would like by using the table of content menu on the left side or you may use the next button or previous button located on the bottom right of the screen. The module has six events for you to follow as Donald returns home from a skilled care unit.

Course Overview

The goal of this course is to provide an interactive learning experience about an older gentleman who had a right total knee arthroplasty.

The intended audience for this course is pre-licensure students in medicine, nursing, social services, pharmacy, physical therapy and occupational therapy.

The length for this course is approximately 60 minutes depending on the individual user. Upon completion of the course, you will get a certificate of completion.

This case incorporates the Core Competencies for Pain Management and Interprofessional Communications Competencies.

Learning Objectives

At the end of this module, you will be able to:

1. **Demonstrate** knowledge of the pain healing process and expectations of pain during functional activities and activities of daily living for an older adult living alone.
2. **Apply** a risk/benefit analysis for treatment in a patient with acute on chronic pain.
3. **Utilize** health promotion and self-management strategies for an older adult living alone.

Introduction to Mr. Williams

Hello my name is Donald Williams you can call me Don I am a 77 year old navy vet I live in Decorah Iowa which is about 2.5 hours from the VA here in Iowa City I had a total knee replacement that's why I was at the VA I had damaged my knee in Vietnam and then damaged it further playing ball eventually it got arthritis and needed to be totally replaced or I wouldn't have been able to walk I'm a little apprehensive about coming home because I live alone here in a senior apartment my kids are 3 to 4 hours away and my wife is my wife passed away 6 years ago so I am a little concerned about doing the apartment things. The VA said that they would send me help I am going to be visiting with my nurse the pharmacist a social worker and occupational therapist and a physical therapist you can sit in on the sessions if you would like to see what they have say I am really eager to be back home and getting on my own again I like to go hunting and I'm really ready to do that

Tools in this Module

In this module, Donald's care team utilizes a variety of tools for assessment for pain severity, pain impact, opioid risk, anxiety, cognition and knee function. We have rated the evidence in this module as weak evidence, moderate evidence or strong evidence.

Pain Assessment

- Iowa Pain Thermometer-Revised

Multidimensional Pain Measure

- PEG: Pain, Enjoyment, General Activity

Opioid Risk Tool (ORT)

General Anxiety Disorder (GAD7)

Cognition Assessment

- Mini-Cog™

Functional Assessment

- Knee Injury and Osteoarthritis Outcome Score (KOOS)

What Events are in this Module?

As you can see on the screen, here are the events that Donald Williams will go through in the process of evaluation and intervention. He will interact with a pharmacist, and home health services for nursing, social services, physical therapy and occupational therapy. His final event is a follow-up visit with his home health nurse.

Telephone Medication Review

In this pharmacist's telephone review, you will look at two different snippets between Donald and a pharmacist and a snippet between the pharmacist and the home health nurse. The topics covered include pain assessment, medication use, and the collaboration of a nurse and the pharmacist. You will also have a chance to look at a risk and benefit analysis for pain management following a total knee arthroplasty.

The interaction during pharmacist's event is as follows.

Pharmacist – Pain Assessment Video

Pharm: Hello Mr. Williams, my name is Jane. I am the pharmacist that works at Sullivan's Pharmacy. I have a note to give you a call since you recently got home from the skilled nursing unit. I called to review your medications and see how you are doing with your pain control after your knee replacement? Is this a good time?

Donald: well I've just gotten back and I'm at home and I'm not quite adjusted yet I mean I just got out of a hospital and then the skilled nursing unit and now at home.

Pharmacist: How would you rate your pain in your right knee on a 0-10 scale?

Donald: well it varies it it depends upon how much I do it it hurts more when I'm stand up or get there sit down or when I try to do too much.

Pharmacist – Medication Review Video

Pharmacist: Let's go over your medications next

Donald: okay well I need a little a little unsure about that my there's a list that my daughter put together of what medications I'm supposed to be taking and when I think she put my medications in the kitchen

so I think the list is there in the kitchen with the medication so let me go let me go get that (Sets phone down and walks with walker to the kitchen and back).

Donald: okay got it right here are you still there?

Pharm: Yes, sir, I am. Any luck?

Donald: yes my daughter put it in the kitchen she's she's really very well organized so go ahead.

Pharm: Do you take any over the counter medications, supplements or herbal remedies?

Donald: uh no I just take what the doctor has this prescriptions.

Pharm: do you have any medication allergies?

Donald: not that I can think of.

Pharm: Let's go over your prescriptions. What medicines do you take on a regular schedule?

Donald: Well there's the metoprolol, aspirin, Flomax and Tylenol.

Pharm: Let's go over how much you take of each medication and when.

Donald: Well, the Metoprolol it says 50 mg and that's 1x a day I guess that's one time a day and then there's the aspirin and that's 81 mg and that also says one time a day and then there's Flomax and that's one time a day and then Tylenol and that's five or six times a day.

Pharm: Great – are you taking anything else that is new from the hospital or skilled care facility?

Donald: well that's a little bit fuzzy my daughter wrote something additional down here on the sheet but I'm not quite sure what it is.

Pharm: And are you taking your medications that's frequently as directed by your doctor?

Donald: well I haven't started uh I haven't started a routine yet so I can't really say yes or no

Pharm: Well, I know the nurse is coming out to see you – let's have her take a look at the list and she can go over your medications and can help you with that new entry.

Donald: sounds like a plan do you have anything else you want me to do?

Pharm: Great question! Your home health nurse will go over anything else you need to be concerned about with your medication and check with your doctor if needed.

Donald: okay, sounds good to me.

Pharm: Ok, if you think of any or have concerns, please don't hesitate to call us.

Donald: okay, thank you.

Collaborating Between the Pharmacist and the Nurse

Following is a conversation between the pharmacist, Jane, and the home health nurse, Dorothy.

Telephone Conversation: Pharmacist, Jane, and Nurse, Dorothy.

Jane: Hi, Dorothy. This is Jane from Sullivan's Pharmacy. How are you?

Dorothy: Hi, Jane. Good and you?

Jane: Good, thanks. I am calling about Mr. Donald Williams. I did a telephone interview with Donald today about his medications. I had a couple of concerns that I wanted to share with you.

Donald seemed a little confused about his medications. I know he has had changes in his pain medications from his inpatient and skilled care stay since his knee operation and this was his first day home. He wasn't sure of all the names of his medications but he was able to locate his medication list in his kitchen drawer. He appears to be taking his Tylenol too frequently – up to 6 times a day rather than every 6 hours up to 4 times a day.

Dorothy: Jane, thanks for following up about Mr. Williams. Your information helps me plan his visit for today. I will review his medications again with him and make sure he is able to take them correctly – I can follow-up on assessing his cognition as well. Any other concerns?

Jane: No, that covers it. Thanks again for following up. Have a good day.

Dorothy: I really appreciate your calling. Have a good day.

Risk Benefit Analysis for Acute Pain Management Following a TKA

Let's take a look at a risk benefit analysis for pain management following a total knee arthroplasty. The goal of a risk benefit analysis is to compare the risks and benefits for treatment choices and determine if the risks or benefits outweigh one another to assist in treatment planning.

Considerations to consider:

- What are the risks?
- How likely are the risks to happen?
- What are the benefits?
- How likely are the benefits to happen?

Pain Management Options after a total knee arthroplasty:

- Opioid medications
- Non-Opioid medications
- Non-pharmacological approaches

It is important to adequately treat acute pain. Each treatment decision should weigh the risks and benefits to help guide treatment decisions. In first line treatment, consideration should be given for non-pharmacological strategies and non-opioid strategies as appropriate. Opioid medication may be needed as a second line treatment but consideration should be given to risks and benefits.

For more information regarding medication prescription for acute and chronic pain see the following references:

- CDC: Factsheet: Guideline for Prescribing Opioids for Chronic Pain. Available at: https://www.cdc.gov/drugoverdose/pdf/Guidelines_Factsheet-a.pdf Accessed June 17, 2018, 2018

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- CDC: Opioids for Acute Pain What You Need to Know. Available at: <https://www.cdc.gov/drugoverdose/pdf/patients/Opioids-for-Acute-Pain-a.pdf> Accessed June 17, 2018, 2018
 - Dowell Dp, Haegerich Tmp, Chou Rp. CDC Guideline for Prescribing Opioids for Chronic Pain - United States, 2016. MMWR. Recommendations and reports : Morbidity and mortality weekly report. Recommendations and reports. 65:1-49, 2016

Interactive Risk and Benefit

In the next three slides, you will be thinking about risks and benefits for three pain management options. Based on the examples given for opioid medications, what do you think are the risks and benefits? Please type your answer and then compare the recommended answer given as follows.

Examples of opioid medication-

- Hydrocodone
 - Morphine
 - Oxycodone
1. Recommended answer for risks-
 - ✓ Opioid Misuse/Abuse
 - ✓ Side Effects: Constipation, Nausea, Drowsiness, Confusion, Slowed Breathing, Loss of Balance
 - ✓ Falls
 - ✓ Oversedation
 - ✓ Addiction
 - ✓ Substance Abuse
 - ✓ Transition to Chronic Pain
 2. Recommended answer for benefits
 - ✓ Pain Relief
 - ✓ Early Mobility
 - ✓ Improved functions
 - ✓ Improved quality of life

Now for our second example for risks and benefits for Donald's pain management. Based on the examples given for non-opioid medications, what do you think the risk and benefits? Please type your answer and then compare the recommendation answer by clicking the recommended answer buttons for risk and benefits.

