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Pain Management and Opioid Abuse



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Course Introduction

An estimated 100 million Americans live with some type of pain, and pain remains one of the most common reasons people seek health care. At the same time, the ongoing opioid epidemic continues to affect patients, caregivers, and healthcare workers, and deaths from opioid overdose continue to rise. Nurses and other healthcare professionals must be able to provide safe, effective pain relief while recognizing and responding to the risks of opioid misuse.

This course reviews the essential concepts of pain, including how pain is defined, the different types of pain, and why each person's experience of pain is unique. Participants will learn how to assess pain, set pain management goals with patients, and apply current pharmacological and non-pharmacological treatments. The course also examines the history of the opioid epidemic in the United States, the signs and symptoms of opioid use disorder and opioid diversion, and the nurse's role in prevention, treatment, and patient education.

How This Course Is Organized

This course is divided into three parts, each building on the one before it. Each part contains its own sections, personal reflection questions, and references.

- **Part 1: Pain Management.** The experience of pain, pain assessment and goal setting, and an overview of treatment options.
- **Part 2: Effective Pain Management Strategies.** Types of pain, adult and pediatric assessment, personalized pain goals, and current treatments.
- **Part 3: Prescription Opioid Medications and Abuse.** Opioid use disorder, opioid diversion, the opioid epidemic, naloxone, and case studies.

PART 1

Pain Management

Part 1 lays the foundation for the course. It explains how the body detects and interprets pain, why the experience of pain is subjective, and how patient reporting and the different types of pain add to the complexity of care. It then reviews pain assessment and goal setting, including patient observation, active listening, and assessment tools such as the Wong-Baker FACES rating scale, the WILDA approach, and the PAINAD scale, before closing with an overview of non-pharmacological and pharmacological treatment options.

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In this part:

- Introduction
- Section 1: Pain
- Section 2: Pain Assessment and Goal Setting
- Section 3: Pain Management
- Conclusion

Introduction

It has been estimated that 100 million Americans suffer from some type of pain[1]. Pain has become so widespread, it is often referred to as one of the primary reasons individuals seek health care[1]. With the prevalence of pain on the rise, health care professionals must possess a clear understanding of pain and pain management. Part 1 of this course will review the essential concepts of pain and pain management, while providing health care professionals with information to help them safely and effectively administer health care to patients experiencing pain.

Section 1: Pain

A team of health care professionals meet first thing in the morning to conduct their interdisciplinary rounds. Their patient load is quite full so they begin their rounds without delay. The health care team's first patient is a 26-year-old male who has recently suffered multiple rib fractures and minor internal injuries due to a motor vehicle accident. Upon entering the patient's room, the patient immediately informs the team that he is in a lot of pain. He then requests "stronger pain meds" because he claims he is in constant pain. A member of the health care team asks the patient to rate his pain on a scale from 0 to 10. The patient responds and tells the health care team that his pain is about a 7 or an 8. The patient then goes on to explain that his pain increases to a 9 when he "moves a lot." The team examines the patient and reviews the patient's current medication list, which includes both Percocet and acetaminophen as needed for pain. Before the health care team leaves the patient's room, the patient goes on to explain that he is nervous about his upcoming discharge because he is in pain and he wants to make sure he has "enough pain meds" to take upon his discharge. As the health care team exits the patient's room, the patient's mother approaches

the team. She follows them away from the patient's room and begins to discuss her concerns about her son's current condition. The patient's mother informs the team that her son has a "drinking problem" and she is pretty sure he has used "drugs" in the past. The patient's mother then goes on to say that she has observed her son when his friends have come to visit him. The patient's mother reports her son does not appear to be in pain when he has visitors. He often smiles, jokes and moves around his bed with ease. The mother then questions how much pain her son is actually in and asks the health care team what medications they plan on prescribing her son upon his discharge.

After speaking to their first patient's mother, the health care team move on to their second patient. The health care team's second patient is an 85-year-old female with a history of insulin dependent diabetes, hypertension and osteoporosis. The patient was recently diagnosed with multiple vertebral compression fractures of her spine and diabetic foot ulcers. Upon entering the patient's room, members of the health care team observe the patient sitting in, what appears to be, a very uncomfortable upright position. Members of the health care team attempt to adjust the patient's position but before they can do so the patient stops them because she claims her current position is the only comfortable position she can lie in due to her pain. Unfortunately, when asked to rate her pain on a scale from 0 - 10, the patient is unable to do so. The patient simply says her pain "hurts and is bothering her like it has been." The patient is not able to provide the health care team with any additional information regarding her pain. However, the patient's husband does express that he believes his wife is in "more pain than usual." After speaking to the patient and her husband the team reviews the patient's medications, which include MS-Contin 15 mg every 12 hours and lorazapm 0.5 mg every 12 hours as needed.

The health care team then moves on to their next patient, a 64-year-old female who has undergone colon surgery. Members of the health care team assess the patient. The patient is laying very still and expresses a lack of interest in moving.

The patient's blood pressure is 134/86. When asked to rate her pain on a scale of 0 - 10, the patient reports her pain is close to a 4 or a 9. The patient also reports she is having trouble breathing and is feeling anxious about how much worse her pain is going to get. The health care team reviews the patient's medications, which include a morphine patient-controlled analgesia (PCA) pump.

After completing the rest of their rounds, the health care team meets to discuss their patients. The team is able to work through their patient load and develop a course of treatment for each patient in a relatively straightforward manner. However, the three patients highlighted above pose a significantly more complex challenge for the health care team and require additional attention. The reason the aforementioned patients require additional attention from the health care team is due to their reported pain. Each of the three patients in the above cases reports they are in significant pain and require treatment to ease their current states. However, as highlighted by the above cases, treating and managing pain can be a difficult challenge for health care professionals due to a wide range of complicated factors.

Pain is the body's reaction to actual or potential damage and/or destruction[2]. When the body is being harmed from internal or external forces, pain lets the body know it is in danger so it can react in order to protect itself from any harm that may be done to it. In essence, pain is the body's warning system or alarm system. When a warning system or an alarm goes off, individuals are alerted to potential danger. When an individual hears a warning system or an alarm they immediately react and adjust their behavior to avoid any harm from being done to them. The same may be said for pain and the human body. When the body feels a sensation of pain, it instantly reacts to avoid harm. The following example will highlight the previous concept. An individual is walking barefoot in a parking lot. After walking through the parking lot for a few minutes, the individual inadvertently steps on a 2 inch piece of broken glass which gets imbedded deep into the left foot. Upon stepping on the piece of broken glass, the individual

immediately feels an extreme sensation of pain radiating from the left foot. Due to the pain, the individual stops walking and seeks medical attention to remove the glass shard and clean and close the wound. In the previous example pain acted as a warning system. It let the individuals' body know it was in immediate danger so it could react and avoid further damage or destruction. If the individual in the previous example did not have the ability to feel pain, the individual may have continued walking with the shard of glass in the left foot for a long period of time, which may have lead to potentially irreversible damage to the foot. In the previous example, pain alerted the individual to danger before an extreme amount of destruction was done to the foot. In short, pain saved the individual from serious injury. For some of us, pain may be an unpleasant part of life; however, as the previous example illustrated, it is a necessary part of the human body's process to avoid trauma.

In order for the human body to feel pain it relies on nociceptors[2]. A nociceptor is a peripherally localized neuron which is sensitive to noxious stimulus[2] such as tissue damage, intense pressure and extreme temperature fluctuations. When a nociceptor is stimulated by noxious stimulus it sends messages to the spinal cord[2]. Once the messages are received by the spinal cord, they travel to the brain via the spinothalamic tract[2]. The spinothalamic tract can refer to the sensory pathway, which takes pain information from nociceptors through the spinal cord and up to the thalamus[2], a small structure within the brain located above the brain stem. When the pain information reaches the thalamus, it is then relayed to the somatosensory cortex[2]. The somatosensory cortex is the part of the brain responsible for processing somatic sensations such as pain. Once the pain information reaches the somatosensory cortex it is processed and interpreted. The body then reacts based on the interpretation of the pain information. The aforementioned process occurs extremely fast and allows the human body to react almost instantly to various pain sensations. For example, a 12 year-old boy places his hand on a stove top, which happens to be on and very hot. As soon as

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the boy places his hand on the stove, nociceptors are activated and send pain information to the spinal cord. The pain information then travels up to the brain where it is processed and interpreted. Based on the interpretation of the pain information the body reacts and the boy quickly removes his hand from the stove top before it is severely burned. The whole process outlined in the previous example occurs within a second or less, preventing serious injury to the 12 year-old boy. The human body feels pain and reacts in a relatively straightforward manner. Unfortunately, treating and managing pain is not as straightforward as the previously outlined process. There are many factors which contribute to the complexity of managing pain.

The Experience of Pain

Pain, as it relates to health care, can refer to an unpleasant sensory and emotional experience arising from actual or potential tissue damage[3]. The experience of pain can include more than just a biological reaction. An individual's experience of pain can also be influenced by psychological factors which make up the full gamut of human emotion. Essentially, what the previous definition of pain is proposing and highlighting is that every person possesses the potential to experience pain in a different and unique way due to his or her particular biological and psychological makeup. The potential for individually different and unique experiences of pain is one of the major factors which contributes to the complexity of managing pain.

As previously mentioned, the human body experiences pain when the nociceptors react to noxious stimulus. Messages from the nociceptors are then sent to the spinal cord where they travel up to the brain via the spinothalamic tract[2]. Once pain messages reach the brain they are received by the somatosensory cortex, where they are interpreted[2]. At that point, during the interpretation of pain messages, individual psychological factors such as perception and consciousness may begin to play a role in the experience of pain.

It has been said that every individual has a unique perception and consciousness. Perception can refer to the process of interpreting stimuli. In other words, perception can refer to the process the human brain uses to organize stimuli and turn it into useful information the body can then use to effectively react to its environment. For example, an individual enters an office building. Upon entering the building the individual smells smoke, feels heat and sees flames. Immediately the individual's body takes in the aforementioned stimuli. Once the individual's body takes in the stimuli, the individual's perception organizes the stimuli, interprets it and turns it into useful information. The useful information in the previous example is that there is a fire in the building the individual just entered. As a result of the quick perception of fire, the individual turns around and quickly exits the building before any harm is done. In the previous example, a rapid interpretation of stimuli allowed the individual to almost instantly perceive fire and appropriately react before any serious injuries occurred.

On the other hand, consciousness can refer to an individual's awareness of self and his or her environment. Human consciousness allows individuals to take in a multitude of information and stimuli from a myriad of different sources, simultaneously, in order for that information to be organized and interpreted. Many have thought of consciousness as light, which illuminates whatever it shines on in order for individuals to see the world around them. Consciousness is essential to human existence because without it, individuals would be completely unaware of themselves or the world around them, making it nearly impossible for survival. Essentially, consciousness is the force behind Self and how individuals think, learn and react. Furthermore, consciousness and perception are linked and develop over time. In part, an individual's perception and consciousness are comprised of his or her own personal life experiences as well as external factors such as: family, friends, community, culture, stress and trauma. As an individual's perception and consciousness are constructed, they take in information and store the information in order to interpret internal and external stimuli. In short, an

individual's perception and consciousness may influence how he or she experiences the world as well as different sensations. In essence, perception and consciousness may dictate biological and psychological reactions to internal and external stimuli. The following example will highlight the previous concepts.

Child 1 lives on a street near a very busy intersection. Often vehicles speed through the intersection. Over time, Child 1 learns and observes that speeding vehicles can be dangerous. As a result, Child 1 associates speeding vehicles with danger and that information is stored in Child 1's consciousness. As Child 1's consciousness continues to develop, Child 1 becomes increasingly aware of speeding vehicles. When Child 1 plays outside near the street, Child 1 is aware of traffic and the sound of speeding vehicles. Every time Child 1 hears or perceives a speeding vehicle traveling on the street or going through the intersection, Child 1's senses are heightened, Child 1's body tenses up and Child 1 becomes slightly anxious. Essentially, Child 1 experiences a biological reaction from what is perceived or acknowledged by the consciousness as a potential for harm. In this case, Child 1's body is reacting to the conscious awareness that a speeding vehicle has the potential to cause injury and even death if it were to hit a person. Due to Child 1's perception and conscious awareness, which are based on learned and stored information, Child 1 has a biological and psychological reaction to the sensation and experience of a speeding vehicle traveling through an intersection. One day Child 1 has a friend, Child 2, over to play. Child 2 lives in a house which is very isolated. There is little to no vehicle traffic near or around Child 2's house. Child 2 often plays near the road without ever seeing or hearing a vehicle speeding. Child 2 grows up with very little fear of street traffic or busy intersections. Upon arriving at Child 1's house, Child 2 requests to go outside and play catch with a ball. Child 1 likes to play catch, so Child 1 and Child 2 proceed to go outside and play catch, which inevitably leads them near the street. Eventually, Child 2 misses the ball and the ball rolls into the street and towards the busy intersection. Child 2 immediately runs into the street after the ball. However, Child

1 makes no movements towards the street or the rolling ball. As Child 2 approaches the intersection, Child 1 hears and perceives a speeding vehicle. Child 1 immediately tenses up and feels anxious. Child 2 is not in tune to the sounds of the speeding vehicle and is unaware of the impending danger. Therefore, Child 2 proceeds towards the intersection. Just as Child 2 gets closer to the intersection, Child 1 emphatically yells at Child 2 to get out of the street. Child 2 hears Child 1 yelling and proceeds to quickly get out of the street. The ball rolls through the intersection and gets hit by the speeding vehicle. Child 1 and Child 2 are not injured in any way. In the previous example, Child 2 had not learned significant information regarding speeding vehicles and the potential of harm prior to playing with Child 1. Therefore, Child 2 did not have enough relevant information stored in the consciousness to react appropriately or safely when the ball rolled into the street. As a result, Child 2 ran into the street and towards the intersection without regard for safety. On the other hand, Child 1 had learned about the danger of speeding vehicles. The relevant information regarding speeding vehicles and the potential for harm, was stored in Child 1's consciousness. Therefore, when Child 1 perceived the speeding vehicle and became consciously aware of the potential for danger, Child 1 experienced a biological and psychological reaction. Child 1's body tensed up and Child 1 began to feel anxious. Luckily, Child 1 was able to warn Child 2 of the potential for danger before any harm was done. In the previous example, Child 1 and Child 2 experienced the same situation of a ball rolling into the street towards an intersection. However, Child 1 and Child 2's experiences and reactions were very different when compared to each other. Child 1 and Child 2 experienced different biological and psychological reactions to the same situation due to their own perception and consciousness. When the ball rolled towards the intersection and a speeding vehicle was heading right for it, Child 1 felt tense and anxious while Child 2 felt carefree enough to keep running after the ball. In short, due to a host of different factors, Child 1 and Child 2 had unique experiences to the same event. The aforementioned concepts which apply to the previous example may also be applied to pain. Just as Child 1 and Child 2 had unique experiences to the same

event, different individuals may have unique experiences to the same type of pain.

The Biopsychosocial Model of Pain

It has been said every individual possesses the potential to react to pain in a unique way. In other words, every individual can experience the same type of pain in a different way. For example, one individual accidently cuts his right hand. The cut is painful, however the individual calmly acknowledges the pain from the cut and slowly walks over to a sink in order to clean and bandage the wound. A second individual accidently cuts his right hand in a similar fashion to the first individual. The pain from the cut, felt by the second person is comparable to the pain felt by the first individual. However, when the second individual acknowledges the pain from the cut, the individual becomes hysterical. The second individual proceeds to grab the right hand and scream for help. When help arrives the second individual is inconsolable and has to be escorted to a first aid kit, where others have to clean and bandage the wound. In the previous example, both individuals experienced the same type of cut and the same type of pain; however, their reactions where very different. One individual remained calm while the second became hysterical. One individual was able to clean and bandage the wound without any assistance while the other individual was, essentially, incapacitated. Each individual's experience of pain was unique. The question is, why? Why did each individual in the previous example have such a different experience to the same type of pain and why do individuals, in general, react differently to the same type of pain? Perhaps the biopsychosocial model of pain can provide the answers to the previous questions.

The biopsychosocial model of pain suggests pain is a dynamic interaction among biological, psychological and social factors unique to each individual4. Furthermore, the biopsychosocial model of pain suggests the forces which drive human biology as well as the forces behind individual perception and

consciousness contribute to the individual's experience of pain. Basically, the biopsychosocial model of pain puts forth the following theory: individually distinctive human biological factors such as tissue health, psychological factors such as memory and social factors such as specific cultural traditions possess the potential to create distinct experiences of pain, specific to the individual4. In short, individuals may have the ability to experience the same type of pain in their own unique way. The previous example highlights the concepts of the biopsychosocial model of pain. In the previous example each individual cuts the right hand in the same way, which resulted in a comparable type of pain. However, each individual's experience of pain was recognizably different, which prompted the following question: why did each individual in the previous example have such a different experience to the same type of pain? According to the biopsychosocial model of pain, the answer to the question may be relatively straightforward. The reason each individual in the previous example had such a different experience of pain when they cut their hands may be, at least in part, due to their personally distinct biological, psychological and social factors. In other words, each individual's biological, psychological and social factors converged to create a unique experience of pain.

Each individual is different, especially when it pertains to psychological and social factors. When pain occurs it may begin on the biological level; however, along the way of pain interpretation, psychological and social factors play majors roles in shaping and forming each individual's experience of pain. Subsequently, each individual possesses the potential to experience pain in a unique way, which significantly impacts the complexity of treating and managing pain. Often when individuals are receiving health care their biological, psychological and social factors are in a state of flux, meaning they may change or evolve over time. As patients' biological, psychological and social factors fluctuate so may their interpretation or experience of pain, making it difficult for health care professionals to effectively administer pain therapy. The biopsychosocial model of

pain provides great insight into why experiences of pain may vary. It also reveals another major factor which contributes to the complexity of treating and managing pain: the experience of pain is subjective.

The Experience of Pain is Subjective

When something is subjective, it is an opinion or point of view. Subjectivity derives from one's own view point, meaning subjectivity is an interpretation based on individual perspective. For example, one individual may believe an object is beautiful while another individual may completely disagree and find the same object repulsive. The object remains the same independent of the individual's view point; however, the interpretation of the object differs depending on the individual's point of view/ perspective. Subjectivity as it relates to clinical pain may be interpreted as follows: clinically, pain is whatever the patient says he or she is experiencing whenever he or she says it occurs5. In other words, pain is whatever the patient reports it to be. In essence, the experience of pain is subjective because pain is an opinion. Pain is experienced from an individual's point of view. The individual is the only one experiencing his or her pain, therefore the experience of pain is unique to the individual. Furthermore, the reaction to pain belongs solely to the individual experiencing the pain. A reaction to pain is determined by the individual's perspective of what he or she is experiencing. If an individual is experiencing extreme pain from a physical injury there is no way to definitively conclude whether or not the individual is experiencing extreme pain from an injury because the experience of the pain from the injury belongs solely to the individual. No other individual is experiencing the pain felt from the injury, thus it is unique to the individual and, ultimately, whatever the individuals says it is. If an individual reports pain from an injury is extreme, then the pain from the injury is extreme. On the other hand if an individual reports minimal pain from the same type injury than the pain is minimal. The following example will highlight the previous concepts. Basketball Player 1 and Basketball Player 2 are playing in two

separate games. During their games Basketball Player 1 and Basketball Player 2 each jam their right index finger and fracture it. Both players experience the same type of index finger fracture. Basketball Player 1 reports the injury is somewhat painful, but the pain is minimal. Basketball Player 1 simply tapes the index finger to the middle finger and continues playing the game until it ends. Basketball Player 2 reports extreme pain from the injury and wants to be transported to a hospital immediately. Both players in the previous example experienced the same type of injury, however their reactions and overall experience of pain was much different. Basketball Player 1 was able to finish the game, while Basketball Player 2 was not. Basketball Player 1 reported minimal pain from the injury, while Basketball Player 2 reported extreme pain from the same type of injury. Each experience of pain in the previous example was unique to each individual. Subsequently, the reactions to the pain were distinct. Each reaction belonged solely to the individual basketball player, the reason being that each basketball player had a different point of view or perspective on the pain. Basketball Player 1 believed the pain was minimal, therefore the pain was minimal and Basketball Player 1 was able to continue playing in the game. Basketball Player 2 believed the pain form the injury was extreme, thus the pain was extreme and Basketball Player 2 was not able to continue playing. The experience of pain from the fractured index finger was determined by each individual player. It was the player's opinion of the pain which drove their individual experiences. Their opinions differed, therefore, their experience of pain differed.

Pain is subjective, it is based on personal experience. It is opinion driven and belongs only to the individual experiencing it. From one perspective pain can be excruciating. From another perspective the same type of pain can be hardly noticeable. It all depends on the individual experiencing the pain. In short, the experience of pain is determined by the individual from his or her perspective. Pain is whatever the individual or patient says it is. With that said, how does the subjectivity of pain impact the treatment and management of pain? The

subjectivity of pain impacts the treatment and management of pain a great deal. Essentially, because pain belongs solely to the individual experiencing pain, health care professionals have to rely on patient reporting to determine the severity of pain and ultimately the treatment and management of pain. The concepts in the previous statement reveal the next major factor which contributes to the complexity of treating and managing pain: patient reporting.

Patient Reporting

The experience of pain is determined by the opinion and perspective of the individual experiencing pain. The reaction and experience of pain belong solely to the individual experiencing pain. No individual can experience the pain of another individual, therefore only the individual experiencing pain can determine the severity of his or her pain. In other words, only the individual experiencing pain can determine the extent of his or her pain, which is why pain treatment and management relies so heavily on patient reporting. Patient reporting, in regards to pain, can refer to the process in which patients communicate their experience of pain to health care professionals. Patient reporting can include a description of pain experienced by the patient as well as the location of pain, activities which increase or decrease pain, pain intensity over a period of time, signs and symptoms of inflammation, any changes to mobility, the degree of pain and an overall rating of pain. Although patient reporting can be helpful to health care professionals in regards to gathering information related to pain, it can also add to the complexity of treating and managing pain.

Patients receive therapy from health care professionals when they are experiencing pain. However, as previously mentioned, the experience of pain is based on personal opinion from the perspective of the patient. When a patient experiences pain it is the patient's opinion that he or she is in pain. Furthermore, the severity of the experience of pain is also determined by the patient. Therefore,

when a health care professional develops a course of therapy or treatment regimen to manage a patient's pain, it is largely based on opinion as opposed to more tangible evidence such as test results. Additionally, the course of therapy is based, at least in part, on the patient's opinion versus the health care professional's opinion. The previous concepts related to the management of pain are in contrast to the treatment of other conditions, diseases and/or illnesses. For example, if a patient presents with signs and symptoms of an infection, a health care professional can order and evaluate several tests which can, in many cases, definitively identify if the patient has an infection. Furthermore, a health care professional can often then figure out what exactly is causing the patient's infection. Based on the test results, the health care professional can then select a course of therapy to treat the infection. Once the therapy is concluded, a health care professional can even order additional testing to verify if the patient's infection has been eliminated. Basically, in the previous example, test results, patient evaluation and health care professional opinion drove the treatment. However, in the case of pain management that treatment scenario may not necessarily always be the case. There are tests health care professionals can use to evaluate pain; however the tests cannot definitively assess the extent of pain or exactly define the experience of pain from the perspective of the patient. Therefore, health care professionals must take patient reporting into account. Consequently, the patient indirectly, and in many cases directly, influences and/or determines his or her own course of pain therapy. If pain is whatever the patient reports it to be, then health care professionals must, at least in part, base their pain therapy for the patient on what the patient reports. That is where the complexity of patient reporting can be observed. As highlighted by the three cases at the beginning of this part, obtaining accurate, reliable, concise information from a patient regarding his or her own pain can be a challenge.

As previously mentioned, biological, psychological and social factors possess the potential to influence the experience of pain. Along those same lines, biological,

psychological and social factors also possess the potential to impact patient reporting. Factors such as gender, age and culture can greatly influence how an individual communicates, especially when it relates to health care. For example, in one culture it may be inappropriate for a male individual to display weakness from pain, while in another culture it may be inappropriate for a female individual to express the severity of her pain. As a result, patients from the aforementioned cultures may find it difficult to report the extent of their pain, articulate themselves when reporting pain or even admit to another individual they are in pain. Every individual possesses distinct personality traits and methods of communication which are formed from the fusion of biological factors, along with psychological and social constructs. When merged, unique patterns of communication and behavior can develop, which can distort patient cases and make it difficult for health care professionals to clearly understand their patients' pain and overall experience of pain. Looking back at the patient case studies at the beginning of this part can shed additional light on the previous concepts.

The first patient case involved a 26-year-old male. When questioned by members of the team of health care professionals, the patient reported his pain was approximately an 8 on a scale from 1 - 10. However, according to the patient's mother, when the patient's friends were visiting, the patient did not appear to be in any kind of severe pain at all. The conflicting reports left the health care professionals with questions regarding the patient's actual pain. In regards to the 26-year-old male patient, other factors may have been at work. Perhaps the patient was in pain when his friends visited; however, due to social factors, he was acting as if he was not in pain.

The second patient case involved a 85-year-old female with a history of insulin dependent diabetes, hypertension and osteoporosis. When questioned by members of the team of health care professionals, the patient was only able to provide very little information regarding her pain and could not rate her pain on a scale from 1 - 10. Perhaps in this case, the women was not feeling well at the time

of the health care professionals' visit or simply did not want to talk about her pain to anyone other than her husband.

The third patient case involved a 64-year-old female that recently underwent colon surgery. When questioned by the health care professionals, the patient reported her pain was anywhere from 4 - 9 on a scale from 1 - 10, which provided a wide pain range for interpretation. Again, perhaps the women did not feel like talking to the health care professionals or simply, due to cultural reasons, did not want to provide a more specific pain rating to the team of health care professionals. Whatever the reasons were, the patient reporting, behavior and communication in the previous three cases made it difficult for the team of health care professionals to obtain a clear understanding of each patient's unique experience of pain. Consequently, treating and managing the patients' pain became increasingly complex and challenging.

Obtaining viable information from patient reporting may be difficult; however, it is essential to pain therapy. Health care professionals must take patient reporting into account when developing pain care. That being said, due to a host of ever-shifting factors, patient reporting possesses the potential to add to the overall complexity of treating and managing pain.

Types of Pain

Lastly, there a many different types of pain. The vast range of pain types can also contribute to the complexity of treating and managing pain. Many different forms of pain exist; however, the two most common types of pain are acute and chronic pain. Acute pain can refer to the type of pain which is sudden and intense in nature that arises from an acute injury or disease process and persists only as long as the tissue pathology itself[6]. In other words, acute pain can refer to the type of pain that is directly related to an injury or a disease that only lasts as long as the injury takes to heal or the disease takes to be treated. Typically, acute pain

gradually dissipates and resolves as the precipitating tissue pathology/damage heals. For example, if an individual slipped on a wet surface and sprained his or her ankle, then the individual would suffer from an intense acute pain from the ankle sprain. However, as the ankle sprain heals, the individual's pain would slowly decrease in intensity until it eventually disappeared. Simply put, acute pain may be understood as follows - if a patient has an injury, tissue damage or a disease, he or she may be in acute pain; however, the patient's pain fades away once the patient's body heals and the patient is able to return to his or her normal level of functionality. However, when acute pain continues beyond the normal healing period for the human body, which is approximately 3 - 6 months, then acute pain can become chronic pain.

Chronic pain can refer to the type of pain which persists beyond the normal healing period for an acute injury or disease[6]. Basically, chronic pain is the type of pain which is not directly related to tissue damage. Chronic pain can last for months, years or in some cases, indefinitely. Unlike with acute pain, it is difficult for health care professionals to definitively identify the source of a patient's chronic pain. As previously mentioned, the normal healing time for the body is 3 - 6 months, meaning any pain resulting from damage to tissue, muscles, bones, ligaments and/or discs should resolve within a 3 - 6 month period. However, the pain associated with chronic pain exceeds the 3 - 6 month period. When pain persists well beyond 6 months, the reason for its existence becomes more complicated and increasingly difficult to explain. Many health care professionals and researchers have theorized and concluded that chronic pain results more from psychological and social factors than it does from biological factors. Due to the concept that pain is interpreted by the human mind, it is a logical theory that psychological factors influence and, in some cases, lead to chronic pain. If the human body can heal itself within 3 - 6 months, and after that time, a health care professional cannot determine a biological reason for persisting pain that may only leave one source for the persistent pain, the mind and its constructs. Factors such

as stress, trauma and cultural influences may play major roles in the extent and duration of chronic pain.

