Microdosing:
A Guide to Using Buprenorphine During the Illicit Fentanyl Pandemic

UNIVERSITY OF MINNESOTA

Driven to Discover℠

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Presenter Backgrounds

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- Certified in integrated harm reduction psychotherapy
- Participates in the implementation of harm reduction interventions, public health strategies, drug policy transformation, and justice reform

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Disclosure Information

- **Disclosure of Relevant Financial Relationships**

  None

Outline/Objectives

OUTLINE

- Physiology of Opioid use disorder and MAT
- Classic induction when heroin was heroin
  - Hospital experience
- The synthetic (fentanyl) opioid crisis
  - Challenges with classic induction
- Bernese Method; US challenges in implementation
- Our experience with micro-inductions

OBJECTIVES

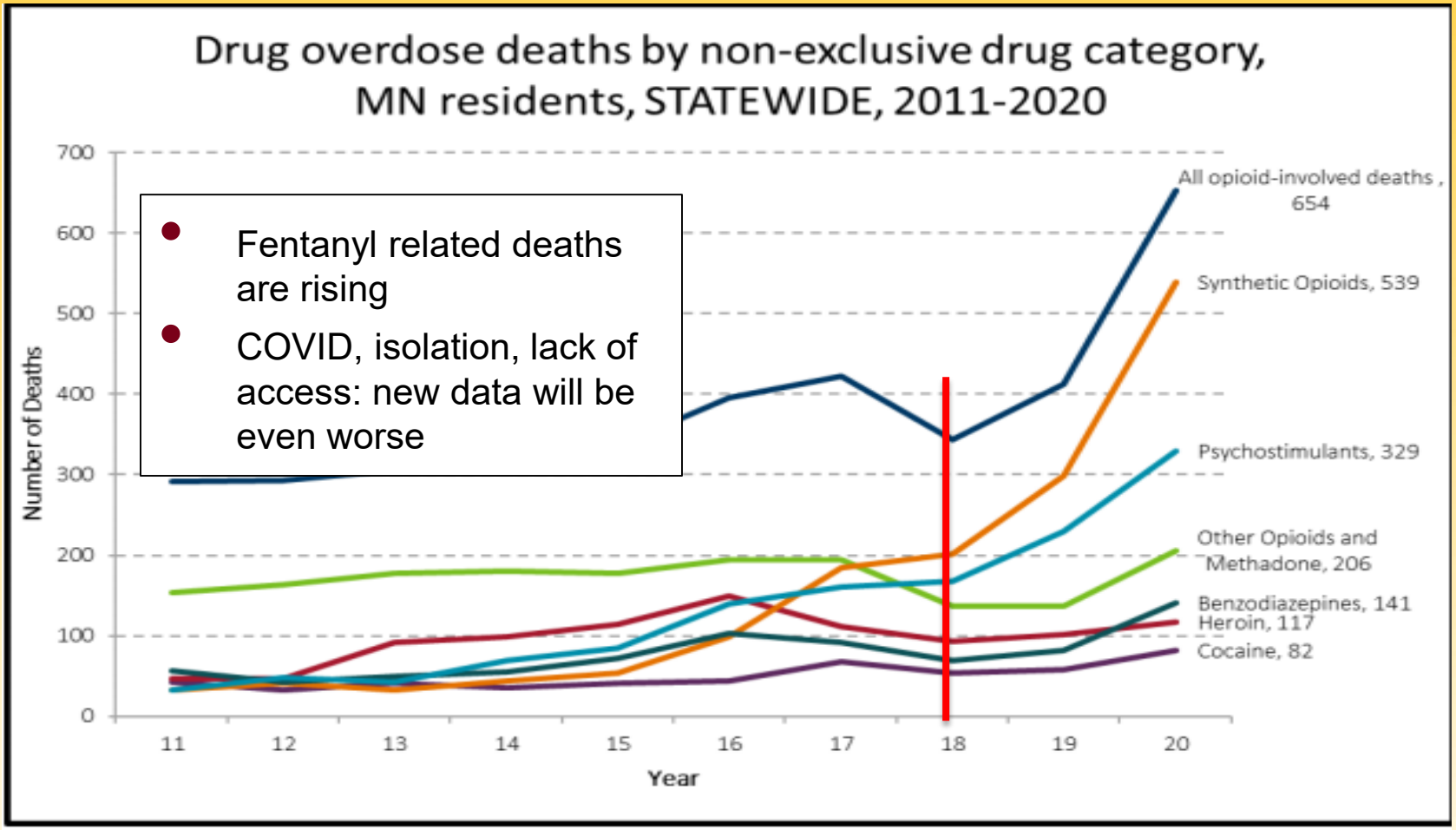
- Understand how buprenorphine works, and when microinductions might be helpful
- Understand new challenges with buprenorphine induction and precipitated withdrawal
- List two methods for a patient to start taking buprenorphine including microinductions

