

Infectious Outcomes of the Opioid Epidemic

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December 20, 2017

Infections Associated with Injection Drug Use

- **Hepatitis C (HCV)**
- **Hepatitis B (HBV)**
- **Human immunodeficiency virus (HIV)**
- **Bacterial infections**
 - **Sepsis**
 - **Endocarditis**
 - **Skin infections**
- **Other STDs**

HCV: Two Epidemics

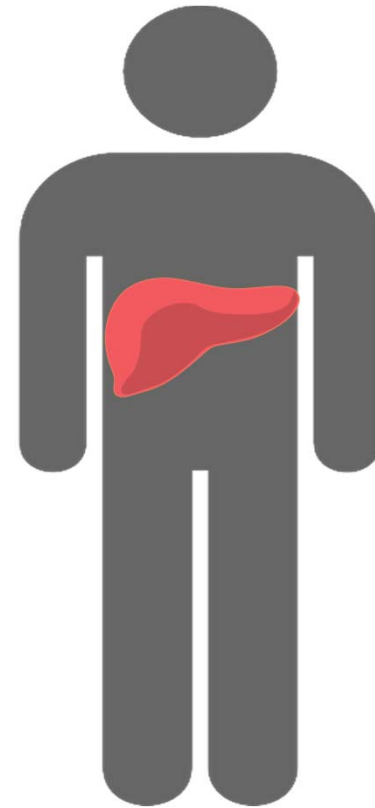
Historic Epidemic

Emerging Epidemic

- **Chronic HCV**
- **Baby boomers
(born 1945–1965)**
- **~150,000 in NC**
- **Many unaware of status**

Liver Cancer and HCV

- ***Liver Cancer rates in North Carolina have nearly doubled during the past 10 years***
- ***Men: From 6.7 to 11.1 cases/ 100,000***
- ***Women: From 2.1 to 3.9 cases/100,000***



Source: North Carolina State Center for Health Statistics

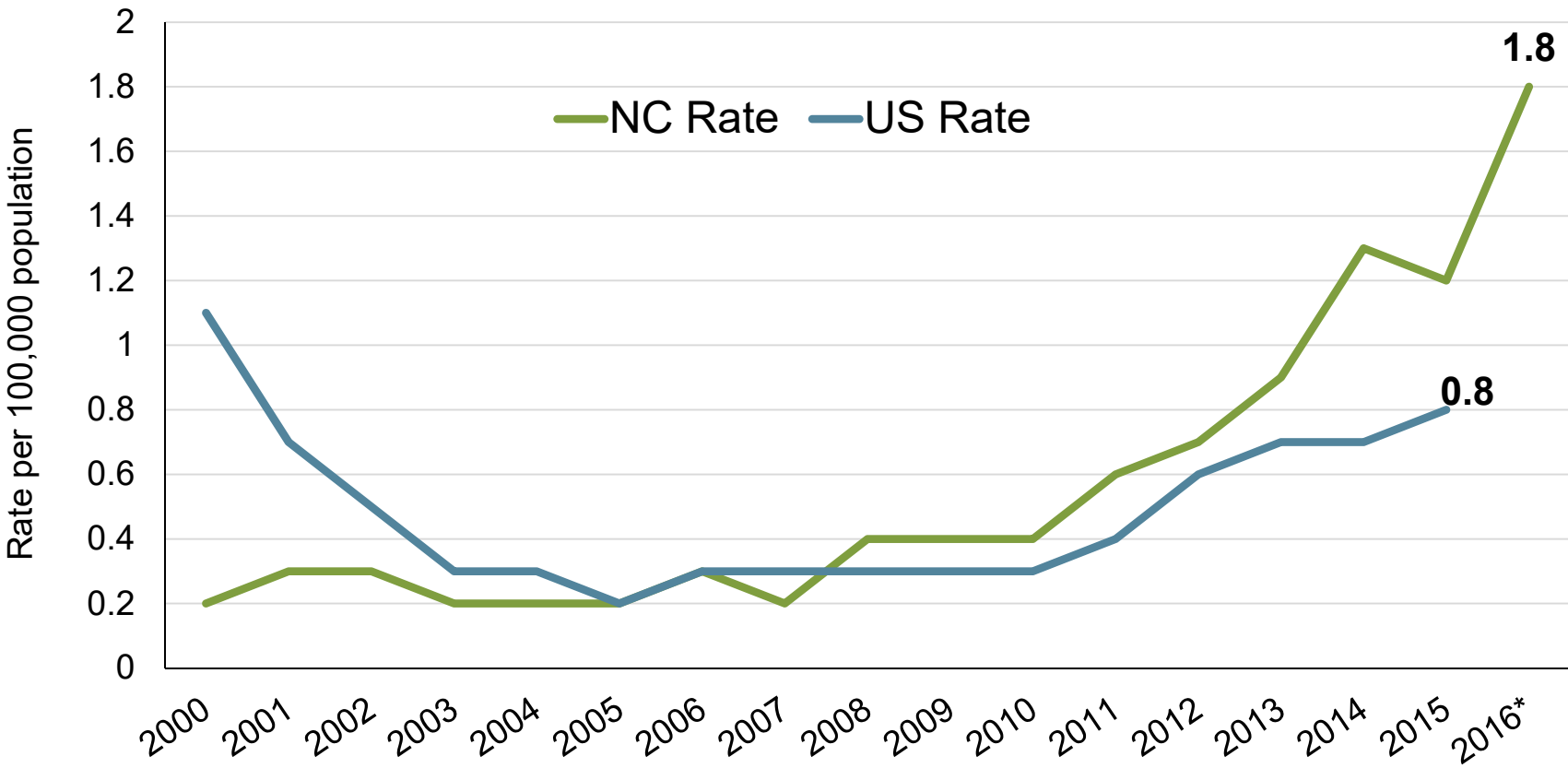
HCV: Two Epidemics

Historic Epidemic

Emerging Epidemic

- Acute HCV
- Increasing rapidly
- Younger, rural, poorer communities
- Associated with IDU

