

## Pain Management for Persons Living with HIV: Integrative Approaches Within an Opioid Epidemic

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 APTA Combined Sections Meeting 2019

## Learning Objectives

- Describe common HIV-related pain syndromes from a pathophysiological perspective
- Explain the impact of analgesics (with focus on opioids) on pain in an HIV-positive patient population
- Identify psychological aspects of pain in the context of an HIV diagnosis
- Understand integrated pain management approaches to pain in the context of HIV

## Introduction/Overview of HIV and Pain within the Opioid Crisis

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## “All hands on deck!”

- In 2017, the NIH released a statement calling for an “all hands on deck” approach to end the opioid epidemic, stating the need for “safe, effective, non-addictive treatments to manage chronic pain.”
- Simply reducing the supply of opioids will not fully address the root of opioid misuse: the persistence of chronic pain.

## Hiv/aids definitions

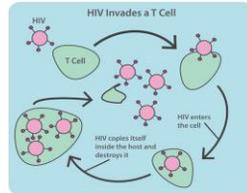
- **HIV: Human Immunodeficiency Virus.** Progressive failure of the immune system that allows life-threatening opportunistic illnesses (cancers, PCP, toxoplasmosis) to thrive. Untreated, HIV progresses to AIDS.
- **AIDS: Acquired Immunodeficiency Syndrome.** Immune system is severely compromised and vulnerable to opportunistic illnesses.
  - CD4+ < 200 cells/mm<sup>3</sup> (normal CD4+ 500-1600 cells/mm<sup>3</sup>).
  - 1 or more opportunistic illnesses such as: encephalopathy, tuberculosis, pneumocystis pneumonia (PCP), mycobacterium avium complex (MAC), lymphoma, herpes
- **PLHIV** – People Living with HIV

## Hiv/aids definitions

- **CD4+ (“T-helper cell”):** type of white blood cell that fights infection. Measured in cells/mm<sup>3</sup>.
  - Move throughout the body identifying/destroying germs such as viruses and bacteria
  - HIV binds to and enters CD4 cells → makes copies of itself → gradual decline of CD4 cells and immune system
  - Normal/non-immunocompromised CD4+ is 500-1600 cells/mm<sup>3</sup>.
- **Viral load:** measurement of HIV copies in a blood sample. Measured in copies/mL
  - Declared “undetectable” if it is under 40-75 copies/mL, BUT person is still HIV+ and needs to stay on ART

## HIV Disease process

- HIV – a **lentivirus** (“slow virus”) that attacks the immune system
- 4 transmission routes:
  - Blood
  - Semen
  - Vaginal fluid
  - Breast milk



## stages of hiv infection

- **Acute HIV Infection** (weeks 2-4 post infection):
  - Develop flu-like symptoms; “worst flu ever”
  - Large amounts of HIV in the blood and immune system
    - Body produces HIV antibodies and cytotoxic lymphocytes → seroconversion to AIDS
  - Greatest transmission risk
- **Chronic HIV Infection:**
  - HIV reproduces at low levels
  - People may be asymptomatic but still contagious

## Stages of Hiv infection continued

- **AIDS** – Final stage of HIV
  - CD4+ count = less than 200 cells/mm<sup>3</sup>
  - HIV has destroyed immune system
  - Body can’t fight off opportunistic illnesses such as pneumonias and cancer ---→ cause of AIDS-related death
  - Life expectancy without treatment = 3 years

## Background

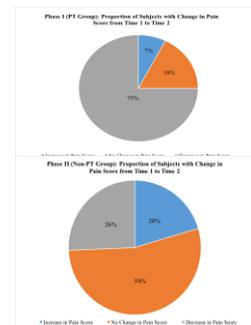
- 2016: approximately 20 percent of adults suffered from chronic pain in the United States, costing an estimated \$635 billion in both direct and indirect costs.
- Of those, nearly half had high-impact chronic pain, meaning pain that limited at least one major life activity.

## Chronic pain and HIV

- Estimated that chronic pain may be reported in as high as 85% of people living with HIV (PLHIV), as compared to 11% in the general population
- Chronic pain has emerged as a treatment priority for PLHIV and is associated with psychological and functional morbidity as well as decreased retention in HIV primary care.
- PLHIV also at risk for opioid misuse, addiction and overdose

## Background: Prior Studies of PT, Chronic Pain and HIV

- Retrospective chart review examining pain outcomes for IDP patients with chronic pain who had and had not received PT over the same time period.



Pullen S. Physical Therapy as Non-pharmacological Chronic Pain Management of Adults Living with HIV: Self-Reported Pain Scores and Analgesic Use. *HIV/AIDS Res Pall Care*, 2017; 9:177-182. PMID: PMCS609779

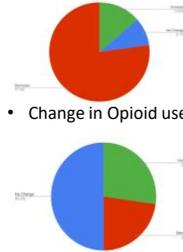
### 2017 Study

- **PT group:**
- 65.2% of patients reported a decrease in pain and 28.3% were pain-free after PT treatment.
- All pain medication classes decreased EXCEPT opioids which stayed the same.
- **Non-PT Group:**
- 74% of patients had no change or an increase in pain during the same time frame. Only 26% of the subjects reported improved pain scores during the timeframe.
- All pain medication classes INCREASED.



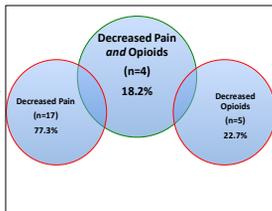
### 2018 Study

- Retrospective chart review of IDP patients with chronic pain diagnosis
- Outcome variables: self-reported pain scores (0-10) and morphine milligram equivalents (MME)
- Outcomes measured pre- and post- PT treatment
- 2018 Study (Red=decrease, green = increase, blue = no change)
- Change in Pain
- Change in Opioid use



### 2018 Study Conclusions

- The most common treatments used among patients with decrease in pain and MME (n=4, 18.2%) include: home exercise program, manual therapy including soft tissue mobilization (STM), education and Kinesiotape™.
- Of the participants whose MME did not change, 80% demonstrated a decrease in pain by the end of the study. This supports the use of PT for chronic pain management, however reflects the need for careful consideration of the complexity of opioid use and addiction.



### PT, HIV and pain

- Physical therapy has widely been utilized as a safe, non-pharmacologic alternative for chronic pain management in the general population.
- Given the high prevalence of pain syndromes amongst PLHIV, PTs must be aware of how to best manage their patients' HIV-related pain, ideally incorporating integrative pain management techniques

### HIV, Opioids and Chronic Pain

- Prescription opioid misuse appears to be more common amongst PLHIV. Effectively addressing debilitating pain symptoms may decrease disability and greatly improve quality of life in this patient population.
- There is a "perfect storm" of HIV, Opioids and Chronic Pain.
- What is the solution?

### Pain Pathway

R. Sandoval PT PhD



## Musculoskeletal Pain in PLHIV

### Clinical Manifestations: Non-infectious

#### Painful Disorders of Bone and Joint

- Arthralgia / Various forms of arthritis
- Rheumatic Disorders
- Chronic low back pain
- Adhesive Capsulitis
- Avascular necrosis / osteonecrosis
- Osteomalacia
- Non-specific aches / pains in bone

Tehraniadeh, J., Ter-Oganesyan, R. R., & Steinbach, L. S. (2004). Musculoskeletal disorders associated with HIV infection and AIDS. Part II: non-infectious musculoskeletal conditions. *Skeletal Radiology*, 33(8), 311-320.

Robinson-Papp, J. (2016). HIV and chronic pain: Musculoskeletal pain. In Merlin, J.A., Selwyn, P.A., Treisman, G.J. & Giovannelli (Eds.), *Chronic pain and HIV: A practical approach*. West Sussex: Wiley-Blackwell.

## Musculoskeletal Pain in PLHIV

### Clinical Manifestations: Non-infectious

#### Myalgia / Pain of muscular origin

- Myopathy
- Fibromyalgia
- Myofascial Pain Syndrome
- Myalgia (non-specific)
- Myositis ossificans
- Rhabdomyolysis
- Side effects of drugs (AZT, statins, others)

Tehraniadeh, J., Ter-Oganesyan, R. R., & Steinbach, L. S. (2004). Musculoskeletal disorders associated with HIV infection and AIDS. Part II: non-infectious musculoskeletal conditions. *Skeletal Radiology*, 33(8), 311-320.

