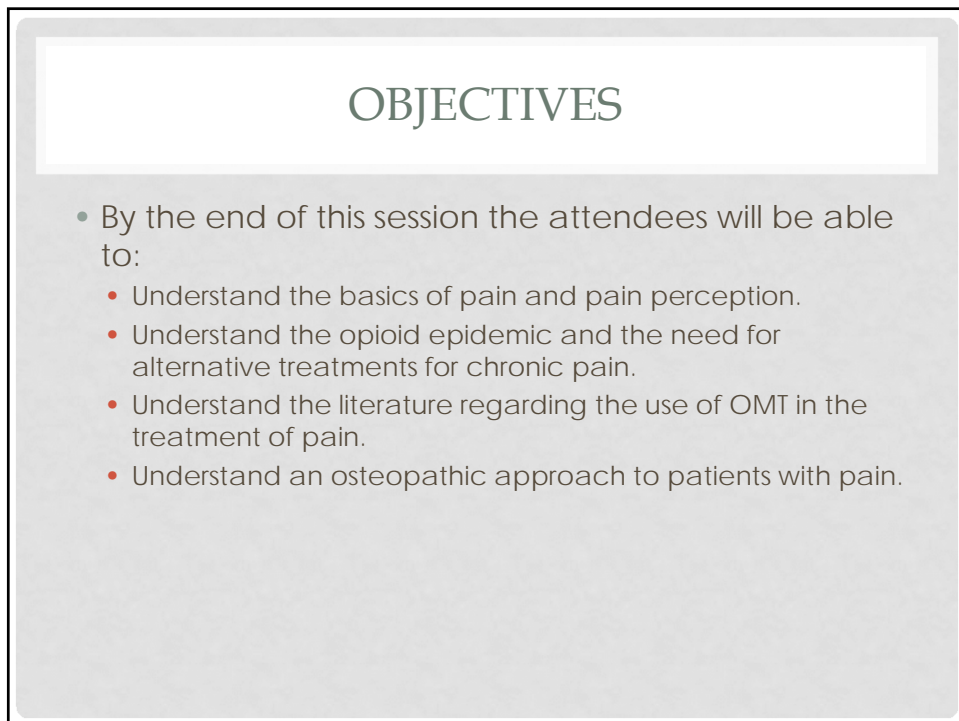




OMM: PAIN MANAGEMENT FOR  
REDUCING THE NEED FOR  
MEDICATIONS

JORDAN KEYS D.O. M.S.

The slide features a light gray background with a white rectangular area containing the title and author's name. To the right of the text is a vertical rectangular graphic with a gold-colored grid pattern.



OBJECTIVES

- By the end of this session the attendees will be able to:
  - Understand the basics of pain and pain perception.
  - Understand the opioid epidemic and the need for alternative treatments for chronic pain.
  - Understand the literature regarding the use of OMT in the treatment of pain.
  - Understand an osteopathic approach to patients with pain.

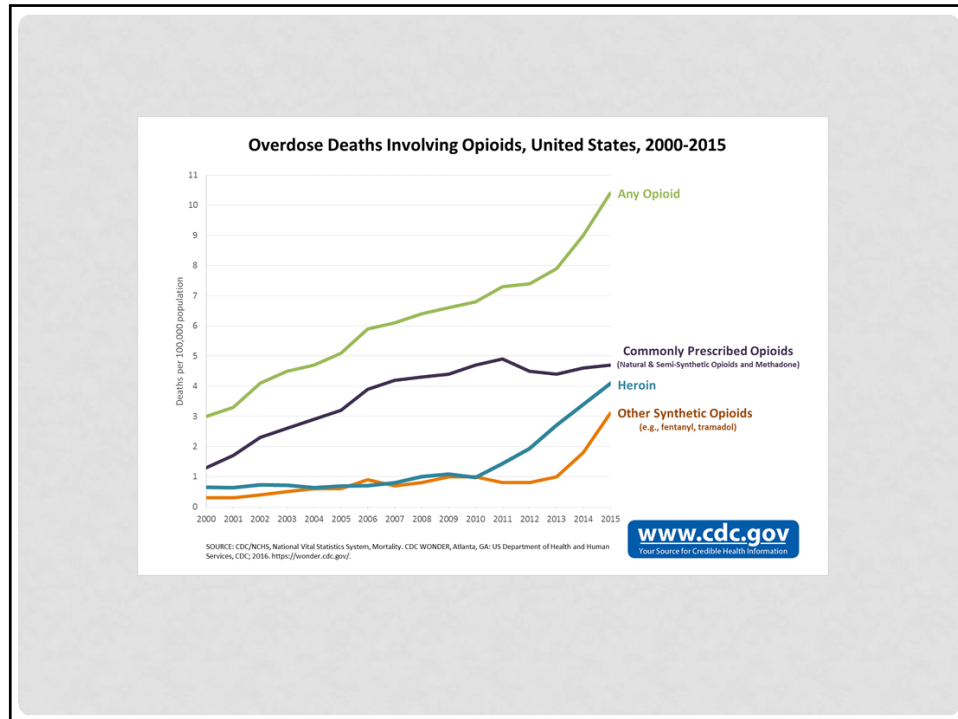
The slide has a light gray background with a white rectangular area at the top containing the word 'OBJECTIVES'. Below this, a list of objectives is presented in a bulleted format.