Acute HCV Rates in North Carolina and United States, 2000–2016



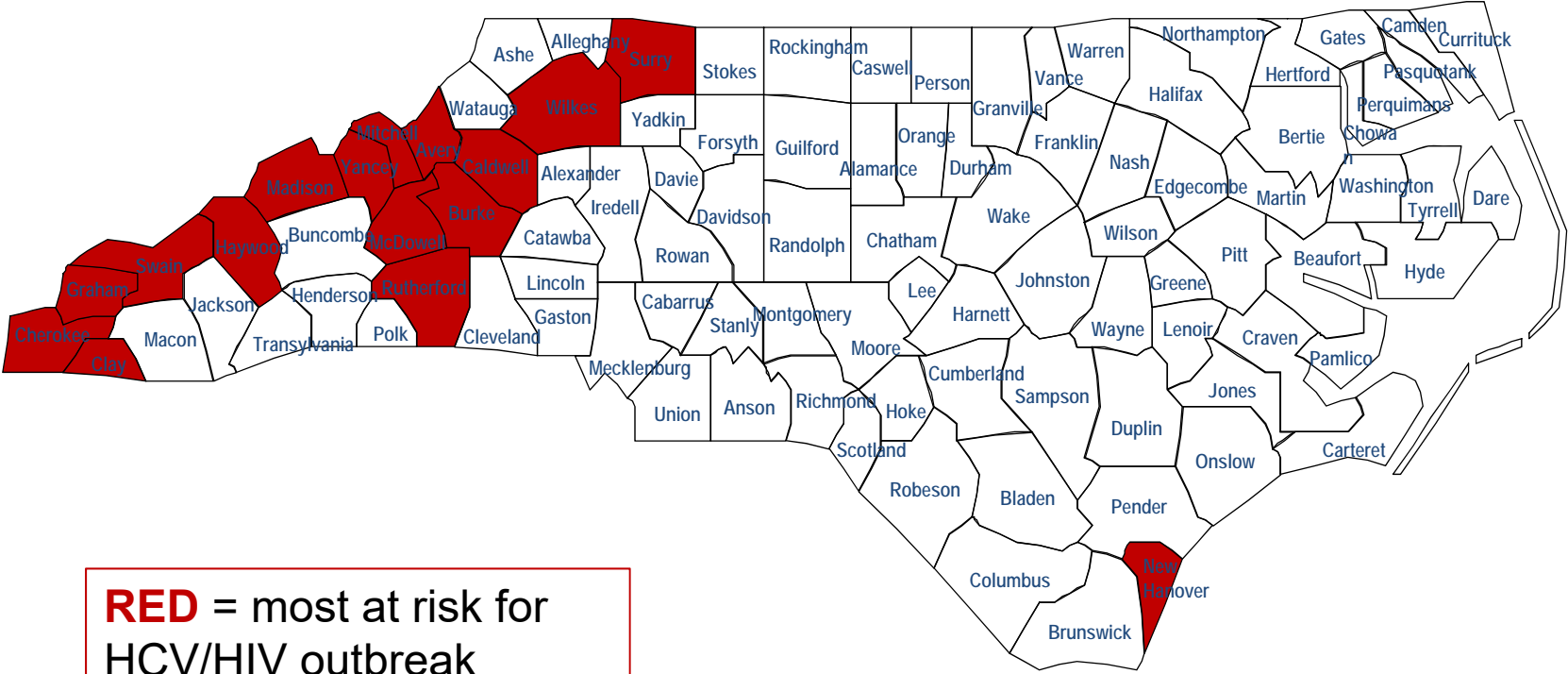
*Case definition for acute HCV changed in 2016.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of June 1, 2017) and Surveillance for Viral Hepatitis, United States, 2009-2015 CDC reports (<https://www.cdc.gov/hepatitis/statistics/index.htm>).

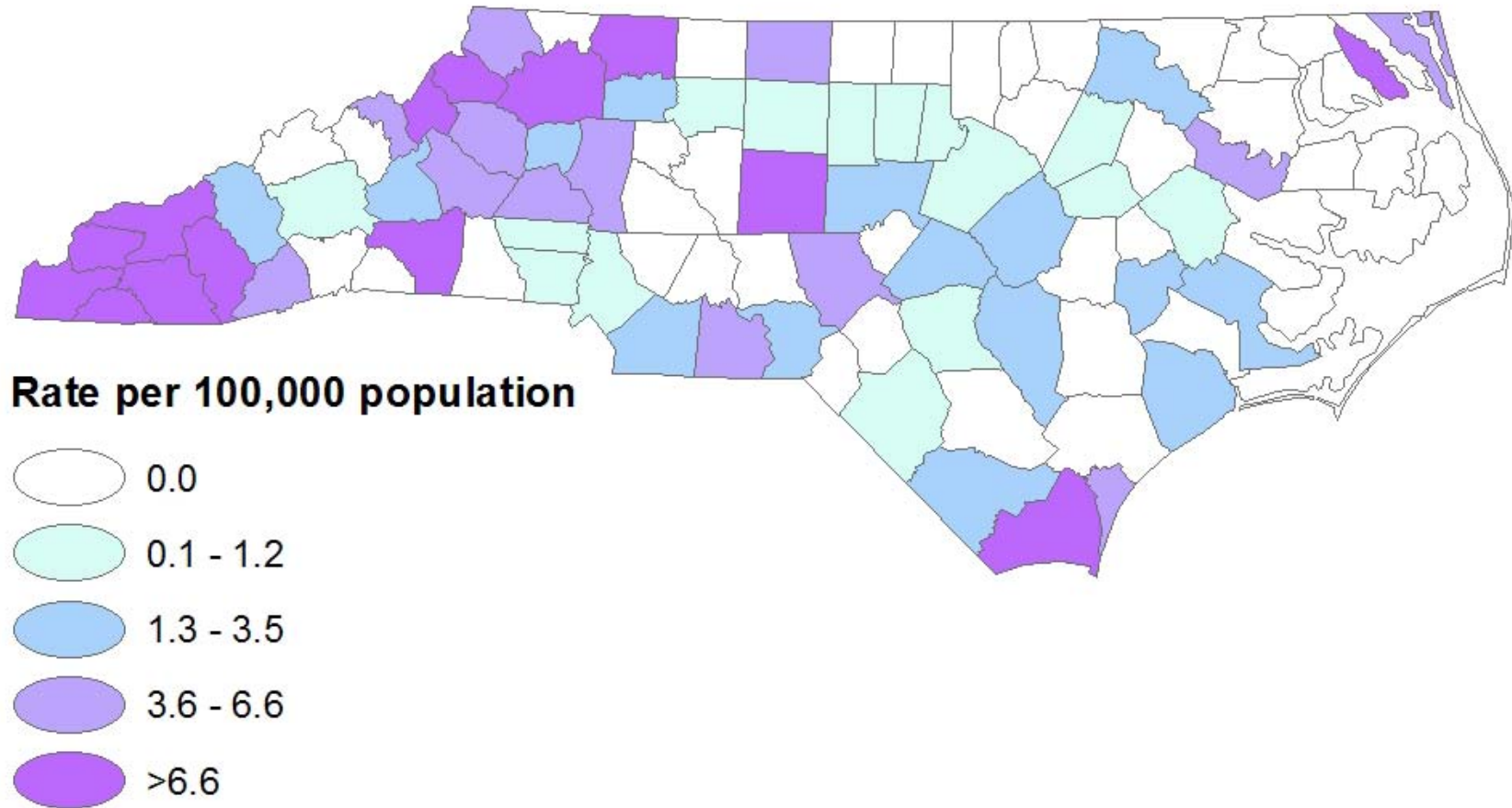
Vulnerability Assessment of North Carolina Counties

Rank	Opioid OD (NC DETECT) Per 10,000		Acute HCV (NC EDSS) Per 100,000		Chronic HCV (Medicaid) Per 10,000		% White (Census)		% Unemployed (Labor)		Highest Risk
<i>Avg.</i>	3.1		3.6		22.0		69		6.9		<i>Lowest rank sum</i>
1	Carteret	7.4	Swain	85	Swain	59	Clay	95.2	Graham	11.7	Cherokee
2	Cherokee	7.0	Surry	34	Cherokee	46	Madison	95	Scotland	11.7	Graham
3	New Hanover	5.8	Cherokee	33	Graham	42	Mitchell	94.1	Edgecombe	10.5	Mitchell
4	Robeson	5.7	Yancey	28	Clay	40	Haywood	93.8	Wilson	10.5	Clay
5	Alexander	5.4	Avery	28	Buncombe	38	Yancey	93.5	Halifax	9.9	Yancey
6	Davidson	5.4	Mitchell	20	Wilkes	38	Ashe	93.2	Vance	9.7	Swain
7	Vance	5.2	Clay	19	Vance	37	Watauga	92.5	Robeson	9.5	Burke
8	Brunswick	5.2	McDowell	18	Gaston	34	Cherokee	92.3	Warren	9.3	Caldwell
9	Jones	5.2	Madison	14	McDowell	32	Stokes	91.7	Bladen	9	Haywood
10	Swain	5.1	New Hanover	14	Haywood	32	Transylvania	90.8	Washington	9	Rutherford