Robinson-Papp, J. (2016). HIV and chronic pain: Musculoskeletal pain. In Merlin, J.A., Selwyn, P.A., Treisman, G.J. & Giovannelli (Eds.), *Chronic pain and HIV: A practical approach*. West Sussex: Wiley-Blackwell.

## Inflammatory Myopathy (Polymyositis)

- Progressive, symmetric, painless weakness most noticeable in proximal trunk and limb muscles
- Diagnosis
  - Elevated CPK levels
  - EMG
  - Biopsy shows muscle fiber necrosis
- Etiology
  - HIV associated: autoimmune response associated with chronic disease process
  - Zidovudine (AZT) myopathy

Aulrier, F. J., Charlet, P., & Gherardi, R. A. (2005). Skeletal muscle involvement in human immunodeficiency virus (HIV)-infected patients in the era of highly active antiretroviral therapy (HAART). *Muscle & Nerve: Official Journal of the American Association of Electrodiagnostic Medicine*, 32(3), 247-260.

## Inflammatory Myopathy (Polymyositis)

- When acute:
  - strenuous activity or exercise is contraindicated
  - focus of treatment is on reduction on inflammation via medication and avoidance of strenuous activity or exercise
- Once inflammation is managed and CPK levels decline toward normal, PT can play a role in:
  - functional restoration
  - exercise prescription
  - management of any lingering pain

## Distal Sensory Polyneuropathy (DSP)

- The most common neurological comorbidity in PLHIV
- Prevalence: 30-60% in PLHIV
- Bilateral involvement at the extremities
- Clinical presentation:
  - Decreased DTR at the ankle
  - Decreased sensation
  - Usually without significant strength loss
  - No significant range of motion deficits
  - Paresthesias and/or numbness
  - Burning Pain
  - Painful night cramps

Dworkin, R. H., et al. (2003). *Arch Neurol*, 60(11), 1524-1534.

Martin, C., Petrossian, P., Osterberg, A., Sjöstrand, A., & Hansson, P. (1999). *CMAJ*, 103(10):101-106.

Moore, R. D., et al. (2000). *AIDS*, 14(3), 273-278.

Wulfel et al. HIV: Advances in research and therapy, Dec 1998. [http://www.iapac.org/cinnmt/cna/wulfel\\_hart83.html](http://www.iapac.org/cinnmt/cna/wulfel_hart83.html). Accessed, Nov. 1999

## Pathophysiology of DSP in PLHIV

- Not fully understood, but associated with:
  - Peripheral nerve damage related to HIV infection
  - Neuro-toxic effects of certain anti-retroviral drugs
- Risk factors
  - Advancing age
  - Longer time living with HIV
  - Low CD4 nadir
  - Past exposure to certain anti-retroviral drugs
  - Advanced HIV disease (AIDS)
  - Substance abuse

Bragima & Rosta. Peripheral neuropathy and quality of life of adults living with HIV/AIDS in the Bulbula district of Rwanda. *Sahara J*. 2012;9(2):88-96.

deCaro-Dobrowolska M, et al. The association of HIV/AIDS treatment side effects with health status, work productivity, and resource use. *AIDS Care*. 2012;24(8):1441-1452.

Ellis E, et al. Continued high prevalence and advanced clinical impact of human immunodeficiency virus-associated sensory neuropathy in the era of combination antiretroviral therapy: the CHARTER Study. *Arch Neurol*. 2008;65(10):1242-1248.

Chouh S, Choudhry A, Janjan JP. Epidemiology of HIV-related neuropathy: A systematic literature review. *AIDS Research and Human Retroviruses*. 2012; 28(1): 36-48.

Hoke A, Cornblath DR. Peripheral neuropathy in human immunodeficiency virus infection. *Suppl Clin Neurophysiol*. 2004; 57: 195-210.

Robinson PA, Meunier L, Soto-Camacho A, et al. Distal sensory polyneuropathy in the context of HIV/AIDS. *Journal of the Neurological Sciences*. 2007;164(1):32-40.

Nichols et al. Prevalence, self-care behaviors, and self-care activities for peripheral neuropathy symptoms of HIV/AIDS. *Nursing & Health Sciences*. 2010;12(1):119-126.

## Tools to Screen for Neuropathy

### Brief Peripheral Neuropathy Screen

<http://www.hiv.va.gov/provider/manual-primary-care/peripheral-neuropathy-tool1.asp>

### Total Neuropathy Score

<http://www.cdc.gov/nczod/dn4/downloads/1/04/NS98050123M.pdf>

### Michigan Neuropathy Screening Instrument (MNSI)

[http://diabetesresearch.med.umich.edu/peripherals/profs/documents/mv/mnsi\\_patient.pdf](http://diabetesresearch.med.umich.edu/peripherals/profs/documents/mv/mnsi_patient.pdf)

### Single Question Neuropathy Screen

"Do you experience tingling, burning, or numbness in your feet or hands?" (sensitivity 96%; specificity 80% in PLHIV in Zambia)

### DN4 Questionnaire

[http://www.compassioninusa.uk/branes/Pain\\_Management\\_-\\_Scmg\\_Dsmra/NeuropathicPain/DiagnosticQuestionnaire/DN4\\_sfbm.pdf](http://www.compassioninusa.uk/branes/Pain_Management_-_Scmg_Dsmra/NeuropathicPain/DiagnosticQuestionnaire/DN4_sfbm.pdf)

### S-LANSS

<http://www.lpac.org.nz/BPJ/2016/May/docs/s-lanss.pdf>

### Subjective Peripheral Neuropathy Screen *See next slide!*

Bla, R. J., Evans, S. R., O'Hare, D. B., Mo, L. R., Manthorpe, J. C., Collier, A. C., ... A. (2005). Clinical validation of the Neuropathy Screen. *Journal of Neurology*, 110(5), 503-511.  
 Corbridge, D. R., Chaturvedi, T., Conry, K., Lee, D., Spivey, M., Morris, M., & Jan, T. (1999). Total neuropathy score: reliability and validity study. *Neurology*, 52(8), 1040-1044.  
 Fattner, E. L., Nussler, J. S., Sullivan, K. A., & Galanter, D. (1996). New insights into the pathogenesis of diabetic neuropathy. *Current Opinion in Neurology*, 9(2), 323-326.  
 Gattuso, J. A., Smith, C., Berman, S. L., Price, R. W., Janda, L. A., ... & Myers, K. L. (2010). Utility of patient-reported history and screening tool in identifying new-onset peripheral neuropathy in Western Kenya pilot testing. *BMC Electronic Research*, 12(2), 1457-12.  
 Gattuso, J. A., Smith, C., Berman, S. L., Price, R. W., Janda, L. A., ... & Myers, K. L. (2011). Evaluating the diagnostic capacity of a single question neuropathy screen (DN4) in very positive Zambian adults. *Journal of Neurology, Neurosurgery & Psychiatry*, 82(12), 1341-1345.  
 Sandoval, V., Magera, R., Chaves, C., Guez, C., Caselli, A., & Marks, G. A. (2012). Validation of DN4 as a screening tool for neuropathic pain in painful diabetic polyneuropathy. *Diabetic Medicine*, 29, 578-80.  
 Sandoval, V., Magera, R., Chaves, C., Guez, C., Caselli, A., & Marks, G. A. (2012). The S-LANSS score for identifying pain of electrochemical neuropathic origin: validation for use in clinical trial research. *Journal of Pain*, 13(3), 346-350.

## Subjective Peripheral Neuropathy Screen (SPNS)

**SUBJECTIVE PERIPHERAL NEUROPATHY SCREEN (SPNS)**  
 (Adapted from Mathew, 1995)

Below is a list of symptoms. For each, check the response that best describes your symptoms associated with your neuropathy. If you currently experience the symptom, rate the severity on a 1 to 10 scale.