Examples of non-opioid medication-

- Acetaminophen

-
- Nonsteroidal anti-inflammatory medications: Ibuprofen, Naproxen sodium, Celecoxib

1. Recommended answer for risks-

Acetaminophen:

- ✓ Potential overdose
- ✓ Liver failure
- ✓ Side effects are less than NSAIDs

NSAIDS

- ✓ Side effects
- ✓ Stomach Upset
- ✓ Stomach Bleeding
- ✓ Cardiovascular
- ✓ Kidney impairment
- ✓ Fluid Retention/Swelling

2. Recommended answer for benefits

Acetaminophen

- ✓ Pain Relief

NSAIDS

- ✓ Pain relief
- ✓ Fewer Side Effects compared to Opioid Medication
- ✓ Decreased Swelling and Inflammation

Now for our third group of examples for risks and benefits for Donald's pain management. Based on the examples given for non-pharmacological approaches, what do you think the risk and benefits? Please type your answer and then compare the recommended answer by clicking the recommended answer buttons for risk and benefits.

Examples of non-pharmacological approaches-

- Physical Therapy (PT)
- Transcutaneous Electrical Nerve Stimulation (TENS)
- Cognitive Methods
- Exercise, (preoperative information giving, preoperative relaxation, guided imagery and breathing training, cognitive reframing, distraction, massage, acupuncture, TENS).

With Total Knee Arthroplasty

Guide

1. Recommended answer for risks-

- ✓ PT: Increased Discomfort
- ✓ TENS: Skin Irritation
- ✓ Cognitive Modalities: Emotional upset, Negative feelings and fear

2. Recommended answer for benefits

- ✓ PT: Increased function
- ✓ TENS -Pain Relief
- ✓ Cognitive Modalities: Manage emotions, Improve Coping
- ✓ Fewer side-effects

Home Health Nursing Plan of Care add to Home Health Nursing Nutrition Status and Review

In this Home Health Nursing's event, you will look at six snippets which include a summary of a physical exam, home safety, pain assessment, medication review, and nutritional status. You will also have a chance to look at a "Lock Your Meds" interactive activity.

Home Health Nursing Acute Pain Management Plan

Dorothy, the Home Health Nurse, has completed her initial home health visit. Here is her visit summary Donald has a moderate degree of pain and swelling in his right knee following his total knee arthroplasty with mobility limitations.

Acute Pain Management Plan

- Acetaminophen and non-pharmacological approaches for his acute pain management.
- Donald should take his medications at the correct dose and frequency .
- Donald is to gradually increase his activity, elevate his right knee 2x day to reduce discomfort and swelling.
- Donald will use a cold pack for swelling and pain reduction for his knee pain as needed up to every 2 hours for 10 minutes.
- The nurse will followup 2 times per week and recommends Social Services, Physical and Occupational Therapy to help meet Donald's acute pain management goals.

Social Services Acute Pain Management Plan

- Continue medications and activity as directed by your primary care provider, nurse, physical and occupational therapist
- Continue to increase your interaction with friends and family as distraction, humor, and social activities can all help with reducing pain.

Physical Therapy Acute Pain Management Plan

- Donald has limitations in range of motion and strength following his right knee surgery.
- Continue medications and activity as directed by your primary care provider, nurse, social service and occupational therapy.
- Continue with your home exercise program, activity and increasing your walking as directed to help reduce your pain and swelling. His pain was reduced after therapy sessions with exercise and walking.
- Use a cold pack for swelling and pain reduction for his knee pain as needed up to every 2 hours for 10 minutes.
- Elevate your knee above your heart 2 times a day for 30 minutes by laying on your bed and elevating your leg to help reduce your swelling.

Occupational Therapy Acute Pain Management Plan

- Donald has limitations in range of motion and strength following his right knee surgery. He has some weakness in bilateral upper extremities and limitations in the length of time to complete his self-care activities and activities around his home.
- Continue medications and activity as directed by your primary care provider, nurse, social service and physical therapy.

-
- Continue with your arm home exercise program and increasing your walking as directed to help reduce your pain and swelling.
 - Continue interaction with friends and activity to decrease pain.
 - Continue to increase our activity as able to help reduce pain.

Interactive Plan of Care

1. Nursing:
 - Ready to discontinue Nursing
 - Able to lock medications, taking and storing medications appropriately
2. Pharmacy
 - Independent with medication taking and understanding
3. Physician
 - Recheck at six weeks for motion, strength, walking and medication review.
4. Social Service
 - Ready to discontinue Social Service
 - Patient to call if needed
5. Physical therapy
 - Progress to outpatient physical therapy
 - Independent with Home Exercise Program (HEP) for lower extremities; progress in PT.
 - Utilizing cane for walking on level surfaces and stairs; progress to independent with physical therapy.
6. Occupational Therapy
 - Discontinue Occupational therapy
 - Independent with HEP for upper extremities 2-3 times a week.
 - Independent with home activities and able to resume community activities.

Acute Pain Management Plan:

Continue to take medication as directed. Utilize non-pharmacological strategies to decrease pain and increase activity including home exercise program, elevation and ice as needed. Increase social activity and interaction as able to assist in pain reduction.

Review of Donald's past medical history is as follows.**Past Medical History**

As you can see, Donald has osteoarthritis. His first right knee injury happened when he was in high school and then a second injury to this right knee in his 20's during the Vietnam War. He had a highly stressful physical therapy treatment episode during the war. The physical therapy during the Vietnam was also a high anxiety event for him. Donald has benign prostatic hypertrophy and hypertension. He had a myocardial infarction at age 53 and cardiac rehab was successful, no subsequent problems/clinical sequela.

As you go through the events, notice how each provider utilizes this information in treating him.

Nursing Physical Exam

Please review the nursing physical exam results on the screen.

Brief Systems Review

HHENT Negative No co SOB or chest pain, no problems with bowels or urination

Skin: No complaints of rash, lesions or itch

Low back Pain: present with higher level of activity

Co weakness right surgical knee; denies falls

Physical exam

Alert and oriented

Neck has no lymphadenopathies

Thyroid gland palpable, no nodules

Lungs clear bilaterally

Heart sounds S1S2 present and no irregularities

Abdomen: Soft, no tenderness, no masses palpable, no rebound, no hepatosplenomegaly; bowel sounds present

Lower Extremities: 2+ peripheral pulses bilaterally,

Left leg: no edema or ecchymosis of left leg, normal active ROM 5/5 strength

Right leg: knee -swelling noted to right leg to mid-calf without tenderness, negative Homann's,

Range of Motion: 15-85 in seated position

Visual Inspection:

22 centimeter well healed incision without drainage noted, (Steri-Strip in place) , mild ecchymosis noted around incision, skin without warmth or erythema, incision tender with motion and to palpation; swelling present from proximal knee to the ankle

R Ankle: full ROM and 5/5 strength, no warmth or erythema,

R Hip no pain to palpation, decrease ROM in flexion due to knee pain, 5/5 strength,

Walking with a rolling walker with brakes, full weight bearing right lower extremity

Home Safety

A home fall prevention checklist for older adults that is published by CDC provides a guideline for home safety concerns which includes floors and pathways, lighting , handrails, kitchen, bathrooms, bedrooms, vision, and medication safety.

As part of the nursing assessment, a nurse reviewed Donald's apartment and her checklist is listed here. She noted good lighting in bathroom and hallways for nighttime, no throw rugs in the bathroom and kitchen, walkways big enough for rolling walker in all areas of the home, and a medication recommendation – lock up medications.

Home Health Nursing – Pain Assessment

Donald's response to each question is as follows.

Nursing: Hi, Donald. How are you doing today? My name is Dorothy. I am your home health nurse. Today I have some questions about your pain and medications. Let's start with some questions about your pain – I see on the Iowa Pain Thermometer you rated your pain as a 6-7 out of 10.

Can you tell me more about your knee pain at rest and with activity?

Donald: well my knee hurts when I bend it too much or I do too much especially at the end of the day when it's swell swelling after my after I do my exercises my knee definitely feels worse if I do too much

Nursing: Can you show me where your knee hurts?

Donald: (*Rubs his knee from mid-thigh to mid shin*) sure it's from about here and it kind of goes right down to about here

Nursing: How would you describe your pain – sharp, dull, achy?

Donald: my pain is aching most of the time but sharp if I if I do too much especially if I'm if I bend it or move too fast.

Nursing: What makes your pain better?

Donald: um well what makes it better is raising my leg or laying down or sometimes the cold and like they did it in the skilled care unit.

Nursing: How does pain interfere with daily living or self-care?

Donald: Well I just got home but walking is difficult and I'm worried about a little worried about doing my laundry taking a shower getting dressed um and also cooking and just working around the apartment I would like to be able to go back to hunting and walking like I used to do with my buddies out to the duck blind and to the deer stands

Nursing: Are there any other symptoms other than pain in your legs?

Donald: sometimes it feels a little weak like it's going to um give out my exercises are helping with that quite a bit.

Nursing: I had you fill out a few forms to see how you are doing with your pain, anxiety, and functional activities. You rated your pain as severe or 6 on a 0-10 scale today with your average pain 6-7 since your surgery. Your pain has interfered with general activity and your enjoyment of life as 6 on a 0-10 scale. The survey that assessed your anxiety shows you have been anxious during the last week. Some of these things can be normal for where you are in your recovery.

