

# The Science of Pain: Evidence-Based Approaches

## Welcome!

- All lines are muted, please ask your questions in Q&A
- For technical issues, chat to the 'Technical Support' Panelist
- Please actively participate in polling questions that will pop up on the lower righthand side of your screen

**We will get  
started shortly!**



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The Quality Improvement Services Group of  
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# The Science of Pain: Evidence-Based Approaches



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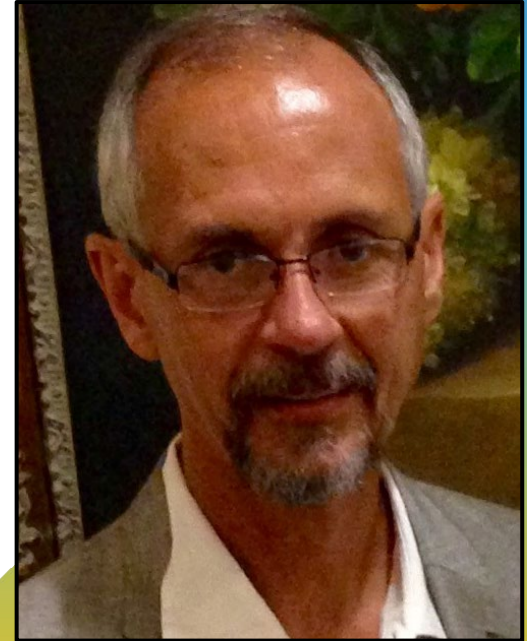
I have been a social worker for over 20 years in multiple areas of healthcare, primarily hospice. I have also worked in dialysis, home health, long-term care and inpatient hospital settings. I also worked in higher education as Director of Field Instruction at my alma mater, Valdosta State University. I have been a clinical reviewer for over five years with Alliant Health Solutions. I have been married for 23 years and have two children, a daughter and a son.

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# Dr. Hayden D. Center, Jr.

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Dr. Hayden D. Center, Jr. was most recently on faculty at Auburn University at Montgomery in the Department of Psychology, where he taught for ten years. He has taught at several universities over the past thirty years. He has also been a licensed professional counselor (LPC) specializing in addiction issues for over 30 years.



# Working With Communities to Address the Opioid Crisis

- SAMHSA's State Targeted Response Technical Assistance (STR-TA) grant created the *Opioid Response Network* to assist STR grantees, individuals and other organizations by providing the resources and technical assistance they need locally to address the opioid crisis.
- Technical assistance is available to support the evidence-based prevention, treatment and recovery of opioid use disorders.

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# Working With Communities to Address the Opioid Crisis

- The Opioid Response Network (ORN) provides local, experienced consultants in prevention, treatment and recovery to communities and organizations to help address this opioid crisis.
- The ORN accepts requests for education and training.
- Each state/territory has a designated team, led by a regional technology transfer specialist (TTS), who is an expert in implementing evidence-based practices.

# Contact the Opioid Response Network

- To ask questions or submit a request for technical assistance:
  - Visit: [www.OpioidResponseNetwork.org](http://www.OpioidResponseNetwork.org)
  - Email: [orn@aaap.org](mailto:orn@aaap.org)
  - Call: 401-270-5900

# Objectives

- After this workshop participants will:
  - 1) Understand the neurobiology of pain
  - 2) Know how opioids are used to relieve pain
  - 3) Identify other non-opioid evidence-based strategies used to treat pain