Vulnerability Assessment of North Carolina Counties

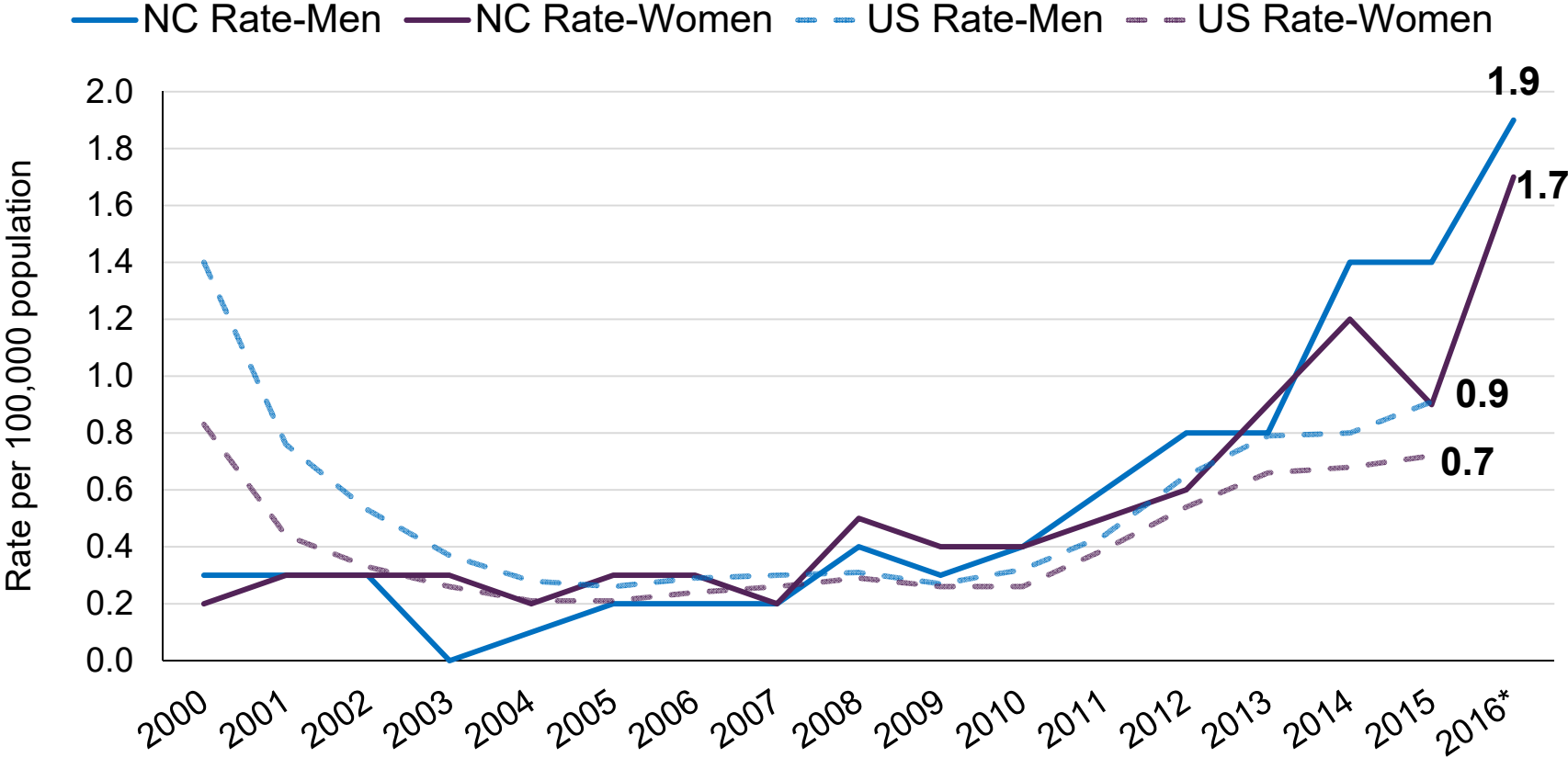


Acute HCV County Rates in North Carolina 2016



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of June 1, 2017)

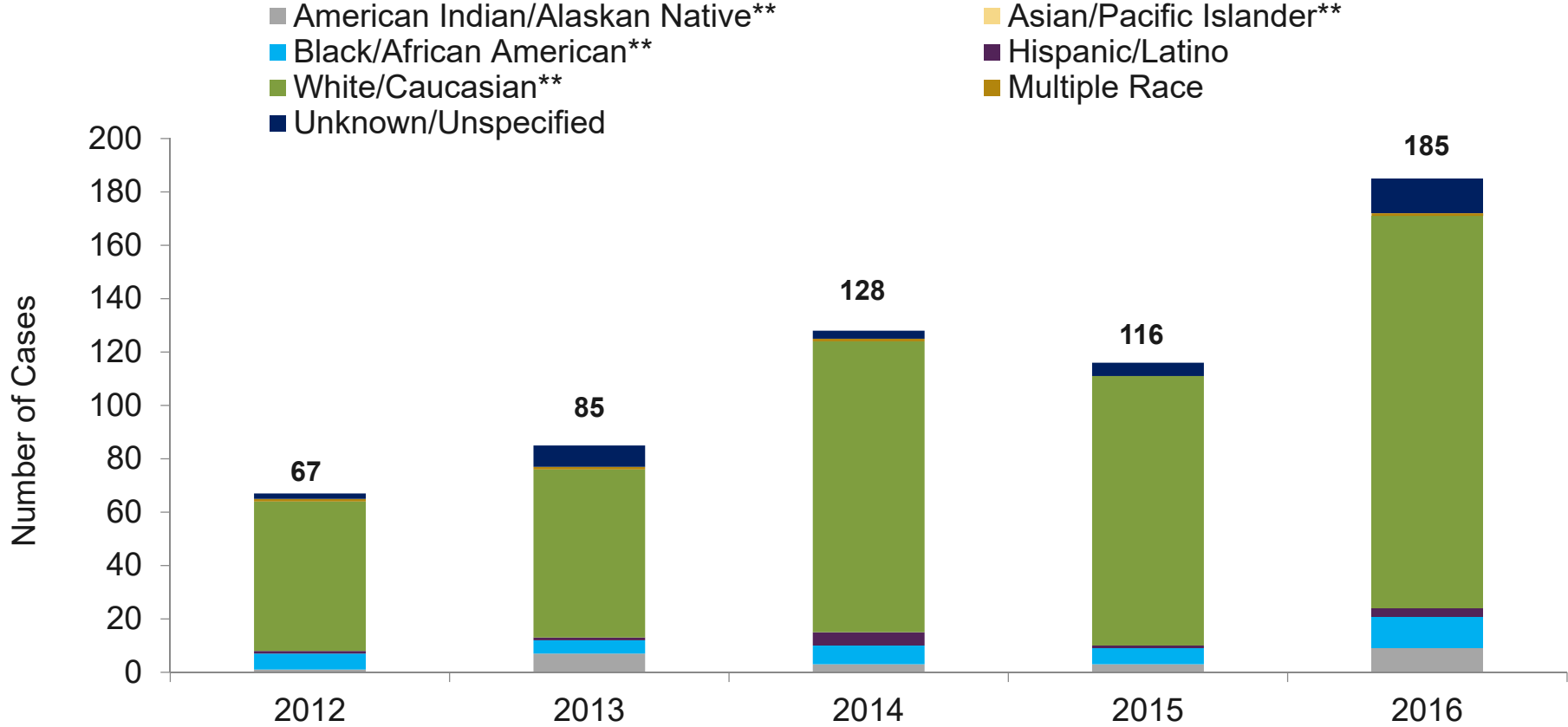
Acute HCV Rates by Gender in North Carolina and United States, 2000–2016*