Nursing: What are your goals for your function or pain or anxiety?

Donald: well I want to be pain-free and I want my anxiety to be back in control like it once before I was in the hospital.

Nursing: Anything else you would like to discuss about your goals or pain or function or anxiety? Or any other questions?

Donald: no I don't think so I think that's about it

Home Health Nursing – Medication Review

Donald's response to each question is as follows.

Nursing: I have a list of your medications from when you left the skilled care unit. I want to go over a few things about your medications. I know Jane, the pharmacist called and talked to you about your medications earlier. So she and I have gone over your medications but let's look at your medication list and I will ask you a few questions.

Nursing: First, I want to see if I missed anything about your medicines. Has your doctor recently started you on any new medicines, or made any changes to your medications?

Donald: well I'm still a little confused since I was in the hospital I took medicines before the surgery but the medicines were switched around

Nursing: Okay, let's go over the ones you know. What medication do you take for your blood pressure?

Donald: that would be the one with the M – Metoprolol.

Nursing: Do you feel light-headed or dizzy from this medicine?

Donald: no I don't feel light-headed or dizziness from the medicine but since my surgery I have noticed that I feel sometimes feel a little light-headed if I stand up or move around really fast

Nursing: How about depression?

Donald: no I haven't noticed anything that would be depression

Nursing: What do you take for your prostate?

Donald: That would be the Flomax.

Nursing: Do you have any problem urinating?

Donald: no I haven't had any.

Nursing: And what do you take your aspirin and Tylenol for?

Donald: Well I take the aspirin to prevent a stroke that's every day and the Tylenol is for my pain I think.

Nursing: Do you have any problems taking your medication? Or swallowing when you take your medications?

Donald: No as long as I have enough water I can take my pills with no problem

Nursing: Are there any medicines you take that you purchase at the drug store without a prescription?

Donald: well the aspirin and the Tylenol

Nursing: Where do you keep your medications?

Donald: I keep them in the kitchen drawer I can show you (They walk to kitchen and open the drawer.

Donald takes out a medication pill box set up by his daughter and pill bottles in a Ziploc bag; Lock box and key sitting next to it in the drawer).

Nursing: Let's go take a look at your medication bottles and where you keep them.

Donald: okay well here's what here's where I keep my medications (Donald shows kitchen drawer with bag of medications).

Nursing: Can you show me the medicines you were on before the hospital?

Donald: There there aren't any my daughter switched them all out so these are only the new ones.

Nursing: Besides the Tylenol, are you taking anything else for your pain? How about pain medications before surgery, do you still have those?

Donald: I think I may have some Vicodin around here let me look yeah yeah here it is. (Donald shows the nurse a bottle with 5 Vicodin left)

Nursing: Do you have family members with a substance use disorder?

Donald: yeah my son does he does but he doesn't live around here

Nursing: Let's look at how we can safely store these medications so they are not stolen or lost.

Donald: well my daughter left me a lockbox but it has been such a pain just to lock them up.

Home Health Nursing -Nutrition Status

The home health nurse completed a nutrition assessment. Her areas assessed and Donald's results are on this slide.

Assessment-

- Body Weight
- Height
- BMI
- Changes in Weight
- Diet History
- Physical Activity

Donald's information

- Height: 6 feet, 0 inches
- Weight: 170 pounds
- BMI is 23.1, Normal range (136 to 184 pounds)
- No change in weight with hospitalization
- Diet History: Follows cardiac diet
- Physical Activity: Light to moderate activity
- Overall Nutrition Status: Good
- Has meals provided 2 times a day at his apartment complex

Lock Your Meds

Lock Your Meds™ is a national campaign to combat prescription drug abuse.

The purpose of this campaign is to keep prescription and over the counter pharmaceuticals away from drug abusers of all ages.

The most commonly misused medications are opioids, central nervous system depressants and stimulants. 6.5 million Americans abuse prescription drugs (2013).

Have a pdf with more information: Medication <http://www.lockyourmeds.org/wp-content/uploads/2017/01/LYM-MEDucation-Kit-Final.pdf>

More information

<https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm272905.htm>

<https://www.fda.gov/Drugs/ResourcesForYou/ucm163959.htm>

www.LockYourMeds.org

<https://www.drugabuse.gov/publications/research-reports/misuse-prescription-drugs/summary>

Interactive Activity Nursing – Lock Your Meds

Which locking storage would you pick for Donald? (Feedbacks are provided along with the options by the side).

1. Child proof locking for cupboard – might be difficult for an older adult to use safely
2. Small sections for pills –might be challenging for an older adult with decreased finger mobility. The manufacturer recommends tipping the unit to remove medications.
3. Good option – allows for a limited number of pill bottles; will it be secured into a drawer.
4. Plastic bags – do not allow for secure, locked storage of medications
5. Tool Box – able to be locked and holds bottles and pill organizers but able to be picked up and moved easily
6. Wall lock box – able to be secured to the wall, has 2 locks and has good security.

Home Health Social Services

In this Home Health Social Services' event, you will look at three snippets which will review Donald's Home Health Social Services interview, home safety and emergency assistance, and resources for Donald. You will also have a chance to review "Donald's Support System".

Following is the script of the video during social services' interview.

Home Health Social Services – Interview

Social Services: Can you tell me about your family and their involvement with your medical care? What do they know about your pain?

Donald: Well my kids live three to four hours away in Sioux City so they can't visit very often they do call two or three times a day to check on me and see how I'm doing. My daughter Carolyn spent 2-3 days after their surgery with me but she had to go home early because one of my grandkids got sick they do ask about medical stuff every time they call

Social Services: Besides your family, do you have any nearby friends or neighbors, or maybe fellow church or club members, who could help you while you are healing?

Donald: well there's a there I have a couple of friends here in the building that we get together every day and play cards or visit they usually go to coffee with me in the morning and sometimes though they just come over later in the day like they are today there are also a few ladies in the building who like to bring things over that they've cooked and to check in on me well I'm lucky that a few of my friends have had hip replacements and also have Walker's so they understand my pain and my slowness and I think that that helps they can they can provide support.

Social Services: Since you had surgery on your leg, you won't be able to drive for a few weeks – how do you plan on getting to appointments?

Donald: Well that's a fine question I hope that I will be able drive pretty soon I get really anxious about not being able to drive and I really don't like being dependent on other people I plan to get my driver's license in two weeks and since most of my appointments are after that I am not too concerned about it I think if I do have an appointment my friends would take me

Social Services: Who will be helping with your shopping and laundry?

Donald: well my kids do come on the weekends that will help me with shopping and they're they kind of set things up for me during the week so I can get back doing things on my own.

Social Services: What worries you about being at home on your own?

Donald: well I worry about falling because I mean it happens a lot a lot to seniors. I'm worried about getting in and out of the shower and I worry just about doing things around the apartment. I really do get anxious about my pain and I get discouraged easily sometimes I just know that I need that I'm going too fast and I know that I need to slow down particularly about getting rid of the Walker and getting back on doing things myself and sometimes I just worry about the pain about not getting better with me.

Social Services: Do you feel anxiety will impact your progress?

Donald: I really do get anxious about my pain and I get discouraged easily sometimes I just know that I need that I'm going too fast and I know that I need to slow down particularly about getting rid of the Walker and getting back on doing things myself and sometimes I just worry about the pain about not getting better with me.

Social Services: How has your pain limited your ability to participate in activities? Are there certain things you wish you could do but can't due to your pain?

Donald: well I just got back home so I'm still not doing a lot of things yet I am worried about dressing and walking around a little bit I suppose I need to take it slow and to get better I really do want to get back to hunting and walking around with my friends I do want to be able to walk without pain.

Home Health Social Services Home Safety and Emergency Assistance

Donald is independent in mobility in his home with use of a rolling walker.

Donald is able to use the phone for emergency assistance and phones are in living area and bedroom

Donald has two telephones with emergency access with one touch button

Donald has an emergency pull cord in his restroom

Home Safety reviewed by Nursing and modifications completed.

Home Health Social Services Resources for Donald

Let's review the resources that Donald has.

- Counseling for anxiety and post-traumatic stress disorder are available through the Veteran's Administration.
- Donald also has access to anxiety support group and transportation resources in the community.
- Donald also has friends who can provide transportation if needed.

Interactive Activity Social Services

What support does Donald have in his care at home?

- Daughter – Telephone check in and calling several times a day; comes each weekend for laundry, shopping, medication assist and transportation
- Son- Telephone support – calling several times a day; comes very infrequently
- Grandchildren: Live 3-4 hours away and too young for assistance at this time
- Friends: he has friends available for companionship, transportation, meal assistance and other needs upon request.

Home Health Physical Therapy (PT)

In this Home Health Physical Therapy's event, you will look at four snippets which include: pain assessment and impact, home safety, and PT's Initial Visit. You will also have a chance to work on an interactive activity for physical therapy services.

Following is the review of Donald's PT pain assessment and impact.

Home Health PT Pain Assessment and Pain Impact

The home health physical therapist reviewed information about Donald's pain including location, aggravating and relieving factor, and 24 hour pain pattern. Lastly, the PT helped him complete the KOOS for a functional outcome tool.