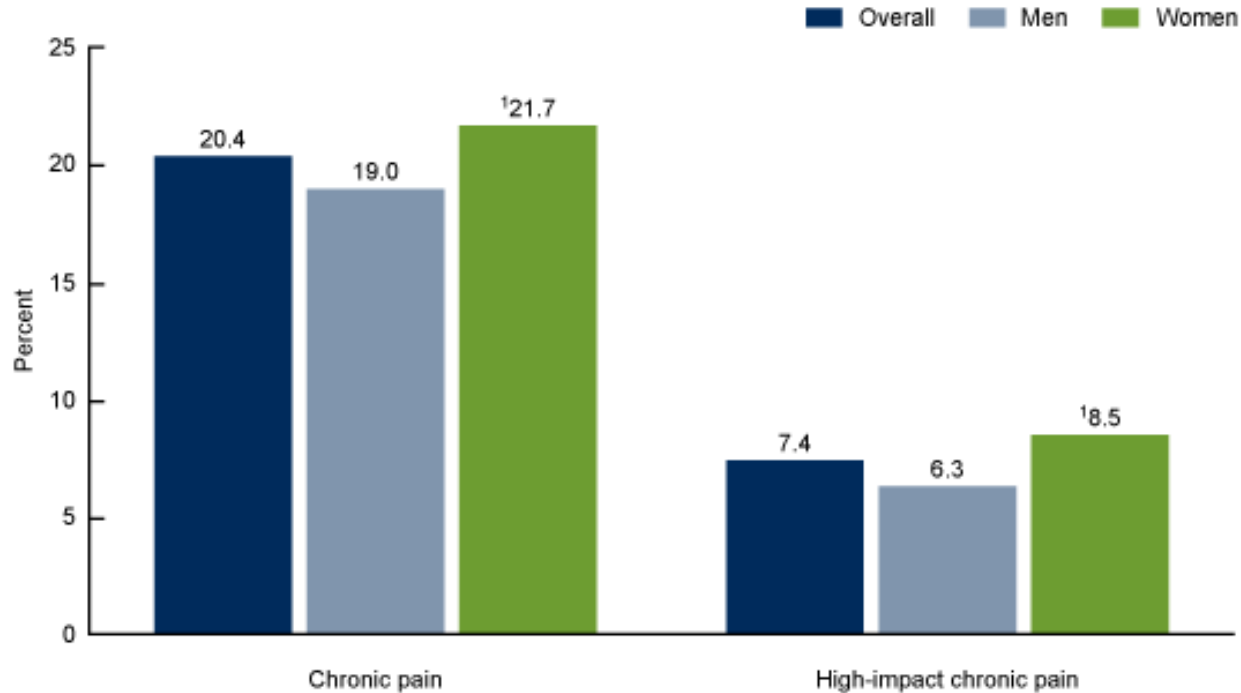
# Definition of Pain

- Highly unpleasant physical sensation caused by illness or injury
- Mental distress or suffering
- International Association for the Study of Pain (IASP) defines pain as:
  - An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in such terms.
- Pain is usually a subjective experience and a symptom

# Types of Pain

- **Nociceptive Pain** (sprains, bone fractures, burns, bruises)-special nerve ending that heal with time.
- **Neuropathic Pain** (shingles, neuralgia, phantom limb pain, Carpal Tunnel Syndrome /CTS, peripheral neuropathy)-nervous system dysfunction pain.
- **Mixed Category Pain** (migraine headaches)-complex mixture of nociceptive and neuropathic
- **Central Pain**-caused by dysfunction of nervous system such as Fibromyalgia

# Percentage of Adults Aged 18 and Over With Chronic Pain and High - Impact Chronic Pain in the Past Three Months, Overall and by Sex: United States, 2019



# Pain Emphasis

- The U.S. Congress declared 2001–2010 as the Decade of Pain Control and Research.
- Medical providers have been encouraged to take a more active role in chronic pain interventions, from identification of pain conditions to the provision of effective treatment.

# Pain

- The sensation of pain is a necessary function that warns the body of potential or actual injury. It occurs when a nociceptor fiber detects a painful stimulus on the skin or in an internal organ (peripheral nervous system).
- The detection of that signal is “picked up” by receptors at the dorsal horn of the spinal cord and brainstem and transmitted to various areas of the brain as sensory information.