The following example will highlight the aforementioned concepts. A 29-year-old male patient presents with a broken left leg and arm. The patient reports he broke his left leg and arm in a traumatic accident. The patient reports he has not had any major injuries prior to his recent accident. The patient also reports he is in a lot of pain. The patient's team of health care professionals examine the patient's arm and leg and treat them accordingly. Ten months later after completing the recommended treatment, the patient presents to his team of health care professionals for a checkup. The patient reports he is still in pain. The patient's team of health care professionals examine the patient. They cannot find anything structurally wrong with the patient's left arm and leg. Furthermore, the team of health care professionals find nothing biologically wrong with the patient. The patient is healthy and his arm and leg are healed. However, the patient is still in pain. Due to the fact that the patient's pain has exceeded 6 months, it is considered chronic pain. There is nothing physically or biologically wrong with the patient, but he is still in pain. The team of health care professionals treating the patient pose the theory that the patient's chronic pain may be result of the trauma of his accident and recurrent stress. In the previous example the patient was in a traumatic accident, which led to injuries. The patient's injuries healed within 3 - 6 months, but the patient's pain continued. The patient's pain transitioned from acute pain to chronic pain and unfortunately, there was no biological reason for the patient's pain, leading his treating team of health care professionals to conclude the chronic pain was related to psychological factors. When there are no biological reasons for pain, it may be highly plausible that psychological factors are contributing and leading to pain. If the brain interprets pain and continues to interpret pain well past the natural healing time period, it may be possible that psychological and/or social constructs are fueling the continued experience of pain.

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Acute and chronic pain may be different - however, they both contribute to the complexity of treating and managing pain. Both acute and chronic pain present their own unique challenges for health care professionals, and distinguishing between each type of pain further complicates the treatment process. A lack of understanding of the intricacies of each type of pain along with the precipitating factors of each type of pain can lead to the mismanagement of pain and additional complications. Overall, pain is difficult to treat and manage. Considering the different types of pain and their generating factors can only add to the complexity of treating and managing pain.

Section 1: Summary

Pain is the body's reaction to actual or potential damage and/or destruction2. When the body is in the process of being harmed from internal or external forces, pain lets the body know it is in danger so it can react in order to protect itself from any harm that may be done to it. In essence, pain is the body's warning system or alarm system. Pain, as it relates to health care, can refer to an unpleasant sensory and emotional experience arising from actual or potential tissue damage3. The experience of pain begins when the human body's nociceptors become stimulated by noxious stimulus such as tissue damage, intense pressure and/or extreme temperature fluctuations2. When the body's nociceptors become stimulated they send pain messages to the spinal cord, which then travel up to the brain via the spinothalamic tract2. Once pain messages reach the brain they are received by the somatosensory cortex where they are interpreted2. During the interpretation of pain messages, many factors contribute to the overall experience of pain, which create unique, individual experiences of pain. The biopsychosocial model of pain suggests pain is a dynamic interaction among biological, psychological and social factors unique to each individual4. The biopsychosocial model of pain also suggests reasoning for each individual's potential to have a distinct experience of

pain. In addition, the biopsychosocial model of pain also may assist in the comprehension of the subjectivity of pain.

Pain is subjective. The experience of pain is an opinion from the point of view/ perspective of the individual. For that reason, clinically, pain is whatever the patient says he or she is experiencing, whenever he or she says it occurs5. The varying individual experiences of pain, along with the subjectivity of pain, contribute to the complexity of treating and managing pain. Other factors which contribute to the complexity of treating and managing pain include patient reporting and the differing types of pain. Overall, pain is difficult to treat and manage. Health care professionals must be aware of the nuances of treating and managing pain in order to safely and effectively administer care to those experiencing pain.

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Section 1: Key Concepts

- Pain alerts the human body to any actual or potential damage in order to protect itself from harm.
- The spinothalamic tract is responsible for carrying messages from the nociceptors to the thalamus located within the brain.
- The biopsychosocial model of pain suggests pain is a dynamic interaction among biological, psychological and social factors unique to each individual[4].
- Pain is subjective.
- Clinically, pain is whatever the patient says he or she is experiencing whenever he or she says it occurs[5].
- Factors which contribute to the complexity of treating and managing pain include the following: the potential for individually distinct experiences of pain, the subjectivity of pain, patient reporting and the varying types of

pain.

Section 1: Key Terms

Pain - the body's reaction to actual or potential damage and/or destruction[2]; an unpleasant sensory and emotional experience arising from actual or potential tissue damage[3]

Nociceptor - a peripherally localized neuron which is sensitive to noxious stimulus[2]

Spinothalamic tract - the sensory pathway, which takes pain information from nociceptors through the spinal cord and up to the thalamus[2]

Patient reporting - can refer to the process in which patients communicate their experience of pain to health care professionals

Acute pain - the type of pain which is sudden and intense in nature that arises from an acute injury or disease process and persists only as long as the tissue pathology itself[6]

Chronic pain - the type of pain which persists beyond the normal healing period for an acute injury or disease[6]

Section 1: Personal Reflection Question

What factors contribute to the complexity of treating and managing pain?

Section 2: Pain Assessment and Goal Setting

Pain is difficult to treat and manage - however it is both the clinical and ethical responsibility of health care professionals to do so. If left untreated, pain may lead to a host of complications including: decreased mobility, muscle atrophy, obesity, decreased cardiovascular health, sexual, hormonal and cognitive dysfunction, as

well as insomnia, depression and even suicide[7]. Essentially, untreated pain possesses the potential to completely alter and/or devastate a patient's overall health, well-being and quality of life. Untreated pain can transform a well adjusted, healthy, active individual into a depressed, inactive, cognitively impaired individual that does not enjoy life. Therefore, it is the clinical responsibility of health care professionals to acknowledge and address their patients' pain. To ensure pain is acknowledged and addressed, organizations such as The Joint Commission have recognized pain control as an important part of the quality of health care administered to patients[8]. According to the recommendations made by The Joint Commission, organizations must have policies and procedures in place which preserve the effective assessment and treatment of patients' pain[8]. These policies and procedures further the clinical responsibility health care professionals have to treating and managing pain.

Health care professionals also have an ethical responsibility to treat and manage pain. Health care professionals have an obligation to adhere to the ethical concepts of beneficence and nonmaleficence while administering health care to patients. Beneficence and nonmaleficence have specific meanings when applied to health care. Beneficence can refer to the act of doing what is best for the patient, while nonmaleficence can refer to inflicting no harm to patients; do no harm to patients[9]. When health care professionals take their respective oaths, they agree to abide by the aforementioned ethical concepts when administering health care. Therefore, health care professionals must do what is best for the patient and do no harm to the patient while administering health care. As previously mentioned, pain can be very harmful to patients' overall health, well-being and quality of life. Pain, if left untreated, can ravage patients' lives and leave them with long-term complications, which can rob patients of their ability to enjoy life. Thus, if health care professionals fail to address their patients' pain, they are not doing what is best for the patient nor are health care professionals doing what they can to avoid harm being brought to the patient. As a result, health care professionals must

address patients' pain in order to uphold beneficence, nonmaleficence and, ultimately, their professional oaths. In short, due to both clinical and ethical obligations, health care professionals must address patients' pain. Unfortunately, at times, addressing patients' pain is easier said than done. It has been well established that treating and managing pain can be a complex challenge for health care professionals. The good news is, there are ways health care professionals can reduce the overall complexity of treating and managing pain. With that said, how can health care professionals ease the process of treating and managing pain?

Pain Assessment

One of the most powerful ways a health care professional can ease the process of treating and managing pain is to conduct effective pain assessments. Pain assessment, as it relates to pain and health care, can refer to the process health care professionals use to obtain relevant information from a patient regarding the individual patient's experience of pain. Effective pain assessment can be invaluable to the overall process of treating and managing pain. Effective pain assessment can bring the health care professional closer to understanding the individual patient's experience of pain as well as provide tremendous insight into the patient's point of view/perspective. It can also shed light on the severity of the patient's pain. Essentially, effective pain assessment can provide the foundation on which the process of treating and managing pain is built upon. Furthermore, it has been said that without effective pain assessment, there can be no effective pain treatment/ management. Thus, how can a health care professional effectively assess a patient's pain? The straightforward answer is as follows: health care professionals can use patient observation and active listening skills to effectively assess a patient's experience of pain.

Effective pain assessment begins and ends with patient observation. Patient observation, as it relates to pain assessment, can refer to the process in which a

health care professional examines and monitors a patient in order to obtain information regarding the patient's experience of pain. Patient observation is paramount to effective pain assessment. In theory, patient observation can be one of the most useful means in which a health care professional gathers information about a patient's pain. The following example will illustrate the value of patient observation.

A 78-year-old male resident of a nursing facility reports he is experiencing pain. However, when initially questioned by a team of health care professionals, the patient cannot provide any information regarding his experience of pain. The only piece of information the patient does eventually provide to the team of health care professionals, after additional questioning , is that he quite simply does not "feel right." As a result, the team of health care professionals immediately begin to examine and observe the patient. The first major observation made by the team of health care professionals is the patient is having trouble adjusting himself and moving around in his bed, especially when he attempts to use his right leg. Due to the aforementioned observation, the team of health care professionals examine the patient's right leg. The team focuses on the patient's right knee, which reveals the following signs of inflammation: redness, heat and swelling. The team also observes that when the patient's right knee is lightly palpated, the patient's body becomes tense and stiffens. The patient also clenches his teeth and grimaces upon light palpation. Further observations reveal the patient is not eating or sleeping as much as he did prior to his report of pain. In addition, the team of health care professionals observe the patient's usually cheerful mood and demeanor have deteriorated since the report of pain. Based on the health care team's observations, a treatment strategy is initiated to address the patient's pain. After the initial treatment strategy is implemented, the team of health care professionals examine and observe the patient. Upon examination of the patient's right knee, it is observed that the signs of inflammation have slightly dissipated. However, the health care professionals observe that the patient in still having

trouble using his right leg. The team also observes that upon palpation of the patient's right knee, the patient grimaces, although the health care professionals are able to apply more pressure to the patient's right knee upon palpation when compared to previous exams. Additional observations reveal the patient is eating more and the patient's mood has slightly improved. Upon completion of the previous observation process, the team makes slight adjustments to the patient's pain therapy. After the patient's treatment is adjusted, the team of health care professionals follow up with the patient. This time when the team observes the patient, a marked improvement is noted. The patient's signs of inflammation have dissipated. The patient can easily move around his bed. The patient is eating more and sleeping better. Additionally, the patient's mood has dramatically improved. The patient appears to have returned to his more cheerful demeanor and is even interested in speaking with the team of health care professionals. The patient actively engages the team and is willing to discuss his experience of pain. The patient is further monitored and observed by the team of health care professionals. No further observations are made which indicate the patient is experiencing pain. In the previous example, the patient was not willing, or simply unable, to provide the team of health care professionals with useful information regarding his experience of pain. However, through close observation, the team was able to gather valuable insight into the patient's experience of pain. By observing the patient, the team was able to identify the potential origin of the patient's pain - the right knee - as well as the following principle signs of inflammation: redness, heat and swelling. The team was also able to gauge the extent of the patient's pain by observing the patient's reactions to a right knee palpation exam. Additional observations regarding the patient's mood, eating and sleeping habits provide further information regarding the extent of the patient's pain. Based on the team's patient observations, a treatment strategy was devised and implemented. Follow up patient observations provided the team with information regarding the treatment strategy's effectiveness. Adjustments were made to the team's treatment strategy based on their observations and

subsequent patient observations revealed that the patient's pain was steadily decreasing. The team of health care professionals in the previous example effectively used patient observation throughout the entire process of treating the patient. When the patient was unable to provide the team with information regarding his experience of pain, the team employed patient observation to obtain the necessary information to develop a treatment strategy. The team then used effective patient observation to assess their treatment strategy's effectiveness and the overall outcomes of their treatment strategy. Effective observation allowed the team to adequately treat the patient, which ultimately improved the patient's mobility, functionality, mood and quality of life. Much like in the previous example, at times patients will be unable to provide health care professionals with the information they require to treat and manage patients' pain. When those instances occur, health care professionals can use effective patient observation to obtain the viable information needed to address the individual patient's experience of pain. On the other hand, at times, patients may provide a copious amount of information regarding their experience of pain. In those occasions, health care professionals can use observation as a means to filter through the information provided by patients in order to determine what details are viable to their pain management. In short, patient observation can be used as a means to obtain the vital information required for health care professionals to effectively assess the individual patient's experience of pain, and ultimately to treat and manage the patient's pain.

In addition to patient observation, active listening can also assist health care professionals in patients' pain assessment. Active listening, as it relates to pain assessment, can refer to the process in which a health care professional gathers information from a patient by engaging in a style of two-way communication which fosters a clear and mutual understanding of information[10]. In other words, active listening is the process of listening with the intent to obtain meaning[10]. Nevertheless, how can health care professionals ensure they are actively listening

to their patients when they are reporting their individual experiences of pain? There are several steps health care professionals can take to ensure they are effectively engaging in active listening when a patient is reporting his or her experience of pain. The first step health care professionals can take towards active listening is to give their patients their full attention when they are reporting pain[10]. Often when individuals engage in conversation, one individual speaks while the other simply waits for their turn to talk about themselves. The words are being heard, however individuals are not focused on what is being said. Instead, they typically are thinking about what they want to say next. That style of listening can be referred to as passive listening. Two people are engaged in conversation, however neither one of them is focused on what the other person is saying. There is little to no intent to obtain meaning when two individuals are engaged in passive listening. Therefore, the first step towards active listening should always be to focus and concentrate on what the other individual is saying. Making a concerted effort to focus on what the other person is saying when engaged in a conversation can increase the ability for both parties to understand the meaning of what is being communicated. It can also help both individuals improve their recall of the conversation. If an individual is focused on what another individual is saying, he or she is more likely to remember what is said. Health care professionals should always make an effort to avoid passive listening when their patients are reporting their individual experiences of pain. The next step towards active listening is to make eye contact[10]. Eye contact can let an individual know you are really listening to what he or she is saying. It can foster trust and encourage individuals to open up and fully articulate what they want to say. The third step to active listening is to provide individuals with the opportunity to say what they would like to express[10]. Limiting interruptions when patients are speaking and allowing for periods of silence can further open up the conversation to allow for a greater expression of ideas. The next step to active listening is to respond to what is being said[10]. From time to time, health care professionals should respond to what their patients are saying. Repeating what the patient says or paraphrasing the patient's words can

reinforce that they are truly being heard and listened to, which can make them more likely to further engage in conversation. After all, everyone likes to know they are being heard. Making an effort to understand the emotions behind the patient's words can be another step towards active listening. Talking about one's pain can be an emotional experience. It can open up the stress and horrors of past trauma and can leave patients feeling vulnerable. Being empathetic to the difficult emotions behind the words can make patients feel at ease and allow them to continue to discuss their experience of pain. Asking open-ended questions and clarifying what is said can also be steps to active listening[10]. At times, health care professionals will need to ask their patients questions about their individual experiences of pain. Keeping questions open, as opposed to closed, can allow information to flow more freely. Therefore, at times, it may be advantageous to avoid yes and no questions and focus on how, what where and why questions. For example, instead of asking a patient, "does sitting up make your pain worse" a health care professional may ask, "what makes your pain worse?" The second version of the question is open ended and possesses much more potential, when compared to the first question, to allow for a free-flowing exchange of ideas. Yes and no questions can limit the expression of idea, while open ended questions can expand the expression of ideas, which can be very to helpful health care professionals when they are trying to get their patients to open up about their pain. In addition, health care professionals should not be afraid to clarify what is said during a pain related conversation with their patients. A patient may quickly pass over an important detail about his or her pain. Slowing down the conversation to clarify what is said can benefit both parties in the long run. Finally, to fully achieve active listening, health care professionals can provide words of encouragement to their patients. As previously mentioned, talking about pain can be difficult for a patient. Using words of encouragement such as "you are being very brave" or "you have been courageous during this difficult situation" can go a long way to motivate patients to express themselves in regards to their individual experiences of pain. Additionally, words of encouragement bring a human aspect

to the process of assessing pain. They can let patients know and understand that the health care professionals administering their care are empathetic to their situation and always have their best interests at hand. In essence, active listening is a process that promotes understanding, recall and clarity. It is a way for individuals to obtain meaning. Used by a health care professional, active listening, can be a means to effectively assess a patient's pain.

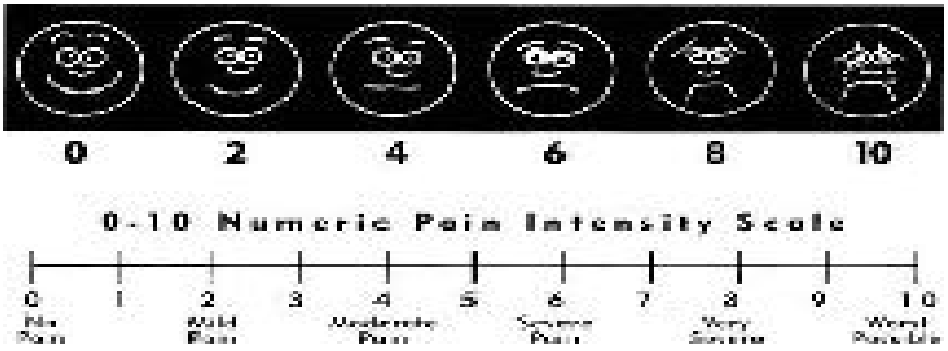
Individually, patient observation and active listening can be used by health care professionals to obtain information from their patients. However, when used in conjunction, patient observation and active listening skills can exponentially increase a health care professional's abilities to effectively assess a patient's experience of pain. With that said, patient observation and active listening are skills, skills which can only be obtained over time and with practice. Unfortunately, health care professionals must put in a considerable amount of work and effort to achieve the level of patient observation and active listening necessary to use them together to effectively assess a patient's experience of pain. The good news is, there are tools available which can be used by health care professionals to refine their patient assessment skills and to actively assess patients' pain. The first of such tools is the Wong/ Baker faces rating scale.

The Wong/ Baker faces rating scale, Figure 1, is a pain assessment tool that can be used by health care professionals to help their patients rate the intensity/severity of their own experience of pain[11]. The Wong/ Baker faces rating scale uses a combination of 6 faces, all of which possess different simplified facial expressions, and a numerical rating scale ranging from 0 - 10. Each face is associated with a numerical value and an expression of pain. To use the scale efficiently, a health care professional only has to show the scale to his or her patients and ask them to select a face which best represents how their experience of pain is making them feel. The Wong/ Baker faces rating scale can be ideal for younger patients, older adults, patients with language barriers and patients that simply have trouble associating a numerical value with their experience of pain[11]. By simply pointing to

an easy to understand picture of a face in pain, patients can provide their health care professionals with a pain rating from 0 - 10 as well as valuable insight into their individual experience of pain. In other words, a patient's simple act of pointing to a face which best represents how he or she is currently feeling in regards to pain can provide health care professionals with a wealth of information, which can then be used to treat and manage the individual patient's experience of pain. For example, an 89-year-old female patient, admitted to a nursing facility, is experiencing pain. Upon examination, a team of health care professionals attempts to assess the patient's pain. A member of the team asks the patient to rate her experience of pain on a scale from 0 - 10, 0 meaning no pain; 10 meaning severe pain. Unfortunately, the patient cannot associate a numerical value with her experience of pain. The team asks additional questions to the patient regarding her pain, however the patient cannot provide the team with any viable information about her experience of pain. The team then acquires a Wong/ Baker faces rating scale to assist them in their pain assessment. A member of the team presents the scale to the patient and proceeds to explain it. The health care professional informs the patient that she can use the scale to help her articulate her experience of pain to the team of health care professionals. The health care professional then goes on to explain that each face on the scale represents an individual that has no pain, some pain or is in a lot of pain. The first face represents no pain, the second face represents just a little pain, the third face represents a little more pain, the forth face represents pain that hurts even more, the fifth face represents pain that hurts a whole lot and the sixth face represents the worst pain[11]. After the explanation of the pain scale the health care professional asks the patient to point to the face that best depicts the pain she is experiencing. The patient does not hesitate and immediately points to the forth face, instantly providing the team of health care professionals with viable information about her current experience of pain. The forth face informs the team of health care professionals that the patient's pain rating is approximately 6 out of 10. Based on the information provided by the patient, the team is able to make adjustments to

her pain therapy. Upon a follow-up examination with the patient, the team once again employs the Wong/ Baker faces rating scale to further assess the patient's pain. This time the patient points to the second face, which informs the team that the patient's pain has decreased since the adjustments were made to her pain therapy. In the previous example the Wong/ Baker faces rating scale was used to obtain pain information from a patient that was unable to associate a numerical value with her experience of pain. Initially the team was experiencing some difficulty obtaining information from the patient regarding her pain. However, by using the Wong/ Baker faces rating scale to assist the patient in communicating her experience of pain, the team was able to effectively assess the patient's pain and make the necessary adjustments to her pain therapy. Clear communication between patients and health care professionals is essential to pain assessment. As previously mentioned, the treatment and management of pain relies heavily on patient reporting and communication. If patients are unable to efficiently communicate their individual experiences of pain to health care providers, then health care providers should use tools like the Wong/ Baker faces rating scale to help ease the communication process, whenever possible, to ensure effective pain assessment. Along those same lines, another tool which can be used by health care professionals to effectively assess patient's pain is a WILDA approach assessment guide.

Figure 1: A Version of the Wong/ Baker Faces Rating Scale[12]



A WILDA approach assessment guide, Figure 2, can refer to the pocket-sized template, which can be used by health care professionals as a guide to effectively assess patients pain[12]. The WILDA approach assessment guide outlines the following 5 key components to an effective patient assessment: a pain description, intensity rating, location identification, duration and an indication of what factors aggravate/alleviate pain[12]. It is suggested that effective patient assessments include all of the aforementioned key points. Therefore, by following the WILDA approach assessment guide, health care professionals can ensure they cover every key point.

The **W**ILDA approach assessment guide begins with "**W**ords to describe pain." An effective patient assessment should, typically, begin with the patient's description of his or her pain. The health care professional should ask his or her patient open-ended question about pain and encourage the patient to use words indicated on the template to describe the pain he or she is experiencing at the time of the assessment. There are many types of pain, and each type of pain may require a different pain therapy. Thus, it is important for the health care professionals to determine what type of pain their patients are experiencing. Words like: aching, stabbing, tender, throbbing, exhausting, unbearable, squeezing and pressure[12] can help health care professional determine what type of pain their patients are experiencing and, ultimately, their pain therapy.

The W**I**LDA approach assessment guide then moves on to pain "**I**ntensity". It is important for health care professionals to obtain a pain rating, on a scale from 0 - 10, 0 meaning no pain, 10 meaning the worst pain imaginable[12]. If a patient is unable to associate a numerical value with his or her pain, then the Wong/ Baker faces rating scale can be employed by health care professionals to assist the patient in quantifying his or her pain.

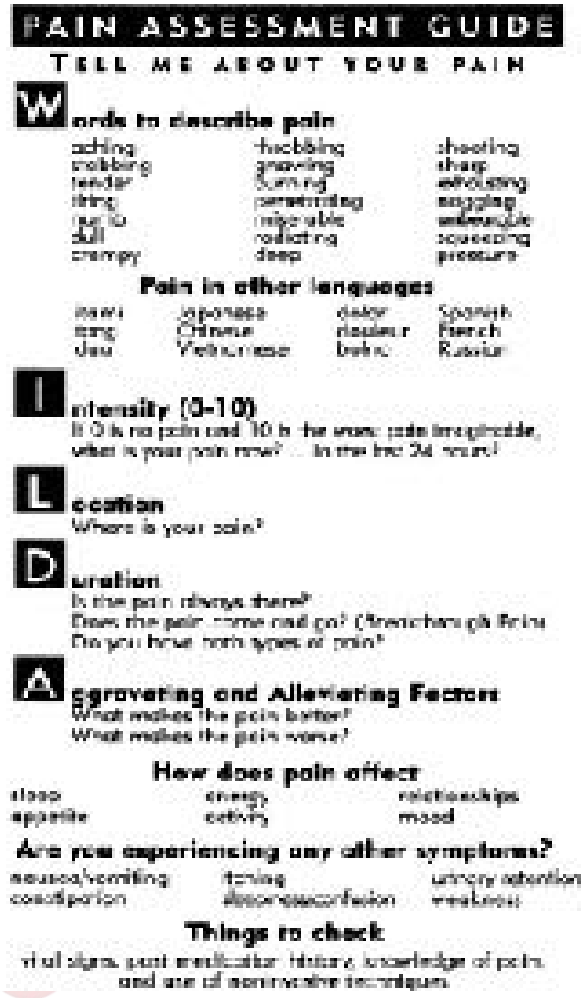
The next patient assessment point on the WI**L**DA approach assessment guide is "**L**ocation". It is important for health care professionals to attempt to identify the

location of a patient's pain. Health care professionals can ask patients "where is your pain" and they can they can also ask patients to directly point to where their pain is coming from[12].

Next, on the WIL**D**A approach assessment guide is pain "**D**uration". Patients can suffer from continuous pain and/or breakthrough pain. Continuous pain can refer to pain that does not leave the pateint[12], while breakthrough pain can refer to pain which occurs in flare-like exacerbations while the patient is being treated for pain[13]. Patients should be asked the following questions to help determine which type of pain the patient is actually suffering from: "Is the pain always there," "Does the pain come and go[12]?" It is possible for patients to suffer from both types of pain simultaneously. Therefore, health care professionals should also ask patients, "Do you have both types of pain[12]?"

Finally, the WILD**A** approach assessment guide covers "**A**ggravating and **A**lleviating factors". Patients should, typically, be asked what aggravates their pain and what alleviates their pain. The patient's answers can help health care professionals determine pain therapy and give them additional insight into the patient's pain. The WILDA approach assessment guide concludes with some additional questions and reminders to help the health care professional determine if the patient is experiencing any side effects from his or her pain/pain therapy such as nausea, vomiting, and decreased mood[12]. Overall, the WILDA approach assessment guide is ideal for health care professionals looking for a template and/or blue print to ensure they are effectively assessing pain. It covers the 5 key components to an effective patient assessment and the WILDA approach can be used on a wide range of patient populations. However, health care professionals should remember the WILDA approach assessment guide is just that, a guide. Every patient possesses the potential to be unique and different and, as a result, health care professionals may have to implement different strategies and techniques, along with the WILDA approach assessment guide, to effectively assess patients' pain.

Figure 2: WILDA Approach Assessment Guide[12]


PAIN ASSESSMENT GUIDE

TELL ME ABOUT YOUR PAIN

W ords to describe pain

aching throbbing shooting
nagging gnawing sharp
tender burning exhausting
tiring penetrating nagging
rat-like miserable unbearable
dull radiating squeezing
cramping deep pressure

Pain in other languages

Farsi Japanese Polish Spanish
Hindi Chinese Italian French
Urdu Vietnamese Greek Russian

I ntensity (0-10)

0 is no pain and 10 is the worst pain imaginable.
What is your pain now? In the last 24 hours?

L ocation

Where is your pain?

D uration

Is the pain always there?
Does the pain come and go? How often?
Do you have both types of pain?

A ggravating and Alleviating Factors

What makes the pain better?
What makes the pain worse?

How does pain affect

sleep energy relationships
appetite activity mood

Are you experiencing any other symptoms?

nausea/vomiting itching urinary retention
constipation disorientation/confusion weakness

Things to check

vital signs pain medication history knowledge of pain
and use of non-medicative techniques

The Wong/ Baker faces rating scale and the WILDA approach assessment guide are valuable tools which can be used by health care professionals, across many different patient populations, to ensure they are effectively assessing patients' pain. However, health care professionals may require additional/specific tools when assessing critically ill patients. Critically ill patients often suffer from a great deal of pain due to the critical nature of their condition, which is why it is essential for health care professionals to maximize their pain assessment efforts.

Assessing a critically ill patient's pain can be a difficult challenge for health care professionals. Unlike with other patients, often critically ill patients are unable to communicate their experience of pain to health care professionals due to a myriad

of different reasons such as sedation and/or intubation. Consequently, pain assessment tools, which rely heavily on patient interaction and communication, are typically ineffective when used by health care professionals to assess critically ill patients' pain. Even so, there are tools available for health care professionals to use to ensure they are effectively assessing critically ill patients' pain. One of these such tools is the Critical-Care Pain Observation Tool (CPOT). The CPOT can refer to the pain scale which relies on the observations of health care professionals to assess critically ill patients' pain[14]. The CPOT rates/scores pain on a scale form 0 - 8 and is broken down into the following 4 categories: facial expression, body movements, compliance with a ventilator for intubated patients or vocalization for extubated patients and, finally, muscle tension[14]. Each of the aforementioned categories receives its own score. After the completion of each category the scores can then be added up to provide the final pain rating/score. When using the CPOT, health care professionals should first observe a patient while he or she is laying at rest to obtain a baseline CPOT score[14]. The health care professional should observe the patient's face and body for at least one minute to note any reactions[14]. At the end of one minute, the health care professional should score all categories of the CPOT, with the exception of the muscle tension category[14]. To complete the muscle tension category of the CPOT, health care professionals should hold one of the patient's hands with one hand, while placing the other hand at the patient's elbow[14]. The health care professional should then perform passive flexion and extension of the patient's upper limb, noting any resistance and scoring the results based on muscle tension criteria[14]. When the first CPOT assessment is completed, health care professionals should repeat the CPOT scoring process during a nociceptive procedure[14] such as patient turning or patient wound care. During the second assessment, muscle tension can be scored by noting the patient's resistance to movement[14]. The two scores can then be compared to obtain an understanding of the patient's experience of pain.