## OPIOID EPIDEMIC

- 6 out of every 10 drug overdoses involve an opioid.
- Since 1999, the number of overdose deaths involving opioids (prescription and heroin) has quadrupled.
- 2000-2015 more than half a million people died from drug overdoses.
- Death from prescription opioids has quadrupled since 1999.
- 91 Americans die everyday from opioid overdose.
- Overdose from prescription opioids is the driving factor for the 15 year increase.
- Since 1999, amount of prescription opioids sold in the U.S. nearly quadrupled (no overall change in reported pain).

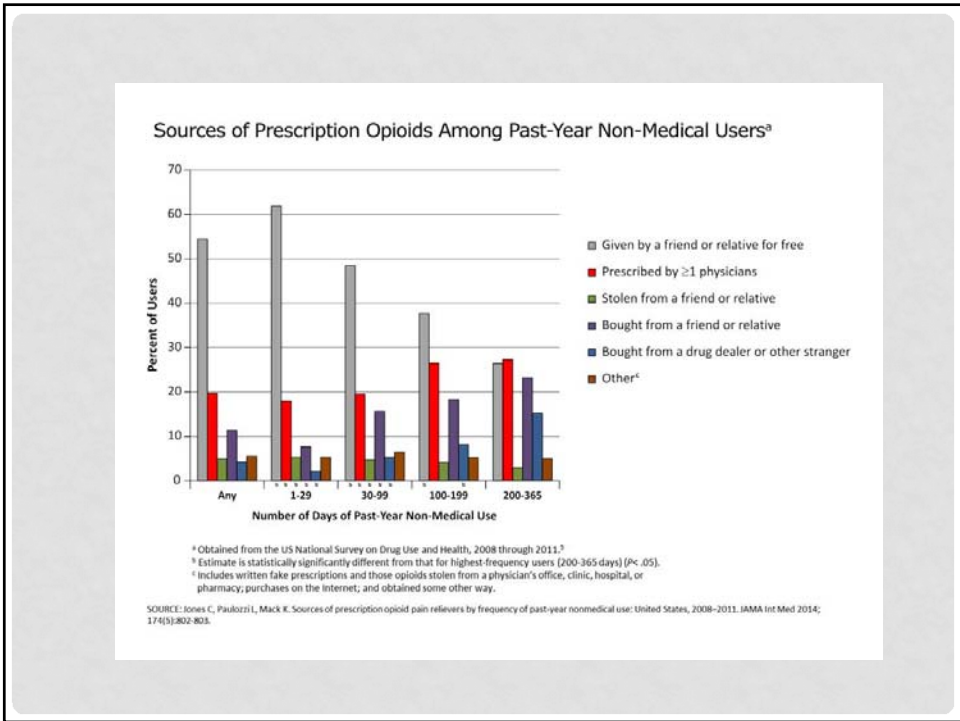
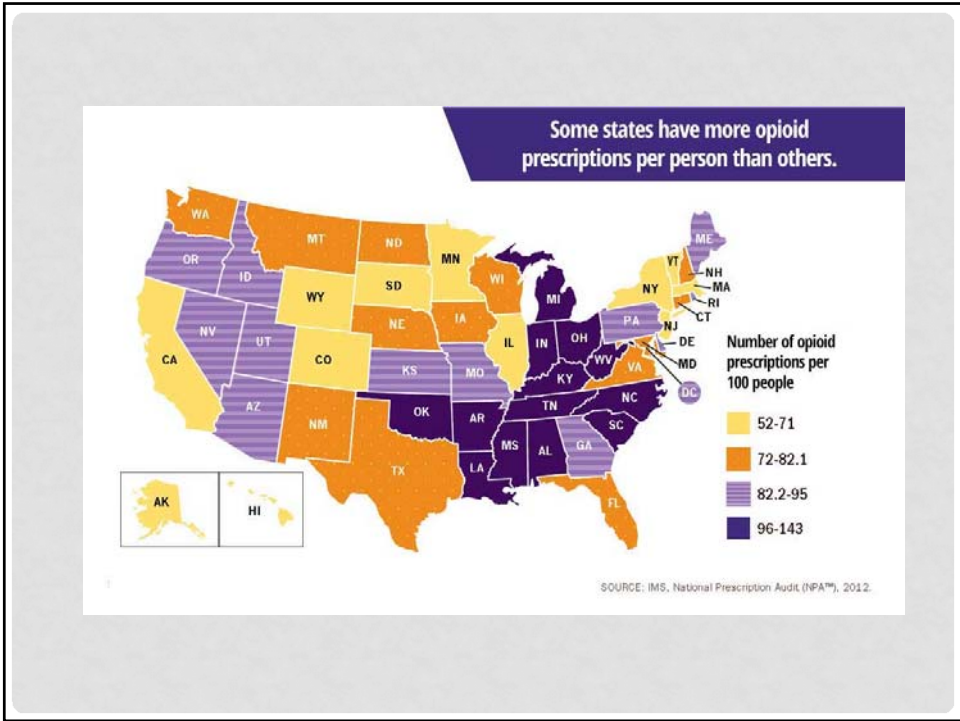
## OPIOID EPIDEMIC

