OBJECTIVES

- Describe the current epidemiology of HIV and Hepatitis C in North Dakota

- Identify the counties in North Dakota that are at the highest risk for a potential HIV/HCV outbreak related to injection drug use.

- Identify community prevention efforts to limit the risk of an HIV/HCV outbreak.
BACKGROUND

- Hepatitis C (HCV) infections more than doubled in the past decade in North Dakota
  - HCV infections among people aged 25-34 years increased 45% from 2013-2017
- It is estimated that 2.4 million adults are currently infected with HCV in the United States

Source: NDDoH Division of Disease Control
The younger population has passed the baby boomers in Hepatitis C case counts.

Source: NDDoH Division of Disease Control
- HIV incidence has more than doubled in the past decade in North Dakota.

- An estimated 1.1 million individuals living with HIV/AIDS in the United States.

Source: NDDoH Division of Disease Control
As of December 31, 2018 there are 457 people living with HIV/AIDS in North Dakota

12% reported injection drug use as a risk factor
2015

- 227 infected with HIV people in a county the size of Williams County, ND.
  - In 2017, Williams County had 1 new diagnosis and 14 total people living with HIV.
- Prevalence of self reported IDU was 91.8% among new HIV infections.
- 92.3% co-infected with HCV
CDC VULNERABILITY INDEX

- Multistep analysis to identify indicator variables highly associated with IDU (acute hepatitis C infection).
- Used these indicator values to calculate vulnerability scores for each county to identify which were most vulnerable.
Vulnerable Counties and Jurisdictions Experiencing or At-Risk of Outbreaks

County-level Vulnerability to Rapid Dissemination of HIV/HCV Infection Among Persons who Inject Drugs (September, 2015) and Jurisdictions Determined to be Experiencing or At-risk of Significant Increases in Hepatitis Infection or an HIV Outbreak Due to Injection Drug Use Following CDC Consultation (July, 2018)

[Map of the United States showing vulnerable counties and jurisdictions]

Legend:
- Top 220 Vulnerable Counties in 26 States
- Jurisdictions determined to be experiencing or at-risk of outbreaks (States/Counties: 34, Select Counties: 7, Select Cities: 2)

DATA SOURCES: EBR; EUROP, CDC Consultations on Determinations of Need (http://www.cdc.gov/hiv/model_jurisdictions.html)

Enhanced surveillance (2017) shows that of people 35 and under who were asked about risk factors 88% reported injection drug use as their primary risk.
HOW DOES THIS TRANSLATE FOR ND?

- IDU reported as a risk factor for new HIV infection reported in 2016, 2017 and 2018
  - Rarely reported previous to that.
Chronic Hepatitis C in persons under 35 as proxy for IDU

- Included variables such as drug overdose mortality, access to prescription opioids, drug related criminal activity and sociodemographic characteristics among others

### ND VULNERABILITY INDEX

<table>
<thead>
<tr>
<th>Data Criteria</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly diagnosed with hepatitis C in 2016 &amp; 2017</td>
<td>The most current data year for local/national datasets</td>
</tr>
<tr>
<td>Between the ages of 15 and 34</td>
<td>Enhanced surveillance data shows that injection drug use is the primary risk factor for this age group</td>
</tr>
<tr>
<td>Disease status of acute, chronic or currently infected</td>
<td>Includes individuals with a quantitative RNA result, confirming hepatitis C diagnosis</td>
</tr>
<tr>
<td>Not diagnosed in a correctional facility</td>
<td>Limits bias for counties that house correctional facilities</td>
</tr>
</tbody>
</table>
DATA SOURCES

- Census – American Community Survey
- Behavioral Risk Factor Surveillance System
- North Dakota Department of Health
  - Disease Control
  - Vital Records
- North Dakota Department of Human Services
- Prescription Drug Monitoring Program
- Office of the Attorney General
- Drug Enforcement Agency
METHODS

- Multilevel regression modeling
- Identify indicators with the strongest associations
PRIMARY MODEL

1. Percent Uninsured
2. NCHS Urban/Rural Classification
3. Percent Poverty
4. Teen Birthrate
5. Gonorrhea Rate
6. Percent Unemployed
7. Poor Health Rating
8. No Vehicle Access
9. No High School Diploma
1. Benson County
2. Rolette County
3. Sioux County
4. Mountrail County
5. McKenzie County
SECONDARY MODEL

- Contained additional variables with high-epidemiologic association with injection drug use that were not indicated in the primary model.
- The counties analyzed were limited only to the counties in which this data was available.

1. Amphetamine/Methamphetamine Incidents
1. Burleigh County
2. McKenzie County
3. Williams County
4. McLean County
5. Ramsey County
ARE YOU SURPRISED BY YOUR COUNTY? WHY OR WHY NOT?
NOW WHAT...

