Dangerous Liaisons:
The Intersection Between the SUD, HCV and HIV Epidemic in Indian Country

Jorge Mera, MD, FACP
Director of Infectious Diseases
Cherokee Nation Health Services
Conflict of Interest Disclosure Statement

Dr. Mera does not have any conflicts of interest to report in relation to this presentation.
Learning Objectives

1. Participants will understand and explain the concept of a Syndemic
2. Participants will recognize the interaction of the SUD epidemic in relation to the HCV and HIV epidemics in Indian Country
3. Participants will be able to describe interventions to mitigate the SUD, HCV and HIV Syndemic at a Macro (societal), Micro (health system) and individual (health professional) level
Outline

Clinical Case

The SUD/HCV/HIV Syndemic
- Example: Scott County, Indiana

The SUD/HCV/HIV Syndemic in Indian Country

Interventions to Mitigate the Syndemic:
- Societal (Macro), Health system (Micro), Health Professional (Individual)

Conclusions
Mr. S is a 24-year-old American Indian/Alaska Native (I/AN) male who suffered a right femur fracture (MVA) 6 years ago and was placed on oxycodone hydrochloride for pain control.

Two years ago, his new medical provider refused to refill the oxycodone, he then turned to his friends who provided him with it, later he had to purchase the oxycodone in the streets and unfortunately started injecting it.

One year ago, he started injecting heroin since it was cheaper than street oxycodone. He has been sharing needles and syringes since the pharmacy will not sell them to him.

Three days ago, he presented to the Emergency Department (ED) with opioid withdrawal symptoms (Nausea, vomiting, diarrhea, restlessness, abdominal pain). The ED medical provider induced him with Buprenorphine/Naloxone and gave him a 3-day prescription, enough until he could be evaluated and placed on Medication Assisted Therapy (MAT). During the ED visit his rapid HCV antibody test was positive and his rapid HIV antibody test was negative.
What can we do for Mr. S?

AS A PRIMARY CARE HEALTH PROFESSIONAL? (INDIVIDUAL)

AS A HEALTH SYSTEM? (MICRO)

AS A SOCIETY? (MACRO)
Clinical Case

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Conclusions
Syndemic

- **Syndemic** is the clustering of two or more epidemics interacting synergistically and contributing to excess burden of disease in a population.

- **Core principles:**
  - Clustering of two or more conditions in a specific population
  - Their **synergism** in producing adverse outcomes
  - Precipitation and propagation by large scale social, cultural, and economic forces

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Poverty
Domestic Violence
Mental Illness
Historical Trauma*
Cultural Disconnection
Incarceration

SUD
Behavior Risk

HCV/HIV

Screening
Linkage to Care
Quality of Care

Prevention

Harm Reduction Strategies

Screening
Linkage to Care
Quality of Care

Harm Reduction Strategies
Indiana HIV Outbreak Overview

From 2004-2013
• Only < 5 HIV infections had been reported annually in Austin, Indiana

In late 2014
• 3 new HIV diagnoses in Austin IN
• 2 of them had shared needles

By mid-January 2015
• The ISHD identified 8 more new infections through contact tracing.
• The source of infection: Injection of the opioid oxymorphone (semi-synthetic opioid analgesic)

As of June 14, 2015:
• 170 new HIV infections
• 115 co-infected with HCV
• Community of 4200 people

All epidemiologically linked to Austin, IN
• Infections were recent and from a single HIV strain

Scott County: Among the state’s 92 counties, ranked 92nd in a variety of health and social indicators, including life expectancy

Scott County: Among the state’s 92 counties, ranked 92nd in a variety of health and social indicators, including life expectancy
Syndemic Risk Factors

- High poverty (19.0%)
- Unemployment (8.9%)
  - Few affected persons were employed or insured
- Education
  - Low educational attainment (21.3% no high school)
  - Little HIV awareness in the general population
  - Unaware of transmission risks and treatment benefits
  - No routine HIV education in schools (abstinence only)
- County ranked lowest in the State for health indicators and life expectancy
- SSP program not permitted by state law
- No outpatient HIV/HCV care available
- Limited addiction services, including MAT

How Was the Outbreak Controlled?