Definitions

- **Microdosing**: Starting buprenorphine at tiny doses, assuming the patient will need agonist opioids for the first few days (similar to Bernese method)
- **Classic induction**: period of withdrawal, followed by a 2-4 mg dose of buprenorphine
- **Low dose classic induction**: period of withdrawal, followed by taking small doses of Suboxone film throughout the day, until symptoms improve, and then taking full dose of buprenorphine
- **Macrodosing**: once someone is in withdrawal, giving doses over several hours to a peak of 32 mg, to overcome precipitated withdrawal

The problem

OPIOID RELATED DEATHS ARE RISING; WE DON'T KNOW WHAT'S IN DOPE; STARTING BUPE IS TRICKIER!

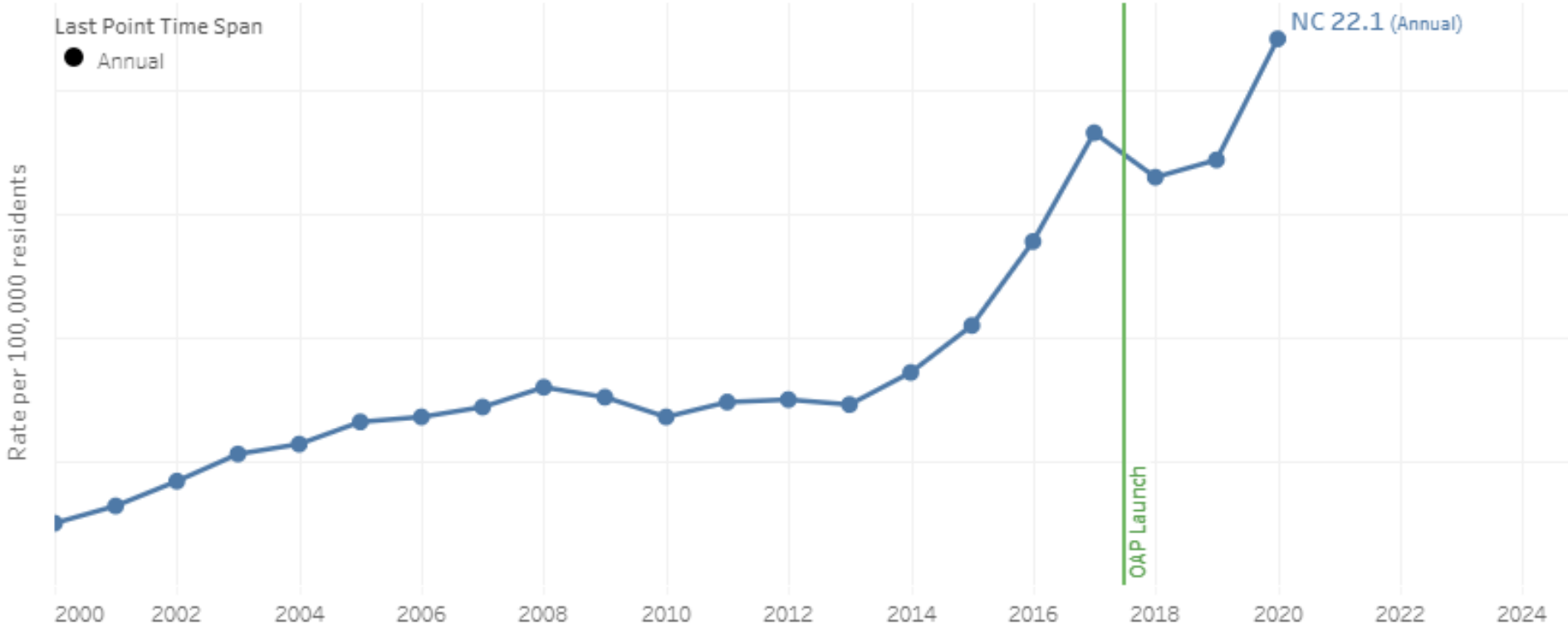

Drug overdose deaths by non-exclusive drug category,
MN residents, STATEWIDE, 2011-2020
Fentanyl related deaths are rising
COVID, isolation, lack of access: new data will be even worse
Number of Deaths
Year
All opioid-involved deaths , 654
Synthetic Opioids, 539
Psychostimulants, 329
Other Opioids and Methadone, 206
Benzodiazepines, 141
Heroin, 117
Cocaine, 82