Another patient population which may require an additional/specific pain assessment tool is older adults with advanced dementia. Much like with critically ill patients, health care professionals may find it very difficult to efficiently communicate with older adults with advanced dementia. As a result, health care professionals may require a pain assessment tool primarily based on observation and specific for older adults with advanced dementia. The Pain Assessment in Advanced Dementia (PAINAD) scale, Figure 3, was developed for that very reason. The PAINAD scale can refer to the tool which can be used by health care professionals to assess pain in patients with advanced dementia[15]. The scale can be used to rate pain from 0 - 10, with 0 meaning no pain and 10 meaning severe pain[15]. The PAINAD scale is divided into the following 5 categories: breathing independent of vocalization, negative vocalization, facial expression, body langue and consolability[15]. Each of the previous categories has specific criteria which are associated with numerical values. The scale requires health care professionals to observe advanced dementia patients for 5 minutes prior to beginning the pain assessment[15]. At the conclusion of a 5-minute period, health care professionals should then begin the pain assessment and score each category based on what is observed[15]. For example, if a health care professional is assessing an advanced dementia patient's pain and observes the patient exhibiting noisy, labored breathing, then the health care professional would give the patient a score of 2 in the breathing independent of vocalization category. Once each category is scored, the independent values can then be tabulated to provide the final pain rating[15]. The PAINAD scale can be completed by health care professionals relatively quickly and with minimal disturbance to patients.

Figure 3: PAINAD Scale[15]

Items*	0	1	2	Score
Breathing independent of vocalization	Normal	Occasional labored breathing. Short period of hyperventilation.	Noisy labored breathing. Long period of hyperventilation. Cheyne-Stokes respirations	
Negative vocalization	None	Occasional moan or groan. Low-level speech with a negative or disapproving quality.	Repeated troubled calling out. Loud moaning or groaning. Crying.	
Facial expression	Smiling or inexpressive	Sad. Frightened. Frown.	Facial grimacing	
Body language	Relaxed	Tense. Distressed pacing. Fidgeting.	Rigid. Fists clenched. Knees pulled up. Pulling or pushing away. Striking out.	
Consolability	No need to console	Distracted or reassured by voice or touch.	Unable to console, distract or reassure.	
			Total**	

It has been well established that treating and managing pain can be a difficult challenge for health care professionals. There are many factors which contribute to the complexity of treating and managing pain and health care professionals must make a concerted effort to ease the process and ensure they are effectively administering pain care to patients in need. By developing observation and active listening skills as well as the ability to use the aforementioned pain assessment tools, health care professionals can become better equipped to assess pain and ultimately treat and manage pain.

Establishing Pain Management Goals

Another method health care professionals can use to reduce the complexity of pain management is to establish pain management goals. When beginning any new endeavor, it is important for individuals to set goals. A goal can be a means for individuals to describe and/or visualize what they want to achieve. Goal setting can also help individuals prioritize, stay focused, build motivation and establish

self-confidence. In essence, goal setting can help individuals get from where they are to where they want to be, especially when it comes to health care and treatment. When a patient enters health care/treatment, he or she is attempting to achieve a better state of health. In essence, the patient is trying to transition from where they are - a place of poor/compromised health, to where they want to be - a place of improved health. Unfortunately, the aforementioned transition is not always an easy one. A successful transition from poor/compromised health to improved health often takes a great deal of hard work, focus, time, energy and effort from both the patient and his or her team of health care professionals. At times, health care/treatment can be challenging, tiring and demoralizing. One day a patient may be doing quite well and the next day he or she may not. Quite simply put, sometimes the road to recovery or improved health can be a long and difficult one for patients and health care professionals alike. That could not be more evident than with the treatment and management of pain, which is why it important for health care professionals to establish pain management goals for patients. Given this, how can health care professionals help patients set pain management goals?

The development of pain management goals begins with communication. Health care professionals should have open-ended conversations with patients undergoing pain treatment to find out exactly what they would like to accomplish through their therapy. Every patient possesses the potential to have distinct goals. For example, a father of four experiencing severe pain may want to limit his pain enough to regularly play and/or be active with his children, while an older adult patient may simply want to limit his or her pain enough to get a good night sleep. Whatever the case may be, communication is essential to pain management goal setting. Each patient should have his or her own customized set of goals based on his or her own unique desires and circumstances. Once the patient's personal goals have been well established, health care professionals should then help the patient arrange his or her own goals into both long-term goals and short-term

goals. Long-term goals can help patients create an objective to work towards. As previously mentioned, for some patients, the road to reduced pain can be a long and difficult one. Long-term goals can motivate patients to keep striving and moving towards accomplishing what they set out to achieve. Long-term goals can also help patients maintain motivation and the will to succeed in their treatment. Short-term goals, on the other hand, also have value. Short-term goals can prevent patients from becoming overwhelmed by their treatment and/or pain situation. By helping patients establish short-term goals, health care professionals can provide patients with the small, less overwhelming, steps they need to take in order to obtain their long-term goals. In essence, short-term goals can work as stepping stones to get the patient closer and closer to achieving his or her long-term goals. For some patients, it may be easier for them to take small steps as opposed to what may seem to be giant, stressful steps. Once long-term and short-term pain management goals have been firmly established, health care professionals should make sure each patient goal is specific, measurable and realistic[16].

Pain management goals should be specific - meaning the objective of each goal should be clear and well-defined[16]. Specific goals can help health care professionals fully understand what patients hope to achieve through pain therapy, while non-specific goals can lead to ambiguity and confusion. For example, when asked by a health care professional, what their pain management goals are patients may say "I would like to increase my mobility." That is a great goal, but it is not specific. The objective of the goal is not well-defined, and it can be open to interpretation. When patients say "I would like to increase my mobility" they may mean they would like to increase their mobility enough so they can walk a mile a day. However, the health care professional may interpret "I would like to increase my mobility" as the patients would like to increase their mobility enough to be able to walk around their house. Due to a lack of a clear objective, the goal is misunderstood. A specific goal related to increased mobility would be "I would like to eventually walk without a cane" or "I would like to be

able to walk up a flight of stairs." Each of the aforementioned goals is related to the patient's desire to increase his or her mobility, however the goals are specific and an objective is well-defined. As a result, the health care professional can fully understand what the patient would like to achieve through therapy. There is no interpretation necessary because the objective is clear. Essentially, a lack of goal specificity can lead to ambiguity, miscommunication and a misunderstanding of information, all of which possess the potential to negatively affect patient treatment outcomes. Specific goals, on the other hand, can decrease ambiguity, increase communication outcomes and lead to a clear understanding of information. In addition, specific goals are important because they can clearly identify treatment milestones, which are important markers of pain treatment progression. If a patient has a pain management goal to walk without a cane, it is important to mark that milestone when it is achieved. Marking or recognizing treatment milestones can help patients understand their pain therapy is improving their health. It can also reinforce the importance of pain therapy and increase patients' motivation to continue with therapy. Furthermore, specific goals can help health care professionals develop patient-centered treatment strategies. If health care professionals know exactly what patients would like to achieve through pain treatment, then they can be better equipped to design pain therapies to suit their patients' needs. It has been said that the more specific a patient's pain management goal is, the more likely he or she will be able to achieve it. When health care professionals are developing patients' treatment plans, they should assist patients to clearly identify their goals. Additionally, if patients do have goals in mind, health care professionals should take the time to help patients fully develop their goals and phrase them in such a manner so they are specific and clearly identify the patient's desired treatment objectives.

When developing specific goals, health care professionals should also note the type of pain the patient is experiencing. As previously highlighted, there are different types of pain, such as acute and chronic pain. Each type of pain has

different duration periods and effects on patients. As a result, it may be necessary for the patient to adopt goals that are specific to his or her type of pain[16]. For example, if a patient is suffering from acute pain, a goal for the patient may to be recover from the condition or injury that is causing him or her pain[16]. If the patient is suffering from chronic pain, a goal for the patient may be to develop skills to emotional and/or mentally cope with the long-term pain[16]. Whatever the case may be, it is imperative that health care professionals understand what type of pain the patient is suffering from and design goals that are specific for the patient's unique experience of pain.

Pain management goals should also be measurable[16]. Measurable goals possess criteria which can be used to measure progress and, often, have a defined beginning and end[16]. An example of a non-measurable patient goal is "I want my pain therapy to go well." The aforementioned goal is positive and expresses a desire, however it is not measurable. There is no specific criteria which can be measured to identify progress, nor does it have a beginning or an end. An example of a measurable goal is, "I would like to be able to walk around my block for 45 minutes by next May" The latter goal is measurable because it possesses specific criteria which can be measured to identify progress. If the patient is able to walk around his or her block by May, then the patient will know progress has been made. Measurable goals can further clarify what patients are hoping to achieve through pain therapy as well as help patients identify what they are working towards.

Finally, and perhaps most importantly, patients' pain management goals should be realistic[16]. A patient may say "I would like to have no pain at the end of my therapy." Again, that is a great goal; however, due to the patient's condition, age, baseline functionality and comorbidities that may not, and most likely is not, a realistic goal. For many patients "no pain" is not a realistic pain management goal[16] nor should health care professionals encourage patients to set that as one of their primary goals if it is not possible. Many patients, especially older adults,

may have limited baseline functionality and preexisting conditions that may prevent them from ever becoming truly pain free. It is important for health care professionals to acknowledge that point and be more realistic when helping patients set their personal pain management goals. A health care professional must take into account the medical history of each patient as well as the workable treatment time table and the personal abilities of each patient to set realistic, attainable goals. For example, a more realistic goal for a patient would be "I would like to be able to get a full night's sleep" or "I would like to be able to walk 6 blocks in 5 months time." The patient may never be pain free. However, through pain therapy, the patient may able to achieve a level of functionality that may increase his or her quality of life. Sleeping through the night or obtaining the ability to carry out light exercise may be enough to improve the patient's treatment outcomes, overall well-being and perhaps most importantly, their quality of life. It would be quite the milestone for a patient to become totally pain free, and for some patients that may be an option. However, for most patients it is not. When setting goals, it is better for health care professionals to be honest with themselves and their patients. Pain therapy can go a long way to improve a patient's quality of life. By focusing on realistic, attainable goals, patients can work towards things they can actually obtain, which may be all that is necessary to keep the patient committed to future pain treatment options that may further increase his or her ability to enjoy life.

Helping patients set pain management goals is an important step to initiating a patient's pain therapy. However, health care professionals should keep in mind that a patient's goals may have to be revisited and/or evaluated throughout the course of therapy[16]. At times, patients' goals may need to be adjusted or even changed as a result of a host of different factors. Thus, it is vital for health care professionals and patients to maintain a level of flexibility and an ability to adapt to the ever changing potential of therapy. How many times have individuals started a project or an endeavor with certain goals in mind, only to alter or change

those goals over time due to shifting timetables and/or unpredictable factors? The answer is: often. The same can be true for pain therapy. Every patient is different and possesses the potential to react to therapy in varying ways. What works for one patient may not necessarily work for another patient. A recovery period that was estimated to take 6 weeks may take up to 8 weeks or as little as 4 weeks. Simply put, pain therapy possesses the potential to be unpredictable. Consequently, health care professionals and to some extent, patients, must be capable and mentally prepared to adapt to the results of pain therapy. Goals may have to be temporally altered or varied depending on how the patient is progressing through therapy. Although, just because a patient's goal is altered does not mean it cannot be reached. If something changes one day, that does not mean measures cannot be taken to get back on course or that things will not change again to improve the situation. It may just mean the desired end result may take more time and/or effort to obtain. Patients should be reminded to take each day as it comes. Through the course of pain therapy, patients may have days where they make outstanding progress and days where they take a giant step backwards. For some patients, pain treatment may be a marathon as opposed to a sprint. It may take them a long time to reach the finish line of their pain therapy. However, through perseverance, flexibility and adaptability patients may realize their goals and hopes for their pain management.

Section 2: Summary

Pain, if left untreated, may lead to a host of complications including: decreased mobility, muscle atrophy, obesity, decreased cardiovascular health, sexual, hormonal and cognitive dysfunction, as well as insomnia, depression and even suicide[7]. Therefore, it is both the clinical and ethical responsibility of health care professionals to treat and manage patients' pain. The management of pain can be a difficult challenge for health care professionals - however, there are methods

health care professionals can employ to limit the complexity of treating/managing pain as well as ensure they are effectively treating pain. One method is for health care professionals to conduct effective pain assessments. Pain assessment, as it relates to pain, can refer to the process health care professionals use to obtain relevant information from a patient regarding the individual patient's experience of pain. The goal of a pain assessment is for the health care professional to obtain as much viable pain information from the patient as possible, in order to develop/adjust the patient's pain therapy. Health care professionals can effectively conduct pain assessments by developing their observation and active listening skills as well as their abilities to use pain assessment tools such as the Wong/ Baker faces rating scale, WILDA approach assessment guide, CPOT and the PAINAD scale. Along with pain assessments, health care professionals can establish pain management goals to ensure they are effectively managing patients' pain. The development of pain management goals begins with communication. Health care professionals should have open-ended conversations with patients undergoing pain treatment to find out exactly what they would like to accomplish through their therapy. Additionally, health care professionals should work to create patient goals that are specific, measurable and realistic[16]. Specific, measurable and realistic goals can help patients maintain treatment focus, desire and motivation as well as identify what they are working towards. Each patient's experience of pain may be different and complex - however, if health care professionals work to design patient-centered treatment strategies which are based on patients' insight and desired outcomes, they will be more likely to meet their clinical and ethical obligations of effectively managing patients' pain.

Section 2: Key Concepts

- Health care professionals have a clinical and ethical responsibility to treat/mange patients' pain.

- Managing pain can be difficult - however, health care professionals can conduct pain assessments and establish patient goals to limit the complexity of managing pain and to ensure they are effectively managing patients' pain.
- Patient observation and active listening are key to conducting effective pain assessments.
- Patients' pain management goals should be specific, measurable and realistic[16].

Section 2: Key Terms

Beneficence - the act of doing what is best for the patient[9]

Nonmaleficence - inflicting no harm to patients; do no harm to patients[9]

Pain assessment - the process health care professionals use to obtain relevant information, from a patient, regarding the individual patient's experience of pain

Patient observation (as it relates to pain assessment) - the process in which a health care professional examines and monitors a patient in order to obtain information regarding the patient's experience of pain

Active listening - the process in which a health care professional gathers information from a patient by engaging in a style of two-way communication which fosters a clear and mutual understanding of information; the process of listening with the intent to obtain meaning[10]

Continuous pain - pain that does not leave the pateint[12]

Breakthrough pain - pain which occurs in flare-like exacerbations while the patient is being treated for pain[13]

Section 2: Personal Reflection Question

How can observation and active listening skills help health care professionals effectively manage pain?

Section 3: Pain Management

Pain can be devastating to an individual's overall health, well-being and quality of life. As previously highlighted, pain possesses the potential to transform a well adjusted, healthy, active individual into a depressed, inactive, cognitively impaired individual that does not enjoy life. Quite simply put, pain can rob an individual of their ability to independently function and live, which is why pain must be effectively managed. Pain management can refer to the process of using non-pharmacological, pharmacological and/or other means to prevent, limit and treat pain[17].

Modern pain management has its origins in the 1800's. In 1842 Dr. Crawford Williamson Long, an American surgeon, was one of the first individuals to use inhaled ether as a general anesthetic to control a patient's pain during a surgery18. Dr. Crawford Williamson Long's efforts marked one of the first times in the history of modern medicine where medical means were used to safely and effectively control patients' pain. Prior to the 1800s, little was known about the far reaching effects of pain and even less was known on how to effectively manage pain. Consequently, the use of anesthetics were not common during surgery and modern medicine offered little in the form of well researched methods to limit patients' pain. All too often pain was not properly acknowledged and patients were left to their own devices to control and limit their pain. Thanks to the efforts of Dr. Crawford Williamson Long and other medical pioneers, much has changed in the comprehension of how individuals' experience pain as well as how pain can be effectively managed. Modern medicine's knowledge and understanding of pain

has grown exponentially and it is now almost unanimously accepted that pain is a dynamic, multidisciplinary experience that occurs on both the physical and psychological level4. Due to the advancements in the understanding of pain, health care professionals now recognize that pain must be effectively managed through a combination of therapeutic strategies that are just as dynamic and multifaceted as the experience of pain itself. For that reason, the current scope of pain management has transcended from its humble begins with Dr. Crawford Williamson Long's efforts and has developed into a comprehensive, multidisciplinary approach which blends a wide variety of therapeutic options to meet the needs of the individual patient.

In the current health care climate, pain management typically begins with pain assessment and patient goal setting. Once health care professionals gain an understanding of a patient's pain, a pain management plan can be designed and developed for the individual patient. A pain management plan can refer to the strategy health care professionals use to prevent, limit and treat an individual patient's pain through a combination of varying therapeutic options[16,17]. In the past, pain management plans may have just included generic written prescriptions.

However, that type of pain management is no longer widely accepted. Health care professionals are now being encouraged to forge unique pain management plans that include a variety of different non-pharmacological and pharmacological treatment options to meet the individual needs and goals of each patient. With that in mind, what are the common non-pharmacological and pharmacological treatment options currently being used to manage patients' pain?

Non-pharmacological Treatment Options

One of the first non-pharmacological treatment options that may come to mind for the management of pain is physical therapy. Physical therapy can refer to the

practice of treating a disease, condition, injury and/or pain through physical means[19]. The goals of physical therapy are to preserve, enhance and restore movement and physical function[19]. In order to achieve those goals, physical therapists use a combination of active and passive treatment options. Active treatment options encourage patients to actively participate in therapy, while passive treatment options promote full body relaxation. An example of an active treatment option is therapeutic exercise[19]. Therapeutic exercises include a variety of physical activities which are designed to enhance and maintain patients' flexibility, strength, balance, range of motion and functionality[19], with the goal of decreasing pain. Physical therapists design unique therapeutic exercises programs for each patient based on his or her needs and personal pain management goals. Through therapeutic exercise programs, physical therapists hope to engage the patient in physical activities which will build strength and increase function. In addition, therapeutic exercise programs aim to educate the patient on how to efficiently and effectively move their bodies to promote health and well-being. In essence, therapeutic exercise programs can assist patients in establishing a foundation for active healing to decrease pain and increase their quality of life.

Passive treatment options, on the other hand, aim to relax patients' bodies in order to promote rest and restoration. Passive treatment options bring balance to physical therapy. After a period of physical activity the human body often requires rest to grow, develop and restore itself. Rest and relaxation offer the body an opportunity to recover. Without rest and relaxation, the human body can become strained or over-exerted. Once the human body becomes strained or over-exerted injuries can occur or preexisting injuries can become worse. Passive treatment options are designed to avoid that. Passive treatment options offer the human mind and body an opportunity for relaxation and restoration in order to promote further healing. Passive treatment options also help to reduce factors which may lead to pain such as: inflammation, muscle tension and poor circulation. Examples of passive treatment options include: transcutaneous electrical nerve stimulation

(TENS), ultrasound and hot and cold therapies. TENS and ultrasound can release pressure, tension and stiffness to aid in circulation and the prevention of muscle spasms, while hot and cold therapies can further promote increased circulation and help treat inflammation. The physical therapist will often use a combination of the previous passive treatment options to give the patient a full assortment of means to reduce factors which can lead to pain. Despite this, physical therapy remains one of the most common and effective non-pharmacological treatment options for the management of pain. It promotes movement and restoration to heal the human body and provide it with an opportunity to grow and develop. Physical therapy does not mask pain, but instead it works to reduce or eliminate pain when possible. Through the use of active and passive treatment options, physical therapists can assist patients in their attempts to live an active, healthier, happier lifestyle, free of debilitating pain.

The next non-pharmacological treatment option that may come to mind for the management of pain is massage therapy. Massage therapy can refer to the practice of treating a disease, condition, injury and/or pain through the physical manipulation of soft tissue[17]. One of the goals of massage therapy, when used to manage pain, is to relax the human mind and body in order to encourage healing and decrease pain[17]. Often when patients are experiencing pain, especially intense pain, they become stressed, tense and highly anxious. High levels of stress, tension and anxiety possess the potential to increase pain and slow recovery by limiting patients' ability to sleep, move and breathe deeply[17]. Through the manipulation of soft tissue, massage therapy can release patients' stress, tension and anxiety in order to reduce pain and increase patients' ability to recover[17]. High levels of stress, tension and anxiety can be detrimental to a patients overall health, well-being and experience of pain. Massage therapy can be an effective means to reduce patients' stress, tension and anxiety and ultimately manage pain[17].

Another non-pharmacological treatment option which may be used to manage pain is psychotherapy. Psychotherapy may not be the first thing that comes to mind when thinking about non-pharmacological methods to manage pain - however, it can be incredibly effective. It has been well documented that much of the experience of pain occurs in the individual's mind. Pain may start off as a physical reaction to external stimuli such as extreme pressure or temperature fluctuations. However, pain is interpreted by the individual' brain and thus psychological factors greatly influence how pain in experienced. Subsequently, it has been theorized, and widely accepted, that the experience of pain is more of a mental construct than it is a physical one. Therefore, it should be no surprise to health care professionals that psychotherapy can be an effective means to manage patients' pain. Psychotherapy can refer to the use of psychological techniques and/or psychotherapeutic approaches to help individuals overcome problems and develop healthier habits[20]. There are many different forms of psychotherapy, but one of the most effective forms of psychotherapy used to manage pain is cognitive-behavioral therapy.

Cognitive-behavioral therapy can refer to the type of talk therapy which can be used to help individuals solve problems and create positive outcomes by changing unrealistically negative patterns of thought and behavior[21]. In other words, cognitive-behavioral therapy is a method to help individuals replace unrealistically negative thinking with more realistic and/or positive thinking. With this in mind, what is an example of an unrealistic thought? An example of an unrealistic thought can be, "I am the most useless individual on the planet" or "I am completely worthless." Those types of thoughts are not only unrealistically negative but they also possess the potential to lead to negative behavior patterns and outcomes. The following example will highlight the previous concepts and how cognitive-behavioral therapy can help individuals in need.

A 28-year-old male individual has low self-esteem. All day long he thinks unrealistically negative thoughts about himself such as he is worthless, useless and

no one in the world would ever date him. Consequently, he feels horrible about himself, depressed and unmotivated. The individual's behavior also suffers from his negative thought patterns. Due to his thinking, the individual is often angry because he misinterprets other individuals' actions towards him. The young man's anger and consistent misinterpretations lead to problems with employment and an inability to get along with others. Feeling lonely, the young man would like to begin dating , however his negative thoughts are also negatively influencing his abilities to achieve his desires. One day, a young woman asks him on a date. However, because the young man thinks negatively about himself he believes the young women is only asking him on a date as a joke to make fun of him, when in fact it is quite the opposite. The young man refuses to go on a date with the young woman or engage in any type of relationship with her. The young man is very rude and mean to the young woman when she asks him out which upsets her - ruining any future opportunities with her. The incident with the young woman is a watershed moment for the young man, and as a result he seeks psychotherapy. Cognitive-behavioral therapy is used to treat the young man. Through various cognitive-behavioral therapy methods, the young man is able to realize his thoughts about himself are both unrealistic and incredibly negative. Through further cognitive-behavioral therapy the young man is able to understand that because his thoughts are unrealistic, they may be inaccurate. Over time and with additional help, the young man realizes he feels horrible and is acting horribly because of the way his is thinking. His unrealistically negative thoughts are directly impacting his feelings and his actions which are causing him to constantly experience negative outcomes. With additional cognitive-behavioral therapy, the young man begins to alter his negative thought patterns. After some time, the young man is able to replace his unrealistically negative thought patterns with more realistic, positive thinking. As a result, the young man's self-esteem increases and he no longer thinks he is worthless, useless and unlovable. More and more, the young man begins to think positive, more realistic thoughts about himself. In a few months time, he feels better and is no longer angry or acting out towards

others. His work-life becomes much improved and his personal life also takes a turn for the better. The young man is able to go out on dates and eventually meets a young woman with whom he would like to have a long term relationship. The young man is happier and is now experiencing positive outcomes. In the previous example, the young man was consistently thinking unrealistically negative thoughts about himself. Consequently, he felt negative and behaved in a negative manner. His thoughts and actions caused him to misinterpret the actions of others and prevented him from obtaining his desires and/or positive outcomes. The young man then entered psychotherapy and cognitive-behavioral therapy was used to allow the young man to understand how his negative thinking was harmfully shaping his life. Through cognitive-behavioral therapy, the young man was able to change his thoughts and behavior patterns to feel better and achieve positive outcomes. Essentially, through cognitive-behavioral therapy the young man began to think positive thoughts so he began to feel and act positively. The previous example not only highlighted how cognitive-behavioral therapy can treat those in need, it also highlighted how impactful thoughts can be. Human beings are greatly influenced by their thoughts and thought patterns. Thought patterns can determine how individuals act and, more importantly, how they feel. Thinking realistically and positive can help individuals feel more positive, while unrealistically negative, inappropriate and/or catastrophic thoughts can cause individuals to feel just as bad as their thought patterns, which may be the case with individuals experiencing pain.

Negative, inappropriate and catastrophic thoughts are often present in patients experiencing pain[21]. Due to what is perceived as a terrifying diagnosis or a lack of understanding of underlying conditions, individuals who suffer from pain, especially chronic pain, typically begin to develop negative thought patterns regarding their pain and overall health[21]. For example, a patient may receive a diagnosis regarding his or her condition from a health care professional and immediately think of the worst case scenario, or a patient suffering from chronic

pain for several months may lose faith in pain treatment and begin to think his or her pain will never go away. Negative thinking regarding health and/or pain can be just as impactful as other types of negative thinking. If individuals think they are unhealthy, then they may feel unhealthy. Likewise, if individuals constantly think about long-lasting, excruciating pain then they may feel an altered or accentuated experience of pain. The experience of pain is very much rooted in the mental interpretation of pain. Thus, negative thoughts regarding pain may lead to a more negative experience of pain. Put another way, negatively can beget negativity; negative thoughts of pain can lead to negative experiences of pain. When patients enter into negative thought patterns regarding pain it can be very challenging to break them out of those patterns. As patients fall deeper and deeper into their negative thought patterns, it can become increasingly difficult for them to understand the reality of their situation and accept the physiological truth about their health and pain.

As previously mentioned, the normal healing time for the human body is 3 - 6 months - meaning any pain resulting from damage to tissue, muscles, bones, ligaments and/or discs should resolve within a 3 - 6 month period. However, for some patients it does not. For some patients pain extends for longer than the human body's natural healing period. Some patients report experiencing pain years after an injury has occurred, even if there is no biological reason for their pain. When there are no biological reasons for pain, it may be highly plausible that psychological factors such as negative thought patterns are leading to patients' pain. Due to negative thought patterns, a patient's experience of pain may become warped or perpetual, leading to chronic pain. Another case may be that a patient may not be able to understand the reality of their health because of the way he or she is thinking about it, leading to an enhanced and/or distorted experience of pain. Whatever the case may be, cognitive-behavioral therapy can help patients manage their pain[21].

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As previously outlined, negative, inappropriate and catastrophic thoughts are often present in patients experiencing pain[21]. Unfortunately, those types of thoughts are highly correlated to the intensity of pain[21] - meaning the more negative thoughts a patient has about their health/pain the worse their pain can be. When patients consistently think negatively about their health/pain, it can lead to both physical and mental stress. The more patients think negatively or worry about their health/pain the higher their stress levels. When patients reach the point when they are continuously preoccupied or consumed with their health/pain, their stress levels can perpetually remain high. When the human body's stress levels are pushed to their limits and remain high for long periods of time, the body and the mind can react in detrimental ways. Research has shown that high stress levels can lead to depression, anxiety and inflammation[21] all of which possess the potential to enhance or cause pain. Thus, by thinking unrealistically negative, inappropriate and/or catastrophic thoughts, patients can create a state of body and mind which can lead to pain. Regrettably, thinking about pain can lead to pain. Fortunately, cognitive-behavioral therapy can assist patients in breaking unrealistically negative thought patterns[21].

One of the primary goals of cognitive-behavioral therapy when it comes to the management of pain is to help patients replace unrealistically negative thought patterns with more realistic thinking[21]. When a patient is in pain, he or she may think, "this is the worst pain in the world" or, "my pain will never go away." Thoughts like those are common among patients experiencing pain. However, they are unrealistic. Cognitive-behavioral therapy works to remove thoughts like those from patients' regular thought patterns and replace them with more realistic thoughts like "my pain may be bad right now but it will be better in the future." By replacing unrealistically negative thought patterns with more realistic thinking, patients can gain a more realistic appraisal of their health/pain, making it easier for them to handle their condition or pain[21]. To establish more realistic thinking in patient's regular thought patterns, cognitive-behavioral therapy uses several

different methods such as: relaxation, breathing exercises, meditation, positive affirmation, physical activity and discussion, to help a patient first identify his or her unrealistically negative thoughts and then educate the patient on how to rationally dispute his or her catastrophic cognitions[21]. Once the patient can rationally dispute his or her catastrophic cognitions, additional techniques are used to prevent a relapse in thinking and to reinforce a more positive, realistic thought process[21]. Realistic thinking can also help patients reduce stress and gain a sense of control over their overall health and well-being. Much of the experience of pain is based on an individual's mindset and thought process. After all, pain is interpreted by the mind. Therefore, it is only logical to use a method of therapy which can treat the mental aspect of pain. Cognitive-behavioral therapy can be an effective treatment method to manage pain[21]. It can help patients think more realistically, decrease stress and, when used in combination with other treatment options, it can help patients reduce their pain and increase their quality of life.