*Case definition for acute HCV changed in 2016.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of June 1, 2017) and Surveillance for Viral Hepatitis, United States, 2009-2015 CDC reports (<https://www.cdc.gov/hepatitis/statistics/index.htm>).

Acute HCV Cases by Race/Ethnicity North Carolina 2012–2016*

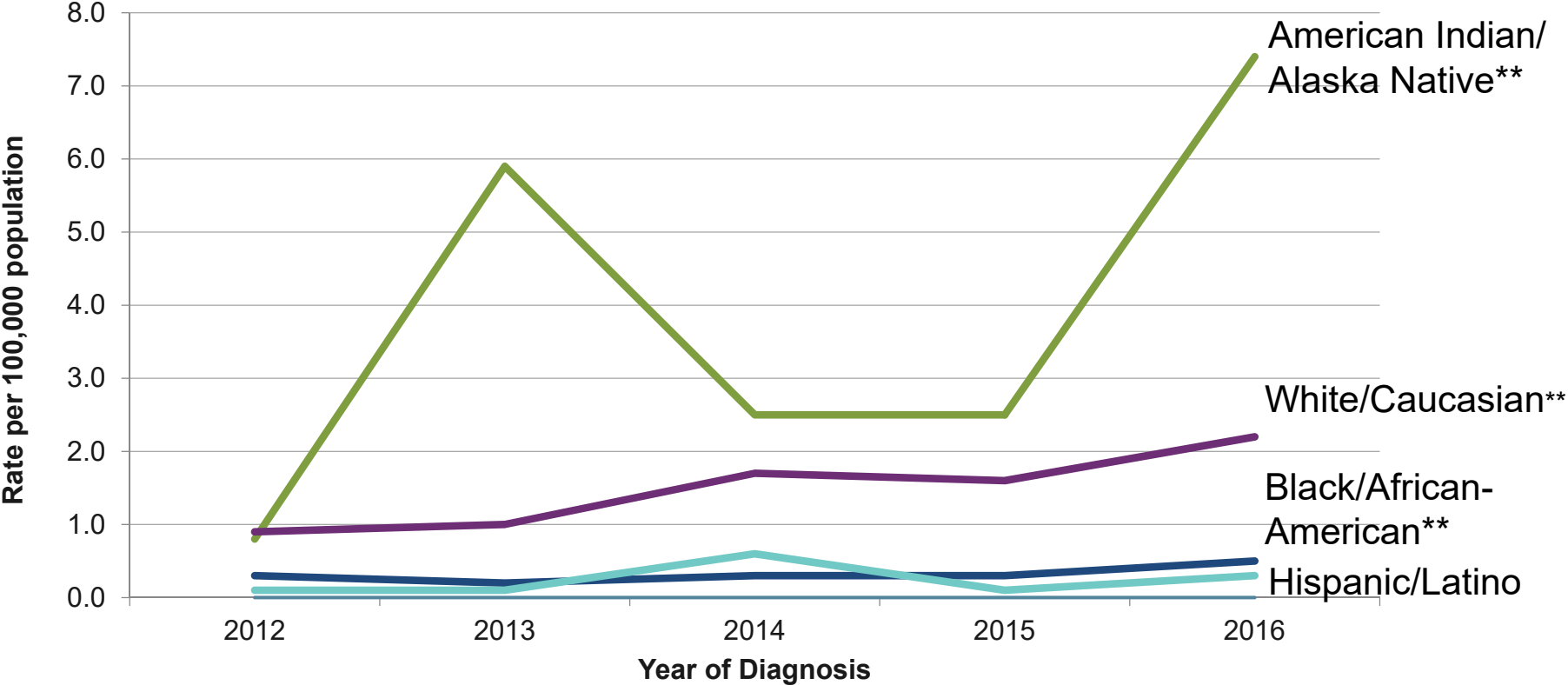


*Case definition for acute HCV changed in 2016.

**Non-Hispanic/Latino.

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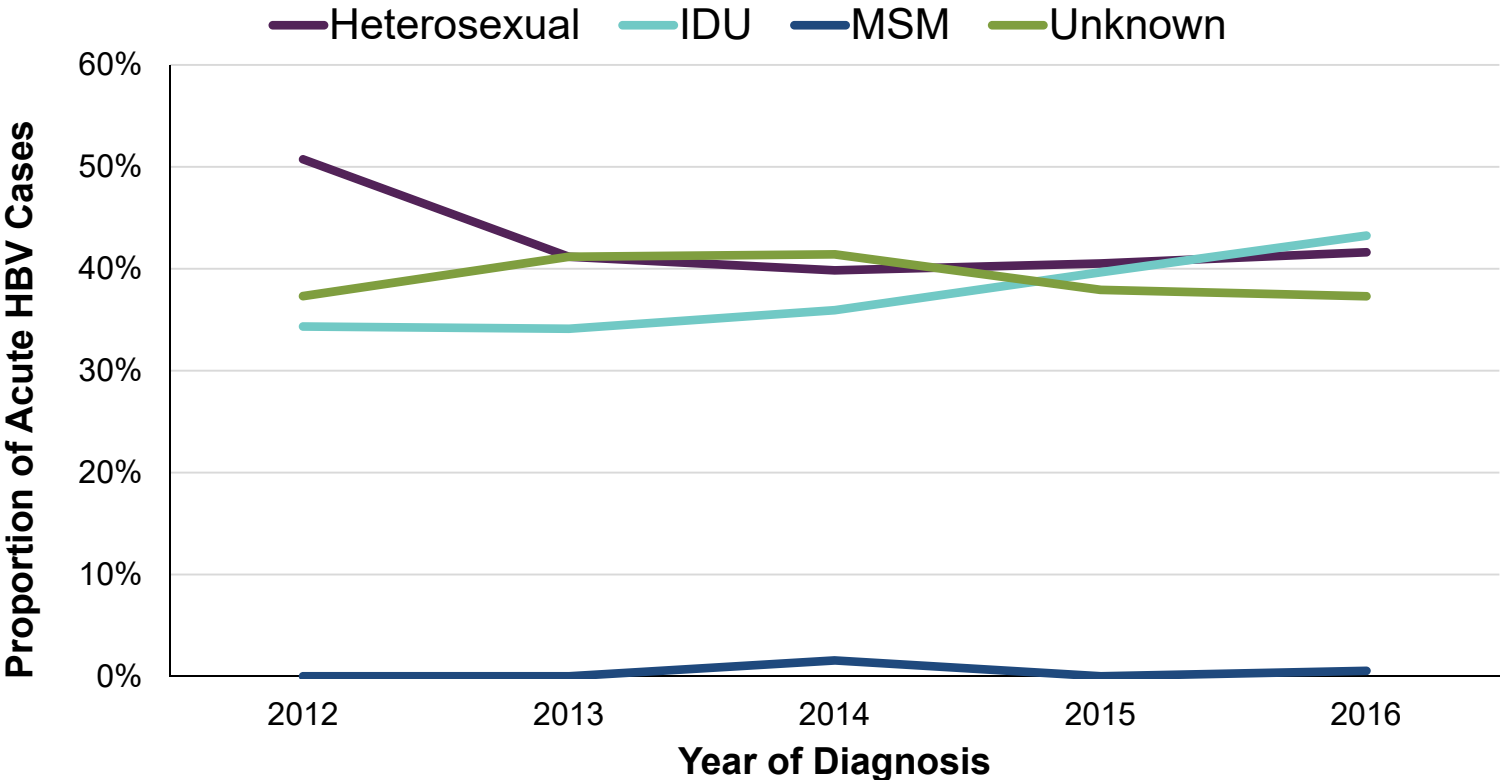