- Pain: Pain 6 of 10 for right knee on IPT-R; PEG score 6 of 10 for pain, enjoyment and general activity.
- Pain Location: Front of right knee from thigh to mid calf.
- Pain Aggravating Factors: Doing too much, walking, bending and straightening right knee.
- Pain Relieving Factors: Medication, cold packs, home exercises.
- 24 Hour Pattern: Increases with activity and decreases with rest; greater in the morning and at end of day.
- KOOS Scores: Pain 36, Symptoms 29, Function 29, Recreation 5, Quality of Life 0

Home Health PT- Home Safety

The physical therapist also reviewed home safety with Donald and you can see the different aspects of home safety that were reviewed.

- ✓ Floors and Pathways
- ✓ Stair Climbing
- ✓ Handrails Stairs and Bathroom
- ✓ Bedrooms

PT Assessment

- ✓ Walkways big enough for rolling walker in all areas of the apartment
- ✓ Rail at stairs and able to use cane
- ✓ No throw rugs or walkway clutter
- ✓ Easy to get around in bedroom with rolling walker
- ✓ Chair and couch height able to be independent with transfers to sitting and standing

Home Health Physical Therapy Assessment

Click on each button to learn Donald's response to each question.

- A. Bilateral Knee and Hip Range of Motion, Strength (left then right)

Therapist: I got a lot to get started I just want to go over an overview what we're going to do today is are going to look at the right knee how well it moves and how strong it is and as well as the left knee and the hip hips as well I'd like to then go over your home exercises and I brought some handouts so you have copies of this you don't have to memorize it as we're doing it

Donald: that's good

Therapist: all right and then when we're done with that I'd like to take you for a walk with your Walker and the cane and see how you do on the level and on the stairs does that sound okay

Donald: okay

Therapist: very good just before we get started can you tell me on scale 0 to 10 where 0 is none and 10 is the worst imaginable pain where you have to go with your knee

Donald: it's about a six

Therapist: ok very good okay well the first thing I want to do is just do some general strength and motion tests so let's start with you left leg here can you bring it up okay hold it there don't we push it down good take it down go ahead and take your knee out hold it there don't you push it down good bend it down don't we pull it away hold hold hold good job and then bring your toes up off of mat there you go hold hold hold now push down against me push oh good job all right now let's see what we can do over here same routine first thing is to draw that hip up okay hold it there don't we push it down ready hold now relax going to go ahead and lower it down nice and tall I want you to try to take your knee straight as straight as it will go with all okay come on out I'm going to put get some resistance ready okay good job let it down try to bend your leg back how far will it bend okay hold good now bring your toes up okay hold it there don't we push it down good now push down against me great lastly we'll do both legs together can you draw them together are your hips together and now push your legs apart push them apart and don't let me push them in hold hold hold and then here okay good job the next thing I have you do to lay down the bed we'll check some more things and go over the exercises okay see how you do do you need help

Donald: no but it's easier if I lift it this way

Therapist: very good yeah all right looks like it doesn't look quite straight so I'm going to put a towel there you go. Very good are you comfortable? let's start out first of all I want you to take that left leg up I want you draw your knee up to your chest so show me what you can do what's good for you there so there all the way bent and all the way straight that's the goal I want to get that right leg going like that so let's just see first of all then ask to see how straight you can get that leg so can you try to push down in the towel try to get that knee as straight as possible okay about 15 degrees the next thing is to see how much it bends so I'm going to help you to get started and then let's go ahead and bend that knee is it getting to be about it hang in there I just want to get a measurement see where we're starting from okay about 15 to 80 degrees today okay since we look at this leg where we've got a ways to go so what we'll do is get ready to go for a walk then now put on your shoes and we'll do that

B. Ambulation – level surfaces and stairs

Activity: Walking with rolling walker in kitchen, bath, living room, hallway and stairs; Use of cane on stairs

Therapist: you did a great job on the stairs can you let me know how much of that bother your knee use

that zero to ten scale

Donald: oh it was it was about a five it was it felt pretty good actually.

Therapist: very good all right in likewise when you did the walking with a cane in the hallway how much did that bother your knee on the zero to ten scale

Donald: it was about the five the same as before the only thing was this time I got a little more tired doing it

Therapist: very good

C. Home Exercise Program: Supine and sitting

PT: so you were doing some exercises probably when you were in the hospital and some. (Uses handout) of them may be similar to what I'm going to go over today but I do have a handout so just kind of take a look at that we'll be going over these and then you have any questions we'll review again before I leave so the first exercise is called a quad set what I'd like to do is have you do what we're trying to do when you're measuring to try to bear down and get that leg as straight as possible so I want you to tighten the muscle on the front of your thigh and press down into the towel try to squish that towel and then relax relax and oh yeah there you go now tighten again for me press down try to get that there you go one two three four five and rest and again one two three four five and rest very good all right building on that then is tightening the muscle and lifting the leg so I'm going to have you tighten the muscle to get as straight as possible and then ask you to lift the leg about 12 inches up here and I'll help and then I'll have to make sure you can get it done on your own okay so tighten your muscle and then now lift can you get up here let's lift and hold one two three four five and down and now relax your muscles you get a rest and then we're going again tighten and now lift lift up up up and hold one two three four five lower down keep the muscles keep the leg straight as you lower now we get a rest perfect good job okay the next thing we're going to do is I'm going to have you work the muscles on the back of your thigh and I'm going to have to dig your heel into the bed as if you were trying to bend your knee right through the bed all right so the same motion maybe of kicking off your shoes there you go okay now relax okay hold two three four five and now rest and again press and hold feel those muscles back here hold hold hold hold hold now rest very good okay the next exercise we're going to use some assistance with a garbage bag so I'll put it on for you and this idea here is to give you less resistance against when you're moving your leg for these particular exercises so get that leg in the bag and let's scoot you up just a wee bit just so well no I think you're fine I was thinking that you're going to be okay this exercise tighten the muscle on the front of your thigh and I want you to bring it out sideways towards me like this slide out and then nice slide back well you're too good you're going to you're going to have to scoot that way there now you got more room to swing then I'll help your pillows here okay all right here go up to the side and then back in this should exercise up at the top of your hip ready again and relax perfect the next thing to do is to practice bending that knee so you're going to use your muscles to try to draw your knee up towards your chest like when I measured so the bag will help you just slide up there so let's go up Bend Bend Bend you get to decide when hold and then now stretch it out straight and again by yourself bag with you there there you go hold and then stretch straight all of these exercises your goal is going to be to work up to 10 to 20 twice a day all right ok let's take the bag off and hang on I'm going to use this pillow use it like a bolster underneath your knees so let's bend that

knee up just partway and get this bigger pillow underneath there ok so now your knees a little bit bent what I want you to do is use them up from the front here to lift your foot so you're just going to try straighten your leg out ready lift come up as high as you can hold 2 3 4 5 and lower down slow it's a little bit harder and again use your muscles 1 2 3 4 5 good work and rest last two exercises I'm in heavy do sitting up ok so I'll take this pillow out and then let's see how you do getting back up so you can sit on the edge let's use these exercise bands I'll give you the blue one I have the green one what I want you to do is use it to lasso the bottom of your foot on your right leg yeah alright so sit up nice and tall and what I want to do is exercise your calf muscle by pushing down put your foot down and then up and down and up three and four perfect you got it all right to make that exercise harder you could give yourself more resistance by pulling the band closer to you okay last thing we're going to do is working on getting that knee straight and so sit up nice and tall this is the hard one all right I want you to just try to straighten it out as far as you can alright ready up and when you get to the end hold one two three and lower down slow don't let it just drop you can go a little faster okay all right now up again now as far as you can straighten that leg out hold hold hold and lower down nice good work alright so we've completed all the exercises and I am going to leave these with you okay over before I go home but the idea would be now is now you've done the exercises can you on a 0 to 10 scale okay let me know how much your knee is bothering you

Donald: well actually moving in it helps but feels like a little less like a 5 Therapist: great great that's good each of these exercises your goal is to be able to do 10 to 20 repetitions twice a day whatever we started that today gradually work yourself up so you can do at least 10 and eventually 20 in a row twice a day

Donald: okay okay

Exercises for quad set, hamstring set, SLR, heel slide, SAQ, FAQ, tband for ankle pf, df,

Review doing 2 times a day 10-20 reps of each exercise

Interactive Physical Therapy

Following are the benefits of Donald's physical therapy home exercise program exercise.

- Strength: Improves muscle strength of the lower extremities to increase independence for mobility with transfers and walking
- Range of motion: Helps increase motion of the right knee; Donald has 15-85 degrees of motion and normal motion for a total knee arthroplasty is 0-120degrees
- Walking: Helps improve endurance, promotes increased heart rate and breathing rate, increases weight bearing tolerance right knee
- Balance: increases weight bearing tolerance for standing, walking on level surfaces and stairs; helps to prevent future falls

Home Health Occupational Therapy (OT)

In this Home Health Occupational Therapist's event, you will look at four snippets, pain assessment and pain impact, cognitive assessment, home safety, and OT's Initial Visit. You will also have a chance to work on OT's interactive.

Following is the review of the event for the Home Health Occupational Therapist's visit.