In short, non-pharmacological treatment options offer an effective means to manage patients' pain. They can be used individually or in conjunction with other methods. Non-pharmacological treatment options work to treat both the physical and mental aspects of pain. Health care professionals should always consider non-pharmacological treatment options when managing patients' pain.

Pharmacological Treatment Options

The remainder of this part will focus on the most common medications used to manage pain. This section will begin by reviewing individual medications and then highlight opioid medications as a class.

Acetaminophen

Medication notes: Acetaminophen is one of the most common medications used to manage pain. Acetaminophen belongs to a group of medications referred to as

nonopioid analgesics. It is believed acetaminophen works by inhibiting prostaglandin (PG) synthesis[22]. It is also believed acetaminophen affects cyclooxygenase[22]. Common dosage forms of acetaminophen include: oral tablets, capsules and solutions[23]. Acetaminophen is also available as a rectal suppository and as an intravenous product[23]. Acetaminophen is typical well tolerated - however, common side effects include: nausea, vomiting and constipation[23].

Typical dosing interval: The typical dosing interval for acetaminophen is 4 - 6 hours[23,24].

Safety notes: The total daily dose of acetaminophen should not exceed 4000 mg[23,24]. Acetaminophen has a Food and Drug Administration (FDA) Boxed Warning highlighting the potential for severe liver injury and a warning highlighting the potential for allergic reactions (e.g., swelling of the face, mouth, and throat, difficulty breathing, itching, or rash)[23]. Health care professionals should always double check to make sure patients do not have a known allergy to acetaminophen before acetaminophen is administered. Health care professionals should also be aware that many medication products contain acetaminophen. Health care professionals should always calculate a patient's total daily dose of acetaminophen before a dose is given to avoid exceeding the recommended maximum daily dose of 4000 mg.

Considerations for special patient populations: Health care professionals should note the FDA Boxed Warning highlighting the potential for severe liver injury when administering acetaminophen to patients with compromised liver function. Health care professionals should also be aware of weight based dosing when administering acetaminophen to children or pediatric patients. Acetaminophen is often used to manage pregnant women's pain.

Aspirin

Medication notes: Aspirin belongs to a class of medications known as nonsteroidal anti-inflammatory drugs (NSAIDs). It is believed NSAIDs reduce inflammation and exert their analgesic effects by inhibiting prostaglandin (PG) synthesis[22]. Common dosage forms of aspirin include oral tablet, enteric coated tablet and suspension[23]. Aspirin is also available as a rectal suppository[23]. Aspirin is typical well tolerated - however, common side effects include: dyspepsia, abdominal pain and gastrointestinal bleeding[23].

Typical dosing interval: The typical dosing interval for aspirin when used to manage pain in adult patients is 4 - 6 hours[23,24].

Safety notes: The total daily dose of aspirin should not exceed 4000 mg[23, 24]. Aspirin has an FDA warning highlighting the potential for allergic reactions[23]. Health care professional should check if patients possess an aspirin allergy before administration. Aspirin also has an FDA warning regarding serious bleeding[23].

Considerations for special patient populations: Health care professionals should note the FDA warning highlighting serious bleeding when administering aspirin to patients with bleeding disorders and when administering aspirin to patients on anticoagulant medications. Health care professionals should also note the following recommendation: pregnant women should avoid using aspirin in their third trimester[23].

Ibuprofen

Medication notes: Ibuprofen belongs to a class of medications known as NSAIDs. Common dosage forms of ibuprofen include oral tablet and suspension[23]. Ibuprofen is also available as an intravenous product[23]. Ibuprofen is typically well tolerated -however, common side effects include: nausea, abdominal pain, constipation and heartburn[23]. Ibuprofen may also lead to tinnitus[23].

Typical dosing interval: The typical dosing interval for ibuprofen is 4 - 8 hours[23,24].

Safety notes: The total daily dose of ibuprofen should not exceed 3200 mg[23,24]. Ibuprofen has an FDA warning highlighting the potential for allergic reactions. Ibuprofen should not be administered to patients with a known allergy to ibuprofen and/or aspirin. Ibuprofen also has an FDA warning highlighting the potential for stomach bleeding[23]. In addition, the FDA recommends that ibuprofen should not be administered to patients right before or after a heart surgery[23].

Considerations for special patient populations: Health care professionals should note the FDA warning highlighting the potential for stomach bleeding when administering ibuprofen to older adults as well as patients with a history positive for ulcers and/or bleeding problems[23]. Health care professionals should also be aware of weight based dosing when administering ibuprofen to children or pediatric patients. It is recommended that health care professionals avoid administering ibuprofen to women starting at 30 weeks gestation because premature closure of the ductus arteriosus in the fetus may occur[23].

Naproxen

Medication notes: Naproxen is also an NSAID. Common dosage forms of naproxen include oral tablet and suspension[23]. Common side effects of naproxen include: nausea, abdominal pain, constipation and heartburn[23]. Naproxen may also lead to more serious side effects such as: bleeding, ulcers, kidney failure and liver failure[23].

Typical dosing interval: The typical dosing interval for naproxen when used to manage pain in adult patients is 8 - 12 hours[23,24].

Safety notes: Naproxen possesses the following FDA warnings regarding dose and duration of therapy: naproxen should be used at the lowest dose possible for treatment and for the shortest time period needed[23]. Naproxen should not be

administered to patients with a known allergy to naproxen or other NSAIDs[23]. Also, naproxen should not be administered to patients right before or after coronary artery bypass surgery (CABG)[23].

Considerations for special patient populations: Health care professionals should note the FDA warning highlighting the potential for bleeding/ulcers when administering naproxen to older adults. Health care professionals should also note that naproxen may lead to kidney and/or liver failure when administering naproxen to patients with kidney or liver disease. Health care professionals should avoid administering naproxen to pregnant women in their third trimester [23].

Celecoxib

Medication notes: Celecoxib is also an NSAID. Celecoxib is often used to manage pain in patient populations suffering from arthritis. Celecoxib is available as an oral capsule[23]. Common side effects of celecoxib include: nausea, abdominal pain, constipation and heartburn[23]. Celecoxib may also lead to more serious side effects such as: high blood pressure, bleeding, ulcers, kidney failure and liver failure[23].

Typical dosing interval: The typical dosing interval for naproxen when used to manage pain in adult patients is every 12 hours[23,24].

Safety notes: Celecoxib should not be administered to patients with a known allergy to celecoxib or other NSAIDs[23]. Also, celecoxib should never be administered to patients right before or after coronary artery bypass surgery (CABG)[23].

Considerations for special patient populations: Health care professionals should note the FDA warning highlighting the potential for bleeding when administering celecoxib to older adults. Health care professionals should also note that celecoxib may lead to kidney and/or liver failure when administering celecoxib to patients with kidney or liver disease. Furthermore, health care professionals should note

that celecoxib may lead to high blood pressure when administering celecoxib to patients with hypertension. Celecoxib falls into FDA pregnancy risk category C prior to 30 weeks gestation[23]. However, celecoxib falls into FDA pregnancy risk category D starting at 30 weeks gestation[23].

Lidocaine (topical)

Medication notes: Lidocaine is outlined in this section to highlight the use of topical medications in the management pain. Lidocaine belongs to a group of medications referred to as local anesthetics. Lidocaine (topical) is a numbing medication and it is indicated for the temporary relief of pain[23]. Lidocaine comes in many different strengths including: 2%, 4% and 5%[23]. Common side effects of lidocaine include: erythema, skin irritation and dry skin[23].

Typical dosing interval: Lidocaine (topical) is typically administered as needed up to 3 - 4 times per day, depending on the strength of lidocaine used to manage pain and specific patient factors[23].

Safety notes: Lidocaine (topical) is for external use only[23]. Health care professionals should be aware that lidocaine is contraindicated in patients with a known history of hypersensitivity to local anesthetics[23]. Lidocaine should not be used on patients with fungal lesions of skin vaccinia[23].

Considerations for special patient populations: Health care professionals should be aware that lidocaine (topical) doses may have to be adjusted for pediatric patients[23].

Gabapentin

Medication notes: Gabapentin is outlined in this section to highlight the use of medications from different medication classes in the management of pain.

Gabapentin belongs to a group of medications referred to as anticonvulsants. Gabapentin is often used to manage pain in patient populations suffering from postherpetic neuralgia[23]. Common dosage forms of gabapentin include: oral capsule, tablet and suspension[23]. Gabapentin may lead to the following side effects: dizziness, somnolence, and peripheral edema[23].

Typical dosing interval: The typical dose and dosing interval for gabapentin when used to manage pain in adult patients is 300 mg three times a day[23].

Safety notes: The recommended maintenance dose of gabapentin when used in adult patients is 1800 mg/day, although dosages over 1800 mg/day have been observed in select patient populations[23]. The use of gabapentin is contraindicated in patients with a known hypersensitivity to gabapentin or its ingredients[23]. Gabapentin may also lead to driving impairment[23].

Considerations for special patient populations: Health care professionals should note that dosage adjustments may be necessary when administering gabapentin to adult patients with compromised renal function[23]. Dosage adjustment in patients undergoing hemodialysis may also be necessary[23]. In addition, health care professionals should be aware that gabapentin may lead to suicidal behavior and ideation[23]. Furthermore, gabapentin may lead to neuropsychiatric adverse reactions in patients 3 - 12 years of age[23]. Gabapentin falls into FDA pregnancy risk category C[23].

Cyclobenzaprine

Medication notes: Cyclobenzaprine is outlined in this section to highlight the use of muscle relaxants in pain management. Cyclobenzaprine belongs to a group of medications referred to as muscle relaxants. Muscle relaxants can be used in pain management as adjunct therapy to relieve skeletal muscle spasms[23]. Cyclobenzaprine oral products are available in immediate-release and

extended-release formulations[23]. Common side effects of cyclobenzaprine include: sedation, drowsiness, dizziness, blurred vision and dry mouth[23].

Typical dosing interval: The typical dosing interval for the immediate-release formulation is 3 times a day[23]. The typical dosing interval for the extended-release formulation is once a day[23].

Safety notes: Health care professionals should be aware the recommended duration of therapy for cyclobenzaprine is 2 - 3 weeks[23]. Health care professionals should also be aware the use of cyclobenzaprine is contraindicated in patients with a known hypersensitivity to cyclobenzaprine[23]. Cyclobenzaprine may not be used concurrently with monoamine oxidase (MAO) inhibitors or within 14 days of their discontinuation[23]. Furthermore, health care professionals should note the following cyclobenzaprine warning regarding serotonin syndrome - the development of a potentially life-threatening serotonin syndrome has been reported with cyclobenzaprine when used in combination with other drugs, such as selective serotonin reuptake inhibitors (SSRIs)[23].

Considerations for special patient populations: Health care professionals should use caution when administering cyclobenzaprine to older adults due to the increased potential for adverse events[23]. The administration of cyclobenzaprine is often avoided in older adult populations. If cyclobenzaprine is administered to older adults, it is typically administered at lower doses and slowly titrated up as needed[23]. Health care professionals should also be aware of the following consideration - research has indicated the plasma concentration of cyclobenzaprine is increased in patients with hepatic impairment[23]. Lastly, cyclobenzaprine falls in pregnancy risk category B[23].

Opioids

Medication notes: Opioids are one of the most powerful and widely used pharmacological means to manage pain. It is believed opioids exert their analgesic effects by affecting opioid receptors within the human body[25]. Common opioids used to manage pain include: morphine, hydromorphone, oxycodone, hydrocodone, codeine, fentanyl, meperidine and methadone. The aforementioned medications are available in a variety of dosage forms including: oral tablets, transdermal patches as well as intravenous and intramuscular products[23,25]. The side effects of opioids are well documented and include sedation, respiratory depression[25], dizziness, nausea, vomiting, constipation, physical dependence and addiction[23].

Typical dosing interval: The typical dosing intervals of opioid medications vary by product and often depend on the product formulation as well as the needs of the patient.

Safety notes: Health care professionals should note the potential side effects of opioids, especially sedation and opioid-induced respiratory depression. Opioid-induced respiratory depression can refer to a decrease in the effectiveness of a patient's ventilatory function after opioid administration, while sedation can refer to a wide range of varying states of consciousness[25]. Sedation is the more common of the aforementioned side effects- however, opioid-induced respiratory depression may be the more dangerous of the two[25]. Many factors such as: opioid class, dose, formulation, route of administration, duration of therapy, concomitant medication administration, and patient-specific characteristics can influence the occurrence of sedation and opioid-induced respiratory depression[25]. Health care professionals should monitor patients for both sedation and opioid-induced respiratory depression. In addition, health care professionals should be aware of the potential interaction between opioids and benzodiazepines. Benzodiazepines are a class of medications which act on the central nervous system to help reduce

anxiety and other conditions[23]. Commonly prescribed benzodiazepines include: lorazepam, diazepam, clonazepam and alprazolam. When used concurrently, opioids and benzodiazepines may lead to increased sedation, respiratory depression, overdose and even death[23]. Both the FDA and the Centers for Disease Control and Prevention (CDC) have issued warnings regarding the potential interaction between opioids and benzodiazepines. Health care professionals should use caution and monitor patients for sedation, as well as respiratory depression, when administering opioids and benzodiazepines concurrently.

Considerations for special patient populations: Health care professionals should note the potential for sedation and opioid-induced respiratory depression when administering opioids to patients over the age of 55 years as well as obese patients and patients with a history of snoring[25].

Health care professionals should also be aware of opioids' potential for abuse and misuse. Abuse can refer to the act of taking a medication with the intent of achieving an euphoric sensation[23]. Misuse can refer to the act of taking a medication at one's own discretion, without following the directions of a health care professional[23]. The main difference between abuse and misuse is the intent of taking the medication. A patient may abuse an opioid to get "high," or a patient may misuse an opioid by intentionally ignoring the prescribed directions. Whatever the case may be, opioid abuse and misuse can be extremely dangerous to patients. They can lead to a host of complications, including overdose and even death. It is widely believed the U.S. is in the middle of an opioid epidemic with millions of Americans abusing and misusing opioids nationwide. As a result, both the FDA and the CDC have taken national initiatives to combat the growing opioid epidemic. With that said, the individual health care professional can also do his or her part to assist in the reduction of the incidents of opioid abuse and misuse by educating patients on the risks of abusing and misusing opioid medications. Health care professionals can also educate patients on the signs of medication abuse, which may include: using a medication more frequently or at higher doses without

medical direction to do so, using a medication compulsively or not being able to carry out normal daily activities because of medication misuse[23]. Opioids can be an effective means to manage pain, although opioids do present unique and different challenges when compared to other medications used to manage pain. Health care professionals should be aware of those differences to effectively and safely administer opioid medications to patients suffering from pain.

Section 3: Summary

Pain can be devastating to an individual's overall health, well-being and quality of life. Furthermore, pain can rob an individual of their ability to independently function and live, which is why pain must be effectively managed. Pain management, typically, begins with pain assessment and patient goal setting. Once health care professionals gain an understanding of a patient's pain, a pain management plan can be designed and developed for the individual patient. Pain management plans can include both non-pharmacological and pharmacological treatment options. Common non-pharmacological treatment options used to safely and effectively manage pain include: physical therapy, massage therapy and psychotherapy. Physical therapy and massage therapy work to restore and rebuild the human body, while psychotherapy, and more specifically, cognitive-behavioral therapy, works to help individuals solve problems and create positive outcomes by replacing unrealistically negative thought patterns with more realistic thought patterns[21]. Common pharmacological treatment options used to manage pain include medications such as: acetaminophen, aspirin, ibuprofen, naproxen, celecoxib, lidocaine, gabapentin, cyclobenzaprine and opioids. Each medication has its own unique dosing, dosing intervals, associated side effects, warnings and considerations. Health care professionals should be aware of each pain medication's characteristics in order to safely and effectively administer pain medications to patients in need.

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Section 3: Key Concepts

- Pain management plans should meet the individual needs and goals of each patient.
- Pain management plans may include both non-pharmacological and pharmacological treatment options.
- Non-pharmacological treatment options for pain management include: physical therapy, massage therapy and psychotherapy.
- Pharmacological treatment options for pain management include a variety of different medications form various medication classes.
- Health care professionals should be aware of each pain medication's characteristics in order to safely and effectively administer pain medications to patients.

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Section 3: Key Terms

Pain management - the process of using non-pharmacological, pharmacological and/or other means to prevent, limit and treat pain[17]

Pain management plan - the strategy health care professionals use to prevent, limit and treat an individual patient's pain through a combination of varying therapeutic options[16,17]

Physical therapy - the practice of treating a disease, condition, injury and/or pain through physical means[19]

Massage therapy - the practice of treating a disease, condition, injury and/or pain through the physical manipulation of soft tissue[17]

Psychotherapy - the use of psychological techniques and/or psychotherapeutic approaches to help individuals overcome problems and develop healthier habits[20]

Cognitive-behavioral therapy - the type of talk therapy which can be used to help individuals solve problems and create positive outcomes by changing unrealistically negative patterns of thought and behavior[21]

Opioid-induced respiratory depression - a decrease in the effectiveness of a patient's ventilatory function after opioid administration[25]

Sedation - a wide range of varying states of consciousness[25]

Abuse - the act of taking a medication with the intent of achieving an euphoric sensation[23]

Misuse - the act of taking a medication at one's own discretion, without following the directions of a health care professional[23]

Section 3: Personal Reflection Question

How can health care professionals safely and effectively manage patient's pain?

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Case Review

The following cases were presented at the beginning of this part to highlight the complexity of managing pain. The cases will now be revisited to review the concepts presented in this part.

Case 1

A team of health care professionals meet first thing in the morning to conduct their interdisciplinary rounds. Their patient load is quite full so they begin their rounds right away. The health care team's first patient is a 26-year-old male who has recently suffered multiple rib fractures and minor internal injuries due to a motor vehicle accident. Upon entering the patient's room the patient immediately informs the team that he is in a lot of pain. He then requests "stronger pain meds"

because he claims he is in constant pain. A member of the health care team asks the patient to rate his pain on a scale from 0 - 10. The patient responds and tells the health care team that his pain is about a 7 or an 8. The patient then goes on to explain that his pain increases to a 9 when he "moves a lot." The team examines the patient and reviews the patient's current medication list, which includes both Percocet and acetaminophen as needed for pain. Before the health care team leaves the patient's room the patient goes on to explain that he is nervous about his upcoming discharge because he is in pain and he wants to make sure he has "enough pain meds" to take upon discharge. As the health care team exits the patient's room, the patient's mother approaches the team. She follows them away from the patient's room and begins to discuss her concerns about her son's current condition. The patient's mother informs the team that her son has a "drinking problem" and she is pretty sure he has used "drugs" in the past. The patient's mother then goes on to say that she has observed her son when his friends have come to visit him. The patient's mother reports her son does not appear to be in pain when he has visitors. He often smiles, jokes and moves around his bed with ease. The mother then questions how much pain her son is actually in and asks the health care team what medications they plan on keeping her son on upon discharge.

What challenges does the patient in Case 1 present to the team of health care professionals?

The patient from Case 1 presents many challenges to the team of health care professionals. One of the challenges relates to the patient's medications. The patient is on both Percocet and acetaminophen. Percocet is a combination product, which contains both oxycodone and acetaminophen. Health care professionals must be aware that many pain medications, such as Percocet, contain acetaminophen. The challenge for health care professionals when administering acetaminophen with other pain products that contain acetaminophen is to ensure the total daily dose of acetaminophen does not

exceed 4000 mg. The recommended maximum total daily dose of acetaminophen, for patients being monitored by health care professionals, is 4000 mg[23]. Therefore, health care professionals should not administer more 4000 mg of acetaminophen to patients within a 24 hour period.

The second, and perhaps the most serious, challenge presented to the team of health care professionals is the patients potential for medication abuse and/or misuse. Opioids, such as oxycodone, may lead to physical dependence, addiction, abuse and misuse[23]. Health care professionals must be aware of those factors when administering opioids to patients, especially if patients have a history of substance abuse or misuse.

How can the team of health care professionals address the challenges put forth by the patient in Case 1?

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Part 1 Review

The following questions are presented to further review the concepts found in this part. By reviewing these questions health care professionals can obtain practical knowledge which may be used to safely and effectively administer health care to patients experiencing pain.

What is the primary goal of active listening?

The primary goal of active listening is to obtain meaning. Health care professionals may use active listening skills to effectively assess patients' pain.

What is an open-ended question?

An open-ended question is a question designed to obtain viable information from an individual; open-ended questions are used to avoid "yes" and "no" answers. Health care professionals can use open-ended questions when assessing patients' pain to help their patients open up about their pain and provide useful

information regarding their experiences of pain. An example of an open-ended question is as follows: "what makes your pain worse?"

What is the PAINAD scale?

The PAINAD scale can refer to the tool which can be used by health care professionals to assess pain in patients with advanced dementia[15]. There are a variety of pain assessment tools at the disposal of health care professionals. Health care professionals should be aware of the different pain assessment tools and which tools can best help them assess patients' pain.

What is an example of a realistic pain management goal?

An example of a realistic pain management goal for a patient receiving pain therapy may be as follows - "I would like to be able to get a full night's sleep" or "I would like to be able to walk 6 blocks in 5 months time." It is important that health care professionals help patients set realistic pain management goals. Realistic goals can help patients maintain treatment focus, desire and motivation as well as identify what they are working towards.

A 32-year-old female patient is ordered Percocet for pain management. The patient has a known drug allergy to acetaminophen. Should Percocet be administered to the patient?

Percocet is a combination product, which contains both oxycodone and acetaminophen. Patients with known allergies to acetaminophen should not receive acetaminophen products. Health care professionals should always be aware of patients' known drug allergies when administering medications to patients. An allergic reaction to a medication can be dangerous and may lead to a host of complications such as: difficulty breathing as well as swelling of the face, mouth, and throat[23]. Furthermore, health care professionals should be aware of each pain medication's characteristics in order to safely and effectively administer pain medications to patients experiencing pain.

Conclusion

Pain is the body's reaction to actual or potential damage and/or destruction[2]. Pain is a necessary part of the human body's process to avoid trauma and injury. The experience of pain begins when peripherally localized neurons, known as a nociceptors, are stimulated by noxious stimulus, such as tissue damage or extreme pressure. When a nociceptor is stimulated by noxious stimulus it sends messages to the spinal cord[2]. Once the messages are received by the spinal cord they travel to the brain via the spinothalamic tract[2]. The spinothalamic tract takes the pain information up to the thalamus. When the pain information reaches the thalamus, it is then relayed to the somatosensory cortex[2]. Once the pain information reaches the somatosensory cortex, it is processed and interpreted. The human body then reacts based on the interpretation of the pain.

During the interpretation of pain information many factors contribute to the overall experience of pain, including both biological and psychological factors. The biopsychosocial model of pain suggests pain is a dynamic interaction among biological, psychological and social factors unique to each individual4. The biopsychosocial model of pain suggests reasoning for each individual's distinct experience of pain. The biopsychosocial model of pain also may assist in the comprehension of the subjectivity of pain.

Pain is subjective. The experience of pain is an opinion from the point of view/ perspective of the individual. For that reason, clinically, pain is whatever the patient says he or she is experiencing, whenever he or she says it occurs5. The subjectivity of pain along with other factors such as patient reporting and varying types of pain can contribute to the overall complexity of managing pain.

Pain management can be a complex challenge for health care professionals. However, if left untreated, pain may lead to a host of complications including: decreased mobility, muscle atrophy, obesity, decreased cardiovascular health,

sexual, hormonal and cognitive dysfunction, as well as insomnia, depression and even suicide[7]. Essentially, untreated pain possesses the potential to completely alter and/or devastate a patient's overall health, well-being and quality of life. Untreated pain can transform a well-adjusted, healthy, active individual into a depressed, inactive, cognitively impaired individual that does not enjoy life. Therefore, it is both the clinical and ethical responsibility of health care professionals to manage patients' pain.

Health care professionals can reduce the complexity of managing pain by conducting effective pain assessments and by establishing patient-centered goals. Once health care professionals gain an understanding of a patient's pain, a pain management plan can be designed and developed for the individual patient. Pain management plans can include both non-pharmacological and pharmacological treatment options. Common non- pharmacological treatment options used to safely and effectively manage pain include: physical therapy, massage therapy and psychotherapy. Common pharmacological treatment options used to manage pain include medications such as: acetaminophen, aspirin, ibuprofen, naproxen, celecoxib, lidocaine, gabapentin, cyclobenzaprine and opioids.

Finally, pain is common and researchers predict the prevalence of pain will only continue to increase over the next few years. Furthermore, due to a host of different factors, pain can be a challenge to manage. However, with a clear understanding of pain and pain management health care professionals can safely and effectively administer health care to patients experiencing pain.

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PART 2

Effective Pain Management Strategies

Part 2 builds on these foundations with a closer look at nociceptive, neuropathic, nociplastic, mixed, acute, episodic, and chronic pain. It covers pain assessment tools and scales for adult and pediatric patients, cultural considerations, and how to set personalized pain management goals with patients. It then reviews current pain management options, from medications and non-pharmacological interventions to medical devices, procedures, and complementary medicine, along with nursing interventions that promote optimal outcomes.

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Section 1: Introduction

Pain is the body's way of communicating that there is a problem. Like a distress signal, pain can keep us safe by alerting us that a surface is hot or tissue in the body is damaged. Sometimes, an individual may experience pain, and the cause cannot be identified. Pain is an unpleasant sensory perception that elicits an emotional response (National Institute of Neurological Disorders and Stroke, 2024). Pain is a common experience, with 1 in 5 Americans experiencing chronic pain and countless others experiencing acute pain (National Institutes of Health, 2023). There are different types of pain, various causes of pain, diverse degrees of pain, and everyone experiences pain in a unique way. Individuals describe pain using many adjectives, but one thing is shared among all who experience pain: it is best described by the person experiencing it. Because the sensation of pain is such a personalized experience, it can be difficult for healthcare professionals to determine the likely source of the pain or accurately determine how it affects the patient's life. Pain can impact a person's ability to work, perform daily tasks, and enjoy hobbies. It can impair their ability to communicate and impede relationships (National Institute of Neurological Disorders and Stroke, 2024). Pain is disruptive to an individual and helping alleviate it is a vital part of our role as nurses.

Pain is a biopsychosocial experience because it responds to factors or changes in the body, mind, and environment. Biological factors that affect pain perception could be genetics or brain function. Psychological factors include mood and stress levels. Socially, the presence or lack of a support system can affect the patient's perception of pain. When any of these factors change, the perception of pain can change. This creates a very complex, unique, and fluid experience of pain, making treatment difficult at times (National Institute of Neurological Disorders and Stroke, 2024).

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Thoughts and beliefs shape the perception of pain by both patients and healthcare workers. The experience of pain can be affected by a patient's attitude about pain, their religious beliefs, and their culture. A person who feels like their pain is a punishment or that it may never get better is more likely to experience anxiety and depression, which can worsen pain symptoms. Personal beliefs may cause the patient to experience feelings about what they should be able to do rather than what they are currently capable of doing. A 41-year-old mother may feel like she should be able to work full-time and attend all her children's sporting events, though her level of pain makes it unbearable. This can cause anger and frustration. If chronic pain occurs because of an accident or medical condition, the patient may begin to blame themselves for their condition. They may say it was their fault for climbing a ladder or not taking better care of their health, so they are responsible for the pain. Nurses must counsel patients and help them understand that pain and the circumstances that cause it are often outside of the patient's control. Previous experiences shape how individuals feel about pain. This is often an automatic response, and the patient may not realize why they hold the beliefs about pain that they do. Sometimes, professional counseling may be necessary to help a patient process their emotional response to pain. When a patient can process the emotional aspects of pain in a more healthy way, their pain is often able to be managed more effectively (National Institute of Neurological Disorders and Stroke, 2024).

Pain can be diagnosed in different ways. Healthcare providers conduct a physical and neurological examination and interview the patient to determine a history that could explain the cause of the pain. They may choose to use laboratory tests, imaging, electrodiagnostic procedures like nerve conduction studies, and psychological assessments to assist in determining the source of pain (National Institute of Neurological Disorders and Stroke, 2024).