*Case definition for acute HCV changed in 2016.

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Acute HCV Cases by Reported Risk* North Carolina 2012-2016**



*People may report more than one risk, so totals may not add up to the case total. Rates are not presented due to the lack of population data for the exposure groups.

**Case definition for acute HCV changed in 2016.

Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of June 1, 2017).

Response: Hep C TLC

Test

- High-risk populations for HCV, HIV, and other sexually-transmitted infections

Link

- Medical care for HCV infection
- Mental health and substance use disorder treatment
- Social services assistance, as appropriate

Cure

- Curative treatment
- Eliminate onward transmission and reduce prevalence

Hep C TLC: Program Successes

Test

- Increased access to testing through State Lab
- Use of disease intervention specialists to identify networks of transmission

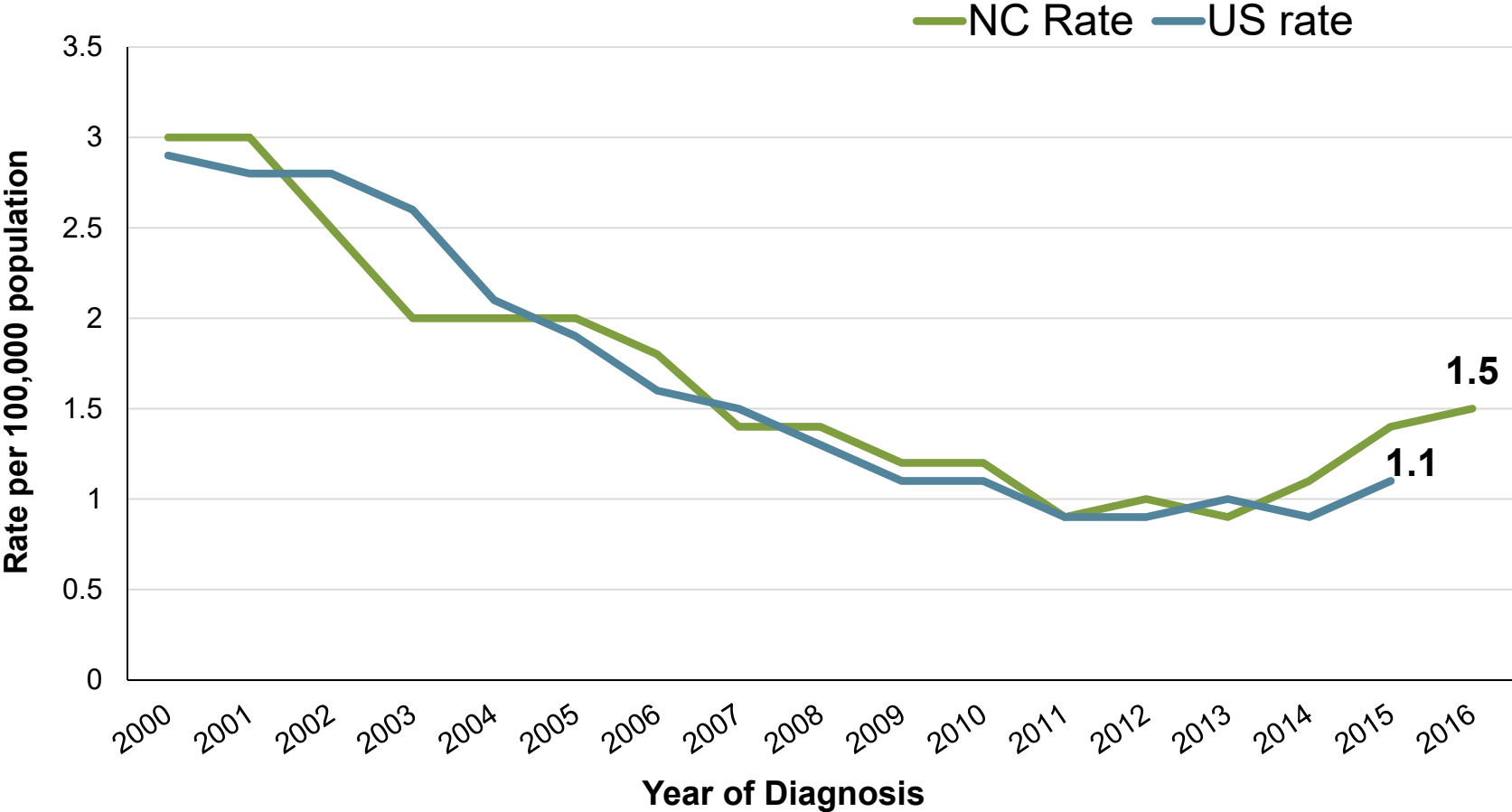
Link

- Hiring of hepatitis C bridge counselors
- Coordination with syringe service programs, FQHCs, LHDs

