



**Relapsing Late in Life:
Opioid use disorder in a geriatric patient**

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Outline

- Case presentation
- Epidemiology of opioid use/misuse in older adults
- Basics of methadone and buprenorphine
 - Pharmacology



Ms. H

- 74 year-old retired housecleaner
- Presented to primary care
 - For treatment of opioid use disorder (OUD)
- Past Medical History
 - OUD
 - Hepatitis C cirrhosis
 - Hepatocellular carcinoma
 - Hypertension
- Medications: None



Social History

- Daily user of intranasal heroin
 - Started at age 15
 - Sober for 20 years in her 40s-60s
 - Relapsed after a divorce in her 60s
- Socially isolated
 - Lives alone with her cat Ozzy
 - Neighbor checks on her regularly
 - Estranged daughter (surrogate decision maker)



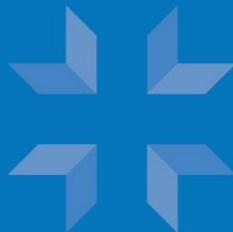
Physical exam

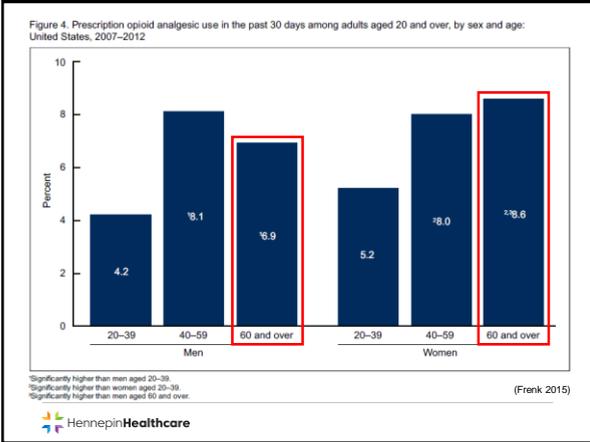
- BMI: 17.3 kg/m² (Weight: 94lbs)
- Tearful when talking about her daughter
- Cachectic with temporal wasting
- Diffuse scabbed excoriations
 - Recent scabies infection
- Gait:
 - Walks bent over
 - Narrow-base (~4 inches)
 - Reasonably quick and stable





Epidemiology:
Opioid use and misuse in
older adults



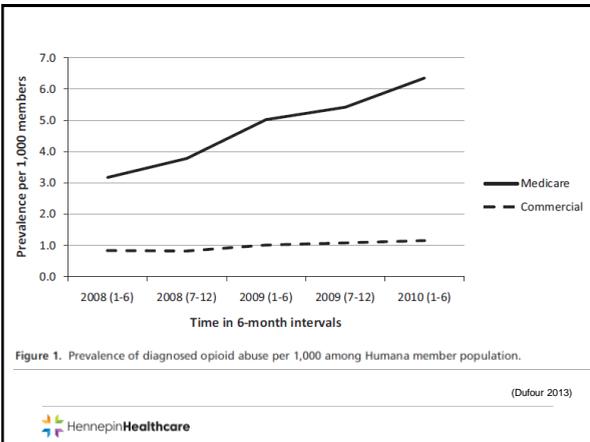


Nonmedical use and OUD

- Nonmedical use of prescription opioids in adults 65+
 - 2.2% last 12 months
 - 5.0% lifetime
- Diagnosed with OUD
 - 0.4% last 12 months
 - 0.5% lifetime

(Saha 2016)

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Buprenorphine and methadone



Med-assisted treatment for OUD

- Three FDA-approved medications
 - **Buprenorphine**
 - **Methadone**
 - Naltrexone
- Act on opioid receptors
 - Manage withdrawal (physiologic dependence)
 - Decrease psychological craving
- Slow onset, weaker effects -> less likely to produce a "high"
 - Mildly reinforcing – improves treatment adherence
- Need to be continued indefinitely
 - Higher rates of abstinence with medication-assisted treatment than without

(BupPractice 2018)

Hennepin Healthcare

Bup: Mechanism of action

- Partial opioid agonist
 - Ceiling effect -> low risk of respiratory depression
- Very high affinity for mu receptor
 - Blocks effects of other opioids (e.g., heroin)
 - Can precipitate withdrawal

Receptor Activation
Full Agonist, Partial Agonist, Antagonist

Log Dose of Opioid	Full Agonist (methadone)	Partial Agonist (buprenorphine)	Antagonist (naltrexone)
-10	0	0	0
-9	0	0	0
-8	10	0	0
-7	60	0	0
-6	80	10	0
-5	90	20	0
-4	95	30	0

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(BupPractice 2018)

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Bup: Pharmacodynamics/kinetics

- Long half-life
 - Average 37 hours
 - Range 20-73 hours
- Metabolized using CYP 3A4
- Mostly excreted fecally
 - Relatively safe with renal insufficiency
 - Hepatic impairment reduces clearance

(BupPractice 2018)



Bup: Administration

- Route:
 - Sublingual
 - Buccal
 - Injection
 - Implant
- Given 1-3 times daily
- Commonly prescribed as combo bup/naloxone
 - Abuse deterrent
 - Naloxone bioavailable only with injection

(BupPractice 2018)



Bup: Adverse reactions/warnings

- Constipation
- Sedation
- Respiratory depression (rare)
- Transaminitis

(Bup Practice 2018)



Bup: Drug interactions

- CNS depressants
 - Increase risk of sedation, respiratory depression
 - Particularly benzodiazepines, alcohol
- Anticholinergics
 - Increased risk of urinary retention, constipation
- Drugs that interact with the CYP 3A4 system
 - Inhibitors: May increase bup levels
 - Inducers: May decrease bup levels
 - Buprenorphine is a weak 3A4 inhibitor

(Bup Practice 2018)



CYP3A4 inducers/inhibitors

- Commonly-used inhibitors:
 - Azole antifungals
 - Macrolides
 - Nondihydropyridine calcium channel blockers
 - Protease inhibitors
 - Some antidepressants (e.g., fluoxetine, amitriptyline)
- Commonly-used inducers:
 - Phenobarbital
 - Carbamazepine
 - Phenytoin
 - Rifampin

(McCance-Katz 2010; BupPractice 2018)



Methadone

- Mechanism of action: full mu agonist
- Pharmacodynamics/kinetics:
 - Peak effect up to 3-5 days
 - Half life 22-24 hours (range 8-59 hours)
 - **Metabolized by CYP 3A4**
- Administration:
 - Daily in OUD
 - Typical daily dose: 60-120mg
- Adverse reactions/warnings
 - Sedation/respiratory depression
 - QTc prolongation

(BupPractice 2018)



References

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Thank you and questions

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