- One stop shop
  - Behavioral health treatment
  - HCV/HIV/MAT treatment provided
  - SSP emergency authorization

Community Outbreak of HIV Infection Linked to Injection Drug Use of Oxymorphone — Indiana, 2015 MMWR May 1, 2015 / 64(16):443-444
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Conclusions
Trends in Indicators of Injection Drug Use, Indian Health Service, 2010-2014: A Study of Health Care Encounter Data

- Representation of American Indian/Alaska Native (AI/AN) and Hispanic/Latino population, as a percentage of county population, by county, in 2010, and 220 counties deemed as most vulnerable to rapid dissemination of HIV or hepatitis C virus infection among persons who inject drugs in the United States, 2012-2013.
- Data on 220 most vulnerable counties from Van Handel et al. Data on American Indian/Alaska Native population from the 2010 US Census.

Overall national annual rates (per 10,000 adults) of diagnoses among American Indian/Alaska Native persons for hepatitis C virus (HCV) infection, opioid use disorder, arm cellulitis and abscess, and opioid-related overdose, Indian Health Service, 2010-2014. Rates of diagnoses represent 1 health care encounter per person per year. Data for HCV infections are for adults aged 18-35; all other data are for adults aged ≥18. Arm cellulitis was counted only among adults with no diabetes on or before the health care encounter for arm cellulitis visit (since 2001). Data source: National Patient Information Reporting System.

HCV in American Indian/Alaska Native Populations

Rates of reported acute hepatitis C, by race/ethnicity
United States, 2003–2018

HCV disproportionately affects AI/AN

- From 2015 to 2016, incidence rates of acute HCV among AI/ANs rose from 1.8 to 3.1 cases per 100,000, twice the rate compared to non-Hispanic whites.
- AI/AN HCV mortality rate is 10.8 deaths per 100,000, compared to 4.5 per 100,000 nationally.
- The rates of liver cancer are significantly higher for AI/AN than the white population.

8 in 10 new HCV infections in the U.S. are transmitted through injection drug use.

• In the U.S. in 2018, both male and female AI/AN had the highest percent of estimated diagnoses of HIV infection attributed to injection drug use, compared with all races/ethnicities.
• Among men, 15% (23) of new HIV diagnoses were attributed to injection drug use, and 11% (21) were attributed to both male-to-male sex and injection drug use.
• Among women, 43% (13) of new HIV diagnoses were attributed to injection drug use.
HIV in American Indian/Alaska Native Populations

Estimated number of AIDS cases and rates (adults); 2016

<table>
<thead>
<tr>
<th></th>
<th># Cases</th>
<th>Rate (per 100,000)</th>
<th>American Indian/Alaska Native / White Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native males</td>
<td>165</td>
<td>16.8</td>
<td>1.9</td>
</tr>
<tr>
<td>White males</td>
<td>7,490</td>
<td>6.9</td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native females</td>
<td>44</td>
<td>4.3</td>
<td>2.5</td>
</tr>
<tr>
<td>White females</td>
<td>3,196</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native (total, all ages)</td>
<td>210</td>
<td>8.6</td>
<td>1.9</td>
</tr>
<tr>
<td>White (total, all ages)</td>
<td>9,023</td>
<td>4.6</td>
<td></td>
</tr>
</tbody>
</table>

Source: CDC 2021. HIV Surveillance Report: Diagnoses of HIV Infection in the United States and Dependent Areas, 2019, Table 1a and 1b.