Cure

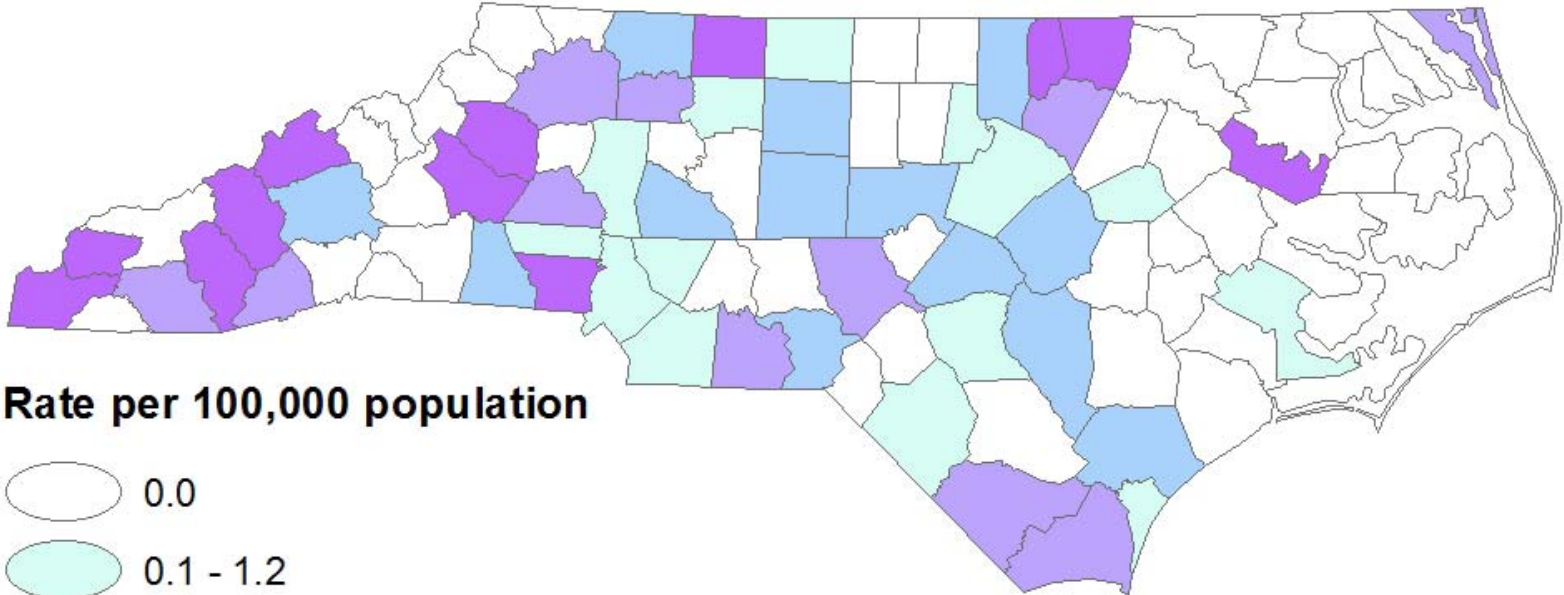
- Carolinas Hepatitis Academic Mentorship Program
- Clinical algorithm for HCV treatment
- HIV/HCV coinfection linkage to cure project

Acute HBV Rates in North Carolina and United States, 2000–2016



Data Source: North Carolina Electronic Disease Surveillance System (NC EDSS) (data as of June 1, 2017) and Surveillance for Viral Hepatitis, United States, 2009-2015 CDC reports (<https://www.cdc.gov/hepatitis/statistics/index.htm>).

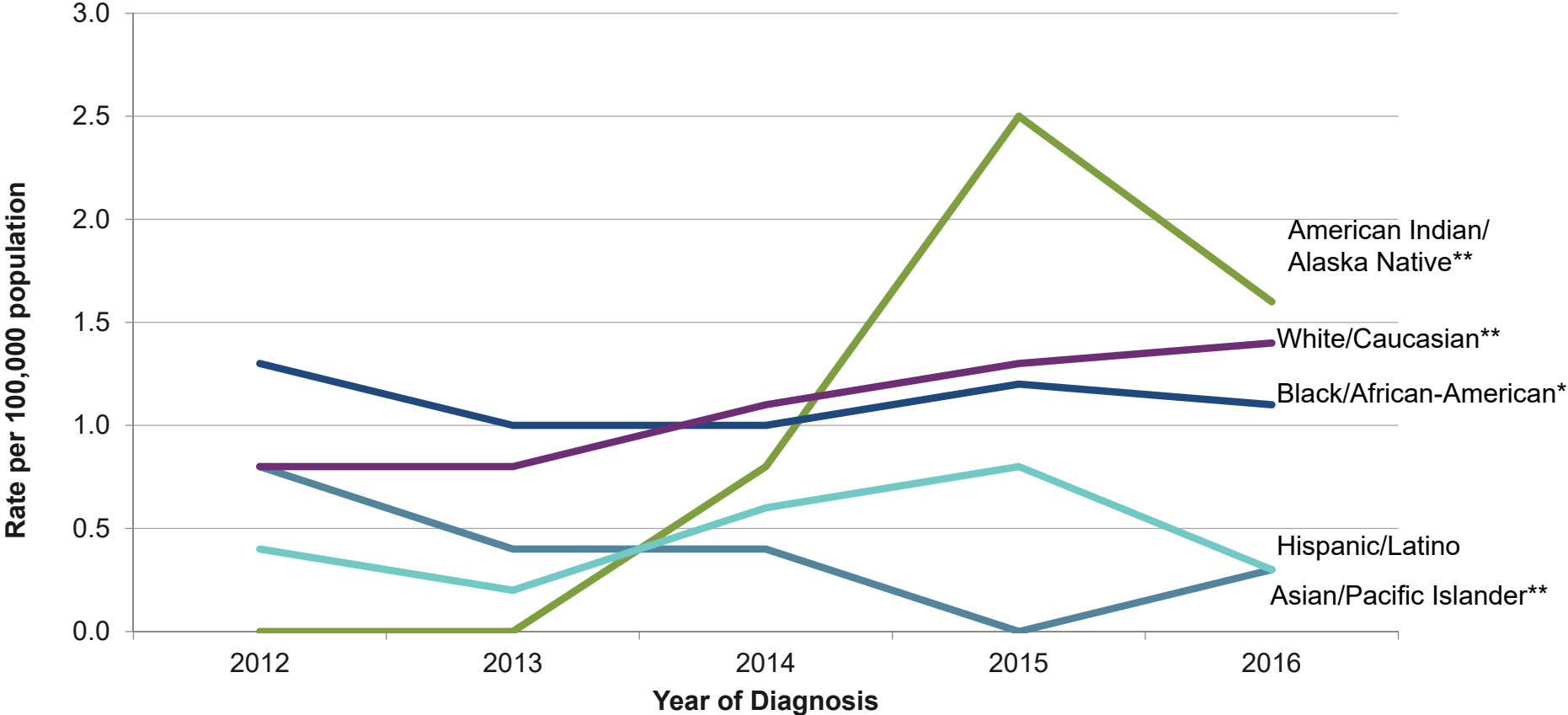
Acute HBV County Rates in North Carolina 2016



