Dr. Hurt serves as UNC site PI for a study of PrEP funded by Gilead Sciences (DISCOVER) and previously oversaw a study of HCV therapy sponsored by AbbVie (EXPEDITION-2).

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The views expressed are not necessarily those of CDC, HRSA, or the NIH.
Acknowledgments

This presentation is based on the first 3 core competencies of the Curriculum on HIV/HCV Coinfection, from the AETC National Coordinating Center:

https://aidsetc.org/hivhcv/1/contents

Data have been updated where possible and augmented throughout.

Please see individual modules for additional details about the content.
Objectives

• Describe trends in HCV and HIV infection in the United States

• Identify which populations are at greatest risk for HIV and HCV infection

• Explain the natural history of HCV and how it impacts the wellness of people also living with HIV

• Characterize some of the barriers facing people living with HCV, HIV, and coinfection in receiving care
Hepatitis C

Most common chronic blood-borne infection in the US

RNA-based flavivirus
• Distant relative of yellow fever, Zika, and West Nile viruses
• Remains separate from the host’s genetic material (unlike HIV)

Six different “genotypes”
• Closely related, yet each has unique characteristics
• Genotype 1 predominates in US
• No major differences in transmission or natural history

How many Americans have HCV?

US Population
309.3 million in 2010

Approximately 1.5% ever infected (4.6 million)

How many Americans have HCV?

US Population: 309.3 million in 2010

Approximately 1.5% ever infected (4.6 million)

At least 3.5 million actively infected (Ab+ and RNA+)

Approximately 1.1 million cleared (Ab+ and RNA−)

Who are those persons living with HCV?

Among non-institutionalized civilians with active HCV:

- **64%** male
- **10%** Hispanic
- **25%** Black
- **48%** aged 50 or older

Who’s missing?
- Incarcerated persons (~1 in 3 living with HCV)
- Homeless persons
- Hospitalized or in nursing homes
- Active-duty military personnel
- Native Americans living on reservations

Prevalence in incarcerated population – MMWR 1998;47(No. RR-19):[i1-54]
HCV seropositivity by birth year, NHANES

Why the Boomers?
- Transfusions & IDU originally proposed
- Increased medical procedures after World War II, with reusable glass & metal syringes

Estimated HCV incidence in US, 1982-2014

Routine screening of blood supply

Incidence of acute HCV, 2001-2006

Incidence of acute HCV by age, 2001-2006

Who is at risk for HCV infection?

- **Illicit drug users** (IDU, crack, snorting)
- **Blood before ~1990** (1987 clotting factors; 1992 blood or organs)
- **Long-term hemodialysis**

What about sexual transmission of HCV?

“Vanilla” sex
(MSM and heterosexual)

Very inefficient at transmission

Condoms suggested (but not essential)

Sex that could cause bleeding
(MSM more than hetero)

Shared sex toys
Fisting
Group sex
Sex under influence

Natural history of hepatitis C

Out of 100 people infected with hepatitis C

http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm
Natural history of hepatitis C

80 will develop chronic infection

http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm
Natural history of hepatitis C

20 will develop cirrhosis over a 20-30 year period

http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm
Natural history of hepatitis C

8 persons with cirrhosis will have decompensated, after 10 years

http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm
1-2 persons with cirrhosis will develop HCC, per year

http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm
Natural history of hepatitis C

60 will die with HCV, not from HCV

http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm
Projected outcomes without HCV treatment

- Heptacellular cancer
- Decompensated cirrhosis

Deaths from HCV surpassed HIV in 2006-07

HIV is no longer a death sentence

How many Americans have HIV?

US Population 309.3 million in 2010

Approximately 0.4% infected (1.1 million in 2015)

How many Americans have HIV?

US Population: 309.3 million in 2010

Approximately 0.4% infected (1.1 million in 2015)

Approximately 937,500 diagnosed with HIV (in 2015)

Approximately 162,500 unaware of their infection (in 2015)

Who are those persons living with HIV?

- **23%**
cisgender women
(n=256,500)

- **77%**
cisgender men
(n=866,400)
Who are those persons living with HIV?