- In 2014, almost 2 million Americans abused or were dependent on prescription opioids.
- As many as 1 in 4 people who receive prescription opioids long term for non-cancer pain in primary care settings struggles with addiction.
- Every day, over 1,000 people are treated in emergency departments for misusing prescription opioids.



## PRESCRIBING

- An estimated 1 out of 5 patients with non-cancer pain or pain-related diagnoses are prescribed opioids in office-based settings.
- From 2007 – 2012, the rate of opioid prescribing has steadily increased among specialists more likely to manage acute and chronic pain.
- Prescribing rates are highest among pain medicine (49%), surgery (37%), and physical medicine/rehabilitation (36%).
- However, primary care providers account for about half of opioid pain relievers dispensed.



### Heroin Use Has INCREASED Among Most Demographic Groups

	2002-2004*	2011-2013*	% CHANGE
<b>SEX</b>			
Male	2.4	3.6	50%
Female	0.8	1.6	100%
<b>AGE, YEARS</b>			
12-17	1.8	1.6	--
18-25	3.5	7.3	109%
26 or older	1.2	1.9	58%
<b>RACE/ETHNICITY</b>			
Non-Hispanic white	1.4	3	114%
Other	2	1.7	--
<b>ANNUAL HOUSEHOLD INCOME</b>			
Less than \$20,000	3.4	5.5	62%
\$20,000-\$49,999	1.3	2.3	77%
\$50,000 or more	1	1.6	60%
<b>HEALTH INSURANCE COVERAGE</b>			
None	4.2	6.7	60%
Medicaid	4.3	4.7	--
Private or other	0.8	1.3	63%

## PHILOSOPHY

- Osteopathic principles and philosophy permeate all aspects of health maintenance and disease prevention and treatment.
- 1. The body is a Unit; the person is a unit of body, mind and spirit.
- 2. Structure and function are reciprocally interrelated.
- 3. The body is capable of self-regulation, self-healing, and health maintenance.
- 4. Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation and the interrelationship of structure and function.