Rate per 100,000 population

- 0.0
- 0.1 - 1.2
- 1.3 - 2.3
- 2.4 - 4.2
- >4.2

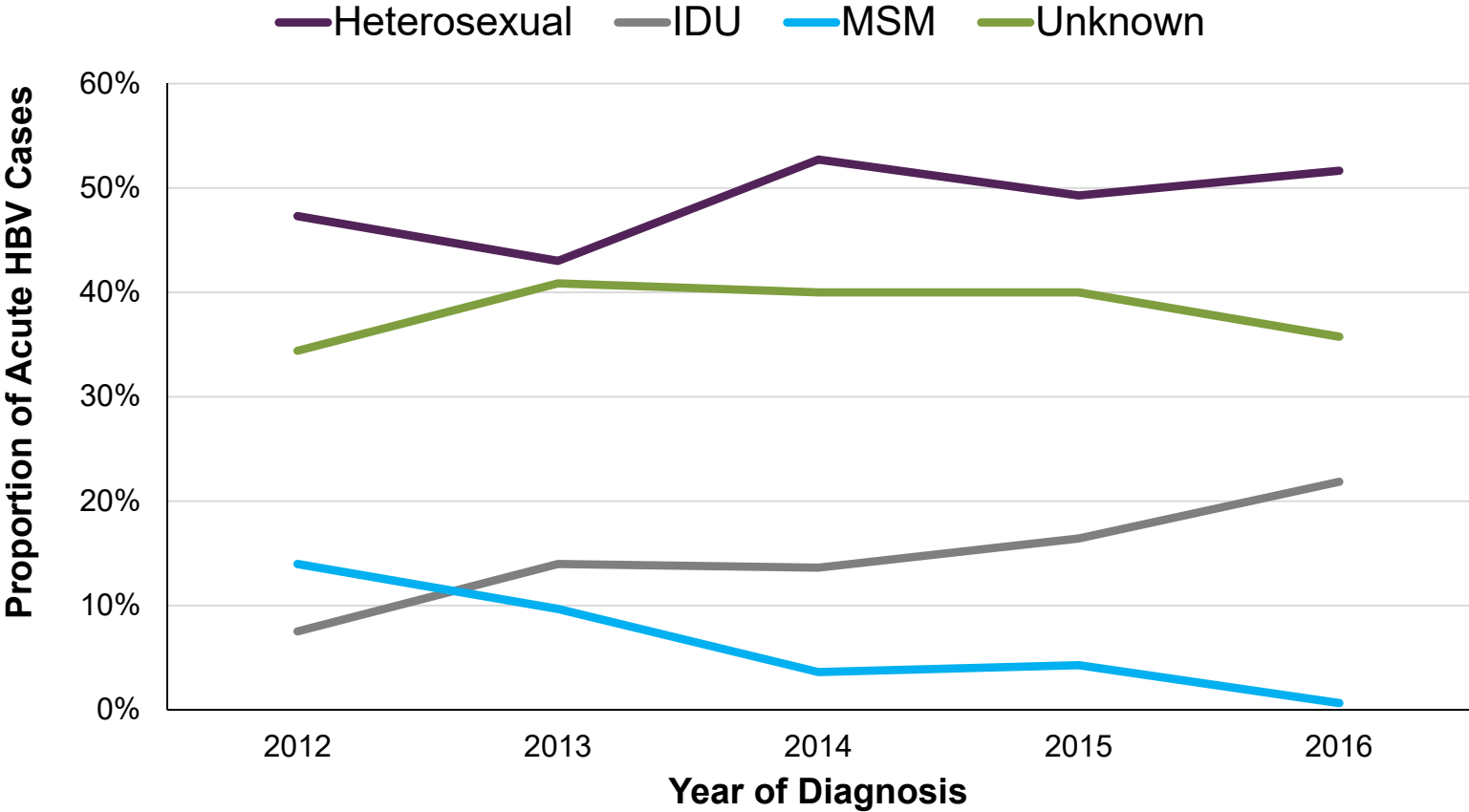
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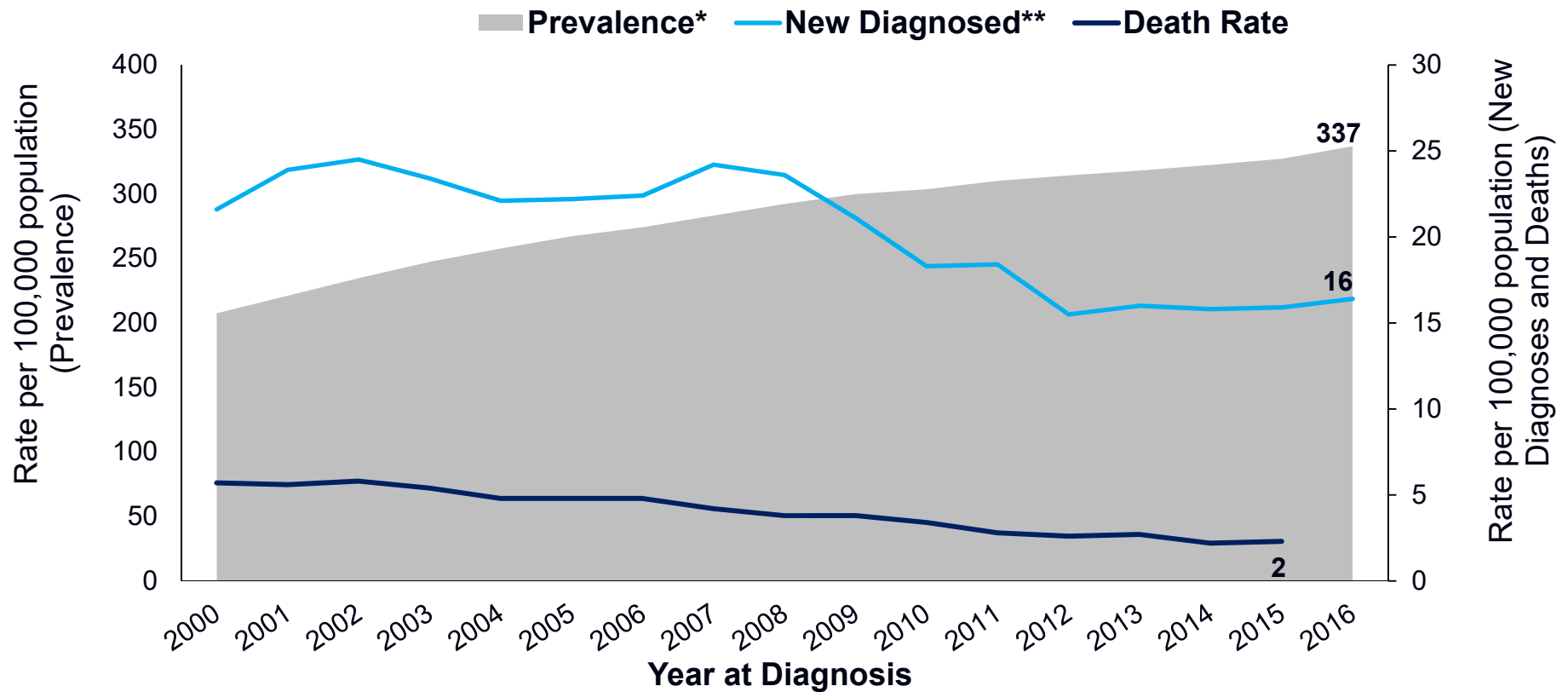
Acute HBV Cases by Reported Risk, North Carolina 2012–2016



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North Carolina HIV Infection Rates by Year of Diagnosis, 2000–2016