<p><b>Pain, itching, or burning in the hands / arms</b></p> <p>... Have never had this symptom</p> <p>... Have had this symptom in the past, but currently do not have this symptom</p> <p>... Currently experience this symptom. (Rate the severity on [circle one] one number)</p> <p>MILD: 1 2 3 4 5 6 7 8 9 10</p> <p>SEVERE: 1 2 3 4 5 6 7 8 9 10</p>
<p><b>Pain, itching, or burning in the feet and/or legs</b></p> <p>... Have never had this symptom</p> <p>... Have had this symptom in the past, but currently do not have this symptom</p> <p>... Currently experience this symptom. (Rate the severity on [circle one] one number)</p> <p>MILD: 1 2 3 4 5 6 7 8 9 10</p> <p>SEVERE: 1 2 3 4 5 6 7 8 9 10</p>
<p><b>"Pins and needles" in hands and/or arms</b></p> <p>... Have never had this symptom</p> <p>... Have had this symptom in the past, but currently do not have this symptom</p> <p>... Currently experience this symptom. (Rate the severity on [circle one] one number)</p> <p>MILD: 1 2 3 4 5 6 7 8 9 10</p> <p>SEVERE: 1 2 3 4 5 6 7 8 9 10</p>
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<p><b>Numbness (lack of feeling) in hands and/or arms</b></p> <p>... Have never had this symptom</p> <p>... Have had this symptom in the past, but currently do not have this symptom</p> <p>... Currently experience this symptom. (Rate the severity on [circle one] one number)</p> <p>MILD: 1 2 3 4 5 6 7 8 9 10</p> <p>SEVERE: 1 2 3 4 5 6 7 8 9 10</p>
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Mathew, J. H. (1995). The reliability and validity of the subjective peripheral neuropathy screen. *Journal of the Association of Nurses in AIDS Care*, 6(6), 36-39.

- 6 sections; all self-report
- Quick
- Validated in HIV+ patients

## Physical impairments and functional limitations due to neuropathy are seen clinically and have been reported in the literature

### In patients with peripheral neuropathy

- Manor et al. (2009)
  - Reduced gait performance
  - Impaired standing balance
- Manor et al. (2008)
  - increased walking variability and local instability

### In patients with HIV-related neuropathy

- Galantino, Kietrys, et al. (2014)
  - Lower self-reported LE function
  - Lower physical health related QoL
- Sandoval et al. (2014)
  - Moderate to severe pain, sleep disturbances, and limited ambulation distances

Manor, B., & Li, L. (2009). Characteristics of functional gait among people with and without peripheral neuropathy. *Gait & Posture*, 30(2), 253-256.  
 Manor, B., Winkler, P., & Li, L. (2008). Faster walking speeds increase local instability among people with peripheral neuropathy. *Journal of Biomechanics*, 41(13), 2787-2792.  
 Pickett, L., Brand, M., Marletta, P., Clancy, C. A., Bryant, M., Clark, C., ... Groupe d'Épidémiologie Clinique de S. A. A. (2014). Decline in locomotor functions over time in HIV-infected patients. *AIDS*, 28(10), 1441-1449.  
 Sandoval, R., Sandoval, T., Giordano, T. P., Mitchell, K., & Kelley, C. (2014). Pain, sleep disturbances, and functional limitations in people living with HIV/AIDS-associated distal sensory peripheral neuropathy. *Journal of the International Association of Providers of AIDS Care*, 13(4), 328-334.



**Quality of Life and Self-Reported Lower Extremity Function in Adults With HIV-Related Distal Sensory Polyneuropathy**  
 Mary Lou A. Galantino, David M. Kietrys, James Scott Parrott, Maureen E. Stevens, Anne Marie Stevens and David V. Condoletti  
*PHYS THER*, 2014, 94, 1455-1466  
 Originally published online May 22, 2014  
 doi: 10.2522/ptj.20130337

### Bottom Lines

Self-reported **LE function was significantly lower** in HIV+ patients with DSP than in those without DSP  
 In those with DSP, scores reflected **≤50%** of normal/full function

**Physical quality of life (MOS\_HIV) significantly lower 15.2 points** in HIV+ participants with DSP than those without

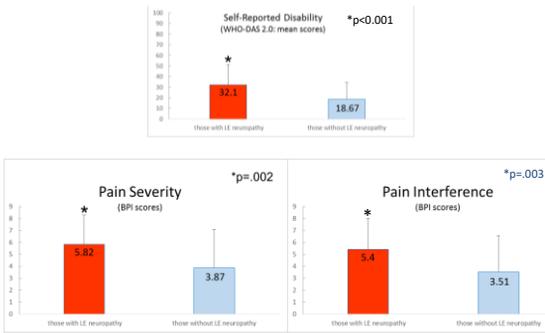
## The Effects of HIV-related Lower Extremity Peripheral Neuropathy on Disability is Mediated by Pain Interference and Depression

Kietrys, Parrott, Galantino, Davis, Levin, & O'Brien

N = 127

Presence of Lower Extremity Neuropathy as evidenced by reporting current paresthesia OR numbness in the feet on the **Subjective Peripheral Neuropathy Scale: 45%**

## More severe **disability** and worse **pain** in those with LE neuropathy than in those without



The Effects of HIV-related Lower Extremity Peripheral Neuropathy on Disability is Mediated by Pain Interference and Depression  
 Kietrys, Parrott, Galantino, Davis, Levin, & O'Brien

**Refined Path Model**

What does it mean?

LE neuropathy is not *directly* linked to more severe disability,  
**BUT**  
**LE neuropathy** is directly linked to **pain** and **depression**,  
 AND both of those are directly linked to severity of **disability**.

The Effects of HIV-related Lower Extremity Peripheral Neuropathy on Disability is Mediated by Pain Interference and Depression  
 Kietrys, Parrott, Galantino, Davis, Levin, & O'Brien

**Clinical Relevance**

There are no known treatments to cure or reverse the progression of peripheral neuropathy. PLHIV and LE neuropathy have more severe disability and pain than those without LE neuropathy.  
 In general, treatments for neuropathy are palliative.

**However**, since the effects of neuropathy on disability are mediated by pain interference and depression, we can:

- **Treat pain**
- **Refer out for treatment of depression**

By addressing pain and depression, we may be able to mitigate disability in PLHIV and LE neuropathy.

**The Role of the PT in Management of Chronic Pain**

A multidisciplinary / multi-modal approach may include:

- **Physical Therapy**
  - Exercise
  - TENS
  - Manual Therapy
  - Patient Education
- Self-Management Programs
- Diet / Nutrition
- Counseling (such as Cognitive Behavioral Therapy)
- Pharmaceuticals
- Topical capsaicin (for neuropathic pain)
- Cannabis
- Surgery (for specific conditions for which surgery is indicated)
- Complementary and alternative therapies

Atkinson, J.H., Patel, S., & Kethner, J.R. (2016). Pharmacologic and Non-Pharmacologic treatment approaches to chronic pain in individuals with HIV. In Merle, J. S., Seltzer, P. A., Trisman, G. J., & Giovannella, A. G. (2016). Chronic Pain and HIV: A Practical Approach. West Sussex, UK: Wiley Blackwell.  
 Kietrys, D.M., Gillardon, P.M., Galantino, M.L. (2002). Contemporary issues in rehabilitation of patients with HIV disease – part I: The team approach to rehabilitation of patients with HIV disease. <http://www.physiotherapy-chronic.com/2002/11/29/02/>

**Psychological Informed Physical Therapy**

*The impact of HIV life stressors, psychiatric diagnoses & mental health on the immune, psychological, endocrine and physical systems*

Mary Lou Galantino, PT, MS, PhD, MSCE, FAPTA  
 Stockton University, University of Pennsylvania &  
 University of Witwatersrand Johannesburg, South Africa

**Impact of Stress**

**Stress and Illness**

- If a person has increased stress, but poor coping mechanisms and social support they may be at increased risk for developing illness
  - Other factors may further increase this risk

**Situational Stress:**

**Environmental and Social**

- Physical work environment
- Exposure to chemicals
- Rotating shift work
- Poor social support
- Exposure to safety hazards
- Recent life changes
  - Death of family member
  - Pregnancy
  - Change in job