Deaths in NC

The rate of unintentional overdose deaths among residents of **NC** in **2020** **(Annual)** was **22.1**.
(Rate per 100,000 residents. Number of deaths: 2,322)

Place Rank

NA
(NC has no comparison group)*



Injected Related Infections

BACTERIA ON OUR SKIN AND IN OUR MOUTHS:

- Cellulitis, Abscess, Sepsis, Osteomyelitis, Endocarditis
- Viruses:
  - HIV, hep C, hep A

TECHNIQUE: WITHOUT TRAINING ON SAFER INJECTION TECHNIQUE, AND/OR LACK OF ACCESS TO SUPPLIES:

- Licking needles
- Improper skin cleaning
- Re-using syringes
- Sharing needles
- Re-using rinses
- The more injections, the increased risk

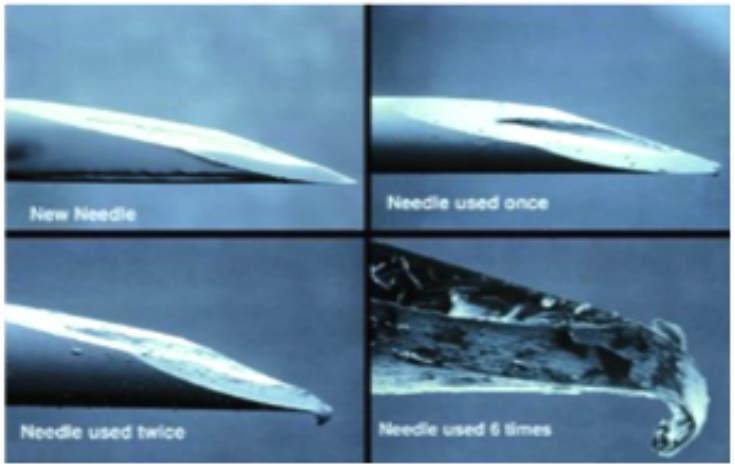
STEPS:

- Clean surface
- Wash hands
  - Mix drug ("cooking")
- Draw through filter (also called a rinse)
  - Don't share rinses
  - Discuss risk of re-using
- Find site (at least 1 inch from last site), clean skin
- Tourniquet
- Inject (don't lick needle!)
- Band aid

ASK ABOUT PREP AND PEP FOR HIV

Supplies:

1. Clean Bottle for mixing water and bleach
2. Bleach to disinfect used syringes when a clean one isn't available
3. Bandages to help avoid infection after injecting
4. Sterile water to mix the drug with
5. Tourniquet to "tie off" above the injection site.
6. Bottle cap for mixing water with the drug before it's drawn up into the syringe (commonly called "cooker")
7. Cotton balls to trap dirt and debris as the drug, mixed in water, is pulled into the syringe.
8. Syringes don't come inside the kit but are provided at distribution sites.
9. Step-by-step injection instructions
10. Alcohol swabs to clean the injection site before insertion.



TIPS:

1. Water:
   - Don't use water that's been sitting out uncovered.
   - If you are using bottled water, put the cap back on after taking the amount you need out.
   - Use the sterile needle to draw the water out and immediately cap it.
   - Boiling water and letting it cool sterilizes it.
   - Tap water which has been running is better than water that's been sitting out exposed to air.

2. Alcohol Swabs: clean the injection area and before actually injecting do one decisive swabs in one direction with a new swab. Don't rub around or go back and forth because you're just moving bacteria back into the injection site.

3. Tie/Tourniquet:
   - Remove the tie before pushing the plunger in.
   - Always use a tie; the vein is more accessible and easier to hit.

4. If you miss, use a new needle if you can. The sharper the better and they get dull quick

5. Rotate injection sites

6. Cleaning rig:
   - If you rinse a rig with bleach, rinse it again with cold water.
   - Always use cold water- Warm water causes blood to clot and doesn't do as good a job washing the bleach away
   - Don't boil syringes

7. If you have a stock of water, only use brand new needles to draw up water to put in a cooler. Don't put a rig you or someone else has already used back into the clean water, as that will contaminate it.