- Syringe Service Programs
- Increase HIV & HCV testing among those at risk
- Linkage to care
- Cluster detection
SSP IN UNITED STATES—2018

No Laws Prohibit  Laws Explicitly Permit  Would Require Legislative Action
SSPS PROVIDE MANY SERVICES

- Free Sterile Syringes to Persons Who Inject Drugs
  - Reduce the likelihood of reuse and sharing.
- Safe Disposal of Biohazard/Reduce Risk of Needle-Stick Injury
- Screening for HIV, STDs and Viral Hepatitis
- Safer Sex Supplies
- Referral to Substance Use Treatment
- Medications to Prevent Overdose
1 in 7 people with HIV don’t know they have it.

Get the facts. Get Tested. Get involved.

Find out more about HIV, including where to get tested, at gettested.cdc.gov

Up to 75% of people living with Hepatitis C do not know they are infected.

Talk to your doctor about getting tested. It could save your life.
LINKAGE TO CARE

- Hepatitis C has curative treatment
- HIV has therapeutic treatment
- 83% of North Dakotans known to be living with HIV are in care and virally suppressed
CLUSTER DETECTION

▪ What is a cluster?
▪ How do we know if our communities are experiencing clusters of infections?
Public Health Monitoring Leads to Action

- Monitoring and reporting of illness and other health conditions
- Called public health surveillance
What Does Public Health Surveillance Do?

- Detect developing outbreaks
- Help people at risk to stay well
- Target limited resources to the people and areas that need them most
HIV PUBLIC HEALTH DATA COLLECTION HAS EVOLVED OVER TIME

June 5, 1981:
First official reporting of what will be known as AIDS.
HIV PUBLIC HEALTH DATA ARE STRICTLY PROTECTED
HOW DO WE USE PUBLIC HEALTH DATA?
NETWORK WHERE HIV IS SPREADING QUICKLY
NETWORK WHERE HIV IS SPREADING QUICKLY
NETWORK WHERE HIV IS SPREADING QUICKLY
WHAT DATA DO WE USE TO FIND THESE NETWORKS?

- As part of HIV care, health care providers order testing to learn what treatments will work best for a person’s HIV strain
  - Called drug resistance testing
  - This testing involves determining the genetic sequence of the virus (NOT the person)
    - We sometimes call this ‘molecular data’
- Checking for drug resistance in the population
HOW ARE MOLECULAR DATA USED?

- HIV mutates over time
  - Leads to changes in the genetic sequence of the virus

- Analyze the sequences, or molecular data, to find large groups of infections that are very similar
  - Indicates that HIV is spreading quickly
WHAT IS DONE WITH MOLECULAR DATA

- Reach out to these networks
  - Provide the services they need
  - Understand barriers to care and prevention
  - Develop approaches to overcome barriers
EXAMPLE 1: SAN ANTONIO, TEXAS

Molecular cluster members:

n=24
EXAMPLE 1: SAN ANTONIO, TEXAS

Molecular cluster members: 
n=24

Other people who were sexual or needle sharing partners of initial 24 persons or their partners: 
n=87
EXAMPLE 1 (CONTINUED): AN OPPORTUNITY TO IDENTIFY AND ADDRESS GAPS IN PREVENTION

- Health alert to providers educated on HIV diagnostic testing and acute infection
- Health alert educated on PrEP, funds redirected to scale up access to PrEP in specific regions of the city
- New coalition of community, providers, and public health → sign-on as a Fast Track City
  - Efforts to reduce stigma, improve care, eliminate new cases of HIV
EXAMPLE 2: WEST VIRGINIA

- Increase in HIV diagnoses among gay and bisexual men in an area
  - with typically few HIV diagnoses.
  - where injection drug use is common.
- Concerned about possibility of HIV spread into communities of people who inject drugs
  - Conducted in-depth interviews
  - Relocated HIV testing sites
  - Increased awareness of HIV testing
  - Established syringe service programs
EXAMPLE 3: MEDIUM-SIZED CITY IN NORTHEASTERN STATE

- Healthcare provider called health department to report concern about increased diagnoses among heterosexuals
- Laboratory (molecular) data showed rapid transmission
- Health department established PrEP provider in region
- Held a regional provider meeting
- Expanded HIV testing in jails and reproductive health clinics
EXAMPLE 4: MIDWESTERN STATE

- Laboratory (molecular) data identified growing network of rapid transmission
  - Virally suppressed, but continued to grow
  - Health department and HIV providers in the area worked with their patients to increase testing, linkage to care, prevention
DISCUSSION
QUESTIONS?