## PAIN

- Protective
- PNS, CNS, neural, endocrine and immune adaptations.
- Nociception vs. Pain (perception)
- Centralization/Facilitation
- "Pain is the experience that we associate with actual or potential tissue damage."
- Pain vs. Suffering



## PAIN

- Neuroplasticity
  - In the spinal cord, brainstem, and forebrain synaptic organization and function can change rapidly in response to nociceptive input.
  - Changes in neural functioning occurs with chronic pain vs. acute pain (fMRI, PET, SPECT and MEG).
  - Change in brain structure in chronic pain conditions.
  - Can contribute to the development of depression and anxiety.
  - Exogenous use of opioids alters bodies ability to respond to pain.
- Experiential:
  - Past Experiences
  - Upbringing
  - Cultural Influences
  - Thoughts
  - Emotions
  - Environment
  - Current Stressors
  - The way a person feels and thinks about their pain condition actually can affect the way they process and cope with pain.



# PAIN

- Acute Pain (protective/nociceptive):
  - Resolves with tissue recovery (i.e. post-op)
  - Eudynia (vs. Maldynia)
- Chronic (Nonterminal) Pain:
  - Complex Central Nervous System Signaling
  - Amplified by stressors
  - Biopsychosocial Condition (multi-disciplinary approach)
  - Acute pain treatment can be ineffective and dangerous.
  - Nociception can be disrupted or enhanced by descending modulation from the brain and brainstem. Bias towards greater nociceptive facilitation and less inhibition.
  - Predisposition

# MINE

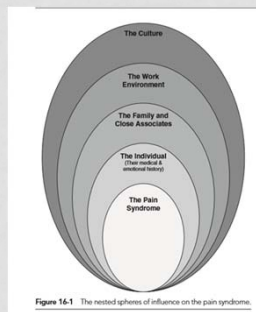


Figure 16-1 The nested spheres of influence on the pain syndrome.

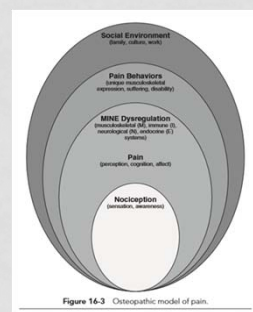
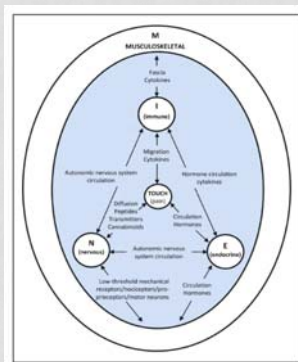


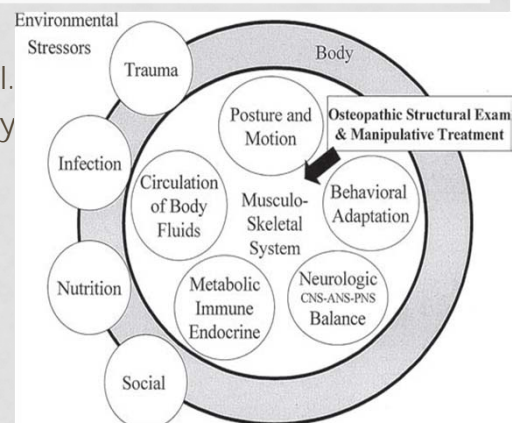
Figure 16-3 Osteopathic model of pain.

## CHRONIC PAIN SYNDROME

- Chronic pain becomes the focal point of the patients life.
- Body, Mind and Spirit.
- "It is fundamentally recognized that nociception sets in motion a conscious awareness of discomfort, thoughts, emotions and dysregulation of the MINE systems, which are displayed throughout the musculoskeletal system. Over time, the social environment responds to the pain, suffering and system dysregulation to further shape and reinforce each unique and highly individualized aspect of the pain presentation"
- Biopsychosocial model