Synthetic Opioid Crisis:

- Fentanyl can lead to:
- More withdrawal frequency
- More frequent injections=
  - Higher Bacterial Burden
  - Increased risk of Overdose
  - Increase in Hospitalizations

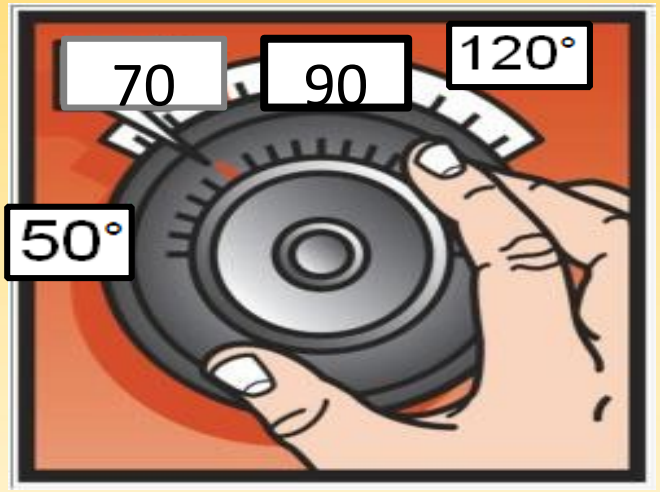
Big Picture:
How does someone become dependent?

What are some solutions?

Medications for Opioid Use Disorder (MAT: ie methadone and buprenorphine products like Suboxone)

- Reduce mortality
- Reduce transmission of blood-borne viruses
- Decrease bacterial infections
- Improve patients' general health and well being (psycho-social functioning)
- Reduce drug-related crime
- Reduce heroin and other drug use

What is Opioid Maintenance Therapy?



MOUD options:
Methadone
Buprenorphine products

On average:
- >90% relapse with abstinence or tapering
- 1 year mortality after OD decreased 60%

Abstinence or Tapering = RELAPSE

HOWEVER!!

- If patients take Suboxone (buprenorphine) while other opioids are “on board:”
  - This CAUSES **PRECIPITATED WITHDRAWAL**
    - If someone has opioids on the receptors in their brain that haven’t worn off yet: bupe is so powerful, at a regular dose, it “sucks” the other opioid off the receptor, and the patient goes into immediate severe opioid withdrawal.
- **[THIS IS DUE TO THE BUPRENORPHINE, NOT THE NALOXONE]**
  - Patients traditionally need to be in withdrawal prior to first dose

“Classic” Home Suboxone induction:

- Wait 24 hours; the opioid (heroin, in the past), has fully worn off.
- The patient is in withdrawal.
- A patient interested in suboxone can:
  - Option 1: go to a clinic that doses suboxone in clinic
  - Option 2: receive a script for “home” (out of clinic) induction
  - (Other options like detox, emergency department will be deferred today)
- Worked well for most people

Classic Hospital:

SHORT STAY	LONG STAY OR LOTS OF PAIN
• Hold Opioids • Once COWS more than 8, give 2-4 mg bupe • Give throughout day based on COWS, to peak of 8 or 16 mg	• If on agonist opioids, hold oral dilaudid at 10 pm • Offer 2 mg bupe at 3 am prn, COWS 8 or higher • Offer again 2 hours later • Once tolerated, change to regular dose of bupe

New challenges with the “classic” method:

- Since 2019:
  - Hospitalized patients started asking for methadone (less access in MN)
  - Patients using syringe exchange “less interested” in suboxone
  - Started hearing “suboxone doesn’t work anymore, since I use fentanyl”
  - Withdrawal symptoms often seem to increase when folks try to start suboxone
  - Realized it was due to precip withdrawal, potentially from illicit fentanyl
  - Conversations on Opioid Safety and Naloxone Network (OSNN) confirmed this

Why are people who use fentanyl struggling more with suboxone induction?

THEORIES

- People aren't waiting long enough for first dose: **popular belief among addiction providers**
- People mistake "anxiety" for withdrawal, and are taking suboxone too soon.
- People just need to WAIT longer, "quitting is hard"
- MAYBE there something different about illicit fentanyl?