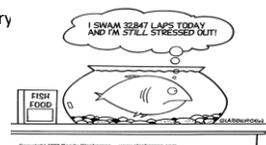
**Factors that influence stress**

**Psychological**

- Personality traits (type A)
- Lack of faith, spirituality, religious practices
- Relationship or work conflict
- History

**Physical**

- Sleep disturbances / deprivation
- Chemical or biological triggers
  - e.g. poor nutrition , caffeine
  - Accidents / injury
  - Over-exercising or excessive



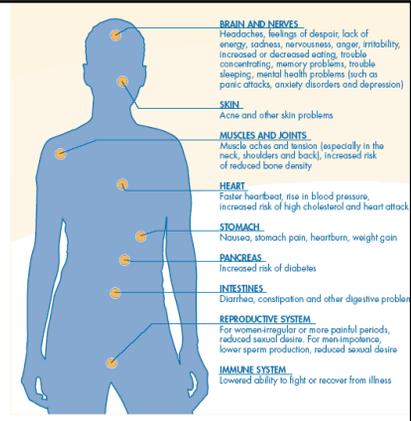
## Stigma and Stress

- PLHIV are able to live full lifespans after infection, however, **rates of anxiety disorders among this population are elevated compared to national samples.**
- Anxiety symptoms and disorders have a negative effect on medication adherence, QOL and other psychological disorders, such as depression.

**HIV-related stigma is common among African-American women living with HIV, and those who experience higher levels of stigma are less likely to be virally suppressed.**

Lipira Let al. HIV-Related Stigma and Viral Suppression Among African-American Women: Exploring the Mediating Roles of Depression and ART Nonadherence. AIDS Behav. 2018 Oct 20.

## THE IMPACT OF STRESS ON BODY SYSTEMS



## Add Pain to a Stressed Psycho-emotional State:



## Potential Sources of Pain

- “Red Flags”
  - Non-musculoskeletal (i.e.: visceral pain)
  - May need to refer to other health professionals
- “Yellow Flags”
  - Psychosocial components contributing to pain
    - i.e.: Fear, and catastrophizing behavior



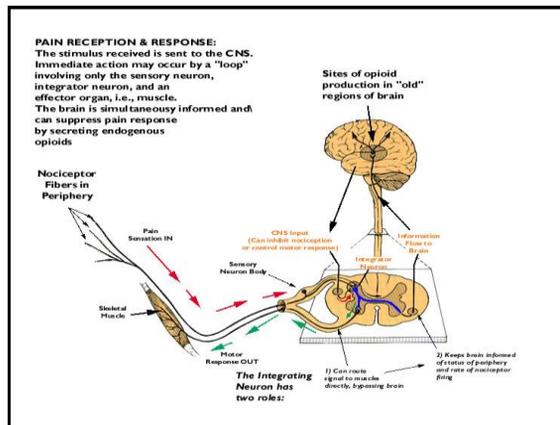
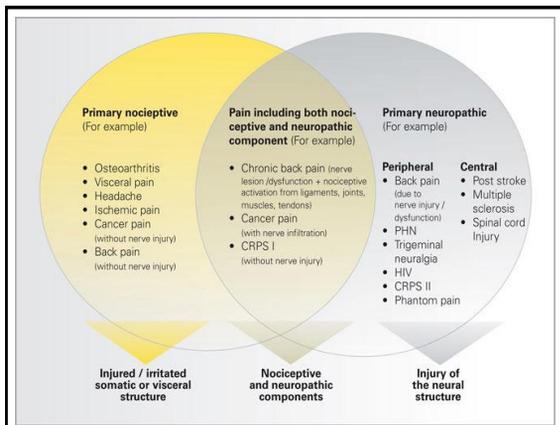
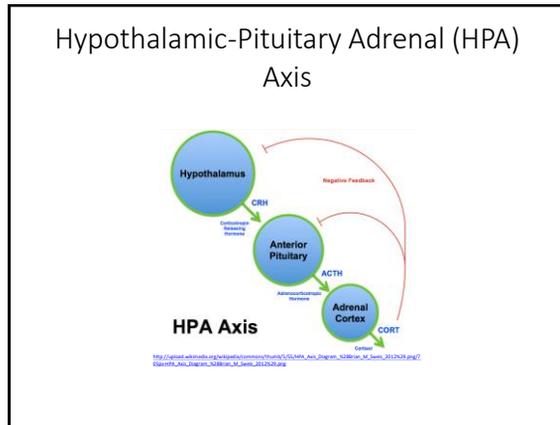
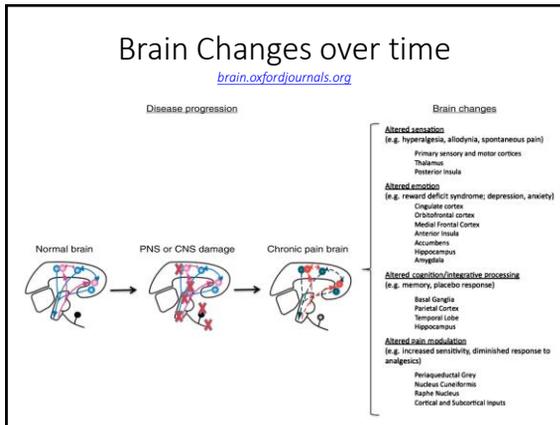
## Stress Triggers

- Pain
- Physical/psychological threats to safety, status, or well-being
- Physical/psychological demands exceeding our capabilities or coping resources
- Change, especially unexpected changes
- Inconsistency between our expectation and the actual outcome
- When faced with a stressor or stressors that are beyond our means, the stress response often manifests as feelings of uneasiness, impending doom, rumination, worry, and avoidance of the stressor(s).



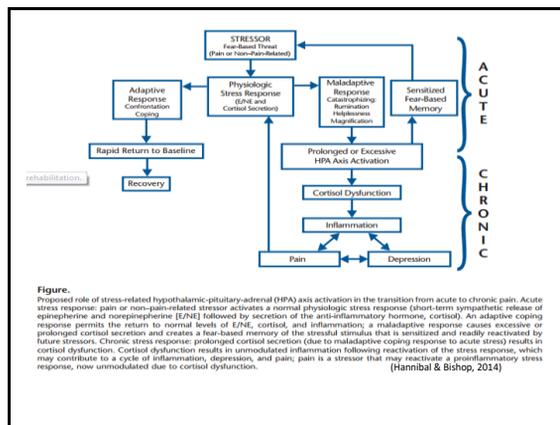
## The Stress Response and Cortisol

- **Cortisol:** a catabolic hormone stimulates arousal in the morning, maintains blood glucose levels & suppresses non-vital organ systems so that there is sufficient energy for the neuromuscular system and the brain.
- Functions as an anti-inflammatory, preventing widespread damage to tissue and nerves.
- When presented with a threat (physical or psychological), a person’s cortisol levels will sharply increase, fueling the flight or fight response.
- **Signs and Symptoms of Stress-Induced Cortisol Dysfunction**
  - Bone and muscle breakdown
  - Fatigue
  - **Depression**
  - **Pain**
  - Memory impairment
  - Sodium-potassium dysregulation
  - Orthostatic hypotension
  - Impairment of the pupillary light reflex



### The Chronic Stress Response: Influences on Pain

- Increase in free radical byproducts & oxidative stress that leads to widespread tissue degeneration & damage of healthy tissues. **Free radical binding can lead to abnormal growths or cancer.**
- Inflammation allows toxins and pathogens to enter the body by widening the gap junctions of the blood-brain barrier and intestinal lining. **Leads to hypersensitivity to unrecognized proteins, which can lead to autoimmunity.**
- Low levels of serotonin are involved in increased pain and depression. Stress & inflammation causes serotonin depletion- due to tryptophan catabolites (TRYCATS)- and degeneration of the hippocampus.
- Chronic stress and pain are associated with depression. **This is often due to how difficulties in pain management are perceived as a lack of control over one's situation and body; This instills a feeling of helplessness and hopelessness.**



## Clinical Implications & Measures (Hannibal & Bishop, 2014)

- Pain may initially be caused by a musculoskeletal issue, but stress responses, cortisol dysfunction, and inflammation can increase/prolong pain as well as hinder healing.
- It is important to educate patients about this relationship so that they can better control their emotional stress responses to nonthreatening stimuli, as well as identify and address any stressors.
- The Fear-Avoidance Beliefs Questionnaire and the Pain Catastrophizing Scale can be used in a clinical setting to identify patients with maladaptive responses to pain.
- Therapists can screen for stress using the Perceived Stress Scale, the Impact of Events Scale, the Daily Stress Inventory, and the State-Trait Anxiety Inventory.
- To screen for patients with poor coping skills use the Connor-Davidson Resilience Scale, the Resilience Scale for Adults, and the Brief Resilience Scale.