Pain management aims to improve the patient's ability to function and positively impact their quality of life (Clinic, 2024). Just like there are many types of pain, the pain management options are just as varied. Sometimes, the treatment plan for pain is obvious. If someone has broken a bone, immobilization, elevation, and oral medications almost always effectively treat the pain. Sometimes, the treatment path is not as clear. Because pain is a personal experience, it also requires personal treatment. Medications, procedures, devices, behavioral therapies, physical therapy, lifestyle changes, complementary therapies, and integrative health techniques can all alleviate pain, often in conjunction with one another (National Institute of Neurological Disorders and Stroke, 2024).

Section 2: What is Pain?

Pain is defined as "a localized or generalized unpleasant bodily sensation or complex of sensations that causes mild to severe physical discomfort and emotional distress and typically results from bodily disorder (such as injury or disease)" (Merriam-Webster, n.d.). Pain is a normal brain response when there is a perceived injury, and the pain is not felt until the brain processes it. Pain receptors from the area of injury release neurotransmitters, which travel to the spinal cord and alert the brain of injury. The brain then processes the information and sends messages to the body to react. When you accidentally touch a hot stove, this process seems instantaneous. If someone touched a hot stove and it took 60 seconds for the brain to perceive the stimuli and then respond, the damage would already be severe. While the process takes less than a second from beginning to end, a complex system of signals and responses occurs in that time (National Institutes on Health, 2023). This type of pain is preventative. The brain prevents further injury by perceiving pain with even small stimuli (Woolf, 2010).

Pain can also be protective. When an area is injured, the body responds using the immune system. Through inflammation, the pain discourages movement or further injury, allowing the injured area to heal. This type of pain may need to be managed, especially for chronic conditions. A painful surgical wound will cause an individual to slow down, guard the area, refrain from physical activity, and consciously and subconsciously protect the injured area (Woolf, 2010).

Some pain is maladaptive. In this situation, the pain is not due to a tissue injury or inflammatory process but a dysfunction in the nervous system. This type of pain can be considered a “false alarm,” though it is experienced in a very real way and affects a person’s life just as much as pain in response to an injury does (Woolf, 2010).

Types of Pain

Pain used to be separated into two groups, nociceptive or neuropathic, but recently a third group was added to the taxonomy, nociplastic pain. These categories describe the most likely source of the pain (National Institute of Neurological Disorders and Stroke, 2024). Pain can also be classified as acute or chronic in duration.

Nociceptive Pain

Nociceptive pain occurs in response to noxious stimuli, like touching something sharp (Woolf, 2010). Nociceptive pain can occur in active and passive settings, which makes it a diligent warning system for the body (Armstrong and Herr, 2019). Nociceptors are the nerve endings on the peripheral nerves, which is why this type of pain is categorized as nociceptive. Somatic nociceptive pain can be located by the person experiencing the pain. For example, they can point to their wrist and say, “It hurts here." Visceral pain affects internal organs, and the patient

cannot define the exact source. They may complain of abdominal pain but are unable to describe if the pain is occurring in their stomach, pancreas, or gallbladder (Cleveland Clinic, 2024). Descriptors of this type of pain may include aching, sharp, dull, or pricking (National Institute of Neurological Disorders and Stroke, 2024). This type of pain has a comparatively high threshold and only occurs in the presence of noxious stimuli. However, this stimuli injury and the brain's response is immediate, through the withdrawal reflex and associated emotional response (Woolf, 2010). It occurs in four phases. The first is when something harms the body, which is called transduction. The body releases chemicals, which the nociceptors convert to electricity. Transmission occurs when the signal travels through the nociceptive pathways to the brain. The brain then sends signals to the nerves to modulate the pain sensation. Finally, the pain is perceived or felt by the individual (Cleveland Clinic, 2024). The nociceptive pain system strongly influences the rest of the neurological system, and when it works properly, it can overrule almost any other neural function (Woolf, 2010). Nociceptive pain can also include pain from inflammation. This is another way pain is used as a protective mechanism, as the pain causes the individual to protect that area and limit movement, allowing the area to heal (National Institute of Neurological Disorders and Stroke, 2024). Nociceptive pain can be physical, like in response to touching a hot stove, or chemical, like a muscle cramp (Armstrong and Herr, 2019). Nociceptive pain is an essential tool the body uses to protect itself.

Neuropathic Pain

Neuropathic pain is caused by nerve damage, which can be due to either injury or disease. This type of pain may be described as burning, tingling, or shooting (National Institute of Neurological Disorders and Stroke, 2024). Neuropathic pain can be caused by injury to the spinal cord, brain, or peripheral nervous system

(Woolf, 2010). While the nervous system senses nociceptive pain, neuropathic pain involves disease or direct injury to the nervous system. This pain could arise from diabetic neuropathy, shingles, or an acute injury (Armstrong and Herr, 2019). Neuropathic pain can range in severity and results when the damaged nerve fibers mistakenly send pain signals to the brain. Neuropathic pain can occur for no apparent reason, like a “pins and needles” sensation. Allodynia is a term that describes when pain occurs in response to a stimulus that is not usually painful like cold air touching the skin. It is characterized by extreme sensitivity to touch. Hyperalgesia occurs when a typical mild pain-inducing stimuli elicits an exaggerated pain sensation. Hypoalgesia is a term that describes the condition of an absence of pain where there should be a sensation of pain. This can be problematic, as pain is a mechanism that protects the body from injury. Neuropathic pain can have many causes, including alcohol use disorder, diabetes, stroke, Parkinson’s disease, complex regional pain syndrome, radiation therapy, shingles, and others (Cleveland Clinic, 2023).

Nociplastic Pain

This new category describes pain caused by a malfunction in how the brain processes stimuli. The cause of this type of pain cannot be attributed to an injury, inflammation, or disease and is distinctly different from both nociceptive and neuropathic pain. (Stroke, 2024). The concept of nociplastic pain was first introduced in 2016. Because it is such a new categorization, well-defined diagnostic criteria are still emerging (Bułdyś, Górnicki et al., 2023). However, nociplastic pain may be suspected if the pain has occurred for three months or more, is regional, multifocal, or widespread, not due to nociceptive or neuropathic causes, and produces evoked hypersensitivity in the area where the pain is felt. It may also be considered when there is pain hypersensitivity to noxious or non-noxious stimuli in the presence of a comorbid condition (Yoo & Kim, 2024). Since

no tissue damage can be observed, the source of this type of pain is not fully known. However, it is likely a combination of factors related to nociceptive and neuropathic pain, though no source of tissue or nerve damage can be identified (Yoo & Kim, 2024). Currently, there are three categories of mechanisms. The first category involves supraspinal mechanisms, meaning there are alterations in the brain affecting activity between parts of the brain responsible for pain. This can be hyperactivity between regions of the brain that sense pain or hypoactivity in the regions of the brain that suppress pain. These mechanisms also include alterations in cerebrospinal fluid content, which alters pain perception. The second category involves issues with the spine. Alterations in how the nerve fibers of the spine respond to stimuli can cause pain or inhibit factors that suppress pain. The third category addresses peripheral issues, which may be due to alterations in sodium channels and structural changes in the neuron. Fibromyalgia is the most common type of nociplastic pain (Bułdyś, Górnicki et al., 2023) and is characterized by musculoskeletal pain throughout the body, fatigue, insomnia, and memory problems (Cleveland Clinic, 2021). Nociplastic pain can be summarized as a chronic dysfunction of nociception, which includes sensory and emotional components (Yoo & Kim, 2024).

Mixed Pain

The term “mixed pain” is not an official classification term but describes when a patient experiences any combination of nociceptive, neuropathic, and/or nociplastic pain in the same body area. This type of pain can be acute or chronic. These patients usually experience more intense pain, and their quality of life is significantly decreased. These patients also tend to have more comorbidities and more adverse psychosocial factors. Patients with mixed pain tend to respond less to pain management techniques (Trouvin & Perrot, 2019). Since this type of pain does not have a standard definition or diagnostic criteria, providers use their

judgment, physical exam, and detailed patient history to diagnose a patient as having mixed pain. A diagnosis of mixed pain can validate the patient's experience and allow for targeted treatment. An official definition and diagnostic tools are currently being studied and discussed, with proposals to create a framework providers can use in diagnosis and treating mixed pain (Freynhagen, Rey et al., 2020).

Acute Pain

Acute pain occurs suddenly; the cause is known or can be determined with diagnostic testing. Acute pain is a type of warning or alert system for the body (Pain, 2021). Acute pain lasts less than six months and is no longer experienced when the underlying cause is resolved. Acute pain may occur due to a surgical procedure, a broken bone, a burn, childbirth, or countless other causes. After the pain is resolved, the patient returns to their baseline state (Cleveland Clinic, 2020). Acute pain should not be ignored. If left untreated, acute pain can become chronic pain (ASAP, 2021).

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Episodic Pain

This type of pain occurs occasionally and at irregular intervals. It may be associated with a chronic condition and only occurs when complications occur—for example, the pain associated with sickle cell crisis in individuals with sickle cell disease. There may or may not be known triggers for the pain. This is often considered a type of chronic pain (National Institute of Neurological Disorders and Stroke, 2024).

Chronic Pain

Chronic pain is characterized by pain that is ongoing and lasts longer than three months. In 2021, approximately 20.9% of American adults experienced chronic

pain (Rikard, 2023). It is estimated that 1 in 14 adults experience high-impact chronic pain, which means that in the last three months, they experienced pain most days that limited their ability to work or participate in their normal daily activities (Dowell, 2021). Even after the initial injury or cause of acute pain has been resolved, this type of pain may persist. Chronic pain may even occur when there has not been damage to a part of the body (Cleveland Clinic, 2020). Sometimes, the cause of chronic pain can be identified, while other times, it is unknown (Cleveland Clinic, 2024). Chronic pain may be attributed to a disease process in the body, such as arthritis (National Institute on Aging, 2020). Some examples of chronic pain include reoccurring headaches, arthritis, pain due to cancer, nerve pain, back pain, or fibromyalgia. The experience of chronic pain creates a stress response in the body. Patients may experience muscle tension, limited mobility, fatigue, changes in appetite, depression, anger, or anxiety (Cleveland Clinic, 2020). Risk factors for chronic pain include a genetic predisposition to conditions like migraines, aging (which leads to "wear and tear" on the body), and traumatic injury. Physically strenuous jobs, such as construction or certain areas of nursing, can increase the risk due to the potential for injury. Additionally, severe or chronic stress, smoking, and obesity can all contribute to the development of chronic pain. (Cleveland Clinic, 2024).

Section 2 Case studies

For the following patient scenarios, what type of pain do you think the patient is experiencing?

Scenario #1: Eloise visits her local urgent care facility because she accidentally cut her thumb thirty minutes ago with a sharp knife while slicing vegetables. There is a 1.5 laceration on the pad of her thumb. Eloise describes the pain as stinging but worse when air or water touches the wound. She states she put ice on the site at

home, and that helped some. Is Eloise's pain likely nociceptive, neuropathic, or nociplastic? Is it acute or chronic?

Eloise is experiencing acute nociceptive pain from a laceration on her thumb. After the nurse practitioner applies a liquid bandage, the nurse educates her on managing pain with over-the-counter medications and on how to monitor for signs of ineffective pain relief and infection.

Scenario #2: Juanita, a 43-year-old female, visits her primary care physician to discuss her recent fatigue, whole-body aches, and insomnia. She complains that the pain is worse in the mornings and before she goes to bed at night. Ultimately, after diagnostic testing, the physician diagnoses Juanita as having fibromyalgia. What type of pain is Juanita experiencing? Is it likely acute or chronic?

Juanita's pain is due to fibromyalgia, which produces chronic, nociplastic pain. It will be necessary for the nurse to counsel Juanita on the importance of adhering to her medication regimen, stress reduction, exercise, and healthy sleep patterns.

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Section 2 Personal Reflection

Why is it essential for nerve pain signals to reach the brain quickly? Why is it important that nociplastic pain, as a type of pain, has been recently established? How does this help patients in achieving optimal relief? How does the categorization benefit nurses as they assess patients' pain?

Section 3: Pain Assessment

Pain assessment is a critical part of the nursing physical assessment. By defining the patient's pain and rating it on a scoring system, the pain can be tracked more effectively. Pain interventions can be evaluated for effectiveness when using a standardized scale. When assessing pain, it is also essential to gather as much

information about the pain as possible (Dydyk & Grandhe, 2023). Frequent pain assessment is vital for effective pain management. The frequency depends on the setting and patient's status but should be standardized through policies to ensure compliance in evaluating pain. Pain should also be monitored after any nursing intervention or when the patient complains of pain.

The healthcare record can provide relevant information to inform the nurse regarding past pain experiences, interventions, and results. These details can help the healthcare team understand what has worked for the patient in the past and what has been ineffective. It can also help the team to understand if there have been issues in the past with treatment compliance. The patient may have been prescribed medication in the past that caused unwanted side effects or recently stopped another treatment, both of which could be contributing to the current pain. (Dydyk & Grandhe, 2023).

Due to communication challenges, patients who are unable to express their pain or identify a pain score verbally may experience inadequately managed pain. Careful observation and nonverbal pain scales can help the nurse accurately assess pain and assign a numerical score, facilitating more effective pain monitoring. Refusing to eat, agitation, moaning, and trouble sleeping can all indicate that the patient is experiencing pain, and further assessment is necessary (National Institute on Aging, 2020).

To complete an accurate pain assessment, gathering the following information through interviews or observation is helpful:

Character - how the pain feels- shooting, burning, sharp, aching, etc.

Onset - when the pain started

Location - where in the body the pain occurs

Duration - how long has the pain been occurring

Exacerbating symptoms - what makes the pain worse

Relieving symptoms - what improves the feeling of pain, also what has been tried to relieve the pain, even if it did not help

Radiation of pain - is the pain felt in other areas, such as radiating to the back

Associated symptoms - any other co-occurring symptoms, such as shakiness, fever, diarrhea, etc.

Severity of illness - self-reported or observed pain score

(Dydyk & Grandhe, 2023)

Pain Assessment Tools

Different resources are available to help healthcare workers remember to include all aspects of a complete pain assessment in their interviews with patients or caregivers:

OPQRST - This is a mnemonic tool to help nurses and other healthcare workers remember to assess all aspects of the patient's pain. "O" stands for the onset of the event. "P" is for provocation and palliation of symptoms, or what makes the pain worse or better. "Q" is for quality, "R" is for region and radiation, "S" is for severity, and "T" is for timing.

QISS TAPED - This is another mnemonic tool. "Q" is for quality or a description of the pain. "I" stands for impact, having the patient describe how the pain affects their daily activities, like work, interests, play, and sleep. The first "S" is for site, and the second "S" is for severity. "T" is for temporal characteristics, which describes when the pain started, if it is constant or intermittent, and if it is predictable. "A" stands for aggravating and alleviating factors. "P" is for past responses and preferences, which reminds the healthcare worker to ask about

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what has worked in the past. This includes which medications and therapies the patient has tried. “E” reminds the provider to ask about expectations to establish pain goals. “D” stands for diagnostics and physical exam (UFMS-Jacksonville, 2024).

SOCRATES - This mnemonic tool stands for site, onset, character, radiation, associations (accompanying symptoms), time course, exacerbating/relieving factors, and severity (UFMS-Jacksonville, 2024).

Pain Risk Factors Assessment Form - This is a form developed by Hillel M. Feinstein and others to help a patient identify activities or factors that may worsen their pain, such as alcohol use, smoking, poor sleep habits, too much or too little exercise, work conditions, or social factors. It also provides some reminders for safe pain medication management (UFMS-Jacksonville, 2024).

Pain and Sedation Scales for Neonatal and Pediatric Patients in Preverbal Stage of Development: A Systematic Review - This journal article reviews 89 pediatric and neonatal pain and sedation scales. They reviewed each scale for construct validity, internal consistency, and interrater reliability and presented the 28 scales that met these requirements (Giordano, Edobor et al., 2019).

Pain Assessment Scales

Adult

Numerical Rating Scale (NRS) - This is the scale nurses are most familiar with. The healthcare worker asks the patient to rate their pain on a scale of 0-10, with 0 being no pain and 10 being the worst pain imaginable. A score of 1-3 represents mild pain, 4-6 is moderate, and 7-10 is severe. In order to determine the patient’s pain level over the last 24 hours, the nurse can average the current pain score with the lowest and highest scores experienced over the last 24 hours (McCaffery,

1989). This scale can also be used with children who are able to understand the instructions.

Visual Analog Scale (VAS) - For this pain scale, the patient is presented with a blank line. One end is labeled “no pain,” and the other “very severe pain.” The patient then places a mark on the line where they feel best represents their current pain level. Because the line is unlabeled and has no numbers, the pain is represented to the patient on a continuum rather than levels (Crichton, 2001). This scale can also be used for children.

Adult Non-Verbal Pain Scale (NVPS) - This pain scale uses five categories to assess pain: face, activity, guarding, physiology, and respiratory. Each category can be assigned a numerical value of 0-2 depending on what the scorer observes. The total of the numbers scored then represents the pain level on a 0-10 scale. For example, a nonverbal adult with a pain score of zero may appear relaxed, with a neutral or pleasant facial expression, lying quietly in a normal position, no hand movements indicating guarding, stable vital signs, and normal respiratory function while complying with the ventilator. On the other hand, a nonverbal adult with a pain score of ten may show signs of pain, such as grimacing or frowning, restlessness or withdrawal reflex, a rigid posture, a heart rate increase of more than 25 bpm, a systolic blood pressure rise greater than 30 mm Hg, a respiratory rate more than 20 breaths per minute above their baseline, or a SpO2 decrease of 10% or more, or severe asynchrony with the ventilator. (Odhner, Wegman et al., 2003).

Behavioral Pain Scale (BPS) - This pain scale uses three categories to determine pain level. Facial expression, upper limb activity, and compliance with ventilation are scored on a 1-4 scale and then combined for a total score. It is appropriate for critically ill sedated patients and uses a 3-12 scale for scoring (Payen, Bru et al., 2001).

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Critical Care Observation Tool (CPOT) - This tool is similar to the behavioral pain scale. It involves observing a critically ill, sedated patient. The CPOT is scored on a 0-10 scale, using five observation categories and assigning a 0-2 score for each category. The categories include facial expression, body movements, compliance with the ventilator for intubated patients or, vocalization for extubated patients, and muscle tension (UFMS-Jacksonville, 2024).

Defense and Veterans Pain Rating Scale (DVPRS) - This tool uses an illustrated and colorized pain scale with facial expressions and descriptors to help the patient determine a 0-10 pain score. It also includes supplemental questions to determine how pain interferes with activity, sleep, mood, and stress (UFMS-Jacksonville, 2024).

Pain Assessment in Advanced Dementia Scale (PAINAD) - This pain scale is similar to the adult nonverbal pain scale, though the categories are tailored to patients experiencing advanced dementia. An observer scores breathing, negative vocalization, facial expression, body language, and controllability on a 0-2 scale and then combines them for a 0-10 scale pain score (Warden, Hurley et al., 2003).

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Pediatric

Neonatal Pain, Agitation, and Sedation Scale (N-PASS) - This pain scale can be used for infants and scores five categories: crying/irritability, behavior state, facial expression, extremities tone, and vital signs, on a -2-2 pain scale. A score of -2 in a category indicates sedation, while a score of 2 indicates pain/agitation. The total score is then combined for a -10-10 pain scale. Scores closest to zero indicate a normal state for the infant, neither fully sedated nor agitated (UFMS-Jacksonville, 2024).

Neonatal/Infant Pain Scale (NIPS) - This scale can be used for patients younger than one year of age. It has six categories: facial expression, cry, breathing

patterns, arms, legs, and state of arousal. The categories are scored on a scale of 0-1 or 0-2. Any combined score of 3 or greater indicates pain. This scale was developed to assess pain in neonates undergoing painful procedures (Lawrence, Alcock et al., 1993).

Neonatal Facial Coding System (NFCS) - This neonatal pain scale exclusively uses facial expressions to evaluate pain in premature and full-term newborns. The scorer observes ten facial movements, such as brow lowering, chin quivering, lip pursing, etc. If the facial movement is present, the scorer assigns a score of one; if it is absent, there is a score of zero. The total score is the pain score. Pre-term infants have a maximum score of 10, whereas full-term infants have a maximum score of 9 because tongue protrusion is a “no pain” response in full-term infants and a “pain” response in pre-term infants (Grunau & Craig, 1990).

CRIES - This is an acronym to help remember five categories: crying, requiring oxygen, increased blood pressure and heart rate, expression, and sleeplessness. Each category is scored 0-2 and the total is the pain score on a 0-10 scale. This scale can be used for infants greater than or equal to 38 weeks gestation. Further pain assessment is suggested for a pain score greater than four, and analgesics are recommended for a pain score greater than or equal to 6 (UFMS-Jacksonville, 2024).

Faces, Legs, Activity, Cry, and Consolability (FLACC) - This pain scale was initially created to assess post-operative pain in infants and young pediatric patients. Five categories of pain response behaviors include: facial expression, leg movement, activity, cry, and consolability which are observed and scored on a 0-2 scale depending on the status observed. The score is then combined for a 0-10 score. This tool was found to have high interrater reliability when used for young patients who are unable to verbalize their pain (Voepel-Lewis, Shayevitz et al., 1997).

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Revised FLACC (r-FLACC) - In 2006, the FLACC scale was revised to improve reliability for children with cognitive impairment by adding more descriptors to many categories (Malviya, VOEPEL-LEWIS et al., 2006).

Non-communicating Children's Pain Checklist (NCCPC-R) - This scale is used for nonverbal children. It is scored by an observer who records the frequency of different behaviors observed within seven characteristic groups. Including negative vocalization, social behavior, facial expression, and others. It can be used for children ages 3 to 18. A total score of seven or more indicates pain. There is also a post-operative version of this scale (Vocal, 2002).

Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) - This pain scale is used in post-operative settings for children under five years of age. Different behaviors are observed, and the combined score is the pain score. The minimum score is four, and the maximum score is 13. Some of the categories do not have a "zero" option (McGrath, 1985).

Wong-Baker Faces scale - This pain scale was created for children aged 3 years and older, though it can also be used for adults. The patient must be able to understand the instructions, as this is a self-reporting pain tool. A set of six illustrated faces is associated with a pain score of 0-10 (by 2s), from "no hurt" to "hurts worst."

The patient is instructed to state or point to the face or number associated with how they feel (Wong, 1988). This tool is often incorrectly used, as the nurse chooses which facial expression they feel closest matches the patient's expression. This is not a valid use of this tool, and other nonverbal pain tools are available if the patient is unable to self-report their pain.

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Cultural Differences

Cultural competence is necessary when assessing pain and providing pain management. Culture often determines how a patient may behave when experiencing pain, and understanding some cultural differences in pain expression can be helpful. The acronym LEARN helps remember a process with which to assess pain. LEARN stands for Listen with empathy as the patient describes their pain, Explain your perception of the pain, Acknowledge the differences and similarities in perceptions, Recommend treatment, and Negotiate agreement. It is essential to understand what the patient calls their pain, why they think it began and its cause, as well as their fears regarding pain and other details that may help the patient convey how they are feeling (Gordon, 2024). People of different cultures may have different beliefs about what causes pain, how they should behave when in pain, and what it means to be in pain. Individuals of some cultures may be very expressive when in pain, while others may be more stoic, resulting in less adequately managed pain in either population. It is also important not to assume cultural pain responses based on race or ethnicity (Givler, Bhatt et al., 2018).

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Section 3 Case Studies

Case Study #1

Mr. Onu is a 67-year-old, alert, oriented ambulatory patient visiting the emergency department with severe pain. His nurse, Brandon, is interviewing him about his pain. What are the necessary questions to ask Mr. Onu?

Brandon asks Mr. Onu about the character, onset, location, duration, exacerbating, relieving, and associated symptoms. Mr. Onu states the pain feels sharp in his lower back, which began this afternoon and has been constantly present but is

gradually worsening. He says activity seems to worsen it, and a heating pad earlier made it feel better for a little while. He also took some ibuprofen, which helped but did not fully relieve the pain. He said the pain radiates to his legs sometimes but not constantly. He also states he has had a temperature of 99.9 degrees Fahrenheit and chills.

What other information should Brandon gather?

Brandon needs to assess Mr. Onu's pain score. Which scale would be appropriate for Mr. Onu?

Brandon uses the numeric pain tool to assess Mr. Onu's pain level. Why is it important for Brandon to educate Mr. Onu on the pain tool?

Patient education is essential when using the numeric pain tool to help patients understand the scale. Brandon is able to explain what a pain score of 0 means and what a pain score of 10 would mean. Mr. Onu states he understands and tells Brandon his current pain score is a 7.

Forty minutes after providing the ordered pharmacological interventions, Brandon reassessed Mr. Onu's pain. Why is reassessment necessary? Why is documentation of this important?

After identifying the likely source of the pain, Mr. Onu is treated and discharged. Brandon explains the discharge instructions to Mr. Onu before he leaves.

Case Study #2

Mia is caring for J'Brael, a preterm infant born at 24 weeks gestation who is now three weeks old. When Mia received report from the previous nurse, she was told J'Brael had experienced pain earlier in the day. After completing J'Brael's nasogastric tube feeding, Mia observed chin quivering, furrowed brow, increased

muscle tone, and increased heart rate. Mia wants to assess J'Brael's pain level. What scale would be appropriate to use for this?

Mia uses the N-PASS and determines J'Brael has a pain level of four. What can she do next?

Mia reviews the pain documentation from the previous shift to determine what interventions have been tried and their effectiveness. Due to the timing of the onset of pain, Mia believes it may be due to feeding intolerance. She alerts the physician and they collaborate to create a pain management plan for J'Brael.

Section 3 Personal Reflection

Why is it important for nurses to include detailed descriptions of their patient's pain? Why should there be different pain scales for adults, pediatrics, and non-verbal patients? How do the different pain scales differ? Why would a pain scale for a child be inappropriate for use with an adult? In your practice, how have you seen cultural differences affect the experience, perception, or treatment of pain?

Section 4: Setting Pain Management Goals

The goal of pain management is to allow the individual to experience enough relief from pain so that they can participate in their usual activities at their baseline functional status and quality of life. Sometimes, pain cannot be eliminated entirely, but a realistic goal can be set (National Institute of Neurological Disorders and Stroke, 2024). When a patient is only able to focus on the elimination of pain, they may get discouraged when that is difficult to achieve. They may begin to try to cope in unhealthy ways, discontinue participation in previously enjoyed activities, and experience depression. Realistic pain management goal setting provides an alternative framework for the patient to

consider when managing their pain. Goal setting improves pain management outcomes through increased communication, patient confidence, and treatment compliance (Mirgain & Singles, 2023).

A personalized pain goal (PPG) should include consideration of things like functioning, participation in activities, moods, medication side effects, and safety (Ehrlich, Lackowski et al., 2024). An individual may be able to achieve a pain level of 2 with opioids, but they are unable to participate in the activities that they love. They may be more inclined to tolerate a pain level of 3 or 4 if it means they do not have the sedating side effects of opioid treatments.

When setting a PPG, the patient will need to consider which activities are important to them and what pain they are willing to tolerate to participate in those activities. Patients are encouraged to set long-term and short-term goals (Mirgain & Singles, 2023).

Goals should be developed using the SMART framework. They should be specific, measurable, action-oriented, relevant, and time-based. When a goal is specific, it is very clear for both the patient and the healthcare worker. For example, a patient's PPG may be to experience a pain score of less than four at least three days per week, or it may be activity-oriented such as being able to go on a half-mile walk with their spouse twice a week within four weeks of surgery. PPG can be measured using a consistent pain scoring system. The action-oriented aspect of the SMART goal is that it must be within the patient's control. They may need to adhere to a specific medication regimen or realistically limit certain activities to achieve their goal. The goal needs to be realistic (Centre for Effective Practice, n.d.). It is not realistic for someone undergoing knee replacement to be able to run a marathon within four weeks of surgery. Setting unrealistic goals can lead to maladaptive behaviors and further pain. While an individual may desire to return to work, their work duties may no longer be possible for them to perform. Finally,

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the goal needs to be time-oriented. There needs to be a deadline associated with the goal. For example, the patient may say they want to be able to walk with their pain being less than a 3 on the pain scale by their six-week surgical follow-up appointment (Centre for Effective Practice, n.d.).

The Goal Adjustment Model suggests that by being flexible and able to readjust goals to realistic and achievable levels, the patient actually increases their ability to reengage with the activity of their choosing, whether employment or recreational. The Goal Adjustment Model states that adjusting goals due to pain or other life changes is a two-step process. It includes disengaging from the desired, though unachievable, goal and then re-engaging at another level. The ability to disengage from the unachievable goal increases the ability to re-engage in the activity with a lesser or more flexible goal in mind. If the patient is inflexible with their goal, like wanting to run a marathon again, they may be able to engage in running much less than someone who decides their new goal will be to be able to run a 5k within the following year (Roux, Gustin et al., 2022).