REVIEW OF LITERATURE

- Bernese method
- Discussions on OSNN
- I had already started microdosing for people in the hospital on opioids for pain control after heart surgery, and knew it worked

Question 1:

- What IS illicit fentanyl?
  - How does it get into the drug supply?
  - Every “bag” is different = dope much less predictable
- It is highly lipophilic: it builds up in body fat
  - For some people, this may mean that it can take longer to clear out of the system (research supports this)

Theory

- Chemical diversity of these products

plus

Lipophilic properties

- Fentanyl builds up in a patient's system in unpredictable ways:
  - **In SOME PEOPLE,** A classic induction dose of suboxone:
  - Can lead to precipitated withdrawal long after euphoria has worn off, even after 24 hours of no use.
  - Some providers recommend waiting **72 hours** before starting suboxone

Question 2:How can medical providers help?

- Based on:
  - Listening to patients
  - Literature
  - Experience in the hospital
  - Support from OSNN
  - Minimal access to methadone for many patients
  - Input from SSPs

Three main options:

- Wait longer, and use lower initial doses
- Keep using opioids, and titrate up buprenorphine
- Try and overcome withdrawal with High doses (macrodosing)
- And give everyone gabapentin, hydroxyzine, Zofran, and clonidine!

Microdosing options:Burnese

- Hammig et al, Substance Abuse and Rehabilitation 2016
- Buprenorphine **and street heroin**
- Day 1 0.2 mg SL/2.5 g heroin
- Day 2 0.2 mg SL/ 2 g heroin
- Day 3 0.8+2 mg SL/ 0.5 g heroin
- Day 4 2 +2.5 mg SL/ 1.5 g heroin
- Day 5 2.5+2.5 mg SL/0.5 g heroin
- Day 6 2.5 + 4 mg SL (stop heroin)
- Day 6 4 + 4 mg SL
- Day 7 4 + 4 mg SL
- Day 8 8 + 4 mg SL

Hospital Inductions:

Hospital:

- Low dose bupe:
  - Options include IV bupe, butrans patch, belbuca (buccal film)

Hospital: with predicted 5 day stay and lots of pain

- Induction with buccal films, while continuing agonist opioids, with belbuca, a buccal form of buprenorphine:
- day 1: 75 micrograms QID (1/2 of the 150 mcg buccal film)
- day 2 150 microgram QID
- day 3 is 450 microgram QID
- day 4 transition to suboxone 2/0.5 mg films: 1 mg (1/2 a film) QID
- Day 5: 4 mg BID (4/1 mg film)
  - Continue at this dose if needing agonist opioids for **pain**

OR

- Day 6: otherwise stop other opioids and increase to 8-2 mg stop methadone/other opioids vs opioid taper, depending on the patient

Short stay/No causes of acute pain besides withdrawal:

- Slow Classic Induction:
  - COWS >8
  - Give 1 mg buprenorphine
  - if no precipitated withdrawal:
    - Dose 2 mg bupe Q 2 prn COWS >8, up to 16 mg
  - Next morning, change to 8-2 mg BID if tolerated

Home Inductions

Assessment:

- Distress tolerance
- Barriers to ongoing use (legal issues, treatment, access, pregnancy status)
- Willingness for ongoing use (some patients are just done)
- Stability (housing, support, use pattern)
- Cognitive ability (understand dosing schedule, ability to follow directions)
- Apprehension and anxiety (withdrawal can be traumatic, precipitated withdrawal is worse)

- MEET THEM WHERE THEY ARE AT

Patient Centered Questions:

- Any precipitated withdrawal recently
- Frequent fentanyl use:
  - I discuss two options:
    - “nibble method”
      - period of withdrawal
      - Followed by taking small doses of Suboxone film throughout the day, until symptoms improve, and then taking full dose of buprenorphine
    - “microdosing”

Home Microinduction

- Provider info:
  - Day 1: 0.5mg once
  - Day 2: 0.5mg twice a day
  - Day 3: 1mg twice a day
  - Day 4: 2mg twice a day
  - Day 5: 4mg twice a day
  - Day 6: new script, 8-2 mg films
- Script 1: 2-0.5 mg films, one film a day as instructed, total 4 films, 0 refills
- Will need new script for day 5, of 8-2 mg films, 1-2 films daily, total 14 films, 0 refills

Suboxone (buprenorphine/naloxone) Home Induction Instructions

For some people, the "classic" induction with Suboxone (waiting until withdrawing) isn't helping people feel well. Another method is called microdosing. By slowly increasing the Suboxone in your body every day, some people are able to start Suboxone without going into withdrawal.