## FIVE MODELS FOR PATIENT ASSESSMENT

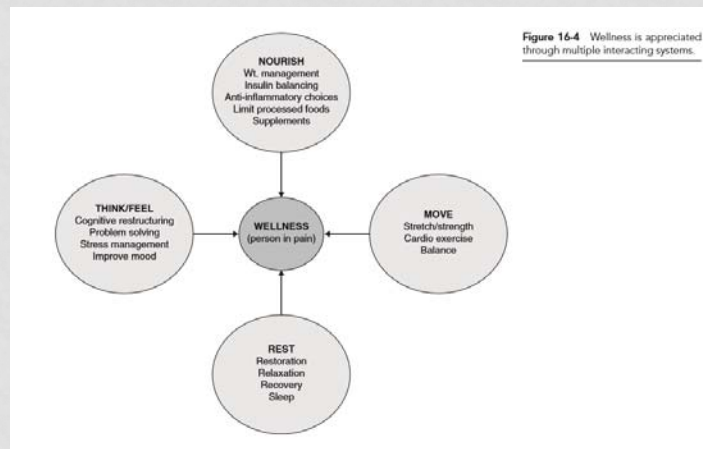
- 1. Biomechanical Model.
- 2. Respiratory-Circulatory Model.
- 3. Metabolic-Energy Model.
- 4. Neurologic Model.
- 5. Behavioral Model.

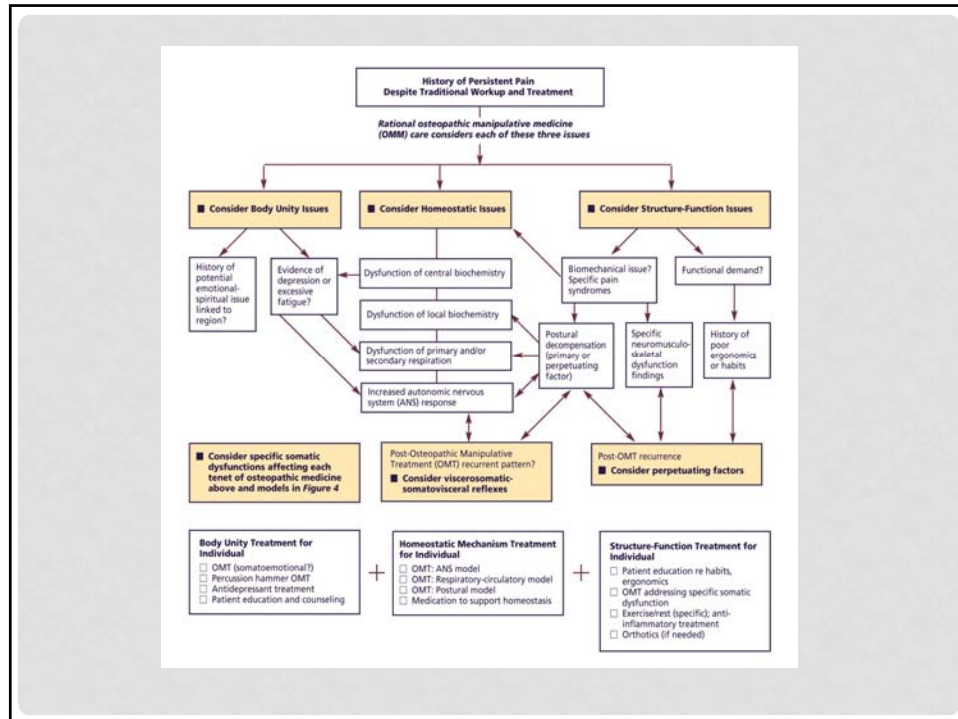




## CHRONIC PAIN TREATMENT

- Local Pain Generators:
  - Cutaneous stimulators/topical anesthetics.
  - Local Treatment: **OMT**, PT, massage, etc.
  - Minor Interventions/surgery
- Health Behaviors:
  - Physical activity, nutrition and weight control.
  - Social support
  - Mental well being.
- Restore Sleep:
  - Ideally through sleep hygiene- medications have abuse potential.





## SYMPATHETIC NERVOUS SYSTEM

- Acute Pain:
  - Central: suppresses sensation of pain (fight or flight).
  - Peripheral: Inflammation and nociceptive activation.
- Chronic Pain:
  - Central: Inhibition reversed often resulting in facilitation.
  - Peripheral: Inflammation and nociception enhanced.
  - Psychological: Anxiety (worsens pain perception).

## RESEARCH

- Systemic review of 15 studies showed that OMT significantly reduces pain and improves functional status in patients, including pregnant and postpartum women, with nonspecific acute and chronic LBP.
- Patients with Diabetes Mellitus and LBP who received OMT over a 12-week period had significant reduction in their LBP.
- 6 studies with OMT vs. control arm were evaluated- OMT significantly reduced low back pain greater than the placebo effect and persisted for at least 3 months.