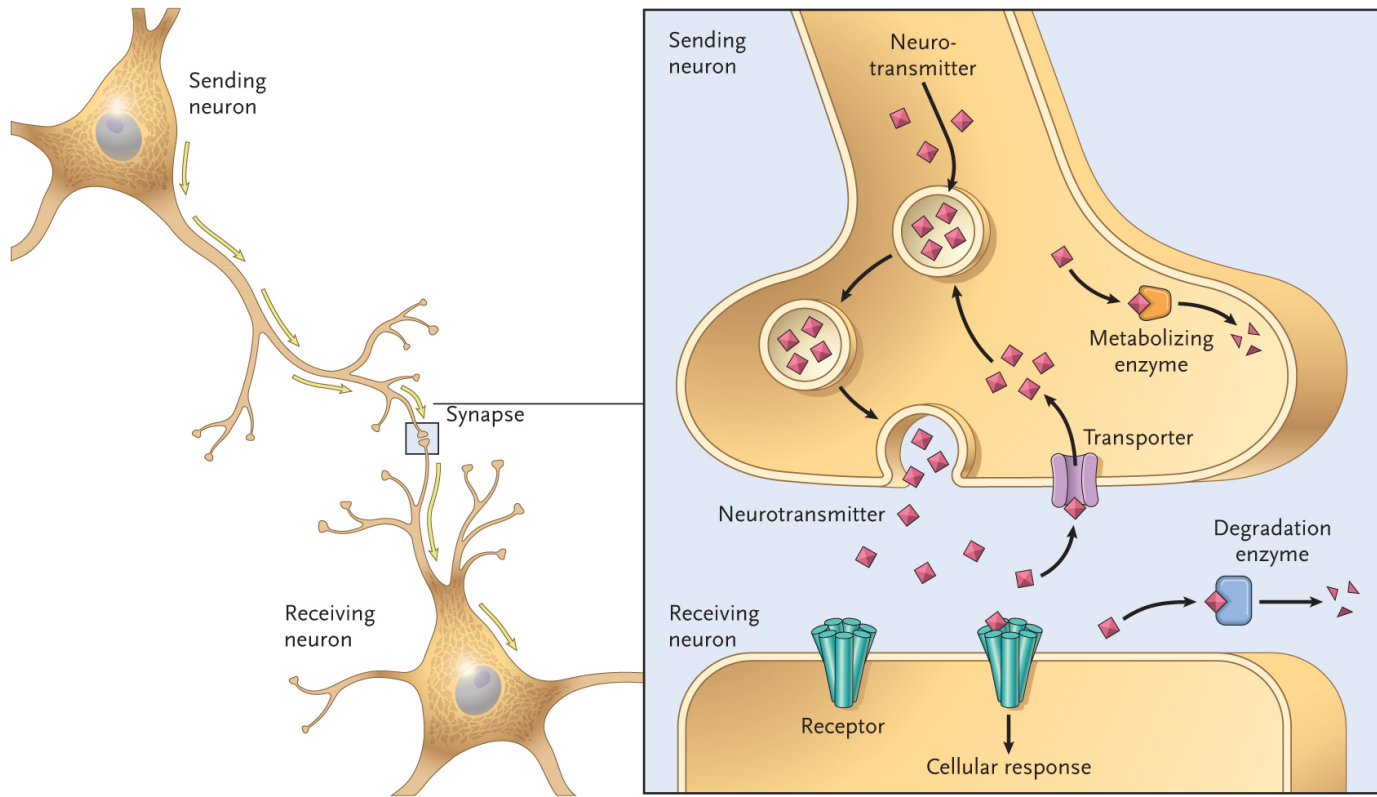
# Neurobiology of Pain

It is important to understand how pain is processed in the brain.

# Neurobiology of Pain

- Activation of an excitatory neurotransmitter receptor results in an electrical message that travels through a neuron to the axon terminal, where the release of neurotransmitters occurs.
- Excitatory neurotransmitters usually are responsible for providing energy, motivation, mental cognition and other processes that require brain and body activity.