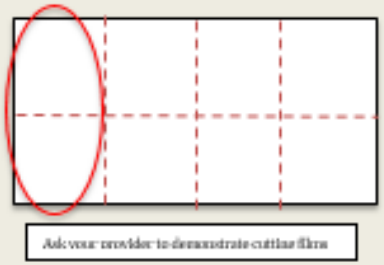
you may need to use your usual substances for the first few days to control withdrawal symptoms.
Most people can stop this around day 3.

Day 1: 0.5mg once
Day 2: 0.5mg twice a day
Day 3: 1mg twice a day
Day 4: 2mg twice a day
Day 5: 4mg twice a day

Day 1

Take ____0.5____mg ___1_____ times today.

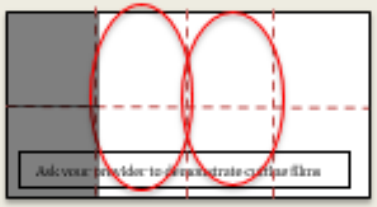
You will need to cut a 1/4 sized piece off a ___2_____mg film.



Day 2

Take ___0.5_____mg ___2_____ times today.

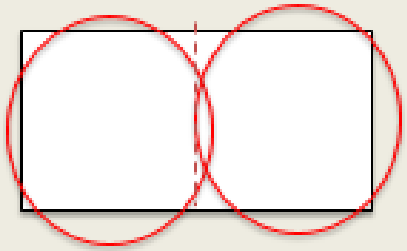
You will need to cut two 1/4 sized pieces off a ___2_____mg film.



Day 3

Take ____1____mg ____2_____ times today.

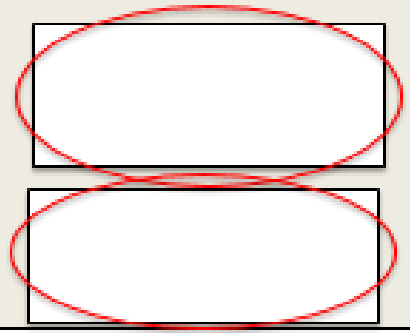
You will need to cut a ___2_____mg film into ____2____ pieces.



Day 4

Take ___2_____mg _____2____ times today.

You will take a whole 2 mg film twice today.

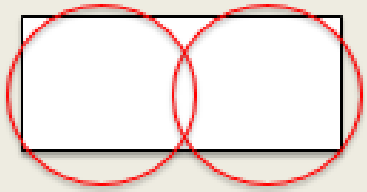


NEW FILM prescription:

Day 5

Take ___4_____mg _____2____ times today.

You will take ½ of a 8 mg film twice today.



Day 6:
8 mg films
take 8 mg 1-2 times a day depending on how you feel

MN STYLE

- Day 1: 0.5mg once
- Day 2: 0.5mg twice a day
- Day 3: 1mg twice a day
- Day 4: 2mg twice a day
- Day 5: 4mg twice a day
- Day 6: 8-2 mg films BID

BERNESE

- Day 1: 0.2 mg SL/2.5 g heroin
- Day 2: 0.2 mg SL/ 2 g heroin
- Day 3: 0.8+2 mg SL/ 0.5 g heroin
- Day 4: 2 +2.5 mg SL/ 1.5 g heroin
- Day 5: 2.5+2.5 mg SL/0.5 g heroin
- Day 6: 2.5 + 4 mg SL (stop heroin)
- Day 7: 4 + 4 mg SL
- Day 8: 8 + 4 mg SL

Conclusions

- General harm reduction principals
  - Ensure patient has naloxone
  - Ensure patient has safer use supplies (clean needles, rigs, smoking supplies, et)
  - Ensure patient has information/education
  - Ensure patient remains connected even if they are not successful
    - Up to date contact information
  - Patients can do this on their own
    - Have information to give them

Summary:

- Many medical providers think microinductions are not necessary
- There is not a “one size fits all” process to start suboxone
- There are many ways someone who uses drugs can use suboxone, depending on their own individual goal; and depending on how they are educated on its uses
- People who use opioids, and especially who use fentanyl, would benefit from multiple options on how to use suboxone, and discussing prior experience with precipitated withdrawal is key.
- Medical providers still are not sure who would benefit from classic induction, and who would benefit from the option of “microinduction”
- Research is ongoing on illicit fentanyl and MAT, but listening to people who use drugs is THE MOST important way to support them!

Thank You!

- Questions?

Microdosing citations

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