Estimated number of AIDS cases and rates in adults; 2016

<table>
<thead>
<tr>
<th></th>
<th># Cases</th>
<th>Rate (per 100,000)</th>
<th>American Indian/Alaska Native / White Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native males</td>
<td>77</td>
<td>8.1</td>
<td>1.8</td>
</tr>
<tr>
<td>White males</td>
<td>3,713</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native females</td>
<td>24</td>
<td>2.4</td>
<td>3.0</td>
</tr>
<tr>
<td>White females</td>
<td>721</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaska Native (both sexes)</td>
<td>102</td>
<td>4.3</td>
<td>2.0</td>
</tr>
<tr>
<td>White (both sexes)</td>
<td>4,442</td>
<td>2.2</td>
<td></td>
</tr>
</tbody>
</table>

Outline

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Conclusions
SUD/HCV/HIV Syndemic: Macro Level Interventions (Society)

National or Statewide Interventions

• Decrease Injection Drug Use and/or make it safer
  • Make SSP available
  • Easy access to MAT
  • Easy access to behavioral health

• Eliminate social and structural determinates associated with IDU
  • Poverty (Decrease the economic inequality gap)
  • Lack of education
  • Racism
  • Stigma
  • Mass incarceration (Reform drug laws)
Impact of OST combined with high-coverage SSP from studies adjusting for confounders and all pooled estimates\(^1\)

- 4 studies, 3356 participants 518 HCV cases
- Reduced HCV by 74%

Studies examining the association between SSP exposure and HIV incidence\(^2\)

- 56% reduction in risk of HIV infection

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Geographic Disparities in Access to Syringe Services Programs Among Young Persons With Hepatitis C Virus Infection in the United States

- Number of lifetime PWID – 6.6 million
- Number of persons injecting in past year - 775,000
  - 334,000 (43%) living with HCV infection
- 270 SSPs in operation (early 2017)
- Approximately 2,200 additional programs needed for proximal access to syringe services

Map of syringe services programs and young persons aged 15–29 years with current hepatitis C virus (HCV) infection identified by the Laboratory Corporation of America and Quest Diagnostics laboratories, July 2015 to June 2016. Dots represent individual cases of HCV infection. Abbreviation: SSPs, syringe services programs.
US Counties Lacking Any Publicly Available Medication for Opioid Use Disorder (MOUD) Provider, 2017

• **Question**
  - What are the characteristics of US counties with high rates of opioid overdose mortality and low capacity to deliver medications for opioid use disorder?

• **Findings**
  - Counties in the South Atlantic, Mountain, and East North Central divisions had more than twice the odds of being at high risk for opioid overdose mortality and lacking in capacity to deliver medications for opioid use disorder.
  - Higher density of primary care clinicians, a younger population, micropolitan status, and lower rates of unemployment were associated with lower risk of opioid overdose and lower risk of lacking in capacity to deliver medications for opioid use disorder.

• **Meaning**
  - Strategies to address mortality from opioid overdose by increasing treatment for addiction should target urban counties in Appalachia, the Midwest, and the Mountain division and include efforts to increase primary care clinicians and employment opportunities.
SUD/HCV/HIV Syndemic: Micro Level Interventions (Health System)

Cherokee Nation Health Services

- Sovereign Nation within a Nation
- 2nd largest Indian Nation (~350,000 citizens)
- Largest Tribal Health System in the USA

- Recognition of the problem by leadership
- Policy development to address the problem
- Definition of goals objective and targets
- Strategic planning
- Incentive

- One central hospital and 9 outlying clinics
- Medically serves 130,000 AI/AN
- Unified electronic health record.
CNHS: Building HCV Care Infrastructure 2012 - 2015

- 263 HCV RNA (+) patients on waiting list
- Seropositivity rates:
  - 6.1% (95%CI: 5.2%-7.2%) in the 18-48-year-old group
  - 5.8% (95%CI: 4.9-6.9%) in the 49-69-year-old group
- ~1800 current infections estimated
  - Using age-gender-race stratified census data
- Work force expanded to 7 providers in 4 clinics
- Over 220 patients treated

CNHS: Cherokee Nation Health Services
Launching CNHS HCV Elimination Program

HCV Elimination Program Launched November 2015

• Gilead Foundation Grant
• Screening and treating infrastructure in place
• DAAs obtained through PAP, Medicaid and private insurers

Goal:

• Eliminate HCV from individuals who accessed the Cherokee Nation Health Services

Partnerships

• CDC: Technical assistance
• University of Oklahoma
• University of New Mexico
• Oklahoma State Department of Health
• Cardea