Home Health OT – Pain Assessment and Pain Impact

The home health occupational therapist reviewed information about Donald's pain including severity, 24 hour pain pattern, and pain location. For a functional assessment, the OT assessed his standing tolerance and pain response to standing. Please review the slide for the OT's summary.

- Pain: Pain 6 of 10 for right knee on IPT-R; PEG score 6 of 10 for pain, enjoyment and general activity.
- 24 hour pain pattern: Best 6; worst 9; average 6 on 0-10 scale from IPT-R.
- Pain Location: Front of right knee from thigh to mid-calf.
- Standing Tolerance: Limited to 15 minutes for self-cares and kitchen activities. Utilizes rolling walker for support with Bilateral Upper Extremity (BUE) with all activities. Pain of 6 of 10 with all assessments. Independent with transfers for sitting or lying for pain reduction.

Home Health OT – Cognitive Assessment

One concern for Donald is his memory about his medication. The OT completed the Mini-Cog™ to assess Donald's cognition. The review of Mini-Cog™ indicates the initial score of 25 out of 30, which is Normal and the recheck score is 30 out of 30, which is normal.

Donald's orientation is alert, oriented to person, place, and time. Donald had some confusion when initiating OT but able to be safe in kitchen, bathroom, walking within the home. He was independent with small meal preparation and able to complete 3 step commands and instructions.

Review of Mini-Cog™

- Initial Score of 4 of 5 - Limited likelihood of cognitive impairment
- Recheck 5 of 5 - Limited likelihood of cognitive impairment

Orientation

- Alert, oriented to person, place, and time
- Some confusion when initiating OT but able to be safe in kitchen, bathroom, walking within the home.
- Independent with small meal preparation and able to complete 3 step commands and instructions

Home Health OT – Home Safety and Equipment

The OT assessed home safety with a focus on the kitchen, bathroom, handrails, and bedroom.

The result for occupational therapist's assessment indicates the following:

- Able to maneuver in kitchen with walker

-
- Able to put away dishes
 - Good standing tolerance for dishes, meal preparation, brushing teeth, self-cares
 - Able to get on/off toilet with rail and walker
 - Nonskid floor in shower
 - Emergency pull in bathroom
 - Able to use phone for emergencies

Home Health Occupational Therapy Assessment

Click each of the buttons to learn Donald's response to each question.

A. Upper Extremity Range of Motion, Strength

Therapist: hi Don what we're going to do first today is I want to check your motion and your strength for your arms and see how you're doing and then we'll actually do some walking around in the apartment see how you're doing with standing getting up and down the toilet those kinds of things and then we'll go over a home program so that you can keep working on some arm strength

Donald: sounds good thank you

Therapist: nope okay what would you rate your pain in your knee today

Donald: I'd say it's it's about a 5 it's most yeah

Therapist: okay good let's check your motion first I'll have you reach your arms up as high as you can go nice job and then I'll have you reach your hands behind your head great and then hands behind your back awesome all right let's test your strength next have you hold our arms straight out for me okay hold them there don't let me push them down and I'm gonna push perfect I'm going to step back I'll let you put your arms out to the side don't let me push down nice job okay go ahead and bend your elbows up don't let me pull I have to straighten your elbows a little bit down to here don't let me pull them up don't let me push them in don't let me pull them off to the side and don't forget to breathe nice job

Donald: thank you.

Therapist: First I want you to show me where you are having pain. (Donald show pain from mid-thigh to mid shin). I will have you sit in a chair for me so I can check your arm range of motion and strength. I will have you raise both arms above your head – touch the back of your neck, reach behind your back. Show me your elbow motion and wrist motion. Great.

Next I will test your arm strength – so we are going to do some of the same motions and test your arm strength. I will have you hold the position and resist me when I push. (Test flex, ext., abd, ER, IR elbow flex, ext., etc.)

Go ahead and stand on up and I would like to have you walk around the apartment - You can show me how you are using your walker in the bathroom, kitchen and the living room. I am going to put a safety belt on you- is that okay?

B. Functional Activities: Brushing teeth, sit to stand toilet

C. Home Exercise Program: Sitting:

OT: all right so these are the exercises that we're going to go over today we're going to do some for your shoulder and some for your elbow and we're going to use this band have you ever used a band before (Uses handout)

Donald: no

OT: okay so then I'll go ahead and put this on the table the nice thing amount of band is you can vary the resistance a little bit closer your hands are together a harder it will be farther apart the easier it is you can hold on so just by wrapping it in your palm okay so this first one what you're going to do hold your left hip hand out by your hip right one comes up and out nice job one more and go ahead and switch sides so right arm down left arm up and don't forget to breathe think nice and tall and then rest so the next one we're going to do out to the side and then I'll step so you don't so I don't get in the way I think about breathing in and blowing out nice job perfect next one you're going to do we're going to start up top and you're going to pull down okay great now I'll have you switch sides the left arm left right arm now great now the next one is the tricky one you want to wrap your hand a couple of times you're going to keep your right elbow tucked into your side we're going to bring your hand out they're going to go perfect now let you switch and do your right arm coming toward me you got it okay awesome job

Donald: so it's rotating the shoulder rather than anything with the elbow

OT: Correct okay cause you need those muscles when you're pushing on the Walker so you don't want both muscles so go too sore okay the next one you're going to actually step on it with your foot great and you're just going to bend your elbows don't forget to breathe and think nice and tall right and then the last one we're going to do you're going to let it dangle down here okay take your left hand put it on your right shoulder okay and punch out with that right shoulder - nice job and switch sides ok so right hand at your shoulder you've got it left hand out okay perfect that is great how did the band feel

Donald: it feels really good I like it

OT: and what would you rate your pain right now on your knee

Donald: actually it's about a 4 okay

OT: any pain in your shoulders arms

Donald: no a little bit of I can tell right but exercising but no pain

OT: okay awesome the one thing you won't think about with the exercises I'll leave the handout here for you but see if you can do them twice a day start with ten repetitions you want to work your way up to thirty reps of each one okay great awesome thank you

Donald: okay

OT: great awesome thank you

Donald: thank you

Exercises for shoulder flex, abd, h. abd. Row, shoulder ext, elbow flex and extension with wts and tband. Review doing 2 times a day 10-20 reps of each exercise.

Interactive Activity for Occupational Therapy

Why use a resistance band for strengthening? Following are the benefits for the use of resistance bands for Donald's occupational therapy home exercise program.

- Variable Resistance: Variable resistance of bands – can vary the resistance of each band by increasing or decreasing amount of band used

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- Inexpensive: Many resistance levels are available and inexpensive to purchase
 - Lightweight: Easy to store, lightweight and easy to complete exercises anywhere
 - Adaptable: Adapt band to resistance workouts for all body areas: arms, legs, head, trunk and full body
 - Safe and Independent: Able to be used safely and independently

Home Health Nurse Wrap-Up Visit Interview

In this Nursing Wrap-Up's event, the Home Health Nurse returns at 4 weeks to re-assess Donald and his plan of care. You will look at you will look at two snippets for the Nurse: the interview and the plan of care. You will also have a chance to work on Donald's plan of care as an interactive exercise.

Nursing Wrap-Up Visit Interview

Nursing: Hi, Donald! It is nice to see you. I wanted to follow up with you and see how you are doing?

Donald: I can't believe that it's been three weeks my pain is still there but my motion seems to be getting better I'm able to go out and play cards with some friends of mine two or three times a week for an hour I'm a little stiff when I get up but if but I can certainly certainly do it I have some friends coming over for dinner later and I can't believe how nice it is to get back to my routine.

Nursing: Let's go over your medications and you can tell me about how you are doing with taking them and storing them.

Donald: well after we talked and got the medication straightened out my daughter calls once a day and asks me about my meds I think I'm doing all right with them I can show you my medication drawer I did take your advice and put a lockbox in the in the drawer (Go to kitchen and show cupboard and locked medications)

Nursing: Tell me about the pain in your right knee?

Donald: Well my pain is dull and achy it seems to be getting better I would say that it's a 3 or 4 on the thermometer sometimes better sometimes worse my knee hurts the most when I bend it but it seems to get better every day I am sleep through the night so the pain isn't waking me up so much

Nursing: How would you compare your right knee pain and function compared to 3 weeks ago?

Donald: Well, I can go for long walks with a cane, but around the apartment and for short walks I don't need the cane at all. I do use the cane on the stairwell with the rail. I'm able to do just about everything around the apartment that I need to including laundry. I'm a little concerned about groceries, but I will be driving - I plan to be driving next week, so that should take care of that. I can hardly wait. That's the biggest change.

Interactive Plan of Care

Following is the plan of care for Donald from each provider.

Nursing

- Ready to discontinue Nursing
- Able to lock medications; taking and storing medications appropriately

Pharmacy

- Independent with medication taking and understanding

Physician

- Follow-up with surgeon at 6 weeks post-operative date
- Incision healing well right knee
- Home health care team managing post-operative care until surgeon recheck

Social Services

- Ready to discontinue Social Services
- Patient to call if needed

Physical Therapy

- Progress to outpatient physical therapy
- Independent with HEP for lower extremities; progress in PT
- Utilizing cane for walking on level surfaces and stairs; progress to independent with PT

Occupational Therapy

- Discontinue OT
- Independent with HEP for upper extremities 2-3 x a week
- Independent with home and able to resume community activities

Level of Evidence

You have concluded the case. Now let's review the level of evidence. For evidence-based practice, we have included a grading of evidence – strong, moderate, and weak. We have given some guides as to how we rated the evidence for strong, moderate and weak.