The Dual-Process Model of Goal Adjustment suggests two modes associated with adjusting goals due to chronic pain or a life event. The assimilative mode is when the patient tries to adjust their circumstances to align with pursuing their goal. This is a less flexible approach, as the circumstances can not always be changed. The accommodative mode is more flexible. This is when the goals are adjusted to reflect the situational constraints the patient is experiencing. This mode requires reflection and honest self-evaluation. When a goal is realistic, the assimilative mode will help the individual achieve the goal. However, when the goal is unrealistic, the patient must operate in an accommodative mode to establish a new, achievable goal. When a patient is unable to shift from assimilative mode to accommodative mode, they may feel defeated or depressed (Roux, Gustin et al., 2022).

Flexible goal adjustment is critical when dealing with chronic pain. The nurse may be a valuable resource in counseling patients to help them decide on achievable goals. The nurse can also educate the patient that disengaging from a previously held goal may be the most challenging part of the process. However, the ability to disengage and reframe their expectations increases their ability to re-engage with the activity on another level. The most challenging aspect of goal adjustment for healthcare workers and their patients is often knowing when the original goal is no longer viable and must be adjusted to promote success (Roux, Gustin et al., 2022). It is recommended that healthcare workers use a “90% confidence rule” when deciding if a goal is achievable. If the person is not 90% or more sure they will be able to achieve the goal within the set time frame, then the goal is too high and should be adjusted by either decreasing the level of the goal or extending the deadline (Mirgain & Singles, 2023).

Pain goal setting needs to include more than just a desired pain score. Nurses can facilitate conversations with patients to help them develop goals. When patients think about their goals, they must consider physical activity, functional status, wellness, recreational activities, house/yard work, socializing, and work/school. From this list, nurses can have the patient choose one or two areas on which they would like to focus. Research has shown that patients with goals centered on house/yard work, physical activity, recreational goals, and wellness experienced less depressive symptoms. Researchers also found that most patients were more inclined to improve functioning rather than necessarily focusing on a particular pain score (Heapy, Wandner et al., 2018).

Patients are more likely to be successful with the goals they set for themselves. Nurses can help guide the conversation to assist the patient in identifying what matters to them, what improved health would mean to them, and what brings them joy. This will guide the conversation toward a meaningful goal for the patient. Goal setting should be discussed in the language the patient is most

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comfortable with. The goal should also be documented in the patient's electronic medical record so that all healthcare team members can view them. Goals should be addressed with each visit for monitoring. Nurses should provide encouragement and positive reinforcement when the patient has made any effort towards achieving their goal. This encourages self-management for the patient. Nurses can also anticipate potential barriers to achieving the goal. The nurse can also guide the conversation to discuss potential problem-solving strategies patients may need as they encounter challenges (Mirgain & Singles, 2023).

Section 4 Case Study

Mrs. Winters, a 78-year-old female, is discussing post-operative hand pain with her nurse, Lisa, in anticipation of an upcoming surgery. Lisa asks Mrs. Winters what her pain goal is for after surgery. Mrs. Winters states that her pain goal is zero. What education should Lisa provide?

Lisa explains to Mrs. Winters that pain is expected after the surgery she will be having. She also explains that while the healthcare team will work to minimize pain as much as possible, a pain score of zero is unrealistic. Lisa wants to discuss setting a realistic goal with Mrs. Winters. What should Lisa include in the conversation?

Lisa explains to Mrs. Winters that pain is expected, but they can create realistic, achievable goals for the weeks after surgery. Lisa also explained SMART goals to Mrs. Winters. What is a SMART goal?

Mrs. Winters and Lisa establish a goal that is meaningful to Mrs. Winters. Mrs. Winters decides she would like to be able to sew using her sewing machine, something that she loves to do, for thirty minutes twice a week within six weeks of surgery. How is this a SMART goal?

Mrs. Winters' goal is specific: She wants to be able to sew for thirty minutes twice a week using her sewing machine. Her goal is measurable; she can track how many minutes she can sew before the pain becomes intolerable. It is also actionable, as she can build endurance with sewing as her pain levels decrease. This goal is relevant because the anticipated pain will be in her hand. It is also time-oriented, as the "deadline" is six weeks.

Why is a follow-up conversation related to the goal necessary at the six-week post-operative appointment?

Section 4 Personal Reflection

Why is it essential that the patient's goal be realistic? Why is the pain goal personalized? How can a nurse explain the 90% confidence rule to a patient? What is a SMART goal? Why do you think patients are more successful in achieving the goals they set for themselves? Can the goal be adjusted if the patient is having difficulty achieving it? Why?

Section 5: Pain Management Options

There are many different options for pain management. The experience of pain is individual, and some management techniques may be more effective or appropriate for some people than others. One approach may be used, or they can be combined. Typically, less-invasive strategies are attempted before more-invasive techniques are used (Cleveland Clinic, 2024). Unfortunately, many nonpharmacologic pain interventions may not be covered by insurance, making them unaffordable for many patients. Transportation issues must also be considered when discussing treatment. The treatment recommendation will not help the patient if they have no access to it. Nurses can help their patients by

becoming familiar with low-cost options for pain relief. For example, physical therapy may be a more viable option for a patient who has insurance but lives in an unsafe neighborhood for low-impact exercising and cannot afford to join a gym (CDC, 2024).

When considering potential treatments for acute pain, nurses should remember the basics. Applications of ice or heat, elevation, rest, immobilization, and exercise are effective treatments for many types of acute pain. There are also many nonopioid treatment options for chronic pain (CDC, 2024).

Medications for Pain

Nonsteroidal Anti-inflammatory drugs (NSAIDs) - Aspirin and ibuprofen are examples of NSAIDs. This type of medication can be used for mild to moderate pain, especially when associated with inflammation. These medications are not effective for neuropathic pain. NSAIDs work by inhibiting the cyclooxygenase enzyme, which decreases prostaglandin synthesis in the central nervous system, which, in turn, relieves pain. Adverse effects of these medications include gastrointestinal problems, hypertension, stroke, inhibited platelet activation, bruising, hemorrhage, sodium and water retention, hyperkalemia, headache, and hepatotoxicity, among others (Milani & Davis, 2023). COX-2 inhibitors are another type of NSAID with less gastrointestinal side effects. These are commonly used for pain related to conditions like arthritis, back pain, and menstrual cramps (Mayo Clinic Staff, 2023).

Acetaminophen - This medication can be used for mild to moderate pain or in conjunction with opioids for severe pain. This medication is not effective for neuropathic pain. The mechanism of action for this medication is not understood, though the result does decrease prostaglandin synthesis in the central nervous system, similar to NSAIDs, which relieve pain. Side effects of this medication can

include rash, anemia, nephrotoxicity, electrolyte imbalances, abdominal pain, nausea and vomiting, and others (Milani & Davis, 2023).

Topical/Local analgesics - Lidocaine is the most commonly used medication in this group. It is often used for pain reduction during brief medical procedures. It is also used for postherpetic neuralgia and peripheral neuropathic pain. Local anesthetics work by inhibiting sodium ion channels on the nerve cell's surface, stabilizing the neuronal membrane. This impairs the pain conduction through nerve impulses only at the site of action, which is beneficial when systemic pain treatment is unnecessary. Lidocaine may cause side effects at the application site, such as pain, pruritic, erythema, and skin irritation (Milani & Davis, 2023).

Antiepileptic medications - This class of medications lowers neurotransmitter release or neurofiring by affecting the calcium channels. Gabapentin is often used for postherpetic neuralgia and neuropathic pain. Pregabalin is often used for neuropathic pain associated with diabetic peripheral neuropathy and spinal cord injury, postherpetic neuralgia, and fibromyalgia. Oxcarbazepine and carbamazepine have been used to treat trigeminal or glossopharyngeal neuralgia. The most common side effects of gabapentin are dizziness, somnolence, ataxia, peripheral edema, and confusion. Pregabalin side effects are similar but also include headache, weight gain, and blurred vision (Milani & Davis, 2023).

Antidepressants - Tricyclic antidepressants (TCAs), like amitriptyline, and selective serotonin and norepinephrine reuptake inhibitors (SNRIs), especially duloxetine, have been shown to help alleviate neuropathic pain. They are generally considered the first line of treatment and prevention for this type of pain and have also been used effectively for nociplastic types of pain, like fibromyalgia. Amitriptyline is a common migraine prevention medication. These tend to be more effective for patients who also experience depressive symptoms. The inhibition of serotonin and noradrenaline reuptake increases the descending

inhibitory pathways of the central nervous system involved with pain. TCAs also act on specific nerve receptors and sodium channels. Side effects of amitriptyline may include altered mental status, arrhythmias, constipation, decreased libido, dizziness, and more. The side effects of duloxetine are similar (Mayo Clinic, 2023).

Muscle relaxers - This type of medication, like diazepam and carisoprodol, reduces pain by affecting muscle function and decreasing symptoms such as muscle spasms and musculoskeletal pain. They are often used to treat lower back pain, though they are not usually the first choice of treatment because of unwanted side effects and the potential for abuse. Muscle relaxers work by depressing the central nervous system or inhibiting the neurotransmission of pain signals to the brain. Common side effects include drowsiness, fatigue, dizziness, nausea, headache, and dry mouth (Cleveland Clinic, 2023).

Corticosteroids - known as glucocorticoids or steroids, are used to treat inflammation. They can be applied topically, taken orally, administered intravenously, or injected directly into the painful area. They mimic the cortisol hormone that naturally occurs in the body and are used to treat many types of inflammation, primarily due to autoimmune disorders. Examples of these medications are prednisone and hydrocortisone. Injected cortisone can relieve pain for months at a time or even permanently in some cases. The most common side effects from corticosteroids include increased appetite, weight gain, water retention, and mood swings. The risk for side effects increases with prolonged use of these medications. Nurses must educate patients about using corticosteroids, as they can increase blood sugar. This may be problematic for patients with diabetes (Cleveland, 2024).

Opioids - This is a large group of medications that chemically resemble opium, derived from the opium poppy. They are the most effective for treating severe pain but are very controversial due to the risk of addiction, tolerance, and side

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effects. According to the Centers for Disease Control and Prevention, the benefits for both pain and functional status should outweigh the potential risks when using this type of medication. The lowest effective dose should be used for the shortest duration necessary. Opioids work both pre- and post-synaptically by inhibiting calcium channels on nociceptive nerves and enhancing the potassium channels' activity, making generating nociceptive neurotransmission more difficult. Opioids have many adverse side effects. Some of them are dysphoria/euphoria, sedation, constipation, nausea, vomiting, cough suppression, bradycardia, respiratory depression, muscle rigidity, tolerance, physical dependence, and opioid-induced hyperalgesia, which is when a patient experiences a paradoxical reaction to opioids, which increases the sensitivity to painful stimuli (Milani & Davis, 2023). Opioids are used as a last resort for treating chronic pain, though they may be appropriate when the pain is related to a terminal illness. Careful monitoring is necessary (Mayo Clinic Staff, 2023).

Medical cannabis - As of April 2024, the use of cannabis for medical treatment is legal in 38 states, as well as the District of Columbia and three territories of the United States. Research supports the use of tetrahydrocannabinol (THC) for pain relief. Therapeutic benefits of reduced anxiety, sedation, and euphoria can also have a positive effect on pain. Smoked cannabis has the least benefit with harmful side effects (National Converence of State Legislatures, 2024). Cannabis is most helpful in treating neuropathic pain. Long-term or frequent use of cannabis by some people can increase the risk for psychosis or schizophrenia. As the use of cannabis is relatively new, more research is needed to determine if it is more effective than other available pain treatment options and if the benefits outweigh the risks (CDC, 2024).

Non-Pharmacological Interventions

Lifestyle changes - Sometimes, a lifestyle change can positively impact pain. If someone is experiencing knee pain due to obesity, reducing body weight can improve their pain. Pain may also be managed by drinking more water, managing stress, improving sleep habits, and eating more nutritious foods. Physical activity can sometimes help reduce pain, improve muscle strength and posture, and positively affect mental health (Cleveland Clinic, 2024).

Physical Therapy - This can help improve how a part of the body functions and may be part of a pain management plan or a specific treatment for an injury (Cleveland Clinic, 2024). Physical therapy usually involves low-impact cardio, mobility, flexibility, and strength training (National Institute of Neurological Disorders and Stroke, 2024).

Occupational therapy - This helps individuals improve their ability to perform tasks in their daily lives. Occupational therapists can help patients learn to navigate and interact with their environment using techniques that reduce pain (Cleveland Clinic, 2024).

Psychotherapy - Talk therapy can use many techniques to help patients identify emotions, thoughts, and behaviors that may affect how they experience pain. Depression and anxiety can accompany chronic pain, so this intervention is also beneficial for mental health. Cognitive behavioral therapy helps patients develop coping skills to manage the emotional burden caused by pain. Relaxation, mindfulness, and journaling are all helpful techniques (Cleveland Clinic, 2024).

Medical Devices and Procedures to Manage Pain

Transcutaneous Electrical Nerve Stimulation (TENS) - This non-invasive procedure uses low-voltage electrical currents to alleviate pain. A small device is placed near

or at the nerve site, and pain is relieved either through chemicals released into the body or a change in the perception of the pain. TENS works better for some patients than others, and more research is needed to evaluate how this pain relief measure works. The device is often used in outpatient clinics but can also be prescribed for at-home use. TENS is typically used for pain related to osteoarthritis, tendinitis, and fibromyalgia (Cleveland Clinic, 2023).

Spinal Cord Stimulation - This implanted device is placed in outpatient surgery. It is used to treat many types of chronic, severe pain, including back pain and various types of neuropathic pain. A trial procedure to assess efficacy is conducted before the device is implanted. During the procedure, one or more electrodes are placed in the epidural space and are connected to a pulse-generating device. When activated, the electrical impulse stimulates the spinal cord, inhibiting pain signals from traveling to the brain. Placement depends on the location of the pain (Cleveland Clinic, 2022).

Peripheral Nerve Stimulation - When spinal cord stimulation is contraindicated, peripheral nerve stimulation can be used to treat chronic neuropathic pain. Some studies suggest that peripheral nerve stimulation can be used as an alternative to opioid pain treatment for acute and post-surgical pain as well. Research continues on the application of this newer treatment. During the placement procedure, a small needle is placed using ultrasound close to the target nerve. This guides the placement of the electrode, which is then connected externally to the stimulator device. Another lead is placed on an ipsilateral limb. The exit site of the nerve-stimulating lead must be covered with a sterile dressing. The most common complication of this procedure is lead migration, followed by infection. Nerve damage is rare but can occur (Trent, Chopra et al., 2019).

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Radiofrequency ablation - This procedure uses a radio wave to damage a small area of nerve tissue, which inhibits pain signals traveling to the brain (National Institute of Neurological Disorders and Stroke, 2024).

Basivertebral nerve ablation (Intracept Procedure) - This is a minimally invasive treatment for vertebrogenic low back pain. Radiofrequency energy is used to heat a part of the basivertebral nerve, which inhibits nerve pain signals from traveling to the brain. This is not a first-line option, as it requires general anesthesia, but is typically used before more invasive options, like surgery, and can be effective for up to five years (Cleveland Clinic, 2023).

Nerve Blocks - This temporary relief measure uses a local anesthetic to interrupt the relay of pain messages to the brain. An example of a nerve block is an epidural, which is frequently used to alleviate pain in childbirth (National Institute of Neurological Disorders and Stroke, 2024).

Patient-controlled anesthesia (PCA) pump - This is an on-demand system of pain treatment where the user can press a button on a device to deliver pain medication. Most of the time, the medication used is some type of opioid, which is administered via a small intravenous tube. A continuous rate can also be set for the pump in addition to on-demand bolus doses. The provider controls the settings for the pump to reduce the risk of overdose, and the pump will not deliver a bolus dose outside of the set parameters. This type of pain treatment is common for post-surgical pain but can also be used for chronic pain and cancer pain. One benefit of PCA pain management post-operatively is that pain can be controlled more effectively, which encourages movement and decreases the risk of complications like blood clots. Side effects include those typically experienced with opioid medications (Cleveland Clinic, 2021).

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Baclofen pump - This surgically implanted pump delivers baclofen, a muscle relaxant, directly into the spinal canal via a small catheter connected to the pump, typically implanted in the abdomen. The pump is filled with baclofen, and the provider controls the settings to deliver a set dose of medication on a particular schedule. There is a reservoir in the pump that can be injected by the provider to refill the medication, typically every 1-6 months. This intervention is typically used to treat spasticity and associated pain. One risk for this intervention is pump malfunction. When the pump is not working correctly, the patient can experience baclofen withdrawal, which may include muscle stiffness or spasms, itchy skin, pain, sweating, fever, dizziness, nausea, or seizures (Cleveland Clinic, 2024).

Botulinum toxin injections - This procedure uses botulinum toxin to block nerve signals to certain muscles. The effects of the injection last 3-6 months and can be repeated when the effects diminish. Chronic migraines can be treated with this procedure, and it can also relieve back and neck pain, sciatica, and peripheral neuropathy, among other pain sources. Botulinum toxin is made from neurotoxins of the bacteria Clostridium botulinum and must be injected by a licensed provider (Cleveland Clinic, 2022).

Surgery to address the cause of the pain - In some cases, the source of the pain can be corrected. For example, knee pain due to a torn meniscus can be significantly improved, if not immediately resolved, by removing the issue causing the pain (National Institute of Neurological Disorders and Stroke, 2024). The patient must discuss the procedure with the doctor to develop realistic expectations for the post-operative pain levels.

Complementary Medicine

Complementary health techniques are usually used in conjunction with Western techniques. They may enhance the effectiveness of pharmacological and non-

pharmacological interventions. In the last two decades, complementary health approaches have increased in an effort to manage pain. In that time, complementary treatments have been incorporated into many treatment guidelines, as research has studied the clinical effectiveness of these therapies. The focus on the harmful effects of opioids has also influenced a shift to incorporate more complementary techniques. For some treatments, like acupuncture, insurance coverage has increased, reflecting the cost-saving effects complementary medicine treatments can have (Nahin, Rhee et al., 2024).

Massage therapy by a licensed massage therapist can help reduce stress, soothe muscles, and reduce pain. Different types of massage may be more appropriate for specific conditions (Cleveland Clinic], 2021). A meta-analysis of 33 randomized controlled trials found that massage therapy is effective in treating postoperative pain in both the short and long terms (Liu, Chen et al., 2022).

A licensed chiropractor performs chiropractic adjustments to manipulate joints and realign the spine, decreasing pain and improving function. Chiropractic adjustments can be administered to both children and adults (Cleveland Clinic, 2022).

Osteopathic Manipulation treatments (OMT) use gentle pressure to manipulate the body to treat mechanical problems in muscles, tendons, or bones. They are often used for lower back pain and colic. However, individuals who have osteoporosis, bone cancer, or other joint problems should not receive OMT (Cleveland Clinic, 2021).

Acupuncture is a traditional Chinese technique that uses very thin steel needles inserted at specific points, or acupoints, on the body to rebalance the body's energy, or qi. As a result, the body releases chemicals that reduce pain. Acupuncture is a supplemental therapy, but scientific experimentation has shown it to be an effective treatment for some conditions (Cleveland Clinic, 2023).

Biofeedback can help patients learn to control their body's physical reactions when they experience pain or symptoms that lead to pain (National Institute of Neurological Disorders and Stroke, 2024).

Meditation - This technique has been used for thousands of years, but researchers are just beginning to learn how medication alleviates pain. Meditation involves intense focus and mind-clearing using both cognitive and physical practices. There are many types of meditation, and some may be more effective than others as a complementary treatment for pain. Regular meditation has been found to strengthen neural connections and increase the number of pathways, increasing the ability to process stimuli more functionally (Cleveland Clinic, 2022).

Breathwork - Deep breathing can be an effective complementary technique for managing pain. Diaphragmatic breathing helps bring more oxygen into the body, lowering the heart rate and blood pressure. It also activates the vagus nerve, causing a relaxation response. Patients must be instructed in deep breathing techniques to get the most benefit from this practice. They must also be educated to understand that using breathwork for pain management takes practice. Breathwork is most effective when used before experiencing the stimulus that triggers pain (Johns Hopkins, 2024).

Yoga/Tai Chi/Qigong - These meditative movement practices originated in Asian culture. Yoga, which began as a spiritual practice, has been practiced by many to improve well-being. Implementing these practices has been shown to positively affect neck pain, migraines, and knee osteoarthritis. Some evidence also shows a small benefit when used to treat lower back pain. The reduction of depressive symptoms can also have a positive impact on pain. More research is needed to determine how these Eastern practices affect pain (National Institutes of Health, 2023).

Reflexology - This complementary pain treatment is based on the idea that particular parts of the body are connected to corresponding particular places on the feet. In reflexology, pressure is applied to specific points of the feet to alleviate pain in a particular area of the body. For example, a heel massage may be used to alleviate lower back pain. Reflexology has not been comprehensively studied in the literature. Compared to usual care, studies often show there is a benefit to reflexology, but more research is needed to show that it is more effective than just general foot massage (Cleveland Clinic, 2022).

Aromatherapy - Essential oils can be used to treat pain through inhalation or topical application. The nervous system is stimulated upon the inhalation of some essential oils, which triggers chemical responses in the body, including the release of serotonin, endorphins, and dopamine. More research is needed to establish the efficacy of aromatherapy for pain management, but the anxiety-reducing effects can have a positive impact on pain management for some patients. One misconception about aromatherapy is that because it is natural, it is also safe. Nurses should educate patients on the importance of sharing the use of aromatherapies with their providers (Cleveland Clinic, 2023).

Dietary supplements and herbal remedies - Mechanisms of action for many herbal remedies and supplements are not well known, making them a controversial treatment for pain. The medical community has studied the effects of many of these, and some show clinical evidence for efficacy. However, not enough is known about how they work to become part of conventional medical practice. Examples of herbal remedies used to treat pain include St John's Wort, ginger, and turmeric, among many others. Herbal supplements have been used for many types of pain, including musculoskeletal pain, arthritis, and migraines. Most herbal medicines act on the COX pathways in some way, but specific doses are not well-established. Just because herbal remedies are natural does not necessarily mean they are safe. Many have pharmacologic actions that could interact with

other medications or have unintended side effects. Typically used by patients for mild to moderate pain, the use of these remedies is increasing, though it is not typically shared with medical providers. Nurses can enhance patient safety by specifically asking patients about the use of herbal remedies or dietary supplements (Jahromi, Pirvulescu et al., 2021).

Section 5 Learning Activity

Select one pain treatment option from each group (pharmacological, non-pharmacological, device and procedures, and complementary medicine). Compare and contrast the different options. How do they affect pain? What types of pain can they be used for? What are the risks and benefits? Can these modalities be used concurrently? How might they affect each other when used together?

Section 5 Personal Reflection

Why do you think there are so many available treatments for pain? How do specific types of pain respond to particular treatments? Which treatment modalities do you have experience with? Are there complementary techniques that may enhance the pain management of your patients? What education is necessary for patients who are prescribed opioid pain medications?

Section 6: Nursing Interventions to Promote Optimal Outcomes

Nurses can significantly impact patients' pain experiences. With staff interactions influencing patient satisfaction and pain management and reimbursement becoming tied to patient satisfaction, it is becoming increasingly important for nurses to be knowledgeable about specific nursing interventions to promote

optimal outcomes. Educational programs that enhance nurses' pain assessment skills can positively impact pain management and improve patient satisfaction (Schroeder, Hoffman et al., 2016).

Patient education has been identified as a core area where nurses can impact pain management. Nurses can educate patients and caregivers on evidence-based pain interventions and encourage compliance through education (Sonneborn, Williams et al., 2022).

A study published in 2021 found that individuals who received pain education in addition to typical treatment for knee pain had statistically significant superior short-term improvements in function (Goff, Silva et al., 2021). Another study found that individualized education, as opposed to standard patient education, improved average pain levels (Oliver, Kravitz et al., 2001). Because opioid use for pain management is associated with high risk, pre-operative education for patients who will likely need to use opioids post-operatively was influential in encouraging safer medication behaviors and reducing the use of opioids. Lack of education interventions places the patient at risk for poor pain management and inferior outcomes (Lee & Wu, 2020). Patient education can not only improve pain management but also health outcomes and safety.

Nurses can advocate for improved patient pain management by educating other nurses. Creating a culture that supports effective pain management and encourages conversations regarding different interventions and ideas benefits patients. A study in 2019 evaluated the presence of nurses in hospital units who received advanced training regarding pain in addition to their usual duties. Nurses valued the role but reported it was difficult to manage in addition to their usual duties. They were willing to learn and educate their colleagues but needed more clarity on their roles and knowledge of teaching techniques. The researchers concluded that this role is valuable, but nurses need more advanced training,

support, time, and collaborative opportunities to be effective. Through further research on this type of role, nurses can enhance how they advocate for their patients and all the patients in their place of work (Peterson, Berggården et al., 2019).

As we have already discussed, pain assessment by nurses is vital to effectively manage pain. Knowledge of pain assessment tools and using the most appropriate, evidence-based tool for each patient improves pain level outcomes (Dydyk & Grandhe, 2023). Effective pain assessment and reassessment rely on adequate knowledge of how pain works and the most effective interventions. Another part of the assessment is observing for opportunities to improve pain with non-pharmacologic interventions. Repositioning, for example, is a simple strategy that can reduce pain. As providers are trying to eliminate unnecessary prescriptions of opioid pain medications, nurses are critical in identifying non-pharmacologic interventions to manage pain (Sonneborn, Williams et al., 2022).

Despite clear evidence showing that non-pharmacologic nursing interventions are often effective in relieving pain either independently or in conjunction with medications, only a moderate number of ICU nurses report using non-pharmacological pain interventions with their patients (Kia, Allahbakhshian et al., 2021). While nurses encounter barriers to providing non-pharmacological pain management strategies, like fatigue and juggling many responsibilities, the implementation of these interventions remains essential in effectively managing pain. A deficiency in pain management education can also be blamed for the lack of prioritization of non-pharmacologic interventions (Kia, Allahbakhshian et al., 2021). Despite the busy schedule of nurses, we have a duty to provide interventions that may improve the patient's experience of pain. In 2018, the American Nurses Association published its position on the nurse's role in pain management.

Statement of ANA Position

American Nurses Association (ANA) believes:

- Nurses have an ethical responsibility to relieve pain and the suffering it causes
- Nurses should provide individualized nursing interventions
- The nursing process should guide the nurse's actions to improve pain management
- Multimodal and interprofessional approaches are necessary to achieve pain relief
- Pain management modalities should be informed by evidence
- Nurses must advocate for policies to assure access to all effective modalities
- Nurse leadership is necessary for society to appropriately address the opioid epidemic" (Association, 2018)

This position highlights nurses' ethical duty regarding pain management and outlines their primary responsibilities in addressing pain.

Section 6 Learning Activity

Think through the American Nurses Association statement regarding the nurse's ethical duty in pain management. For each point, consider how it affects your nursing practice, how you can implement the statement, and why it is essential. How do you use the nursing process when managing pain?

Section 6 Personal Reflection

How does pain management affect patient satisfaction? Why does patient education improve pain management outcomes? What barriers exist to implementing non-pharmacological and complementary pain management techniques? How can nurses advocate for their patients for more effective pain management?

Section 7: The Future of Pain Management

Exciting research is underway in pain management. The National Institute of Neurological Disorders and Stroke is working to improve opioid use disorder prevention and treatment while enhancing pain management. It is also developing new technologies that can directly access the neurological system, affect pain perception, and reduce pain (National Institute of Neurological Disorders and Stroke, 2024).

Some clinical trials at the Mayo Clinic include a study to evaluate the prevalence of hypogonadism in patients with chronic pain, a study of the effects of buprenorphine on hyperalgesia for patients with opioid use disorder, and an evaluation of hair cortisol levels for pediatric patients with chronic pain (Mayo Clinic, 2024). A new medication, VX-548, preliminarily called suzetrigine by the developer, shows a promising ability to block sodium channels in nerves but only acts on peripheral nerves. Because of this, it has similar analgesic effects as opioids, without the risk of addiction, since it does not act on the central nervous system. This medication is currently under FDA review (Broadfoot, 2024). Mindful breathing is being studied as a treatment for chronic low back pain, with early studies showing improvement in symptoms and quality of life (Tedeschi, 2024). There is also research being conducted to evaluate nurses' knowledge, misconceptions, and attitudes regarding patients with chronic pain, and some

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research shows that nurses are demonstrating higher knowledge than in past research (Burton & Judson, 2024).

The opioid crisis in America has brought the development of non-opioid pain interventions to the forefront of research priorities. The National Institutes for Health provides funding to many organizations seeking to develop new treatments to make opioid use less prevalent and also to reduce instances of opioid use disorders. One strategy, the Helping to End Addiction Long-term (HEAL) initiative, focuses on developing a further understanding of chronic pain and accelerating the discovery of new treatment modalities. The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) is another research initiative that explores the development of new treatments with the nervous system as the central focus. Research is centered on developing ways to reduce pain through modulating neural circuitry. Participation in clinical trials can also help researchers learn more about pain and potential treatments for pain. Nurses are often involved in clinical research trials, which can impact the future of pain management (National Institute of Neurological Disorders and Stroke, 2024).