“As Native people and as Cherokee Nation citizens, we must keep striving to eliminate hepatitis C from our population.”
Chief Bill John Baker

PAP: Patient Assistance Programs
# CNHS HCV Elimination Program

## Defining Goals, Targets and Strategies

### Program Goals
- Secure political commitment
- Expand the HCV screening program
- Expand HCV clinical capacity
- Decrease new HCV infections

### Program Targets
- **Screen 85%** of those who accessed the CNHS
- **Evaluate 85%** of those with current infection by an HCV trained provider
- **Initiate HCV treatment in 85%** of those individuals evaluated
- **Document cure in 85%**

### Screening Strategy
- **Universal screening** (Ages 20 – 69 years old)
- **Expand screening sites** to: Urgent Care/ED, hospitalized patients including OBGYN, well women clinic, behavioral Health clinic, homeless shelter, community events
- **New screening Modalities** Point of care rapid test, Reflex Laboratory Triggered Screening (RLTS)

### Treatment Strategy
- **Expand Project ECHO** (Focus on pharmacists)
- **One Stop Shop Model**, PCP trained in HCV management and MAT, dedicated case manager, behavioral health on site, patient Navigator,
- **Community health worker**
CNHS HCV Elimination Program

Evaluation of the Cherokee Nation Hepatitis C Virus Elimination Program in the First 22 Months of Implementation

Cherokee Nation Hepatitis C Virus Elimination Program 2015-2019

- Universal Screening: Serves 2,504 patients. All patients aged 20 or 50.
- Patient Navigator: Start contacts HCV-negative and assists with follow-up.
- HCV Evaluation and Non-Adherence Risk Assessment: HIV-negative, HCV-positive patients. Patients with high-risk behaviors, not in care, not in treatment, or have been in treatment but not cured.
- HCV Treatment: All patients offered treatment.
- Community Health Worker: Monitors patients at high risk of non-adherence.

Findings from this community-based program may inform other communities interested in starting their own HCV Elimination program.

Harm Reduction in the Cherokee Nation

SSP illegal in Oklahoma
Paraphernalia laws in place
MAT limited to Methadone Clinics
Treatment as prevention only option

2018
Certificate of need obtained from CDC
MAT started by IM and ID Clinic

2019
MAT (buprenorphine) Expanded
19 primary care providers offering MAT

2021
Oklahoma passes bill decriminalizing SSP
Possession of paraphernalia still illegal
381 Tribal members on MAT
Cherokee Nation Council Approves SSP

Source: Cherokee Nation Health Services, 2021

HIV Screening

- Unique Individuals Ages 13-65
  - N=109,193
  - 36,593
  - 72,600

- Eligible population defined as those who accessed the CNHS at a site where screening is offered.
- Screening offered: Primary Care, Pediatrics, Resident Clinic, Infectious Diseases Clinic, Urgent Care, Emergency Department, Inpatient Hospital Wards.

- Before September 2019
  - Only 25 patients on HIV PrEP
  - Only 33% of the eligible* population screened for HIV

HIV New Diagnosis per Year

- Population served: 130,000 AI/AN

Source: Cherokee Nation Health Services, 2021
CNHS EHE Epidemic Program Launched September 2019

CDC Four Key Strategies

- Diagnose all people with HIV as early as possible.
- Treat people with HIV rapidly and effectively to reach sustained viral suppression.
- Prevent new HIV transmissions by using proven interventions, including pre-exposure prophylaxis (PrEP) and syringe services programs (SSPs).
- Respond quickly to potential HIV outbreaks to get needed prevention and treatment services to people who need them.