Strong Evidence: Meta-Analysis or Systematic Reviews, Randomized Clinical Trials

Moderate Evidence: Cohort Studies to help answer questions about prognosis, etiology or harm

Weak Evidence: Case Series, Case Reports, Case Control Study

Summary of Evidence

Let's summarize the evidence presented in this module.

The Iowa Pain Thermometer Revised allows for a visual rating of pain severity and shows moderate evidence.

The PEG is a multidimensional pain impact tool and shows moderate evidence for use in older adults.

The Opioid Risk Tool assessment risk for abuse of opioid medications shows moderate evidence.

The Mini-Cog™ is a tool for assessing cognition and show moderate evidence.

The KOOS is a functional outcome tool for knee pain and shows moderate evidence.

Physical therapy has shown moderate evidence for improved function following a total knee arthroplasty.

TENS has also shown moderate evidence for use in patient who have undergone total knee arthroplasty.

Take Home Messages

These are the important notes about best practice and may not have been completed in our case.

- Pain management following total knee arthroplasty includes pain assessment, assessment of pain impact, medication review, and storage of medications, medication scheduling and safety in the home.
- CDC guidelines for postoperative pain include short term use of opioids for pain management. It is important to weight the risk/benefit of pain strategies as a part of the plan of care.
- Physical therapy following total knee arthroplasty improves function and mobility more than those who do not undergo physical therapy.
- Storing and locking of medications at home are an important step of medication review.
- A home exercise program is an important part of recovery and self-management after a total knee arthroplasty

Congratulations

Congratulations! You have completed Interdisciplinary Pain Management for Donald Williams, an older adult with right total knee arthroplasty. Please take the posttest by clicking the “posttest” button.

Posttest

The posttest contain 10 questions with multiple choice answers. We have included the questions, answers and a short discussion for each question.

Test Question 1

1. What is the goal of nutritional counseling for an older adult with a body mass index of 23.1, who has postsurgical acute pain and is undergoing rehabilitation?
 - a. Begin weight loss
 - b. Focus on weight gain
 - c. Three meals per day
 - d. Maintain current weight

Answer Question 1 d. Maintain current weight

Discussion Question 1 The answer to questions is to maintain current weight. Donald has a body mass index of 23.1 which is in the normal range. It will be important for Donald to maintain his weight during his postsurgical recovery. A concern is that he lives alone and may not be able to complete meal preparation as he did prior to surgery.

Test Question 2

2. Following a unilateral total knee arthroplasty, what is the most significant predictor for severe post-operative movement pain?
- Preoperative severe movement pain
 - Preoperative low activity level
 - Body mass index greater than 30
 - Preoperative diagnosis of depression

Answer Question 2 a. Preoperative severe movement pain

Discussion Question 2 The answer to question two is preoperative severe movement pain. A study analyzed the predictors of postoperative movement pain and resting pain following total knee replacement [5]. For severe resting pain post-operatively, results indicated preoperative resting pain, depression and younger age were significant predictors. For severe movement pain postoperatively, results indicated that people with severe preoperative movement pain were 20 times more likely to have severe movement pain postoperatively. When severe preoperative movement pain was removed, depression became a predictor of severe postoperative pain. In addition, higher body mass index may predict higher pain intensity post total knee arthroplasty [6, 7]. For the other answers, they are not as clear in the prediction of higher pain intensities.

Test Question 3

3. What means would be appropriate for helping an older adult, undergoing postsurgical rehabilitation, maintain nutritional status?
- Nutritional drink supplement once a day
 - Meals on Wheels delivery 3 times a day
 - Self-preparation of meals 3 times a day
 - Family preparation of meals 3 times a day

Answer Question 3 b. Meals on Wheels delivery 3 times a day

Discussion Question 3 The answer to question 3 is the meals on wheels delivery 3 times a day. These home delivered meals have a variety of balance of nutritional elements needed for an older adult. Often family preparation and self-preparation of meals may have higher caloric intake, less of a variety of nutrients and food of meals. Nutritional supplements are meant to support a diet rather than be a replacement of a meal.

Test Question 4

4. What type of home exercise program best reduces pain in an older adult one week postsurgical total knee arthroplasty?
- Strengthening of the involved extremity
 - Passive motion of the involved extremity
 - Repetitive stair climbing with the involved extremity

- d. High impact aerobic exercise with involved extremity

Answer Question 4 a. strengthening of the involved extremity

Discussion Question 4 The answer to question 4 is strengthening of the involved extremity. Strengthening has shown better outcomes for pain reduction than compared to other types of exercise. Passive range of motion following total knee arthroplasty does not improve outcomes. Repetitive stair climbing and high impact aerobic exercise may be too aggressive following a total knee arthroplasty at week one post-surgery as it may overstress the joint and surrounding tissues and cause increased pain and swelling [8, 9]

Test Question 5

5. What is the primary benefit of band resistance in an exercise program?
- Maintaining balance
 - Improving range of motion
 - Strengthening activity
 - Improving coordination

Answer Question 5 c. strengthening activity

Discussion Question 5 The answer to question 5 is strengthening activity. Resistance bands have a variable resistance and is adaptable to many joints. The benefit of strengthening can be improved range of motion and coordination. Thera band can be used to challenge balance but the primary benefit is strengthening.

Test Question 6

6. What is the least risk/most benefit treatment for pain management you can provide for an older adult with anxiety and postsurgical total knee arthroplasty?
- Opioid medications
 - Non-Opioid medications
 - Deep relaxation techniques
 - Transcutaneous electrical nerve stimulation (TENS)

Answer Question 6 c. Deep relaxation techniques

Discussion Question 6 The answer to question 6 is deep relaxation techniques. Deep relaxation has the least risk and most benefit. Deep relaxation has fewer risks than all 3 of the other choices. Opioid medications may be used for short term postoperative care but are limited in usage. [10] Non-opioid medications have benefit but come with more risks than deep relaxation and TENS [5, 11, 12].

Test Question 7

7. What is the best safety measure to teach an older adult at home who is taking opioids for pain management?
- Tell neighbors about the medications
 - Avoid use with benzodiazepines
 - Store opioids in medication cabinet
 - Do not use stairs while taking opioids

Answer Question 7 b. Avoid use with benzodiazepines

Discussion Question 7 The answer to question 7 is to avoid the use of benzodiazepines. Opioids and benzodiazepines both work to slow the central nervous system and may cause potential suppression of the respiratory system and possible death. The other answers are incorrect as it is unsafe to talk neighbors about the opioids due to possible theft. Storing opioids in a medication cabinet may be insufficient to protect the medications from theft and misuse by others and it is recommended to lock opioid medications in a safe place. Stairs may be used with taking of opioids but there is an increased risk of falls with the first two weeks of new opioid and handrails are important for safety with stair negotiation.

Test Question 8

8. You would expect that an older adult undergoing postsurgical rehabilitation would need opioids for pain management based on CDC guidelines for what time period?
- 1 day
 - 1-2 weeks
 - 2-3 weeks
 - 2-3 months

Answer Question 8 b. 1-2 weeks

Discussion Question 8 The answer to question 8 is 1-2 weeks based on the CDC guidelines for opioid medications and the Interagency Guideline on Prescribing Opioids for Pain [10, 13]. Some patients may require longer period of opioid use, but should be evaluated for severity of pain, reduction in pain with treatment, lack of adverse effects and improvements in function. Careful evaluation and monitoring of opioid use is expected to reduce misuse and abuse.

Test Question 9

9. What non-pharmacological strategy would you recommend for pain management in an older adult one week postsurgical total knee arthroplasty?
- Talking about the patient's concerns
 - Immobilizing the surgical site
 - Swimming to increase activity

- d. Reducing overall activity

Answer Question 9 a. talking about the patient's concerns

Discussion Question 9 The answer to question 9 is talking about the patient's concerns. This method can reduce the impact of psychosocial factors in individuals with pain. Immobilizing the joint and reducing overall activity may increase pain and reduce function. Swimming to increase activity is contraindicated for a period of time following total knee arthroplasty, but would be a reasonable option later in the postoperative course.

Test Question 10

10. A pharmacist has reviewed medications with an older adult living at home and concerns about medication compliance. What is the next step for the pharmacist in a home health interdisciplinary care model?
- a. Call physical therapist
 - b. Call occupational therapist
 - c. Call nurse case manager
 - d. Call social worker

Answer Question 10 c. Call nurse case manager

Discussion Question 10 The answer to question 10 is to call the nurse case manager. Communication between healthcare services is important and medication review is most appropriate to the scope of practice of the nurse. The other clinicians may inquire about medication as it relates to their field however they do not have the ability to perform medication reconciliations, review medications and perform patient medication education as does the nurse.

Activities:

At the end of each event, there is an activity to help reinforce the concepts in the case. Below is an overview of each activity and the activity description.