Section 7 Reflection

Why is it essential for new treatments to be explored? Why is evidence-based practice necessary, and how is it achieved? How can nurses stay informed about new pain management strategies? How does pain education help nurses provide excellent care?

Section 8: Conclusion

Pain management requires a multidisciplinary approach, and nurses are critical to that team. Through assessment and history-taking, nurses gather the necessary

information to determine the potential source of pain and direct the next pain management steps. Nurses are also vital for individualized patient education to enhance outcomes. They evaluate pain, document observations, and monitor for drug misuse (Milani & Davis, 2023). By being knowledgeable about what causes pain, different techniques for pain assessment, the importance of pain goal setting, and current treatments, nurses can effectively care for patients in many settings.

The estimated annual cost of pain, including medications, procedures, and lost wages, is approximately $635 billion annually. Chronic pain is the leading cause of disability worldwide. Because chronic pain is so prevalent, nurses have the opportunity to improve patient outcomes and enhance the quality of life for many people in every area of nursing practice.

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PART 3

Prescription Opioid Medications and Abuse

Part 3 focuses on the safe use of opioids in pain management. After briefly revisiting the nursing role in pain management and pharmacological options, it examines opioid use disorder, including its signs, risk factors, and treatment; opioid diversion in healthcare settings and how to prevent it; and the history and stigma of the opioid epidemic, efforts to fight it, and the role of naloxone. Six case studies help apply these concepts to everyday nursing practice.

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In this part:

- Section 1: Introduction
- Section 2: The Nursing Role in Pain Management
- Section 3: Pharmacological Pain Management
- Section 4: Opioid Use Disorder
- Section 5: Opioid Diversion
- Section 6: The Opioid Epidemic
- Section 7: Non-pharmacological Pain Management

Section 1: Introduction

References: 6, 20

According to the Centers for Disease Control and Prevention (CDC), chronic pain affects an estimated 20% of the United States population. Pain can be attributed to decreased quality of life, loss of work, social isolation, and increased healthcare costs. Nurses and other healthcare professionals have the responsibility to provide adequate pain management for patients. The ongoing epidemic of opioid misuse in the United States is an adverse effect of the healthcare system's focus on adequate pain management. Overprescription of opioids, the high risk of misuse and addiction, and the lack of knowledge of non-pharmacological pain interventions all contribute to the current opioid epidemic. Because opioids have a high risk of adverse effects, it is important for nurses to have the knowledge of the adverse effects of pharmacological pain management and alternate pain management strategies.

Opioid abuse is an ongoing epidemic in the United States that can affect patients, caregivers, and healthcare professionals. According to the CDC, deaths from opioid overdose continue to rise in the United States. Healthcare professionals are also at a high risk for opioid diversion due to the accessibility and close proximity to prescription opioids. Nurses must have the knowledge to provide effective pain management while educating patients on the adverse effects of opioids and assisting patients who may be affected by opioid use disorder. In this part, participants will learn about the nursing role in pain management, the history of the opioid epidemic in the United States, signs and symptoms of opioid use disorder and opioid diversion, and different types of pain management.

Section 2: The Nursing Role in Pain Management

References: 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 20

Pain is one of the most common reasons people seek medical care. Nurses must understand what pain is and how to assess pain to be able to adequately treat patients' pain. According to the International Association for the Study of Pain, pain is defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage". The body feels pain as a trigger for perceived danger or stress. Pain triggers the body to move away from the perceived danger.

Pain can be influenced by many different factors including biological, psychological, and social factors. Factors that influence pain include:

- Injury or trauma
- Chronic medical conditions
- Inflammation
- Stress and anxiety
- Developmental level
- Emotional state
- Culture
- Environment

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The way a person perceives and expresses pain can be influenced by these factors. Developmental levels can affect how patients verbalize their pain. For example, an infant expresses pain through crying while an older child will be able to verbalize their pain. Psychological and societal factors can also play a part in pain perception. For example, different cultures may be more expressive in their pain than others, and a person who believes their pain interventions will work may report decreased pain. It is important for nurses to understand how their patients perceive pain so they can appropriately assess and treat their pain.

Classification of Pain

Pain can be classified by different factors such as severity, duration, location, and etiology. The classification of pain can help healthcare professionals determine which type of pain interventions will be most effective.

The World Health Organization (WHO) developed the analgesic ladder in 1986 to classify pain based on severity as either mild, moderate, or severe pain. The type of pain medication used is based on the severity of the pain. For example, mild pain can be treated with non-pharmacological methods or non-opioid medications, while severe pain may require opioid medications.

Pain can also be classified based on duration as acute or chronic pain. Acute pain is pain that lasts for a short amount of time and is resolved when the triggering event is treated. Acute pain can last for a few seconds or up to a few months. Symptoms of acute pain include:

- Numbness and tingling
- Sharpness
- Throbbing
- Stabbing
- Sleep disturbances
- Appetite changes
- Diaphoresis
- Vital sign changes
- Guarding
- Restlessness

Examples of acute pain include postoperative pain, burns, sprains, fractures, trauma, or headache. Treating the cause of the pain typically relieves acute pain,

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but other interventions can include ice, heat, rest, physical therapy, and non-opioid medications.

Chronic pain is pain that consistently lasts longer than three months. Causes of chronic pain include chronic diseases such as arthritis or neuropathy, injury, and inflammation, or an unknown cause. Symptoms of chronic pain include:

- Muscle tension
- Decreased mobility and activities of daily living
- Appetite changes
- Mood changes such as depression, anxiety, and frustration
- Fear of reinjury

Classifying pain can help healthcare providers determine the best course of treatment. Nurses should perform a comprehensive pain assessment to determine what type and severity of pain their patient is experiencing. This is an essential part of pain management.

The Nursing Role in Pain Management

The American Nurses Association states that pain is a subjective experience and nurses must accept pain as whatever the patient says it is. Nurses have a responsibility to assess pain, provide pain interventions, and document the effectiveness of the interventions.

The nursing pain assessment involves collecting both subjective and objective data to determine the quality, type, and severity of pain. Subjective data is information obtained from the patient and helps nurses assess the cause, quality, location, and severity of the patient's pain. Pain scales such as the numeric rating scale can help collect subjective pain data. Patients can use the numeric rating scale to rate their pain severity on a scale from 0 to 10 with "0" being "no pain" and "10" being "the

worst pain imaginable". Objective data includes measurable things such as vital signs and patient behavior. Patients may show nonverbal signs of pain such as grimacing, guarding, and elevated heart rate to exhibit pain. Nurses can assess behavioral cues such as anger, agitation, and moaning to determine if a patient is in pain. Objective data can be helpful in assessing pain in patients who are unable to verbally express their pain. Patients who have difficulty communicating, are developmentally delayed, or who are unconscious may benefit from an objective pain assessment.

A thorough pain assessment can help determine what kind of pain management would be most effective. Nurses have the responsibility to assess pain in a timely manner, document their findings and any pain interventions, and reassess the patient's pain to determine if the interventions are effective. Nurses are a vital part of a patient's pain management plan.

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Section 2 Personal Reflection

What subjective and objective data may a nurse observe in a patient experiencing severe pain?

Section 2 Key Words

Pain - An unpleasant sensory and emotional experience associated with actual or potential tissue damage

Acute pain - Pain that has a short duration and is from a specific cause

Chronic pain - Pain that is persistent for longer than three mon
ths but can be varying in severity

Subjective data - Information obtained from the patient and/or family members and offers important cues from their perspectives

Objective data: Information that can be measured such as vital signs, physical attributes, and behavior

Section 3: Pharmacological Pain Management

References: 5, 6, 10, 13, 21, 22

Effective pain management includes a combination of pharmacological and non-pharmacological interventions. Pharmacological therapy is the use of medication to treat a disease, illness, or medical condition and can be very effective for pain management. Certain medications, called analgesics, are specifically used to treat pain. There are three types of analgesics: opioids, non-opioids, and adjuvants. The type of medication used depends on the type, duration, and severity of the pain.

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Non-opioid and Adjuvant Analgesics

Non-opioid analgesics are medications used for mild to moderate pain relief and include nonsteroidal anti-inflammatory drugs (NSAIDS), anticonvulsants, and antidepressants. Non-opioids can be used alone for mild to moderate pain or in conjunction with opioids to treat severe pain. Common non-opioid pain medications include ibuprofen, acetaminophen, naproxen, and aspirin.

Non-opioid medications can provide adequate pain relief, but have side effects to watch out for. Non-opioid medications can have higher risks in certain populations such as older adults, pregnancy, and liver, cardiac, renal, or gastrointestinal disease. NSAIDS can cause nausea and vomiting, gastrointestinal bleeding, renal failure, and an increased risk of heart attack and stroke if patients take too much or longer than directed. Acetaminophen can also cause severe liver damage if patients take too much or consume a large amount of alcohol with the medication. Patients need to be educated on the side effects of non-opioid

analgesics, but overall they have significantly less risk of adverse effects than opioid analgesics.

Adjuvant analgesics are medications that are not classified as pain medications but have been found to have an analgesic effect along with opioids. Adjuvants include antidepressants, anticonvulsants, gabapentin, and amitriptyline. These medications can be used to treat conditions other than pain, but have also been found to help decrease pain when used in collaboration with opioid pain management.

Nurses can consider using non-opioid medications for acute pain such as sprains, minor surgeries, dental pain, or abdominal pain. Non-opioid medications have the potential to improve pain and daily function without risk for serious harm.

Opioid Analgesics

Opioid analgesics are powerful prescription medications that help reduce pain by blocking pain signals. Some opioid analgesics are naturally made from components of poppy plants. Other types of opioids are synthetic and are created in a laboratory. Synthetic opioids are often much more potent than natural opioids. Natural opioids include:

- Morphine
- Codeine

Synthetic opioids include:

- Hydromorphone (Dilaudid)
- Hydrocodone
- Hydrocodone and acetaminophen (Vicodin, Norco)
- Oxycodone (Oxycontin)
- Oxycodone and acetaminophen (Percocet)

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- Fentanyl
- Tramadol
- Meperidine (Demerol)
- Heroin

Opioid medications can be very effective in treating severe pain, but also have very serious side effects. Opioid analgesics can have severe side effects including risk of addiction and overdose. Side effects of opioids include:

- Respiratory depression
- Drowsiness
- Confusion
- Constipation
- Increased pain sensitivity
- Tolerance
- Physical dependence
- Nausea and vomiting
- Itching
- Dry mouth

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Respiratory depression is a serious side effect of opioids that must be monitored closely. Respiratory depression can cause serious neurological effects by depriving the brain of oxygen and even cause death. Nurses must closely monitor patients for respiratory depression and educate patients about these serious side effects.

Patients taking opioid medications must also be aware of the risk of tolerance and physical dependence. Tolerance is a condition when the body builds up resistance to a certain medication. If patients take opioids for an extended period of time, they are at risk of building up opioid tolerance which may require a higher dose to

reach the same desired pain relief. Physical dependence can also occur when a patient takes opioids for an extended period of time. Patients can experience physical symptoms of withdrawal when abruptly stopping the use of opioids. It is important for nurses to educate patients on the importance of slowly weaning off opioids to prevent physical dependence.

Healthcare providers should use caution when prescribing opioid analgesics for pain relief. The CDC recommends avoiding opioids for pain management in patients younger than 18 years old and to avoid opioids as the first choice of therapy for chronic pain. Non-opioid medications are recommended to treat chronic pain as research shows opioids should only be used short-term to prevent the side effects of tolerance and addiction. If opioids are necessary to adequately manage pain, healthcare providers should prescribe the lowest dose possible for a short period of time, provide patient education on potential side effects and risks of withdrawal and addiction. Healthcare providers should also schedule follow up appointments with patients to ensure their pain treatment plan is effective and that severe adverse effects are not present. According to the CDC, healthcare providers should only consider opioids for pain management if the expected benefits outweigh the risks.

Section 3 Personal Reflection

What education should a nurse provide to a patient who has been prescribed opioids for pain relief?

Section 3 Key Words

Pharmacological therapy - The use of medication to treat a disease, illness, or medical condition

Analgesics - Medications used to relieve pain

Non-opioid analgesics - Medications including non-steroidal anti-inflammatory drugs (NSAIDS) used for mild to moderate pain relief

Non-steroidal anti-inflammatory drugs (NSAIDS) - Medications that provide mild to moderate pain relief while also reducing fever and inflammation

Adjuvants - Medications that is not classified as an analgesic but have been found to have an analgesic effect with opioids

Opioid analgesics - Powerful prescription medications that help reduce pain by blocking pain signals

Natural opioids - Medications such as morphine and codeine made from certain varieties of poppy plants and used to treat pain

Synthetic opioids - Medications such as fentanyl that are manufactured in a laboratory setting and can be a lot more potent than natural opioids

Respiratory depression - A breathing disorder manifesting slow and irregular breaths and can lead to serious neurological effects and death

Tolerance - When the body builds up resistance to a medication

Physical dependence - When the patient experiences physical symptoms of withdrawal when stopping a medication

Section 4: Opioid Use Disorder

References: 14, 15, 16, 17, 19, 22, 25, 36, 37, 38

Opioid use disorder is an ongoing epidemic in the United States that can affect patients, caregivers, and healthcare workers. Over 3 million people in the United States suffer from opioid use disorder. Opioid use disorder is a misuse of opioids that causes significant impairment or distress. The CDC advises that healthcare

providers use the term “opioid use disorder” instead of terms such as “opioid abuse” or “opioid addiction”.

The diagnosis of opioid use disorder is based on specific criteria. A patient diagnosed with opioid use disorder must meet two or more of the criteria within one year:

- Increased opioid tolerance
- Withdrawal symptoms when decreasing opioid dose
- Expressed desire to decrease use of opioids or expressed desire to use opioids
- Use of opioids interferes with daily life activities such as work
- Expressed desire to continue use of opioids despite interference with daily life activities
- Using opioids in dangerous situations
- Isolation or reduction of activities due to opioid use
- Increased effort to obtain opioids

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The time it takes to become tolerant to or dependent on opioids can vary from person to person. Patients suffering from opioid use disorder may make great effort to hide signs and symptoms. It is important for nurses to be aware of signs and symptoms to identify opioid use disorder and provide early intervention.

Signs and Symptoms of Opioid Use Disorder

Patients may exhibit physical signs of opioid use disorder, opioid overdose, and opioid withdrawal. It is important for nurses to be able to differentiate between these different conditions.

Symptoms of opioid use disorder include:

- Increased use of opioids
- Physical dependence of opioids
- Cravings of opioids
- Drowsiness
- Changes in sleep habits
- Weight loss
- Malaise
- Changes in daily activities
- Decreased libido
- Decreased personal hygiene
- Financial difficulties
- Isolation from friends and family

Opioid withdrawal are the physical symptoms that occur when the body attempts to recover from physical dependence on opioids. Withdrawal symptoms can occur at any time when long-term opioids are stopped or the dose is reduced. Opioid withdrawal symptoms include:

- Nausea and vomiting
- Diaphoresis
- Anxiety and agitation
- Insomnia
- Hot or cold flashes
- Muscle aches and cramps
- Dehydration
- Tachycardia

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- Diarrhea

Opioid overdose symptoms include pinpoint pupils, unresponsiveness, and respiratory depression. Nurses must be able to identify signs of opioid use disorder and symptoms of opioid overdose to help patients receive treatment and quick interventions in serious situations. A patient experiencing an opioid overdose can have permanent neurological deficits or death if interventions are not initiated quickly. Nurses who can identify these signs and symptoms and promote early interventions can prevent many adverse patient outcomes.

Who is at Risk for Opioid Use Disorder?

Anyone can develop an addiction to opioids, but some people are at higher risk than others. Patients at a higher risk of developing opioid use disorder include:

- Previous history or family history of alcohol or substance abuse
- Previous history of sexual abuse or negative childhood experiences
- Mental health conditions such as depression or bipolar disorder
- Previous history of opioid use disorder or resuming use of opioids after abstinence
- Regular use of opioids
- Using high doses of opioids or more frequently than prescribed
- Using opioids along with alcohol or benzodiazepines

It can sometimes be difficult identifying patients struggling with opioid use disorder. Individuals often go to great lengths to hide signs of opioid use disorder due to shame, guilt, or denial. Identifying patients at risk of opioid use disorder can help initiate early interventions. Nurses can be a resource to patients who are struggling to come to terms with their opioid use disorder and to families who are struggling to get their loved one the help that they need. Providing an objective

assessment of patient symptoms and risk factors can be a vital part of treating opioid use disorder.

Treatment for Opioid Use Disorder

Acute treatment for opioid use disorder involves helping patients reduce use of opioids while managing their withdrawal symptoms. Treatment can include a combination of medications and support from professionals and loved ones.

Common medications used to treat opioid withdrawal include methadone, buprenorphine, and naloxone. Methadone is used to treat withdrawal symptoms and can be used as a long-term treatment to manage opioid dependence. Methadone is an opioid agonist and can help decrease the intensity of withdrawal symptoms which can help patients reduce their desire to return to using opioids. Methadone is individually dosed specific to each patient and must be administered under supervision. Over time, the dose of methadone can be decreased as patients have decreased withdrawal symptoms and urges to use opioids. Patients should be educated about the side effects of methadone as some can have serious health consequences. Side effects of methadone include:

- Nausea and vomiting
- Itching
- Diaphoresis
- Agitation
- Constipation
- Respiratory depression
- Dizziness and syncope
- Tachycardia
- Hallucinations

Because methadone is individually dosed and can have serious adverse effects, only certified opioid treatment programs can prescribe and distribute methadone for opioid use disorder. Methadone also requires a gradual tapering of dosage to prevent withdrawal symptoms. The limited prescribers and long-term use can complicate access for patients. It is important for nurses to be aware of accessible resources for patients who seek methadone as a treatment for opioid use disorder.

Buprenorphine is a partial opioid agonist that can help treat opioid use disorder. Buprenorphine does not have as strong effects as methadone, but can still be effective in treating opioid use disorder. Buprenorphine can be prescribed by any physician which can make it more easily accessible than methadone. Similar to methadone, buprenorphine can be used long-term and have decreased dosage and frequency as patients have decreased withdrawal symptoms and urges to use opioids. Buprenorphine can also have serious side effects which include:

- Respiratory depression
- Overdose
- Adrenal insufficiency
- Dependence
- Adverse interactions with benzodiazepines

Because of the risk of dependency and overdose, naloxone is often prescribed with buprenorphine to decrease the risk of misuse.

Naloxone is an opioid antagonist and can quickly reverse the effects of opioids. Naloxone is the gold standard reversal agent for opioid overdose. Naloxone can assist in treatment for opioid use disorder, but has a short-term effect. Naloxone can have adverse effects including:

- Allergic reaction

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- Opioid withdrawal symptoms including agitation, muscle aches, nausea and vomiting, diaphoresis, and dizziness

Naloxone can be beneficial for any patient at risk for an opioid overdose. These patients can include anyone taking opioids for long-term pain management, recently experiencing opioid use disorder, or recently stopping opioid use.

Aside from medications, long-term treatment for opioid use disorder can include counseling, support groups, and outpatient treatment plans. Organizations such as Narcotics Anonymous, SMART Recovery, and the SAMHSA Center for Substance Abuse Treatment can help patients find the right treatment plan. Narcotics Anonymous is a community-based organization that focuses on support groups for those who suffer from addiction to narcotic medications. Narcotics are another term for any pain relief medication that is highly addictive, including opioids. Narcotics Anonymous was founded in 1953 and provides services such as group meetings, mentoring, guidance, and community for those suffering with addiction. The organization provides support in over 100 countries and has an extensive network for patients to find community and support when seeking help with opioid use disorder. SMART Recovery helps patients struggling with narcotic addiction by focusing on evidence based behavior therapy treatment programs. The SMART Recovery program strives to help patients manage their own behaviors and develop skills and tools to improve their lives. The SAMHSA Center for Substance Abuse Treatment is a department within the US Department of Health and Human Services that focuses on public health interventions in the United States to help treat and prevent opioid use disorder and addiction. SAMHSA helps promote federal and local legislation as well as public education in fighting the opioid epidemic. These organizations are just a few of the resources available to patients seeking treatment for opioid use disorder. Every patient should work with their healthcare provider to create an individualized and comprehensive treatment plan.

Section 4 Personal Reflection

What are some barriers patients may face when seeking treatment for opioid use disorder? How can nurses assist patients in overcoming these barriers?

Section 4 Key Words

Opioid use disorder - A problematic pattern of opioid use that causes significant impairment or distress

Cravings - The overwhelming urges to use opioids despite understanding of the potential consequences

Opioid withdrawal - The physical symptoms that occur when the body attempts to recover from physical dependence on opioids

Overdose - Poisoning of the body when a drug is taken in excessive amount which can be fatal or nonfatal

Respiratory depression - A breathing disorder manifesting slow and irregular breaths and can lead to serious neurological effects and death

Methadone - An opioid agonist that helps decrease the intensity of opioid withdrawal symptoms

Buprenorphine - A partial opioid agonist that can helps decrease the intensity of opioid withdrawal symptoms

Benzodiazepines - Sedative medications used for anxiety, insomnia, and other conditions and can increase risk of overdose when combined with opioids

Naloxone - An opioid antagonist that quickly reverses the effects of opioids

Narcotics - Another term for any pain relief medication that is highly addictive, including opioids

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Section 5: Opioid Diversion

References: 15, 18, 19, 26, 27, 28

Diversion is a major problem in healthcare facilities that often goes undetected and unreported. Diversion is when medications are illegally moved from their intended location to another for personal use or distribution to others. Opioids, depressants, stimulants, and hallucinogens are all common medications abused by healthcare professionals, but opioids are the most common medications diverted in healthcare settings. According to the National Council of State Boards of Nursing, 15% of healthcare professionals become dependent on these medications during their careers. The ease of access to opioids drastically increases the likelihood of dependence and diversion.

Opioid diversion can lead to harm of patients, healthcare professionals, healthcare facilities, and public health risks. Adverse effects on patients include:

- Unrelieved pain
- Risk of infection from contaminated syringes or vials
- Decreased level of care due to impaired healthcare professionals
- Theft of medications

Adverse effects on healthcare professionals include:

- Opioid use disorder, overdose, and death
- Loss of job and professional license
- Criminal prosecution
- Medical malpractice lawsuits

Adverse effects on healthcare facilities include:

- Loss of eligibility for Medicare and Medicaid reimbursement

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- Medical malpractice lawsuits
- Fines
- Decreased public trust

Adverse effects on public health include:

- Outbreaks of infectious diseases such as hepatitis C
- Increased rates of opioid use disorder
- Increased rates of hospitalizations and deaths relating to opioid use

Signs of Opioid Diversion

Opioid diversion can have lasting negative effects and nurses must be aware of methods to prevent diversion. Recognition of signs of opioid diversion is the first step to prevention. Different methods of opioid diversion can occur at any point in the medication distribution and administration process. This can include the intake, storage, distribution, administration, or wasting of medications. According to the American Nurse Journal, the most common time for opioid diversion to occur is during the wasting of medications. Wasting of medications is required for any controlled substance that remains in a single use vial or pre-filled containers, and any unused controlled substances. Controlled substances include medications with a high risk of misuse or dependence and significant adverse effects when given in large doses. Controlled substances require a physician prescription and have many safeguards in place during administration in healthcare facilities.

Nurses should be aware of signs of opioid diversion while working in healthcare facilities especially when wasting medications. Behaviors that may indicate medications are being diverted during wasting include:

- Failure to document wasted medications
- Frequently wasting medications

- Asking coworkers to document wasted medications that they did not witness
- Wasting medication doses that do not require a waste
- Frequent discrepancies or overridden medications in the medication dispensing unit records
- Offering to waste medications for coworkers or other patients

Opioid diversion can also occur during medication administration. Behaviors that may indicate medications are being diverted during administration include:

- Frequent medication errors
- Missing medication documentation
- Removing medications without orders
- Removing medications for patients who have been discharged
- Documenting medications without administration
- Continued patient complaints of pain despite medications being documented
- Offering to administer medications for coworkers or other patients
- Stealing syringes or medication vials
- Storing controlled substances in their pockets
- Unnecessarily diluting medications
- Administering incomplete medication doses to patients
- Falsifying verbal medication orders
- Repeatedly removing PRN medications
- Asking healthcare providers for more pain medication orders

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Nurses should pay attention to individual behaviors that could indicate medications are being diverted. Abnormal behaviors that may indicate a healthcare professional is diverting medications include:

- Drowsiness
- Forgetfulness
- Unreliability at work
- Anxiety and depression
- Paranoia
- Slurred speech
- Recurrent accidents or injuries
- Frequent mistakes while at work
- Blaming others for medication or documentation errors
- Isolation from others
- Poor personal or professional relationships
- Recurrent unexplained absences from work
- Repeatedly arriving late to work
- Refusing drug testing at work
- Taking multiple breaks during their shift
- Volunteering for extra shifts or to stay extra hours
- Wearing long sleeves even in warm weather
- Physical signs such as diaphoresis, constricted pupils, decreased appetite, itching, nausea, vomiting, and diarrhea

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Opioid Diversion Prevention

In healthcare facilities, preventing diversion must be a team effort with collaboration between all healthcare specialties. Healthcare facilities must have systems in place to monitor and prevent opioid diversion. Healthcare facilities must also have a culture that encourages nurses to speak up if they believe someone is diverting medications. Nurses may be afraid to speak up out of fear of negative consequences or a lack of education on the importance of identifying signs of diversion.

Having systems in place such as surveillance and safeguards on medication wasting and administration can help healthcare facilities prevent diversion. Surveillance should focus on patterns of diversion behaviors. Healthcare facilities can install video monitoring of high traffic areas, such as the medication room and medication dispensing units. Tracking data from the pharmacy and medication dispensing units can help identify discrepancies and nurses who are exhibiting diversion behaviors when accessing and wasting medications.

Nurses can help prevent opioid diversion by ensuring they are applying the best practices to medication wasting and administration and reporting any barriers. Barriers to medication wasting and administration include:

- Frequent interruptions while using the medication dispensing unit, dosing medications, and documenting medication waste
- Lack of medication administration supplies
- Inability to find a coworker to witness medication waste in a timely manner
- Lack of education on the signs of opioid diversion and prevention strategies

Nurses should ensure they are always wasting medications at the medication dispensing units and using appropriate controlled substance waste areas when wasting medications. An appropriate controlled substance waste area binds the medications and makes it difficult for someone to illegally access the medication.

Nurses should always witness in person the medication they are asked to waste and ensure they log out of the medication dispensing units after use.

Collaboration with pharmacists can help prevent opioid diversion. Only providing small doses or pre-filled syringes can decrease the need for nurses to waste medications. Pharmacists can also help detect signs of diversion through audits of medication dispensing units and nursing administration reports. Preventing opioid diversion is a collaborative effort that must be taken seriously in every healthcare facility. Nurses must be educated on the best practice for wasting and administering controlled substances and the signs of opioid diversion.

Section 5 Personal Reflection

What are some strategies you can implement in your workplace to help prevent opioid diversion?

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Section 5 Key Words

Diversion - When medications are illegally moved from their intended location to another for personal use or distribution to others

Controlled substances - Medications with a high risk of misuse or dependence and significant adverse effects when given in large doses and require a physician prescription and safeguards during administration in healthcare facilities

Wasting of medications - A process required for any controlled substance that remains in a single use vial or prefilled containers and any unused controlled substances

Medication dispensing unit - A device used in healthcare facilities to house medications and provide safeguards and reports when nurses access and waste medications

Controlled substance waste area - Designated area that binds the controlled substances and makes it difficult for someone to illegally access the medication

Section 6: The Opioid Epidemic

References: 14, 15, 16, 19, 29, 30, 32

The United States is currently in an opioid epidemic. Opioid use disorder can be traced back to the overprescribing of opioids in the 1990s. In the 1990s, prescribing opioids increased in an attempt to adequately treat patients' pain. Healthcare providers began to think of pain as "the fifth vital sign" and put an intense focus on eliminating patients' pain. Thinking of pain as a vital sign forced healthcare professionals to frequently assess pain with the goal of doing everything possible to eliminate pain. With the focus on treating pain, the potential risk for opioid misuse and addiction was often downplayed, especially in opioid marketing campaigns.

According to the CDC, there are three waves of the opioid epidemic. In the 1990s, opioid overdoses and deaths were due to the misuse of prescription opioids. Healthcare providers overprescribed opioids in hopes of adequately treating pain which caused many patients to develop tolerance and opioid use disorder. The second wave of the opioid epidemic occurred in the 2000s when many opioid overdoses and deaths involved heroin use. Heroin is an illegal opioid made from morphine and can be extremely addictive. Between 2002 and 2011, research shows that 25 million people in the United States used opioids for nonmedical use.

The third wave of the epidemic started in 2013 when many opioid overdoses and deaths involved synthetic opioids such as fentanyl. Natural opioids, such as morphine and codeine, are made from certain varieties of poppy plants. Synthetic opioids are medications that are manufactured in a laboratory setting and can be a lot more potent than natural opioids. Fentanyl is a common synthetic opioid and

is often illegally mixed into counterfeit pills to increase the potency. Many opioid overdose deaths include other drugs.