Cherokee Nation EHE Focus

- Improving HIV screening
  - Community and provider education
  - Innovative screening strategies
- Increasing PrEP uptake
  - Community and provider education
  - Innovative PrEP uptake strategies
- Optimizing the HIV Cascade of Care

CNHS: Cherokee Nation Health Services; EHE: Ending the HIV Epidemic
Understanding our leadership and our community

- Advisory Board
- General public, PrEP patients, and HIV patient surveys

Community and medical provider/pharmacist HIV awareness

- Community: Public campaign and school education
- Providers: workshops/ProjectECHO/Diversity training/LGBTQ training

HIV Screening expansion

- Lab triggered screening / Home testing
- Screening Policy change

HIV PrEP expansion

- Expanding capacity to pharmacists and other medical providers

HIV Care improvement

- Same day treatment
- In-depth analysis of the Cascade of Care

Harm Reduction

- Medication assisted treatment
- Syringe service programs
- Treatment as prevention

CNHS: Cherokee Nation Health Services; EHE: Ending the HIV Epidemic
Community Awareness: Public Campaign

- Billboards
- TV
- Radio
- Social Media
- Dating Apps
- Booths

Welcome to the Cherokee Nation Health
Ending the Epidemic
texting system. A text
message service for HIV
information and support.
From the texting system,
you can get information
on HIV prevention with
PrEP, pill reminders,
request an HIV test kit,
and connect to an HIV/
PrEP specialist.

Can we get your FIRST
NAME?

Hello!
Please reply with the
letter (A, B, or C) that
best fits you or your
preference:
A) Info about HIV
Prevention with PrEP
B) Connect with an HIV/
PrEP Specialist
C) Request a HIV self-
test kit

Source: Cherokee Nation Health Services, 2021
Provider Awareness and Education

**PrEP and HIV Screening Workshops**
- 124 providers and allied health professionals attended
- Attendance not mandatory: During lunch hour
- 45-minute presentation: HIV screening and PrEP
- Followed by open Q & A and post education survey

**PrEP projectECHO with NPAIHB**
- 6 Sessions with case presentations and didactics

**Infectious Disease ProjectECHO**
- Weekly meetings with case presentations and didactics

**Pharmacist training by pharmacist**
- Patients come to pharmacy asking for PrEP
- Some providers schedules are full and is difficult to include PrEP visits
- Pharmacists are familiar with managing medication services like for DM, HTN, warfarin, and Hepatitis C
- Training provided to 3 pharmacy clinics and 4 pharmacists

CNHS: Cherokee Nation Health Services, EHE: Ending the HIV Epidemic, ECHO: Extending Clinical Outreach and Health Education, NPAIHB: Northwest Portland Area Indian Health Board
CNHS: PrEP Expansion

Number of Unique Patients Receiving PrEP October 2017 – July 2021

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-2018</td>
<td>15</td>
</tr>
<tr>
<td>2018-2019</td>
<td>30</td>
</tr>
<tr>
<td>2019-2020</td>
<td>52</td>
</tr>
<tr>
<td>2020-2021</td>
<td>91</td>
</tr>
</tbody>
</table>

PrEP Prescribers Stratified by Provider Type 10/1/2020 through 1/31/2021

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacists</td>
<td>3</td>
</tr>
<tr>
<td>Physicians</td>
<td>4</td>
</tr>
<tr>
<td>Nurse Practitioners</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
</tr>
</tbody>
</table>

Number of unique patients who have been on PrEP since 2017. Some patients will be counted in multiple time periods years.

CNHS: Cherokee Nation Health Services; PrEP: Pre-Exposure Prophylaxis
### HIV Screening in the CNHS
**September 2019 - August 2020**

#### Interventions

- **Electronic Health Care Reminder**
- **Lab triggered screening in the ED/UC**
- **HIV Screening Policy Change**
- **EHR HIV screening reminder**
  - Every 3 years for Ages 13 - 54
  - Every 5 years for Ages 55 - 75
- **Home HIV testing**

#### HIV Screening

- **60,775** (100%)
  - Eligible individuals* who accessed HIV screening site** during the funding period

- **35,771** (59%)
  - Eligible individuals* who accessed HIV screening site** during the funding period*** and were screened for HIV since August 2015

- **11,086** (18%)
  - Eligible individuals* who accessed HIV screening site** during the funding period and were screened for HIV during the funding period

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*Eligible individuals – ages 13-65

** HIV Screening Site – Primary Care, Pediatrics, Resident Clinic, Infectious Diseases Clinic, Urgent Care, Emergency Department, Inpatient Hospital Wards