## EVALUATION

- Biopsychosocial History
- Physical Examination/OSE
- Appropriate labs/Imaging
- Close Follow-up to review patient plan and functional capacity.

## EVALUATION

- “Osteopathic thinking requires more than assessing somatic dysfunction and relying on pain intensity scores. Comprehensive osteopathic care for chronic pain takes into account patient’s moods, beliefs and pain, coping efforts, resources, response of the family members, and the impact of the pain on the patient’s functional quality of life.”
  - FOM

## AN OSTEOPATHIC APPROACH TO TREATMENT

- Lifestyle:
  - Diet/Exercise
  - Stress
  - Relationships
- OMM:
  - Local Pain Generator
    - Somatic Dysfunction
  - Autonomic Nervous System
    - Parasympathetic
      - OA and sacrum.
    - Sympathetic
      - Thoracic and upper lumbar.
  - Muscle Balance/Imbalance
    - Upper and Lower Crossed Syndrome.
  - Neuromuscular Retraining (Proprioception/balance)

## SUBOCCIPITAL RELEASE

- 1. Patient supine; Physician sits at the head of the table.
- 2. Finger pads contact suboccipital region.
- 3. Apply gentle pressure into tissues.
- 4. Holds until tissue releases OR up to 2 minutes.



## SACRAL PLEXUS TECHNIQUE

- Sacral technique:
  - 1. Patient is supine with arms crossed over the chest and physician is seated at the side of the table.
  - 2. Physician contacts the sacrum in the midline, with the caudal hand on the inferior lateral angle near the level of the sacral apex and the cephalad hand on the sacral base above the level of S2.
  - 3. The physician fingers, contacting the patients' sacrum, are gently lifted anteriorly. The physicians arms are resting on the bed or table top and the degree of lift is controlled by applying downward pressure on the elbows and an upward pressure with the fingers.
  - 4. The position of lift is held until a release is felt.



## RIB RAISING

1. The patient lies supine, and the physician is seated at the side of the patient.
2. The physician slides both hands under the patient's thoracolumbar region
3. The pads of the fingers lie on the paravertebral tissues over the costotransverse articulation on the side near the physician
4. Leaning down with the elbows, the physician lifts the fingers into the paravertebral tissues, simultaneously drawing the fingers
5. This lifts the spine off the table and places a lateral stretch on the paravertebral tissues.
6. This technique may be performed as an intermittent kneading technique or with sustained deep inhibitory pressure.



## REFERENCES

- <https://www.cdc.gov/drugoverdose/opioids/index.html>.
- Berland, D. *Rational Use of Opioids for Management of Chronic Nonterminal pain*. American Family Physician. 2012 Aug. 1;86(3): 252-258.
- Chila, A. *Foundations of Osteopathic Medicine*. 3rd Ed. Lippincott Williams and Wilkins; 2011. pp. 228-283, 903-905.
- Tatta, J. *How Pain is Created in Your Brain*. Pain Free Living. June/July 2017. pp. 47-50.
- Schlereth, T, Birklein, F. *The Sympathetic Nervous System and Pain*. NeuroMolecular Medicine; 2008 Sept. 10(3): 141-147.
- Licciardone, J. et.al. *Osteopathic Manipulative Treatment for Low Back Pain: A Systemic Review and Meta-analysis of Randomized Controlled Trials*. BMC Musculoskeletal Disorders; 2005 Aug. 6:43.
- Snow, R. et.al. *American Osteopathic Association Guidelines for Osteopathic manipulative Treatment (OMT) for Patients With Low Back Pain*. JAOA. 2016 Aug. 116(8).
- Licciardone, J. et.al. *Osteopathic Manipulative Treatment in Patients With Diabetes Mellitus and Comorbid Chronic Low Back Pain: Subgroup Results From the OSTEOPATHIC Trial*. JAOA. 2016 June. 113(6).
- Ward, R. *Foundations of Osteopathic Medicine*. 2<sup>nd</sup> Edition. pp.1115-1142.
- Nicholas, *Atlas of Osteopathic Techniques*. Second Edition. p. 92.