Event	Stress Scores		
		Change in work responsibilities	29
		Trouble with in-laws	29
Death of Spouse	100	Outstanding personal achievement	28
Divorce	73	Spouse begins or stops work	26
Marital Separation	65	Starting or finishing school	26
Jail Term	63	Change in living conditions	25
Death of close family member	63	Revision of personal habits	24
Personal injury or illness	53	Trouble with boss	23
Marriage	50	Change in work hours, conditions	20
Fired from work	47	Change in residence	20
Marital reconciliation	45	Change in schools	20
Retirement	45	Change in recreational habits	19
Change in family member's health	44	Change in church activities	19
Pregnancy	40	Change in social activities	18
Sex difficulties	39	Mortgage or loan over \$10,000	17
Addition to family	39	Change in sleeping habits	16
Business readjustment	39	Change in number of family gatherings	15
Change in financial status	38	Change in eating habits	15
Death of close friend	37	Vacation	13
Change to a different line of work	36	Christmas season	12
Change in number of marital arguments	35	Minor violation of the law	11
Mortgage or loan over \$10,000	31		
Foreclosure of mortgage or loan	30		

Score of 300+: At risk of illness. Score of 150-200: Risk of illness is moderate (reduced by 30% from above risk). Score 150-: Only have a slight risk illness.

### The Stress Questionnaire

Mostly Yes	Mostly No	Question
_____	_____	1. Have you been feeling uncomfortably tense lately?
_____	_____	2. Are you engaged in frequent arguments with people close to you?
_____	_____	3. Is your social life satisfactory?
_____	_____	4. Do you have trouble sleeping?
_____	_____	5. Do you feel lethargic about life?
_____	_____	6. Do many people annoy or irritate you?
_____	_____	7. Do you have constant cravings for candy and other sweets?
_____	_____	8. Is your cigarette or alcohol consumption way up?
_____	_____	9. Are you becoming addicted to soft drinks or coffee?
_____	_____	10. Do you find it difficult to concentrate on your work?
_____	_____	11. Do you often grind your teeth?
_____	_____	12. Are you increasingly forgetful about little things like mailing a letter?
_____	_____	13. Are you increasingly forgetful about big things like appointments and major events?
_____	_____	14. Are you making too many trips to the restroom?
_____	_____	15. Have people commented lately that you do not look well (or "good")?
_____	_____	16. Do you get into verbal fights with people too frequently?
_____	_____	17. Have you been involved in more than one fight lately?
_____	_____	18. Do you have a troublesome number of tension headaches?
_____	_____	19. Do you feel nauseated much too often?
_____	_____	20. Do you feel light-headed or dizzy almost every day?
_____	_____	21. Do you have churning sensations in your stomach too often?
_____	_____	22. Are you in a big hurry all the time?
_____	_____	23. Are far too many things bothering you?
_____	_____	24. Do you often feel tired and exhausted for no particular reason?
_____	_____	25. Do you have difficulty shaking colds or other infections?

**Scoring**  
 0-7 Mostly Yes answers: You seem to be experiencing a normal amount of stress.  
 8-17 Mostly Yes answers: Your stress level seems high. Become involved in some kind of stress management activity.  
 18-25 Mostly Yes answers: Your stress level appears much too high. Discuss your stress level with a mental health professional or visit your family physician (or both).

From: Duffin A.J. Fundamentals of organizational behavior: an applied approach. Cincinnati, Ohio, 1997. South-Western College Publishing.

### Chart 1 - Hospital Anxiety and Depression Scale

This questionnaire will help your physician to know how you are feeling. Read every sentence. Place an "X" on the answer that best describes how you have been feeling during the LAST WEEK. You do not have to think too much to answer. In this questionnaire, spontaneous answers are more important.

<p>A 1) I feel tense or wound up</p> <p>1 ( ) Most of the time 2 ( ) A lot of the time 3 ( ) From time to time 4 ( ) Not at all</p> <p>D 2) I still enjoy the things I used to enjoy</p> <p>1 ( ) Definitely as much 2 ( ) Not quite so much 3 ( ) Only a little 4 ( ) Hardly at all</p> <p>A 3) I get a sort of frightened feeling as if something awful is about to happen</p> <p>1 ( ) Very definitely and quite badly 2 ( ) Yes, but not too badly 3 ( ) A little, but it doesn't worry me 4 ( ) Not at all</p> <p>D 4) I can laugh and see the funny side of things</p> <p>1 ( ) As much as I ever did 2 ( ) Not quite as much now 3 ( ) Definitely not so much now 4 ( ) Not at all</p> <p>A 5) Worrying thoughts go through my mind</p> <p>1 ( ) A great deal of the time 2 ( ) A lot of the time 3 ( ) From time to time but not too often 4 ( ) Only occasionally</p> <p>D 6) I feel cheerful</p> <p>1 ( ) Not at all 2 ( ) Not often 3 ( ) Sometimes 4 ( ) Most of the time</p> <p>A 7) I can rest or ease and feel relaxed</p> <p>1 ( ) Definitely 2 ( ) Usually 3 ( ) Not often 4 ( ) Not at all</p> <p>D 8) I feel as if I am slowed down</p> <p>1 ( ) Nearly all the time 2 ( ) Very often 3 ( ) Sometimes 4 ( ) Not at all</p>	<p>A 9) I get a sort of frightened feeling like butterflies in the stomach</p> <p>1 ( ) Not at all 2 ( ) Occasionally 3 ( ) Quite often 4 ( ) Very often</p> <p>D 10) I have lost interest in my appearance</p> <p>1 ( ) Definitely 2 ( ) I don't take so much care as I should 3 ( ) I may not take quite as much care 4 ( ) I take just as much care as ever</p> <p>A 11) I feel restless, as if I had to be on the move</p> <p>1 ( ) Very much indeed 2 ( ) Quite often 3 ( ) Not at all</p> <p>D 12) I look forward with enjoyment to things</p> <p>1 ( ) As much as I ever did 2 ( ) Definitely less than I used to 3 ( ) Definitely less than I used to 4 ( ) Hardly at all</p> <p>A 13) I get sudden feelings of panic</p> <p>1 ( ) Very often indeed 2 ( ) Quite often 3 ( ) Not very often 4 ( ) Not at all</p> <p>D 14) I can enjoy a good TV or radio program or book</p> <p>1 ( ) Often 2 ( ) Sometimes 3 ( ) Very seldom</p>
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### The Hospital Anxiety And Depression Scale; HADS

## Psychological issues

- Depression
  - Manic depression
  - Anxiety
- 
- Borderline personality disorder
  - Chronic pain
  - Serious psychiatric issues

## Depression

- **Major depressive disorder** - interferes with a person's ability to work, sleep, study, eat, and enjoy once-pleasurable activities.
- **Dysthymic disorder** - also called dysthymia, is characterized by long-term (two years or longer) but less severe symptoms that may not disable a person but can prevent one from functioning normally or feeling well.
- **Psychotic depression** - when a severe depressive illness is accompanied by some form of psychosis, such as a break with reality, hallucinations, and delusions.
- **Postpartum depression** - new mother develops a major depressive episode within one month after delivery. It is estimated that 10 to 15 percent of women experience postpartum depression after giving birth.
- **Seasonal affective disorder (SAD)** - onset of a depressive illness during the winter months, when there is less natural sunlight. The depression generally lifts during spring and summer.