<table>
<thead>
<tr>
<th>Cisgender Men</th>
<th>77%</th>
<th>Cisgender Women</th>
<th>23%</th>
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<tr>
<td>(n=866,400)</td>
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<td>(n=256,500)</td>
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</table>

- **21%** IDU (54,100)
- **78%** Het (201,000)
- **73%** MSM (632,300)

- **16%*** IDU (57,300 + 81,000)
- **11%** Het (93,600)

* This chart is simplified from CDC data

MSM who also inject drugs = 6.6% of IDUs here; MSM-IDUs not included in this MSM figure

Who’s missing? Trans folks
Who are those persons living with HIV?

- Age 13-24: 37%
- Age 25-34: 32%
- Age 35-44: 7%
- Age 45-54: 3%
- Age ≥55: 21%

Who are those persons living with HIV?

Age
- 13-24: 37%
- 25-34: 21%
- 35-44: 7%
- 45-54: 3%
- ≥55: 3%

Race/Ethnicity
- Black: 30%
- White: 42%
- Hispanic: 22%
- API (1.5%)
- Native American (0.3%)
- Multiple (4%)

Where are those persons living with HIV?

382
of every 100,000 Americans

(1.2M HIV+ of 314.1M, in 2012)
Where are those persons living with HIV?

Hispanic/Latino

White

2012
Where are those persons living with HIV?

2012
Who is acquiring HIV in the US?

Rates of HIV Diagnosis among Adolescents & Adults, 2010-2016

Who is acquiring HIV in the US?

HIV Diagnoses among Adolescents & Adults, 2010-2016

- Black/African American
- White
- Hispanic/Latino

Who is acquiring HIV in the US?

HIV Diagnoses among Adolescents & Adults, 2010-2016

Who is acquiring HIV in the US?

Number of Diagnoses among Adolescents & Adults, 2010-2016

Number of Diagnoses (in Thousands)

- American Indian/Alaska Native
- Asian
- Black/African American
- Hispanic/Latino
- Native Hawaiian/other Pacific
- White
- Multiple races

Northeast: N = 3,927
Midwest: N = 3,516
South: N = 13,303
West: N = 5,628
U.S. Dependent Areas: N = 270

Why are there such disparities in HIV by race?

“The Louisville Flood” by Margaret Bourke-White, 1937
https://rarehistoricalphotos.com/there-no-way-like-american-way-1937/
Who is dying from HIV in the US?

Deaths per 100,000 Americans

Year of diagnosis

Deaths per 100,000 population

Year of death

Note. For comparison with data for 1999 and later years, data for 1987-1998 were modified to account for ICD-10 rules instead of ICD-9 rules.


**Hispanic/Latinos can be of any race.

Where are people dying from HIV in the US?

Age-standardized HIV/AIDS mortality rate, men and women, 2014
How does HCV contribute to HIV morbidity?

Approximately 25% of PLWH are also living with HCV.

How does HCV contribute to HIV morbidity?

HIV and HCV are synergistically bad
- HIV increases pace of HCV liver scarring (fibrosis)
  - Specific risks:
    - Lower nadir CD4 and higher HIV RNA
    - Alcohol use
    - Older age and higher BMI
- Some PLWH who acquire new HCV progress rapidly

How does HCV contribute to HIV morbidity?

Extrahepatic complications are increased – at least as long as HCV is untreated

- Cardiovascular risk
- Stroke risk
- Renal disease
- Bone fractures
Access to HCV treatment reduces mortality* …

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<th>Without SVR</th>
<th>With SVR</th>
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* monoinfected patients

...but a care cascade exists for HCV, too

- Chronic HCV-Infected*: 100%
- Diagnosed and Aware†: 50%
- Access to Outpatient Care‡: 43%
- HCV RNA Confirmed§: 27%
- Underwent Liver Biopsy¶: 17%
- Prescribed HCV Treatment¶¶: 16%
- Achieved SVR**: 9%

Take-home messages

- HCV and HIV disproportionately impact marginalized groups within our society
- Individually, each infection can be life-threatening – but treatment can dramatically improve outcomes
- About ¼ of all PLWH also are living with HCV – so screening, diagnosis, and treatment are essential (stay tuned!)
Coinfection Fridays
February 15
March 15
April 19
May 17
June 21

Speakers and topics coming soon!
Questions?

Please email me!

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