Event	Activity	Activity Description
1	Risk Benefit Analysis for Pain Management after Total Knee Arthroplasty	Three areas for pain management following a total knee arthroplasty are explored for risk benefit analysis: <ol style="list-style-type: none"> 1. Opioid medications [10] 2. Non-opioid medications [11] 3. Nonpharmalogical strategies The student will type in an example and the risks and benefits are displayed
2	Nursing Physical Exam	The user will click on a number to see the results of the home health nursing physical exam
3	Lock Your Meds	A review of the Lock Your Meds™ program and the user chooses the best option for Donald to lock his medications[13]
4	Support for Donald	This activity reviews the people in Donald's support system and the role of each individual[14]
5	Benefits of Physical Therapy Exercise Program	Four benefits of physical therapy in total knee arthroplasty care are reviewed: Strength, range of motion, walking, and balance [8, 9]
6	Benefits of Resistance Band for Occupational Therapy Home Exercise Program	Five benefits of the use of Resistance Band for strengthening are reviewed: variable resistance, inexpensive, lightweight, adaptable, safe and independent use
7	Interactive Plan of Care	The user will click on each area to determine the plan of care for Donald after 4 weeks of home health services.

Videos

In the module, there are videos to provide further information regarding the case and the events.

Below is an overview of each video, the event it occurs, length of video and participants and a place for you to make notes.

Event	Topic	Length	Video/Images
Introduction	Donald's Self History	2 minutes	Donald reviews his history, his concerns upon returning home and a preview of the upcoming events.
Pharmacist Telephone Call	Medication Review	4 minutes	The pharmacist from his local pharmacy calls to review his medication over the telephone.
Pharmacist and Nursing Telephone Call	Medication Review and Pharmacist Concerns	2 minutes	The pharmacist calls the nurse who will see Donald at home with concerns about one of his medication.
Home Health Nursing	Pain Assessment Medication Review	7 minutes	Assessment of pain and medication review with Donald at home.
Home Health Social Services	Interview	4 minutes	A social services interview which covers family and social support, pain impact and functional activity impact.
Home Health Physical Therapy	Assessment Mobility Home Exercise Program	13 minutes	Physical therapy for pain assessment, physical exam and home exercise program.
Home Health Occupational Therapy	Assessment Home Exercise Program	5 minutes	Occupational therapy for pain assessment, physical exam and home exercise program.
Home Health Nursing	Wrap Up Interview	3 minutes	Wrap up with Donald at 4 weeks post total knee arthroplasty to review progress and plan of care.

Supplemental Materials and Resources

Pain Information

There are several internet websites where you can learn more about pain: International Association for the Study of Pain:

<http://www.iasp-pain.org/> American Pain Society:

<http://americanpainsociety.org/>

American Academy of Pain Management:

<http://www.aapainmanage.org/> American Academy of Pain

Medicine: <http://www.painmed.org/> American Chronic Pain

Association: <https://theacpa.org/>

National Fibromyalgia & Chronic Pain Association: <http://www.fmcpaware.org/>

Institute of Medicine

In 2011, the Institute of Medicine (IOM) released a report regarding pain as a public health problem in the United States. The IOM recommended relieving pain become a national priority [15]. IOM Link: <http://www.nationalacademies.org/hmd/Reports/2011/Relieving-Pain-in-America-A-Blueprint-for-Transforming-Prevention-Care-Education-Research.aspx>

National Pain Strategy

The U.S. Department of Health and Human Services, in 2016, outlined the nation's first coordinated plan for reducing chronic pain The National Pain Strategy (NPS). It was developed by a diverse team of experts from around the nation, the National Pain Strategy is a roadmap toward achieving a system of care in which all people receive appropriate, high quality and evidence-based care for pain [16]. NPS Link: https://iprcc.nih.gov/National_Pain_Strategy/NPS_Main.htm

CDC Guideline for Prescribing Opioids

In 2016, the Center for Disease Control released the guideline for prescribing opioids for chronic pain [10]. Article Link: <http://jama.jamanetwork.com/article.aspx?articleid=2503508>

Disclaimer

This curriculum resource was supported with funding from the NIH Pain Consortium, which approves the educational value of the information provided. The authors listed on this resource are responsible for its content, and questions may be directed to their Center of Excellence in Pain Education. The NIH Pain Consortium provides these evidence-based curriculum resources on pain management as a service to academic medical, dental, nursing, pharmacy, and other health professional schools.

This resource is for educational purposes and is not intended as medical practice guidelines. Evidence-based practices may have changed since the publication of the resource.

Assessment Tools

Many assessment tools are available for use in individuals with acute pain, chronic pain or acute on chronic pain. We have used 6 assessment tools in our module in the table that summarizes Mr. Williams beginning and ending scores. In the Appendix you will find the forms we used. Not all are in the public domain and may require permission from the author for use.

Tool	Domain	Initial Score	Post TKA 4 weeks	Range	Interpretation
IPT-R	Pain	6	4	0-10	6=moderate to severe pain 4=mild to moderate pain
PEG	<ul style="list-style-type: none"> • Pain • Enjoyment • General activity 	<ul style="list-style-type: none"> • 6 • 6 • 6 	<ul style="list-style-type: none"> • 4 • 4 • 4 	0-10	6=moderate pain or interference 4=mild to moderate pain or interference
Mini-Cog™	Cognition	4	5	0-5	0, 1, 2=Suggests cognitive impairment 3, 4, 5 =Lower likelihood of cognitive impairment
ORT	Opioid Risk	4	NA	0-26	Risk for future opioid abuse Moderate 4-7
GAD7	Anxiety	12	9	0-21	9=mild to moderate 12=moderate anxiety
KOOS	Knee OA <ul style="list-style-type: none"> • Symptoms • Pain • Function • Recreation • Quality of life 	<ul style="list-style-type: none"> • 36 • 29 • 47 • 5 • 0 	<ul style="list-style-type: none"> • 61 • 43 • 69 • 10 • 44 	0-100	5 subscales; no overall score 0=extreme symptoms 100=no symptoms

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- Carol GT Vance as Physical Therapist
- Dana Dailey as Occupational Therapist

Narrators:

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- Melissa Richlen

Reviewers:

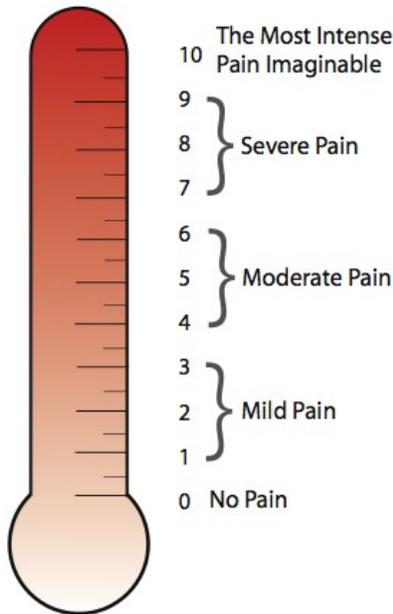
- Carol Gorney, MPAS, PA-C
- Anthony Brenneman, MPAS
- Anne Smith, RN

A special thanks to **Oaknoll Retirement Residence, Iowa City, Iowa** for providing space and time for video recording.

Appendix

Appendix A: Iowa Pain Thermometer Revised (IPT-R)

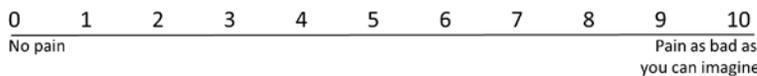
Circle a number on the Pain Thermometer below that best represents the intensity of your pain right now.



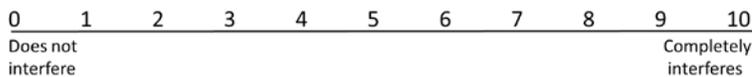
Used with permission Keela Herr, PhD, RN, AGSF, FAAN, College of Nursing, The University of Iowa, Iowa City, IA, USA[17]

Appendix B: Pain, Enjoyment and General Activity (PEG)

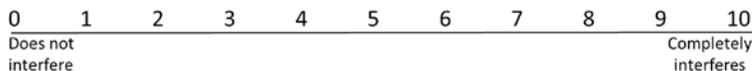
1. What number best describes your pain on average in the past week?



2. What number best describes how, during the past week, pain has interfered with your enjoyment of life?



3. What number best describes how, during the past week, pain has interfered with your general activity?



Appendix C: Opioid Risk Tool (ORT)

Mark each box that applies	Female	Male
1. Family history of substance abuse		
Alcohol	<input type="checkbox"/> 1	<input type="checkbox"/> 3
Illegal drugs	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Prescription drugs	<input type="checkbox"/> 4	<input type="checkbox"/> 4
2. Personal history of substance abuse		
Alcohol	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Illegal drugs	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Prescription drugs	<input type="checkbox"/> 5	<input type="checkbox"/> 5
3. Personal history of substance abuse	<input type="checkbox"/> 1	<input type="checkbox"/> 1
4. History of preadolescent sexual abuse	<input type="checkbox"/> 3	<input type="checkbox"/> 0
5. Psychological disease		
ADD, OCD, bipolar, schizophrenia	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Depression	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Total		

Total Score Risk Category:

Low Risk 0 – 3 Moderate Risk 4 – 7 High Risk > 8

Reference: Webster LR.

[19] Predicting aberrant behaviors in opioid-treated patients: Preliminary validation of the opioid risk tool. Pain Medicine. 2005; 6(6):432-442.

Appendix D: General Anxiety Disorder 7 (GAD-7)

Over the last 2 weeks, how often have you been bothered by the following problems?