*** Funding Period – September 1, 2019, thru August 31, 2020
“Reflex Lab-triggered” HCV/HIV Screening

Patient presents to lab for routine/other phlebotomy
- Example: Emergency department visit for pneumonia, sent for CBC and CMP, extra tube drawn for HCV antibody

Order for HIV antibody is added-on post phlebotomy if criteria met for screening
- If screening is due
- If there is signed informed consent in EHR

Process Completed by Hand (not an automated process)
- Results Sent Directly to HCV Program Staff

Source: Cherokee Nation Health Services, 2021
## Impact of Interventions in HIV Screening, PrEP provider training and Number of Patients on HIV PrEP

<table>
<thead>
<tr>
<th>Period</th>
<th>Percent of the Population Tested for HIV at Least Once</th>
<th>Number of PrEP Prescribers</th>
<th>Number of patients on PrEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015- 9/2019*</td>
<td>34 %</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>9/2019-9/2020*</td>
<td>59%</td>
<td>13</td>
<td>52</td>
</tr>
<tr>
<td>Change</td>
<td>73%</td>
<td>433%</td>
<td>208%</td>
</tr>
</tbody>
</table>

*. Eligible population defined as those who accessed the CNHS at a site where screening is offered. HIV Screening offered:: Primary Care, Pediatrics, Resident Clinic, Infectious Diseases Clinic, Urgent Care, Emergency Department, Inpatient Hospital Wards

Source: Cherokee Nation Health Services, 2021
SUD/HCV/HIV Syndemic: Health Professional Interventions (Individual)

Holistic Care Model at the Clinic Level

- Universal Screening
- Patient Navigator
- HIV/PrEP/MAT/HCV Evaluation
- Same Day Treatment
- Community Health Worker

- Non-Adherence Risk Assessment
- Nurse
- BH Counselor
- HIV/PrEP/HCV/MAT trained provider
- Case Manager (Medication Procurement)
- Pharmacist
- Community Health Worker

MAT: Medication Assisted Therapy; PrEP: Preexposure Prophylaxis
What Can We Do for Mr. S?

**What can the Healthcare Professional do?**

- Vaccinate him for hepatitis A and B
- Have MAT training and continue buprenorphine/naloxone
- Be comfortable prescribing HIV PrEP
- Be comfortable prescribing HCV treatment
- Educate him on safe injection practices
  - Refer him to a Syringe Service Program

**What can the Health System do?**

- HCV/HIV/SUD policies in place
- Encourage, facilitate and motivate HIV, HCV, SUD screening and treatment
- Allow provider time for training and participation in these activities
- Facilitate partner engagement in care
- Performance based outcomes on HIV/HCV/SUD

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**Remember Mr. S?** The 24-year-old AI/AN male who suffered a right femur fracture and after being prescribed oxycodone developed a SUD, ended up injecting heroin and got infected with HCV.
What Can Society Do For Mr. S?

- Addressing the root of the problem is critical for the elimination of the present SUD/HCV/HIV syndemic and the prevention of future ones.

- A coordinated approach between society, government, and public health will be needed.
CNHS: Barriers to Ending the HCV and HIV Epidemic

Historical Trauma

Stigma
- LGBTQ and Two-Spirit associated stigma
- HIV associated stigma
- Injection Drug Use associated stigma

Lack of public awareness

Lack of Syringe Service Programs

COVID-19
- Decreased number of patients accessing the health system
- Human resources diverted to COVID-19 care

No performance-based outcomes related to HIV or HCV
Conclusions

Ending the SUD, HCV and HIV epidemics will be difficult if they are not embraced as a syndemic

- Structural, Social and Behavioral factors need to be addressed

Ending the SUD/HCV/HIV syndemic will require a multipronged approach

- Harm reduction services are evidenced based and needed, barriers to deploy them should be addressed and removed
- The efficacy of PrEP has been established, access to the most vulnerable populations is critical
- Everyone with HCV mono-infected or Co-infected with HIV should be treated

Primary care providers should be at the forefront of harm reduction, HIV PrEP and HCV treatment. If they are not, nobody will.
Questions?

Thank You

GV (Wado)

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