## Side Effects of Depression

- Persistent sad, anxious or "empty" feelings
- Feelings of hopelessness and/or pessimism
- Feelings of guilt, worthlessness and/or helplessness
- Irritability, restlessness
- Loss of interest in activities or hobbies once pleasurable, including sex
- Fatigue and decreased energy
- Difficulty concentrating, remembering details and making decisions
- Insomnia, early-morning wakefulness, or excessive sleeping
- Overeating, or appetite loss
- Thoughts of suicide, suicide attempts
- Persistent aches or pains, headaches, cramps or digestive problems that do not ease even with treatment

## Manic Depression

- Bipolar disorder, (manic-depressive illness), is not as common as major depression or dysthymia.
- Characterized by cycling mood changes-from extreme highs to extreme lows
- Severe changes in energy and behavior with changes in mood. Periods of highs & lows are called episodes of mania and depression

86% prevalence of drug use in the PLHIV with neuropsychiatric comorbidities, with cocaine use being significantly higher in patients with major depressive disorder and bipolar disorder, whereas PCP use was associated with patients with schizophrenia.

[Alvarez, BJ, et al. History of Substance Abuse Correlated with Neuropsychiatric Disorders and Co-morbid HIV Infection? An Urban Population Study. \*Journal of Neurology\*, 2018;9\(2\).](#)

## Anxiety

- Drug use and panic symptoms is independently associated with poorer outcomes along the depression treatment cascade.
  - Current drug users were most likely to have an indication for depression treatment, but were least likely to be receiving treatment or to have remitted depression.
  - Disparities were even more starkly evident among patients with co-occurring symptoms of panic disorder compared to those without.
- Achieving improvements in the depression treatment cascade will likely require attention to substance use and psychiatric comorbidities.**

[DiPrete BJ, Pence BW, Bengtson AM, Moore RD, Grelotti DJ, O'Clairigh C, Modi R, Gaynes BN. The Depression Treatment Cascade: Disparities by Alcohol Use, Drug Use, and Panic Symptoms Among Patients in Routine HIV Care in the U.S. \*AIDS Behav\*. 2018 Oct 4.](#)

## Borderline Personality Disorder (BPD)

- Main Features
  - pervasive pattern of instability in interpersonal relationships, self-image and emotions
  - impulsiveness in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating)
  - Frantic efforts to avoid real or imagined abandonment
  - Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
  - Affective instability due to a marked reactivity of mood
  - Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)
  - Transient, stress-related paranoid ideation or severe dissociative symptoms

## Other Psychological Issues

### Schizophrenia and bipolar disorder

- Shared medications
- The positive symptoms of schizophrenia can look like the symptoms in about 50% of manic episodes, especially those with psychotic features. (These can include delusions of grandeur, hallucinations, disorganized speech, paranoia, etc).
- The negative symptoms of schizophrenia can closely resemble the symptoms of a depressive episode (these include apathy, extreme emotional withdrawal, lack of affect, low energy, social isolation, etc).
- The two disorders share abnormalities in some of the same neurotransmitter systems.
  - both depressive episode symptoms and the negative symptoms of schizophrenia are at least partially mediated by serotonin.
  - the positive symptoms of schizophrenia and the symptoms of mania are mediated in some way by excesses of dopamine signalling.
  - The atypical antipsychotics approved for both these disorders work on both the serotonin and the dopamine systems<sup>1</sup>

## Co-morbidities Impact Depression

### Type II Diabetics with distal neuropathy (DDP)

*Patients with type II DM, who exhibited symptoms of DDP were found to have more severe depression (BDI) and higher pain scores on the visual analog scale (VAS). Those with DDP had a worse quality of life score in the physical and environmental domains of the WHO QOL Instrument. (Moreira, et al, 2009)*

### HIV Neuropathy

Despite pharmacologic treatment, moderate-severe chronic pain and elevated depression symptoms are common among HIV-infected patients and frequently co-occur.

[Uebelacker, Lisa A et al. "Chronic Pain in HIV-Infected Patients: Relationship to Depression, Substance Use, and Mental Health and Pain Treatment." \*Pain medicine \(Malden, Mass.\)\* vol. 16,10 \(2015\): 1870-81.](#)

## Depression and Pain

- Commonly diagnosed in the same patients
- Shared pathophysiology – activated anatomical structures are similar: insular cortex, prefrontal cortex, anterior cingulate cortex, amygdala & hippocampus
- Both activate common neurocircuitries: HPA axis, limbic and paralimbic structures, ascending and descending pain tracks
- Activate common neurochemicals: monoamines, cytokines, and neurotrophic factors
- THEORY OF ALLOSTASIS – patients accumulate allostatic load through internal and external stressors, which makes them more susceptible to disease

**BREAK THE CYCLE -- TREAT ALL SYMPTOMS OF BOTH DEPRESSION AND PAIN WITH COMBINATION OF PSYCHOTHERAPY, PHYSIOTHERAPY AND PHARMACOTHERAPY.**

(Robinson MJ, et al, 2009)

## Adequate Discernment During Evaluation and Treatment

- Impact of our plan of care in the face of underlying stress and psychological concerns
- Appreciate underlying depression and other psychological issues at hand when treating complex patients.
- Appreciate side effects from depression
  - Lack of sleep, sleep disturbances – no benefits of growth hormone during sleep to repair what may have been addressed during manual therapy

*Pain self-management program combined with antidepressant therapy results in substantial improvement in both depression and pain scores. (Kroenke, et al, 2009)*

## What Can Physical Therapists Do?

- Physical activity improves the self perception of well being (Carta MG, et al, 2008)
- Physical therapy can improve depressive aspects not frequently responsive to drug therapy (Carta MG, et al, 2008)
- A program of dietary control and regular physical activity can significantly reduce body weight and improve metabolic profiles of insulin, triglyceride and insulin-like growth factor-binding protein-3 among obese schizophrenic patients treated with antipsychotic clozapine (Wu MK, et al, 2007)
- Using the transtheoretical model, we can help identify patients ready to adopt healthier lifestyle strategies and help patients with antipsychotic-induced weight gain. (Archie SM, 2007)

## Need for Biopsychosocial Intervention



## Clinical Intervention

- If a patient views a nonthreatening stimuli as threatening, they must go through reappraisal. If the stimuli is legitimately threatening in some way (i.e.: financial trouble), it is often best to confront the issue directly.
- Address pain that is made worse by poor ergonomics associated with psychological stresses.
- Recognize severe mental illness and refer the patient to a healthcare provider in that field for a multidisciplinary approach to the issue.
  - Biofeedback by a physical therapist paired with psychotherapy has been shown to lead to long-term resolution of neck pain and disability.

(Hannibal & Bishop, 2014)

## Fear & Pain



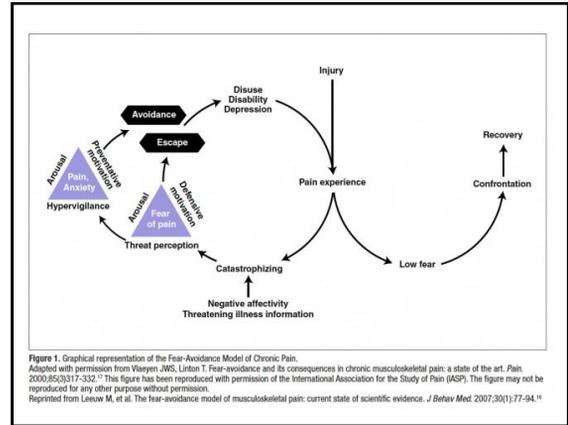
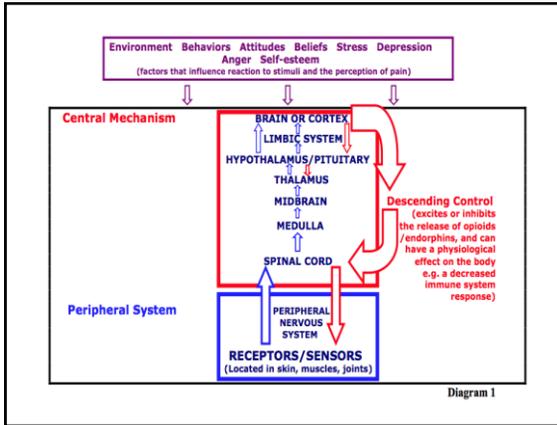


Figure 1. Graphical representation of the Fear-Avoidance Model of Chronic Pain. Adapted with permission from Vlaeyen JWS, Linton T. Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. Pain. 2000;85(3):317-332. This figure has been reproduced with permission of the International Association for the Study of Pain (IASP). The figure may not be reproduced for any other purpose without permission. Reprinted from Leuw M, et al. The fear-avoidance model of musculoskeletal pain: current state of scientific evidence. J Behav Med. 2007;30(1):77-94.