According to the CDC in 2021, opioid overdose deaths had increased more than six times the number of deaths in 1999. In 2021, 220 people died of an opioid overdose each day. As of 2017, the United States declared opioid overdose a national emergency. The opioid epidemic can adversely affect patients, families, healthcare facilities, and public health resources.

Stigmatization of the Opioid Epidemic

Many stigmas surround the opioid epidemic and those that suffer from opioid use disorder. The World Health Organization defines a stigma as disapproval or discrimination of a person or group of people that results from ignorance, judgment, or false information. Stigmas can result in people being excluded from certain aspects of society. Isolating language and biased media coverage can contribute to stigmas of opioid use disorder. Many times, the media focuses on the individuals who suffer from opioid use disorder as the contributors to the opioid epidemic. There is often not a lot of media coverage on the responsibilities of the healthcare system and pharmaceutical companies in the opioid epidemic. People who suffer from opioid use disorder are often portrayed as problematic and incapable of maintaining a responsible lifestyle. The use of fentanyl and intravenous medications for nonmedical use are highly stigmatized. Because of these negative stigmas, individuals suffering from opioid use disorder may be less likely to seek out treatment. Individuals may be fearful of social isolation, discrimination, and even criminalization when struggling with opioid use disorder.

Communities can be stigmatized as well. The opioid epidemic especially impacts communities with high levels of poverty and lack of access to education and healthcare. These communities often are the ones who need the most help and resources to fight the opioid epidemic, but are often ignored due to negative bias. Stigmas can lead to lack of funding and support for opioid treatment programs

and prevention education. Identifying inclusive language for legislation and increasing federal and local government support can help improve access to education and treatment programs. Communities should focus on involving people with real experience with opioid use disorder in legislation and prevention strategies, as well as promoting opioid use disorder prevention education to healthcare providers and the public.

Efforts to Fight the Opioid Epidemic

Many efforts have been made to fight the opioid epidemic on a local and national level. Many federal organizations have implemented initiatives to provide resources for preventing and treating opioid use disorder including the United States Department of Health and Human Services, the CDC, the Food and Drug Administration, and the Agency for Healthcare Research and Quality. Federal legislation has also been passed to help healthcare professionals fight the opioid epidemic. The Mainstreaming Addiction Treatment (MAT) Act expanded the ability for all healthcare providers to prescribe medications to treat opioid use disorder. The Comprehensive Addiction and Recovery Act (CARA) in 2016 helped decriminalize low offense drug crimes and expanded programs for opioid use disorder treatment referrals and access to naloxone. The Substance Use Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act in 2018 allowed all healthcare providers to prescribe buprenorphine for treating opioid use disorder. These legislations are just a few of the important interventions in fighting the opioid epidemic.

The CDC helps fund the Overdose Data to Action (OD2A) which helps public health departments nationwide monitor opioid misuse and implement prevention strategies. Prevention strategies include data collection of opioid overdoses and related deaths, improving access to opioid use disorder treatment options, monitoring the prescription of opioids, and partnering with first responders to improve overdose treatment and prevention.

The CDC has also published extensive recommendations for prescribing opioids for pain management and decreasing opioid use disorder rates. CDC recommendations for using opioids for pain management include:

- Only considering opioids for pain relief when the benefits outweigh the risks
- Prescribing the lowest dose for the shortest amount of time
- Ongoing monitoring of patients using opioids for pain management
- Following up with patients one to four weeks after initiation of opioids and every three months while continuing opioid pain management
- Deterring concurrent prescriptions of opioids and benzodiazepines to prevent adverse interactions
- Treatment recommendations for patients with opioid use disorder

CDC recommendations for decreasing opioids use disorder rates and preventing adverse effects include:

- Increasing public awareness of opioid use disorder and treatment options
- Monitoring local and national data of opioid use disorder to better understand the opioid epidemic and its effects
- Promoting research in opioid use disorder, prevention, and treatment
- Partnering with local and national organizations to help fight the opioid epidemic and spread public awareness
- Increasing local and federal resources for opioid use disorder prevention and treatment
- Supporting healthcare facilities and healthcare professionals in preventing and treating opioid use disorder, overdose, and hospitalizations

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The awareness of national and local prevention efforts help healthcare professionals and communities prevent opioid overdoses and decrease opioid related deaths. Nurses have a responsibility to be informed of the latest legislation and treatment options in their own communities, especially those at high risk of opioid misuse.

The Use of Naloxone in the Opioid Epidemic

Naloxone has been shown to be an essential part in fighting the opioid epidemic. Naloxone is the gold standard for opioid reversal agents and can reverse adverse effects such as respiratory depression. Naloxone can be used as a nasal spray or an injection. Naloxone is very safe to use and can save the life of someone who has overdosed on opioids. It is important for the public to understand that naloxone cannot cause harm to a patient who has overdosed on opioids. The best practice is to always administer naloxone if opioid overdose symptoms are present.

Naloxone is becoming more accessible and prevalent in the United States. Research shows that providing access to naloxone to communities can reduce opioid related deaths. According to the CDC, 40% of opioid overdose deaths occur with another person present. Increasing access and education of naloxone can decrease the number of opioid related deaths.

Nurses can play an important role in the accessibility of naloxone by educating the public on how and when to use naloxone and the signs of an opioid overdose. Education for cardiopulmonary resuscitation (CPR) can also help prevent opioid related deaths. Naloxone can now be found in every US state at many pharmacies, healthcare facilities, and community programs designed to prevent opioid overdoses. Anyone can seek out education on the administration of naloxone and obtain doses without a patient specific prescription. First responders such as police officers and paramedics now carry naloxone with them in case they respond to a patient who has overdosed on opioids. Healthcare providers should

also consider offering naloxone to patients who exhibit risk factors of opioid use disorder.

Section 6 Personal Reflection

What are some ways you can get involved in your community to educate people about the opioid epidemic and prevention strategies for opioid overdose?

Section 6 Key Words

Opioid epidemic - The national public health crisis due to the increase of the prescribing of opioids and the use of opioids for nonmedical use

Nonmedical use - Using prescription medications without healthcare provider supervision and not in the way that the medication is intended for use

Heroin - An illegal opioid made from morphine and can be extremely addictive

Natural opioids - Medications such as morphine and codeine made from certain varieties of poppy plants and used to treat pain

Synthetic opioids - Medications such as fentanyl that are manufactured in a laboratory setting and can be a lot more potent than natural opioids

Fentanyl - A synthetic opioid used for treating severe pain and is 50 to 100 times more powerful than morphine

Stigma - The disapproval or discrimination of a person or group of people that results from ignorance, judgment, or false information and can result in people being excluded from certain aspects of society

Naloxone - An opioid antagonist that quickly reverses the effects of opioids

Section 7: Non-pharmacological Pain Management

References: 6, 10, 11, 23, 24, 31, 33, 34, 35

Non-pharmacological therapies can be a great alternative to using opioid analgesics for pain management. Non-pharmacological therapy is any intervention that helps reduce pain without using medication. Examples of non-pharmacological therapy include:

- Relaxation techniques
- Hot or cold therapy
- Immobilization and rest
- Music
- Massage
- Breathing exercises
- Meditation
- Distraction
- Cognitive behavior therapy
- Physical therapy and exercise
- Guided imagery

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Non-pharmacological therapy can be used with or without pharmacological therapy to treat pain. Many times, non-pharmacological therapy can be effective pain management for mild acute pain. Even when opioid analgesics may be required for more severe pain, non-pharmacological therapy can be a supplemental treatment and help reduce the need for opioid medications.

Distraction is a common form of non-pharmacological pain management and is often used for children experiencing pain. Distraction is any method that moves the attention away from the pain. Methods of distraction can include music,

videos, games, conversation, and breathing exercises. Distraction can be helpful in reducing pain in pediatric patients. Interactive activities such as blowing bubbles, watching videos, toys with bright lights and sounds, and playing games can help reduce anxiety and distract patients from painful procedures. Music can be another very effective tool for pain management. Music can be used before, during, and after surgery to help relax patients and distract from postoperative pain. Research has found that listening to music before, during, and after surgery can help reduce anxiety and pain.

Meditation and guided imagery can be a helpful form of non-pharmacological pain management. Meditation is a practice of focusing the mind to reduce pain, stress, or anxiety. Meditation can be done alone or with the guidance of a professional and involves consistent practice and repetition. Patients can use meditation to perform a body scan to help acknowledge and manage pain. The body scan technique involves being in a comfortable position and focusing on breathing. Then, focus on each body part and the sensations that accompany it. If pain is noticed, acknowledge the pain while focusing on breathing. This exercise can help the body relax and decrease pain.

Guided imagery is a relaxation technique that uses images to invoke relaxing and positive feelings. The goal of guided imagery is to stimulate natural responses of relaxation such as lowering the blood pressure and the heart rate, slowing the respiratory rate, and decreasing stress and pain. Guided imagery focuses on choosing a comfortable and quiet place without any distractions. Patients can close their eyes to help focus on whatever image brings upon relaxation. It is important to instruct patients to engage all senses and to visualize the scene in detail for as long as needed. Guided imagery is something nurses can help patients practice at any point when experiencing pain. Patients can use this practice in any environment and often find this a comforting pain management technique at home.

Cognitive behavior therapy can be beneficial in managing chronic pain. Cognitive behavior therapy is a form of psychological treatment that involves a professional helping patients recognize negative thought patterns and develop skills to cope with daily challenges. Cognitive behavior therapy is unique to each patient and can help patients self-manage their pain. Patients can learn to adjust their perception and mindset of their pain and treatment options. Cognitive behavior therapy can also help patients suffering from chronic pain increase participation in activities that improve their overall quality of life.

Massage, exercise, and physical therapy are all forms of physical interventions for managing pain. Massage is a form of therapeutic touch where a trained professional uses touch and pressure to loosen tight muscles. Touch and pressure can help block pain signals and can promote relaxation by improving the blood flow to muscles. Exercise can involve all forms including walking, swimming, stretching, and yoga. Consistent moderate exercise can help patients reduce stress and improve mobility. While pain can often restrict patients ability to exercise, certain types may help patients improve their pain. It is important to educate patients to discuss with their healthcare team to determine what type of exercise would be beneficial in their pain management. Physical therapy involves working with a trained professional to use exercise and movement to improve strength and flexibility. Research shows that improving strength and flexibility can help chronic painful conditions such as arthritis, nerve pain, and fibromyalgia. Physical therapy and exercise can promote relaxation and stress reduction while improving patients' overall quality of life.

Nurses should always advocate for non-pharmacological strategies in pain management, with or without including medications. Non-pharmacological interventions are often underused in pain management due to lack of awareness and education. Many non-pharmacological interventions require patients to understand how to maintain the therapies on their own. It is important to advocate for support and collaboration with the healthcare team to develop the best pain management plan possible.

Section 7 Personal Reflection

Which non-pharmacological intervention would you personally use to decrease pain? Which intervention do you think would be difficult to maintain?

Section 7 Key Words

Non-pharmacological therapy - Any intervention that helps reduce pain without using medication

Distraction - A form of non-pharmacological therapy that moves the attention away from the pain and can include music, videos, games, conversation, and breathing exercises

Meditation - A practice of focusing the mind to reduce pain, stress, or anxiety

Guided imagery - A relaxation technique that uses images to invoke relaxing and positive feelings and to stimulate natural responses of relaxation such as lowering the blood pressure and the heart rate, slowing the respiratory rate, and decreasing stress and pain

Cognitive behavior therapy - A form of psychological treatment that involves a professional helping patients recognize negative thought patterns and develop skills to cope with daily challenges

Massage - A form of therapeutic touch where a trained professional uses touch and pressure to loosen tight muscles

Physical therapy - A form of therapy with a trained professional to use exercise and movement to improve strength and flexibility

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Section 8: Case Study #1

The nurse is caring for a 16-year-old patient who has arrived in the emergency department after a football injury. The nurse observes that the patient is grimacing and holding their lower back while sitting on the stretcher. The nurse asks the patient to rate their pain on a scale of 0 to 10 with “10” being the worst possible pain. The patient responds that their pain is a “10” and is “the worst pain they have ever felt”. The nurse inspects the patient’s lower back and observes redness and bruising. The patient cries out when the nurse palpates their lower back.

1. In this situation, what additional information would the nurse want to obtain during the pain assessment?
2. What type of pain do you think the patient is experiencing?

Section 9: Case Study #1 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. In this situation, what additional information would the nurse want to obtain during the pain assessment?

   The nurse would want to identify the cause, quality, location, and severity of the patient’s pain. The patient has identified the severity based on the numeric rating scale and the location. The nurse should ask the patient follow up questions to determine what quality of pain the patient is experiencing. The nurse should also observe objective data such as vital signs changes and nonverbal behaviors. The nurse knows that obtaining a comprehensive pain assessment will help in ensuring the patient’s pain management strategy is adequate. After a comprehensive pain assessment

is completed, the nurse can work with the patient and the healthcare team in determining what type of pain interventions will be most effective.

2. What type of pain do you think the patient is experiencing?

   The patient's pain appears to be acute pain as it is a sudden onset and caused by a specific event, in this case a football injury. Because the patient rates their pain as a "10" on a 0 to 10 scale, their pain would qualify as severe. The patient's pain may be resolved if the football injury is treated, but because the pain is severe the patient may require pharmacological medication to immediately treat the pain. Because the patient is under 18 years of age, opioid analgesics should be cautioned against according to CDC recommendations.

Section 10: Case Study #2

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A nurse working in a pain clinic is performing an initial assessment on a patient who has arrived for a follow up appointment after their surgery. The patient had back surgery one week ago and has been prescribed opioid medications for postoperative pain management.

The patient reports that their pain has been manageable while taking the prescribed opioids. However, the patient states that they have not had a bowel movement in several days and have felt nauseous the past few days. The patient states that they read about the risks of taking opioids and are worried about becoming addicted to the medication. The patient states they had an uncle who died from an opioid overdose a few years ago. The patient states that they want to stop taking the medication right away and have not taken any pain medications today.

1. What risks of opioid medications do you think the patient is worried about?

2. What education can the nurse provide to the patient regarding taking opioid medications for postoperative pain relief?

Section 11: Case Study #2 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What risks of opioid medications do you think the patient is worried about?

   The patient may be concerned about the side effects of tolerance and physical dependence when taking opioid medications. Patients should be made aware of the adverse effects of opioids, including the risk of misuse and addiction. Overuse of opioids can cause the patient to build up tolerance, requiring an increased dose of opioids to adequately manage pain. The patient may be concerned about the risk of opioid overdose due to their uncle passing away from an opioid overdose a few years ago. Having a close personal experience to an opioid overdose can make the patient more cautious when using the medications themselves. The patient may also be concerned about the reported side effects of constipation and nausea that are common with opioid medications.

2. What education can the nurse provide to the patient regarding taking opioid medications for postoperative pain relief?

   The nurse should acknowledge the patient's concerns about opioid misuse and addiction. The nurse can help the patient continue to manage their pain while preventing adverse effects from the opioid medications. The nurse should educate the patient on the side effects of tolerance and physical dependence. The patient should have a reduced need for opioids as their body heals from surgery, but it is important that patients are informed of the potential adverse effects. The nurse should educate the

patient on the importance of slowly weaning off the opioids so as not to experience symptoms of withdrawal. This is especially important as the patient has expressed the desire to stop using the medications. Abruptly stopping the opioid use even after one week could cause the patient to experience adverse effects. The nurse should also educate the patient that constipation and nausea are common side effects of opioids. The nurse should provide education on interventions to improve the patient's constipation and nausea while tapering off the opioid medications. The nurse could also provide education about non-opioid analgesics and non-pharmacological pain interventions while decreasing the use of opioid analgesics.

Section 12: Case Study #3

A nurse is caring for a newly admitted patient with complaints of abdominal pain. The patient consistently rates their pain as a "10" on a 0 to 10 scale. The patient has morphine ordered PRN and has requested the nurse bring in the medication as soon as it can be administered. Upon admission, the nurse notes the patient appears to have poor personal hygiene, diaphoresis, and tachycardia. The patient appears anxious and agitated and is complaining of nausea in addition to their severe pain.

After the nurse has administered two repeated doses of morphine, the patient continues to appear anxious and agitated. The patient states that the medication is not helping and asks the nurse if the medication dose can be increased. The nurse understands that the patient is exhibiting signs of opioid use disorder and asks the patient if they have ever used opioids in the past. The patient states they have used several different kinds of opioids for chronic back pain and recently had an unsuccessful attempt to wean off of their home pain medications.

1. What signs of opioid use disorder is the patient experiencing?

2. What education can the nurse provide to the patient regarding treatment options for opioid use disorder?
3. What medication may be the best option for the patient to use for opioid use disorder treatment?

Section 13: Case Study #3 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What signs of opioid use disorder is the patient experiencing?

   The patient is experiencing several signs of opioid use disorder. The patient has a history of chronic opioid use, which puts them at risk for opioid use disorder. The patient appears anxious and agitated and continues to complain of unrelieved pain despite opioid interventions. Poor personal hygiene, diaphoresis, and tachycardia are also all signs of opioid use disorder. The patient asks for the morphine to be administered as soon as possible and asks if the dose can be increased after several administrations without decreasing pain. This can indicate that the patient is experiencing tolerance and dependence on opioid medications. The nurse should advocate for a more in-depth assessment of opioid use disorder to ensure the patient meets at least two or more of the criteria within one year for diagnosis. A diagnosis of opioid use disorder can help identify the best treatment plan for the patient's abdominal pain and prevention of opioid use disorder and addiction.

2. What education can the nurse provide to the patient regarding treatment options for opioid use disorder?

The nurse should educate the patient on treatment options for opioid use disorder and alternate treatment options for their abdominal pain. Treatment of opioid use disorder should include a combination of medications and counseling and should be individualized for each patient. Medications such as methadone, buprenorphine, and naloxone can help decrease withdrawal symptoms and the urge to use opioids. Patients should be educated on the potential side effects of these medications including respiratory depression, dependence, and adverse reactions with other medications. Patients should know that these medications require a prescription and must be monitored closely by a healthcare provider. Counseling, support groups, or an inpatient treatment facility can also help treat opioid use disorder. The nurse can offer alternative pain management strategies such as non-opioid analgesics and non-pharmacological interventions. The patient may benefit from a combination of pain medications and non-pharmacological interventions such as relaxation strategies, heat or cold therapy, or distraction. It is important that the nurse inform the patient of all their options and discuss potential treatment plans with their provider.

3. What medications may be good options for the patient to use for opioid use disorder treatment?

   The patient may benefit from methadone, buprenorphine, or naloxone. Methadone can help decrease withdrawal symptoms and the urge to use opioids. Methadone can be used as a long-term treatment option, but does have a lot of side effects that patients should be aware of. Methadone can only be administered by certified opioid treatment programs and requires close monitoring and gradual tapering of dosage to prevent withdrawal symptoms. Buprenorphine can also be used to decrease withdrawal symptoms and can be prescribed by any healthcare provider which can increase access. Buprenorphine can also have serious side effects including dependency and overdose. Naloxone is often prescribed with

buprenorphine to decrease the risk of misuse. Naloxone can quickly reverse the effects of opioids and is the gold standard reversal agent for opioid overdose. Naloxone can be good for the patient to assist in treatment for opioid use disorder and in case the patient experiences an opioid overdose.

Section 14: Case Study #4

A nurse is working in an intensive care unit with a coworker who they believe may be diverting opioid medications. The nurse has noticed their coworker offering to waste medications for other patients and storing controlled substances in their pockets. The nurse has also noticed that the coworker's patients report having unrelieved pain even with interventions. The coworker has recently had multiple unexplained absences and appears forgetful while at work. The nurse is unsure what to do, but is concerned about patient safety.

1. What adverse effects can opioid diversion have on healthcare professionals and healthcare facilities? What adverse effects can opioid diversion have on patient safety and public health risks?
2. What kind of policies should healthcare facilities have in place to prevent opioid diversion?
3. What interventions can the nurse do to ensure that they are doing their part in preventing opioid diversion?

Section 15: Case Study #4 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What adverse effects can opioid diversion have on healthcare professionals and healthcare facilities? What adverse effects can opioid diversion have on patient safety and public health risks?

   Adverse effects of opioid diversion on healthcare professionals include opioid use disorder, overdose, or death. Healthcare professionals can lose their job and license, face criminal prosecution and medical malpractice lawsuits if caught diverting medications. Adverse effects on healthcare facilities include loss of eligibility for Medicare and Medicaid reimbursement, medical malpractice lawsuits, fines, and decreased public trust. Adverse effects on patients include unrelieved pain, risk of infection from contaminated syringes or vials, decreased levels of care due to impaired healthcare professionals, and theft of medications. Public health risks can include outbreaks of infections such as hepatitis C, increased rates of opioid use disorder, and hospitalizations and deaths relating to opioid use.

2. What kind of policies should healthcare facilities have in place to prevent opioid diversion?

   Healthcare facilities must have a culture that encourages nurses to speak up if they believe someone is diverting medications. Nurses may be afraid to speak up out of fear of negative consequences or a lack of education on the importance of identifying signs of diversion. Having systems in place such as surveillance and safeguards on medication wasting and administration can help healthcare facilities prevent diversion. Surveillance should focus on patterns of diversion behaviors. Healthcare facilities can install video monitoring of high traffic areas, such as the medication room and medication dispensing units. Tracking data from the pharmacy and medication dispensing units can help identify discrepancies and nurses who are exhibiting diversion behaviors when accessing and wasting medications. Collaboration with pharmacists can also help prevent opioid diversion. Only

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providing small doses or pre-filled syringes can decrease the need for nurses to waste medications. Pharmacists can also help detect signs of diversion through audits of medication dispensing units and nursing administration reports.

3. What interventions can the nurse do to ensure that they are doing their part in preventing opioid diversion?

   Nurses can help prevent opioid diversion by ensuring they are applying the best practices to medication wasting and administration and reporting any barriers. Nurses should ensure they are always wasting medications at the medication dispensing units and using appropriate controlled substance waste areas when wasting medications. An appropriate controlled substance waste area binds the medications and makes it difficult for someone to illegally access the medication. Nurses should always witness in person the medication they are asked to waste and ensure they log out of the medication dispensing units after use. Nurses should report any suspicions of opioid diversion to the appropriate leadership right away and always speak up to ensure patient safety.

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Section 16: Case Study #5

A nurse working in a community health clinic has noticed an increase in patients suffering from opioid use disorder and wants to help improve access to opioid misuse treatment options and education. The nurse knows that their community has a high rate of opioid use disorder and opioid related deaths. They express their concerns to the clinic director, but are told that the clinic does not have any funding to use towards opioid misuse prevention. The director states “I do not know why you want to help those people anyway. Anyone who uses drugs is a bad person.” The nurse is still determined to improve treatment options and seeks out a meeting with their local government officials.

1. What are some common barriers to access to opioid use disorder treatment and education?
2. What are some other interventions the nurse can advocate for to improve access to treatment options and education?
3. What legislation and initiatives can the nurse use to help bring awareness and education to their community regarding the opioid epidemic?

Section 17: Case Study #5 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What are some common barriers to access to opioid use disorder treatment and education?

   The nurse is facing several barriers in helping improve access to opioid misuse treatment options and education. Stigmatization of opioid use disorder and the opioid epidemic can cause barriers to treatment access and prevention. People who suffer from opioid use disorder are often isolated and treated as less worthy of receiving medical care. The director clearly has a negative perception of opioid use disorder by stating “I do not know why you want to help those people anyway. Anyone who uses drugs is a bad person.” Communities with high levels of poverty and lack of access to treatment options can be ignored due to negative bias. The lack of federal and local legislation, education, and funding can severely impact community access to opioid misuse treatment options and education.

2. What are some interventions the nurse can advocate for to improve access to treatment options and education?

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The nurse can advocate for the use of naloxone in preventing opioid overdose deaths. Research shows that providing access to naloxone to communities can reduce opioid related deaths. Nurses can play an important role in the accessibility of naloxone by educating the public on how and when to use naloxone and the signs of an opioid overdose. Education for cardiopulmonary resuscitation (CPR) can also help prevent opioid related deaths. Naloxone can now be found at many pharmacies, healthcare facilities, and community programs designed to prevent opioid overdoses. Anyone can seek out education on the administration of naloxone and obtain doses without a patient specific prescription. First responders such as police officers and paramedics now carry naloxone with them in case they respond to a patient who has overdosed on opioids. Healthcare providers should also consider offering naloxone to patients who exhibit risk factors of opioid use disorder. Education on opioid use disorder, the signs of opioid overdose, and at risk populations can be helpful in decreasing the stigma around opioid use disorder. The nurse can advocate for more education for healthcare providers and the public.

3. What legislation and initiatives can the nurse use to help bring awareness and education to their community regarding the opioid epidemic?

   Many federal organizations have implemented initiatives to provide resources for preventing and treating opioid use disorder including the United States Department of Health and Human Services, the CDC, the Food and Drug Administration, and the Agency for Healthcare Research and Quality. Federal legislation has also been passed to help healthcare professionals fight the opioid epidemic. The Mainstreaming Addiction Treatment (MAT) Act expanded the ability for all healthcare providers to prescribe medications to treat opioid use disorder. The Comprehensive Addiction and Recovery Act (CARA) in 2016 helped decriminalize low offense drug crimes and expanded programs for opioid use disorder treatment referrals and access to naloxone. The Substance Use Disorder

Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act in 2018 allowed all healthcare providers to prescribe buprenorphine for treating opioid use disorder. The CDC has also published extensive recommendations for prescribing opioids for pain and decreasing opioid use disorder rates. Organizations such as Narcotics Anonymous, SMART Recovery, and the SAMHSA Center for Substance Abuse Treatment can help patients find the right treatment plan.

Section 18: Case Study #6

The nurse is caring for an elderly patient with a history of arthritis who is complaining of chronic joint pain in their knees. The patient states they have tried many different pain medications with little relief and expresses frustration in their pain management plan. The patient states they have great difficulty using their stairs at home and cannot play with their grandchildren. The nurse knows that non-pharmacological therapies can help the patient decrease their chronic pain. After suggesting non-pharmacological therapy, the patient states they do not have much knowledge of pain management strategies besides pain medications.

1. What non-pharmacological interventions could the nurse recommend for this patient?
2. What barriers may the patient face when implementing non-pharmacological interventions into their pain management plan?

Section 19: Case Study #6 Review

This section will review the case studies that were previously presented in each section. Responses will guide the clinician through a discussion of potential answers as well as encourage reflection.

1. What non-pharmacological interventions could the nurse recommend for this patient?

   The nurse could suggest meditation, guided imagery, cognitive behavior therapy, physical therapy, exercise, and massage for the patient's pain. Meditation can help the patient understand their pain and decrease their stress through breathwork and body scans. Guided imagery can also help reduce stress and promote relaxation. The patient can practice meditation and guided imagery on their own and in any environment. Cognitive behavior therapy can help the patient cope with the daily challenges of their chronic pain. Cognitive behavior therapy can help the patient work through their frustrations with their pain management plan and improve their overall quality of life. Physical therapy and exercise can help improve the patient's mobility. The patient is complaining of difficulty using their stairs and being unable to play with their grandchildren. Physical therapy and exercise could help the patient regain strength and mobility needed to complete these tasks. Massage can also help improve mobility and promote relaxation.

2. What barriers may the patient face when implementing non-pharmacological interventions into their pain management plan?

   The patient may face barriers in using meditation and guided imagery. These practices require consistent practice and repetition to be effective. If the patient is not consistent with meditation and guided imagery, they may not see adequate results and stop the practices. Physical therapy, massage, and cognitive behavior therapy all require a trained professional to work with the patient. The nurse should be mindful of the patient's financial situation and accessibility to these professionals when offering those interventions. Cognitive behavior therapy also requires consistent practice and can take time to yield results. The patient may become frustrated if they do not have realistic expectations for these treatments. The nurse

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should ensure they are educating the patient on realistic expectations and that many non-pharmacological pain interventions require consistency and time to decrease pain.

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Course Conclusion

Pain is a complex, subjective experience shaped by biological, psychological, and social factors, and it is one of the most common reasons patients seek care. Throughout this course, participants have explored how pain is perceived and classified, how to complete a thorough pain assessment using patient observation, active listening, and validated assessment tools, and how to work with patients to set specific, measurable, and realistic pain management goals.

Effective pain management combines pharmacological and non-pharmacological strategies tailored to each patient. Non-opioid and adjuvant medications, physical and psychological therapies, complementary approaches, and patient education all play a role. When opioids are necessary, nurses must monitor closely for adverse effects such as respiratory depression, tolerance, and physical dependence, and should follow current CDC recommendations to use the lowest effective dose for the shortest time.

Nurses are also on the front lines of the opioid epidemic. By recognizing the signs of opioid use disorder and opioid diversion, reducing stigma, advocating for access to treatment and naloxone, and educating patients and communities, nurses can help protect patient safety while ensuring that every patient receives compassionate, effective pain care.

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