Mark each box that applies	Not at all	Several days	More than half the days	Nearly every day
6. Feeling nervous, anxious or on edge	0	1	2	3
7. Not being able to stop or control worrying	0	1	2	3
8. Worrying too much about different things	0	1	2	3
9. Trouble relaxing	0	1	2	3
10. Being so restless that it is hard to sit still	0	1	2	3
11. Becoming easily annoyed or irritable	0	1	2	3
12. Feeling afraid as if something awful might happen	0	1	2	3
Total (add columns) _____				

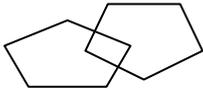
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home or get along with other people?

Not difficult at all Somewhat difficulty Very difficult Extremely difficult

Reference

[20] Spitzer RLp, Kroenke Kp, Williams JBp, Lowe Bp: A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine* 2006, 166(10):1092-1097.

Appendix E: Mini-Mental State Exam (MMSE)

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day of the week? Month?"
5		"Where are we now: State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until the patient learns all of them, if possible. Number the trails: _____
5		"I would like to count backwards from 100 by sevens." (93, 86, 79, 72, 65,) Stop after five answers. Alternate: "spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Rephrase the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your hands, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.) 
30		Total

Appendix F: Knee Injury and Osteoarthritis Outcome Score (KOOS)

Name: _____ Date: _____

INSTRUCTIONS: This survey asks for your view about your knee. This information will help us keep track of how you feel about your knee and how well you are able to perform your usual activities. Answer every question by ticking the appropriate box, only one box for each question. If you are unsure about how to answer a question, please give the best answer you can.

Symptoms

These questions should be answered thinking of your knee symptoms **during the last week**. The following questions should be graded as one of the following:

- Always
- Often
- Sometimes
- Rarely
- Never

1. Do you have swelling in your knee?
2. Do you feel grinding, hear clicking or any other type of noise when your knee moves?
3. Does your knee catch or hang up when moving?
4. Can you straighten your knee fully?
5. Can you bend your knee fully?

Stiffness

The following questions concern the amount of joint stiffness you have experienced during the last week in your knee. Stiffness is a sensation of restriction or slowness in the ease with which you move your knee joint. The following questions should be graded as one of the following:

- None
- Mild
- Moderate
- Severe
- Extreme

1. How severe is your knee joint stiffness after first wakening in the morning?
2. How severe is your knee stiffness after sitting, lying or resting later in the day?

Pain

The following questions should be graded as one of the following:

- Never
 - Monthly
 - Weekly
 - Daily
 - Always
1. How often do you experience knee pain?
What amount of knee pain have you experienced the last week during the following activities?
 2. Twisting/pivoting on your knee
 3. Straightening knee fully
 4. Bending knee fully
 5. Walking on flat surface
 6. Going up or down stairs
 7. At night while in bed
 8. Sitting or lying
 9. Standing upright

Function, daily living

The following questions concern your physical function. By this we mean your ability to move around and to look after yourself. For each of the following activities please indicate the degree of difficulty you have experienced in the **last week** due to your knee. The following questions should be graded as one of the following:

- None
 - Mild Moderate
 - Moderate
 - Severe
 - Extreme
1. Descending stairs
 2. Ascending stairs
For each of the following activities please indicate the degree of difficulty you have experienced in the last week due to your knee.
 3. Rising from sitting
 4. Standing
 5. Bending to floor/pick up an object
 6. Walking on flat surface
 7. Getting in/out of
 8. Going shopping
 9. Putting on socks/stockings
 10. Rising from bed

11. Taking off socks/stockings
12. Lying in bed (turning over, maintaining knee position)
13. Getting in/out of bath
14. Sitting
15. Getting on/off toilet

For each of the following activities please indicate the degree of difficulty you have experienced in the last week due to your knee.

16. Heavy domestic duties (moving heavy boxes, scrubbing floors, etc.)
17. Light domestic duties (cooking, dusting, etc.)

Function, sports and recreational activities

The following questions concern your physical function when being active on a higher level. The questions should be answered thinking of what degree of difficulty you have experienced during the **last week** due to your knee. The following questions should be graded as one of the following:

- None
 - Mild
 - Moderate
 - Severe
 - Extreme
1. Squatting
 2. Running
 3. Jumping
 4. Twisting/pivoting on your injured
 5. Kneeling

Quality of Life

The following questions should be graded as one of the following:

- None
 - Mild
 - Moderate
 - Severe
 - Extreme
1. How often are you aware of your knee problem?
 2. Have you modified your life style to avoid potentially damaging activities to your knee?
 3. How much are you troubled with lack of confidence in your knee?
 4. In general, how much difficulty do you have with your knee?

Thank you very much for completing all the questions in this questionnaire.

References

1. Fishman SM, Young HM, Lucas Arwood E, Chou R, Herr K, Murinson BB, Watt-Watson J, Carr DB, Gordon DB, Stevens BJ *et al*: **Core competencies for pain management: results of an interprofessional consensus summit.** *Pain Med* 2013, **14**(7):971-981.
2. **Core Competencies for Interprofessional Collaborative Practice: Report of An Expert Panel.** [<http://www.aacn.nche.edu/education-resources/ipcreport.pdf>]
3. **Total Knee Replacement** [<http://orthoinfo.aaos.org/topic.cfm?topic=A00389>]
4. **Knee replacement** [<http://www.mayoclinic.org/tests-procedures/knee-replacement/basics/definition/PRC-20019202>]
5. Rakel BA, Blodgett NP, Bridget Zimmerman M, Logsden-Sackett N, Clark C, Noiseux N, Callaghan J, Herr K, Geasland K, Yang X *et al*: **Predictors of postoperative movement and resting pain following total knee replacement.** *Pain* 2012.
6. Lindberg MFp, Rustoen Tp, Miaskowski Cp, Rosseland LAp, Lerdal Ap: The relationship between pain with walking and self-rated health 12 months\par following total knee arthroplasty: a longitudinal study.\par. *BMC musculoskeletal disorders*\par 2017, **18**\par(1\par):75\par.
7. Cooper NAp, Rakel BAp, Zimmerman Bp, Tonelli SMP, Herr KAp, Clark CRp, Noiseux NOP, Callaghan JJp, Sluka KAp: **Predictors of multidimensional functional outcomes after total knee arthroplasty.**\par. *Journal of orthopaedic research : official publication of the Orthopaedic*\par *Society*\par 2017.
8. Warren Mp, Kozik Jp, Cook Jp, Prefontaine Pp, Ganley Kp: A Comparative Study to Determine Functional and Clinical Outcome Differences\par Between Patients Receiving Outpatient Direct Physical Therapy Versus Home\par Physical Therapy Followed by Outpatient Physical Therapy After Total Knee\par Arthroplasty.\par. *Orthopedic nursing*\par 2016, **35**\par(6\par):382-390\par.
9. Artz Np, Elvers KTp, Lowe CMp, Sackley Cp, Jepson Pp, Beswick ADp: Effectiveness of physiotherapy exercise following total knee replacement:\par systematic review and meta-analysis.\par. *BMC musculoskeletal disorders*\par 2015, **16**\par:15\par.
10. Dowell D, Haegerich TM, Chou R: CDC Guideline for Prescribing Opioids for Chronic Pain--United States, 2016. *Jama* 2016, **315**(15):1624-1645.
11. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *J Am Geriatr Soc* 2015, **63**(11):2227-2246.
12. Rakel B, Frantz R: Effectiveness of transcutaneous electrical nerve stimulation on postoperative pain with movement. *JPain* 2003, **4**(8):455.
13. Interagency Guideline on Prescribing Opioids for Pain [<http://www.agencymeddirectors.wa.gov/Files/2015AMDGOpioidGuideline.pdf>]
13. **Lock Your Meds TM** [<http://www.lockyourmeds.org/>]

14. Harkey J, Young J, Carter JJ, Demoratz M: Supporting the Support System: How Assessment and Communication Can Help Patients and Their Support Systems. *Professional case management* 2017, 22(4):174-180.
15. (IOM) IoM: Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education and Research. In. Washington, DC: The National Academies Press;2011.
16. Interagency Pain Research Coordinating Committee NPSI: **National Pain Strategy**. In. Washington, DC; 2016.
17. Herr KA, Garand L: **Assessment and measurement of pain in older adults**. *Clinics in geriatric medicine* 2001, 17(3):457-478, vi.
18. Krebs EE, Lorenz KA, Bair MJ, Damush TM, Wu J, Sutherland JM, Asch SM, Kroenke K: **Development and initial validation of the PEG, a three-item scale assessing pain intensity and interference**. *Journal of general internal medicine* 2009, 24(6):733-738.
19. Webster LRp, Webster RMp: Predicting aberrant behaviors in opioid-treated patients: preliminary validation \par of the Opioid Risk Tool.\par. *Pain medicine (Malden, Mass)\par* 2005, 6\par(6\par):432-442\par.
20. Spitzer RLp, Kroenke Kp, Williams JBp, Lowe Bp: **A brief measure for assessing generalized anxiety disorder: the GAD-7.\par**. *Archives of internal medicine\par* 2006, 166\par(10\par):1092-1097\par.
21. Roos EMp, Toksvig-Larsen Sp: Knee injury and Osteoarthritis Outcome Score (KOOS) - validation and comparison\par to the WOMAC in total knee replacement.\par. *Health and quality of life outcomes\par* 2003, 1\par:17\par.