**Institute of Medicine. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research, 2011.**

*“While pain care has grown more sophisticated, the most effective care still is not widely available. Some cases of acute pain can be successfully treated but are not; others could be dealt with promptly, but agonizing delays occur. And most people with severe, persistent pain still do not receive – and often are not offered – systematic relief or the comprehensive, integrated, evidence-based assessment & treatment that pain care clinicians strive to provide.”*

*Since 1999, the number of overdose deaths involving opioids (including prescription opioids and heroin) quadrupled, with 91 Americans dying every day from an opioid overdose – more than 40 a day from prescription opioids.*

CDC. Drug overdose deaths in the United States continue to increase in 2015. 2017. <https://www.cdc.gov/drugoverdose/epidemic/index.html>.

**Long-Term Effects of Opioids**

- Fatal overdose
- Collapsed veins (intravenous use)
- Infectious diseases
- Higher risk of HIV/AIDS and hepatitis**
- Infection of the heart lining and valves
- Pulmonary complications & pneumonia
- Respiratory problems
- Abscesses
- Liver disease
- Low birth weight and developmental delay
- Constipation
- Cellulitis

**Narcan saves lives of two heroin overdose victims**

**YORK COUNTY, Pa.** — York County's first heroin overdose victims...  
**Police responded at 1:15** to the Sunoco station, 3.5 miles from the scene. A 35-year-old man was found sitting in the driver's seat of a vehicle in the parking lot. He also was unresponsive.  
 A store customer was administering CPR to the man.

**FDA moves quickly to approve easy-to-use nasal spray to treat opioid overdose**

**Naloxone in nasal spray form provides important new alternative for family members, first responders**

**Naloxone Law in Washington**

**Los Angeles Times**

**Pharmaceuticals can lead out an overdose antidote to patients as powerful as pills without requiring a prescription under new rules aimed at cutting drug-related fatalities.**

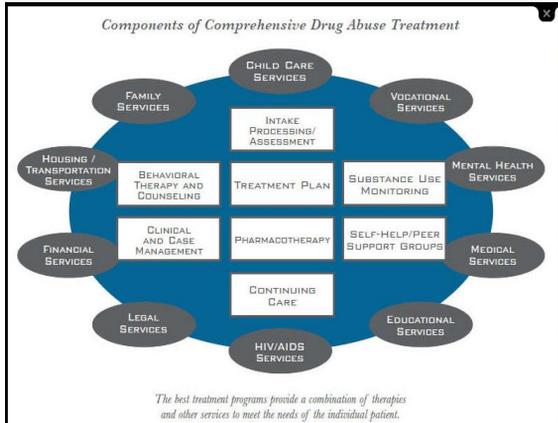
**Pharmaceuticals in the state will also be able to distribute the antidote to heroin addicts.**

**Patients and adults may obtain the potentially life-saving medication without needing to ask for it. Pharmaceutical companies who believe a customer may be at risk also may suggest the antidote, according to the state Board of Pharmacy.**

**Principles of Drug Addiction Treatment: A Research-Based Guide**

National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services. (2012). *Principles of Addiction Treatment, A Research-Based Guide, Third Edition*, NIH Publication No. 12-4180. Available at: [https://www.drugabuse.gov/sites/default/files/podat\\_1.pdf](https://www.drugabuse.gov/sites/default/files/podat_1.pdf).

- Addiction is a complex but treatable disease that affects brain function.
- No single treatment is appropriate for everyone.
- Treatment needs to be readily available.
- Effective treatment attends to multiple needs of the individual, not just his or her drug use.
- Remaining in treatment for an adequate period of time is critical
- Behavioral therapies-including individual, family, or group counseling-are the most commonly used forms of drug use treatment.**
- Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies.
- An individual's treatment and services plans must be assessed continually and modified as necessary to ensure that it meets his or her changing needs.
- Many drug-addicted individuals also have other mental disorders.**
- Medically assisted detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug use.
- Treatment does not need to be voluntary to be effective.
- Drug use during treatment must be monitored continuously, as lapses during tx occur.
- Treatment programs should test for HIV/AIDS, Hepatitis B and C, tuberculosis and other infectious diseases as well as provide targeted risk-reduction counseling, linking patients to treatment as necessary.**



### Interventions

*Townsend, et al. A longitudinal study of the efficacy of a comprehensive pain rehabilitation program with opioid withdrawal: comparison of treatment outcomes based on opioid use status at admission. Pain, 2008;140(1):177-189.*

- A 3-week patient-oriented pain management program involves PT and OT, education to better understand pain, and breathing and meditation exercises to reduce anxiety related to flares.
- 373 patients who attended the program – 1/2 of whom had been taking opioids before enrolling – found significant improvement at 6 months after the program ended, regardless of the amount of opioid medication they were taking prior to treatment.
- However, there are a very small number of these physicians and teams available, with one study estimating that just 2% of people living with chronic pain receive care from these professionals in a typical month.

## Cognitive Behavioral Therapy

- 6-session transdiagnostic CBT-based treatment manual for anxiety among PLHIV
- Effective in reducing symptoms of anxiety, depression, anxiety sensitivity, and negative affect,
- Effective in increasing HIV medication adherence as well as QOL

*Brandt, CP et al. Cognitive-Behavioral Therapy for Anxiety and Medication Adherence Among Persons Living With HIV/AIDS. Cogn Behav Pract. 2018 Feb;25(1):105-118.*

## Use of Technology, Telemedicine & Health

**Coaching**  
**HCV management** via TM integrated into an opioid substitution program is a feasible model with excellent virologic effectiveness. Psychosocial and demographic variables can identify subgroups

*Talal AH et al. Integrated, Co-located, Telemedicine-based Treatment Approaches for Hepatitis C Virus (HCV) Management in Opioid Use Disorder Patients on Methadone. Clin Infect Dis 2018.*

**Smoking Cessation:** 1 psychoeducation session & 4 brief weekly check-in sessions plus nicotine replacement therapy. All were instructed quit week 6.

*O'Cleirigh C et al. Integrated Treatment for Smoking Cessation, Anxiety, and Depressed Mood in People Living With HIV: A Randomized, Controlled Trial. J Acquir Immune Defic Syndr. 2018 Oct 1;79(2):261-268.*

**Electronic Adherence Monitoring** is acceptable and feasible in a rural US setting; technological difficulties, may impede the device's usefulness for just-in-time adherence interventions.

*Stringer, KL et al. Feasibility and Acceptability of Real-Time Antiretroviral Adherence Monitoring among Depressed Women Living with HIV in the Deep South of the US. AIDS Behav. 2018 Oct 30.*

## Changing Behavior through Physical Therapy (CBPT)

- CBPT is a program designed to help reduce the impact of pain and stress on body, mind, and activity level. You will learn ways to increase your activity and return to a normal life by:
  - Taking charge of your recovery
  - Setting activity and walking goals
  - Relaxing and distracting yourself from pain and stress
  - Changing negative thoughts and feelings
  - Balancing rest and activity
  - Creating a personal recovery plan

*Archer KR, Coronado RA, Haug CM, et al. A comparative effectiveness trial of postoperative management for lumbar spine surgery: changing behavior through physical therapy (CBPT) study protocol. BMC Musculoskelet Disord. 2014;15:525. Published 2014 Oct 1. doi:10.1186/1471-2474-15-525*

## Promote Seamless Care

Evidence supports the use of community health care workers (CHW) in promoting psychosocial outcomes in PLWH. Future CHW intervention should be expanded in scope to address key psychosocial determinants of HIV/AIDS outcomes such as **health literacy**.