## Generic Neurotransmitter System





# Neurobiology of Pain

- Nociceptors are specialized sensory receptors responsible for transforming painful stimuli into electrical signals, which travel to the central nervous system via neurotransmitters.
- Glutamate and substance P (SP) are the main neurotransmitters associated with the sensation of pain

# Opioids and Pain

- An opioid is a chemical that works by binding to opioid receptors, which are found principally in the central nervous system and the gastrointestinal tract.
- The receptors in these two organ systems mediate both the beneficial effects and the side effects of opioids.

# Breakout

In your breakout rooms, develop a list of the non-opioid approaches to treating pain.

# Effective Approaches

- Result in sustained improvements in pain and function without apparent risks
- Encourage active patient participation in the care plan
- Address the effects of pain in the patient's life

# Nonopioid Pharmacologic Treatments

- Nonpharmacologic therapies
  - Exercise therapy
  - Cognitive-behavioral therapy
  - Nonopioid pharmacologic treatments
  - Acetaminophen

# Effective Treatments for Chronic Pain Continued

- NSAIDs and COX-2 inhibitors
- Selected anticonvulsants (e.g., pregabalin, gabapentin)
- Selected antidepressants (tricyclics, SNRIs)
- Interventional approaches
- Multimodal and multidisciplinary therapies
- Local anesthetics
- Alpha-2 agonists

# Exercise Therapy

- High-quality evidence for reduced pain and improved function for hip or knee osteoarthritis
  - Immediately after treatment
- Improvements sustained for at least two to six months
- Can reduce pain and improve function in low back pain
- Can improve global well-being, fibromyalgia symptoms and physical function in fibromyalgia

# Cognitive Behavioral Therapy

- Addresses psychosocial contributors to pain and improves function
- Trains patients in behavioral techniques
- Helps patients modify situational factors and cognitive processes that exacerbate pain
- Has small positive effects on disability and catastrophic thinking



# Additional Approaches

- Biofeedback uses sensors that provide feedback in order to help people control processes that are usually involuntary and thus help with relaxation and coping.
- Mind–body interventions, including meditation, relaxation, mindfulness-based stress reduction (MBSR), and movement-based therapies such as yoga and tai chi.

# Mindfulness-Based Cognitive Therapy for Chronic Pain

- Abandoning the automatic habits of pain
- Facing the challenges
- Breathing as the anchor
- Learning how to be present
- Active acceptance
- Thoughts as only thoughts
- Caring for oneself
- Maintenance in the management of chronic pain

# Additional Approaches

- Interdisciplinary rehabilitation that combines physical and biopsychosocial approaches
- Classic integrative alternative or complementary therapies, including manipulation, acupuncture and massage
- Physical modalities such as ultrasound, transcutaneous electrical nerve stimulation (TENS), low-level laser therapy, traction and lumbar supports

# Questions

Questions or comments?



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# CMS 12<sup>th</sup> SOW Goals



## Behavioral Health Outcomes & Opioid Misuse

- ✓ Promote opioid best practices
- ✓ Decrease high dose opioid prescribing and opioid adverse events in all settings
- ✓ Increase access to behavioral health services



## Patient Safety

- ✓ Reduce risky medication combinations
- ✓ Reduce adverse drug events
- ✓ Reduce C. diff in all settings



## Chronic Disease Self-Management

- ✓ Increase performance on ABCS clinical quality measures (i.e., aspirin use, blood pressure control, cholesterol management, cardiac rehab)
- ✓ Identify patients at high-risk for developing kidney disease & improve outcomes
- ✓ Identify patients at high risk for diabetes-related complications & improve outcomes



## Quality of Care Transitions

- ✓ Convene community coalitions
- ✓ Identify and promote optimal care for super utilizers
- ✓ Reduce community-based adverse drug events



## Nursing Home Quality

- ✓ Improve the mean total quality score
- ✓ Develop national baselines for healthcare related infections in nursing homes
- ✓ Reduce emergency department visits and readmissions of short stay residents

## Making Health Care Better *Together*



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# Making Health Care Better *Together*

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