*Han HR et al. Community health worker interventions to promote psychosocial outcomes among people living with HIV-A systematic review. PLoS One. 2018 Apr 24;13(4):e0194928.*

*Taylor BS et al. HIV Care Engagement in the South from the Patient and Provider Perspective: The Role of Stigma, Social Support, and Shared Decision-Making. AIDS Patient Care STDS. 2018 Sep;32(9):368-378.*

## Behavioral Treatments

The FDA labeling on use of medications is clear – treatment should be used in combination with behavior treatments for addiction

National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services. (2012). *Principles of Addiction Treatment, A Research-Based Guide, Third Edition*, NIH Publication No. 12–4180. Available at: [https://www.drugabuse.gov/sites/default/files/podat\\_1.pdf](https://www.drugabuse.gov/sites/default/files/podat_1.pdf).

Good treatment is holistic, integrated and multifaceted, taking into account the physical, behavioral and spiritual wellbeing of the individual

### EXERCISE and MIND-BODY INTERVENTIONS ARE KEY

[McIntyre TL](#), et al. Application of mindfulness for individuals living with HIV in South Africa: A hybrid effectiveness-implementation pilot study. *Mindfulness (NY)*. 2018 Jun;9(3):871-883. Epub 2017 Oct 10.

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## Resources

- [American Society of Regional Anesthesia and Pain Medicine](#)
- [American Academy of Integrative Pain Management](#)
- [American Academy of Pain Medicine](#)
- [American Chronic Pain Association](#)
- [Partners for Understanding Chronic Pain](#)
- [National Center for Complementary and Integrative Health—Pain](#)
- [International Pain Foundation](#)
- [National Fibromyalgia & Chronic Pain Association](#)
- [For Grace](#)
- [The Pain Community](#)
- [U.S. Pain Foundation](#)

## Literature/References

Hannibal, K.E., & Bishop, M.D. (2014). Chronic Stress, Cortisol Dysfunction, and Pain: A Psychoneuroendocrine Rationale for Stress Management in Pain Rehabilitation. *Phys Ther*, Vol 94(12): pp. 1816–1825.

Lipira L et al. HIV-Related Stigma and Viral Suppression Among African-American Women: Exploring the Mediating Roles of Depression and ART Nonadherence. *AIDS Behav*. 2018 Oct 20.

DiPrete BL, Pence BW, Bengtson AM, Moore RD, Grelotti DJ, O’Cleirigh C, Modi R, Gaynes BN. The Depression Treatment Cascade: Disparities by Alcohol Use, Drug Use, and Panic Symptoms Among Patients in Routine HIV Care in the United States. *AIDS Behav*. 2018 Oct 4.

Talal AH, Andrews P, Mcleod A, Chen Y, Sylvester C, Markatou M, Brown LS. [Integrated, Co-located, Telemedicine-based Treatment Approaches for Hepatitis C Virus \(HCV\) Management in Opioid Use Disorder Patients on Methadone](#). *Clin Infect Dis* 2018

Juanbeltz R et al. [Impact of successful treatment with direct-acting antiviral agents on health-related quality of life in chronic hepatitis C patients](#). *PLoS One*. 2018 Oct 9;13(10):e0205277.

[Han HR](#) et al. Community health worker interventions to promote psychosocial outcomes among people living with HIV-A systematic review. *PLoS One*. 2018 Apr 24;13(4):e0194928.

Talal AH, Andrews P, Mcleod A, Chen Y, Sylvester C, Markatou M, Brown LS. [Integrated, Co-located, Telemedicine-based Treatment Approaches for Hepatitis C Virus \(HCV\) Management in Opioid Use Disorder Patients on Methadone](#). *Clin Infect Dis* 2018

## References

Juanbeltz R, et al. [Impact of successful treatment with direct-acting antiviral agents on health-related quality of life in chronic hepatitis C patients](#). *PLoS One*. 2018 Oct 9;13(10):e0205277

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Cleirigh C et al. [Integrated Treatment for Smoking Cessation, Anxiety, and Depressed Mood in People Living With HIV: A Randomized Controlled Trial](#). *J Acquir Immune Defic Syndr*. 2018 Oct 1;79(2):261-268.

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[Stringer KJ](#) et al. Feasibility and Acceptability of Real-Time Antiretroviral Adherence Monitoring among Depressed Women Living with HIV in the Deep South of the US. *AIDS Behav*. 2018 Oct 30.

[Bassev RB](#) et al. History of Substance Abuse Correlated with Neuropsychiatric Disorders and Co-morbid HIV Infection? An Urban Population Study. *J Neurol Neurosci*. 2018;9(2).

[McIntyre TL](#), et al. Application of mindfulness for individuals living with HIV in South Africa: A hybrid effectiveness-implementation pilot study. *Mindfulness (NY)*. 2018 Jun;9(3):871-883. Epub 2017 Oct 10.

[Brandt CP](#) et al. Cognitive-Behavioral Therapy for Anxiety and Medication Adherence Among Persons Living With HIV/AIDS. *Cogn Behav Pract*. 2018 Feb;25(1):105-118.

## Integrating Behavioral Health with Chronic Pain and Addiction Care

Maureen Healy, LCSW, MPH, LMT

2019

## Role of behavioral health providers

- Biopsychosocial assessment
- Individual Counseling
- Family Counseling
- Group Counseling
- Referrals for additional specialized treatment
- Patient and provider education
- Advocacy

## Goals of Treatment

1. Improve functioning and quality of life
  - Manage biopsychosocial consequences of chronic pain
    - Reduce social isolation
    - Improve sleep
    - Manage emotional reactions: grief, anger, sadness
    - Reduce negative coping skills and increase positive coping skills
    - Address practical concerns including changes to finances
2. Manage and reduce experience of chronic pain
  - Improve treatment adherence
  - Improve patient self-management
  - Address underlying psychosocial factors

## Behavioral health techniques

- Psychoeducation
  - What is chronic pain
  - What are treatments
  - What can patients do
- Supportive Counseling
  - Normalization
  - Validation
  - Identify Coping Strategies/Reminder of strengths
  - Identify Social Supports
  - Goal setting
- Relaxation training

## Behavioral health techniques

- Cognitive behavioral therapy
- Motivational Interviewing
- Mindfulness-based approaches
- Attachment-based approaches
- Support Groups

## The Integrative Approach

Why integrate?

Barriers: Medical culture; patient and provider expectations; Stigma of chronic pain, mental illness, substance abuse, and poverty

How does this address the opioid crisis?

## The Integrative Approach

- Integrative models
  - Multidisciplinary vs. Interdisciplinary
  - Co-located vs. integrated vs. collaborative
  - Group Visits
- Working with behavioral health professionals
  - Qualifications
  - Scope of practice
  - Case consultation
  - Referrals

## Family Medicine Comprehensive Pain Management

BronxCare Health System, Bronx, NY

### Clinic Characteristics

FQHC in South Bronx  
 Patient demographics  
 Most common diagnoses  
 Comorbidities  
 Social factors

## Family Medicine Comprehensive Pain Management

BronxCare Health System, Bronx, NY

### Key Elements of Integrative Clinic

1. Multidisciplinary assessment:
  - MD/DO
  - PMR MD
  - LCSW
2. Collaboration with patient
  - Patient and provider education
3. Access to adjunct therapies
  - PT
  - Acupuncture
  - OMT
  - Behavioral health care
  - Hypnotherapy
4. Teamwork and communication
5. Integrative goals

## Family Medicine Comprehensive Pain Management

BronxCare Health System, Bronx, NY

### Next Steps

- Medication Assisted Treatment for Opioid Use Disorder
- Expand use of adjunct therapies for treatment and prevention of chronic pain
- Research to determine model's impact on patients' quality of life and opioid use

## Integrative Care: what are our options?

### – Integrative Care Model

- Different aspects of integrative care
- Integration of the Interprofessional Team (general) – MH
- Clinic example: Bronx-Lebanon Hospital, New York – MH
- Clinic example: Ponce de Leon Center, Atlanta GA – SP
- Incorporating integrative pain management techniques into PT practice – SP

## Conclusions

- HIV, chronic pain and opioids: the perfect storm has touched down (past and present)
- PT as a key player in the future of the crisis
- PT alone is not the solution
- Integrative and multidisciplinary care is required for optimal impact

## Questions?