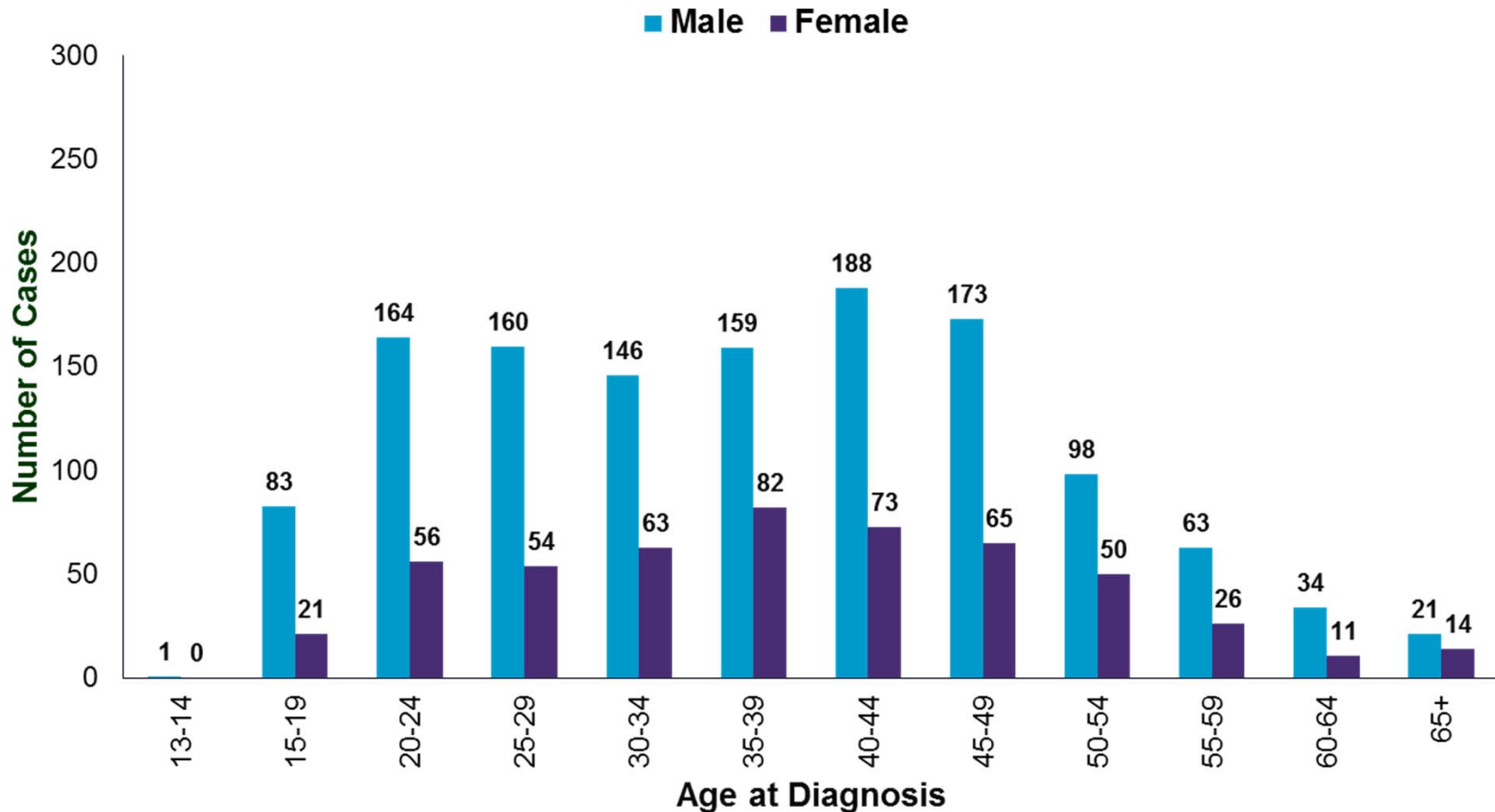


*Based on most recent address in eHARS as of December 31 of the given year.

**New cases are only among adults and adolescents (13 years and older).

Data Source: enhanced HIV/AIDS Reporting System (eHARS) (data as of June 27, 2017) and North Carolina Vital Statistics, Volume 2: Leading Causes of Death 2000-2015.

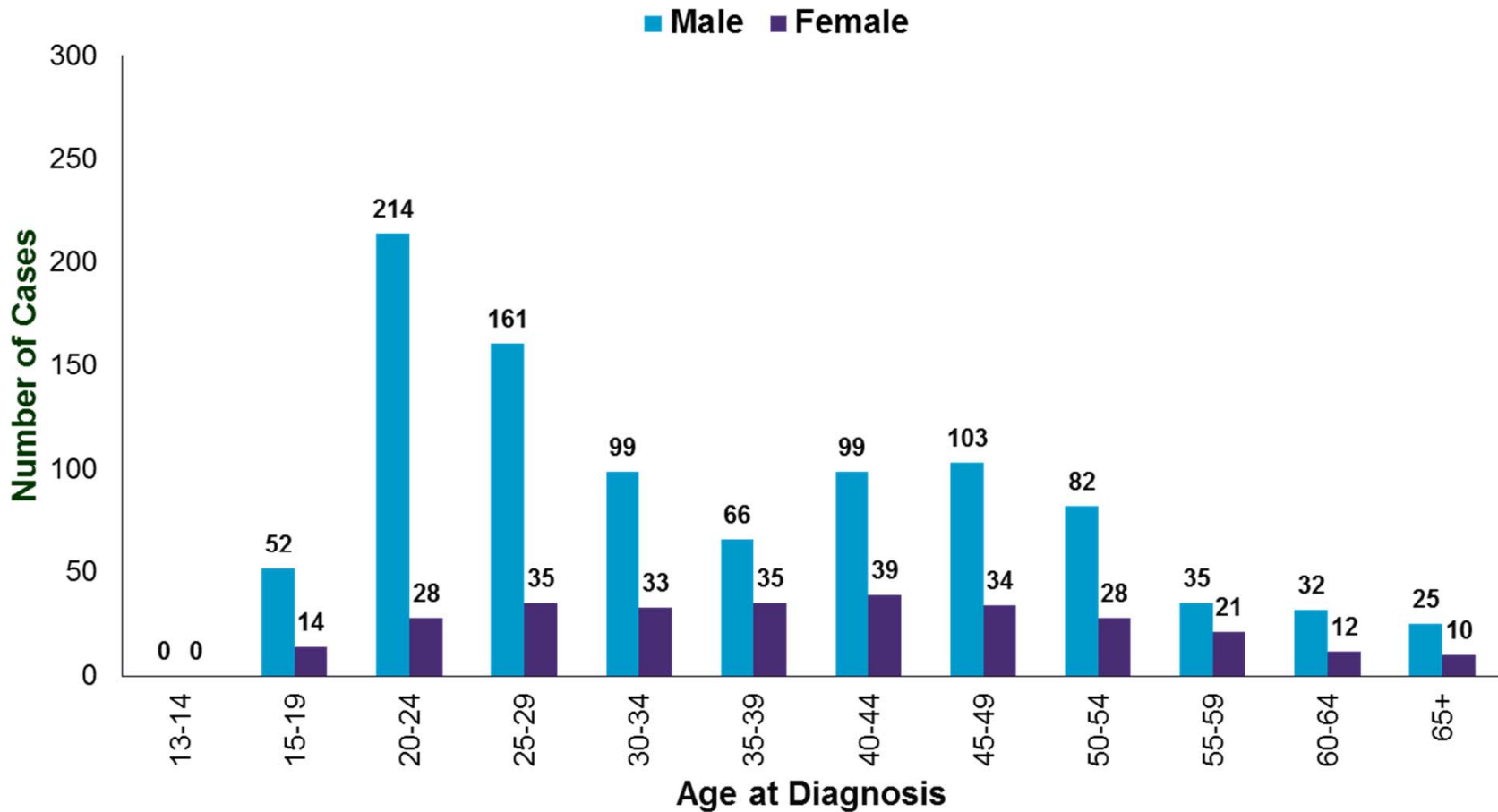
Age Distribution of Newly Diagnosed Adult/Adolescent HIV Infections by Gender in North Carolina, 2007



Data Source: enhanced HIV/AIDS Reporting System (eHARS)
(data as of June 27, 2016).

For more information on syphilis in North Carolina, including county rates, see the 2015 North Carolina HIV/STD Surveillance Report (Annual Report).

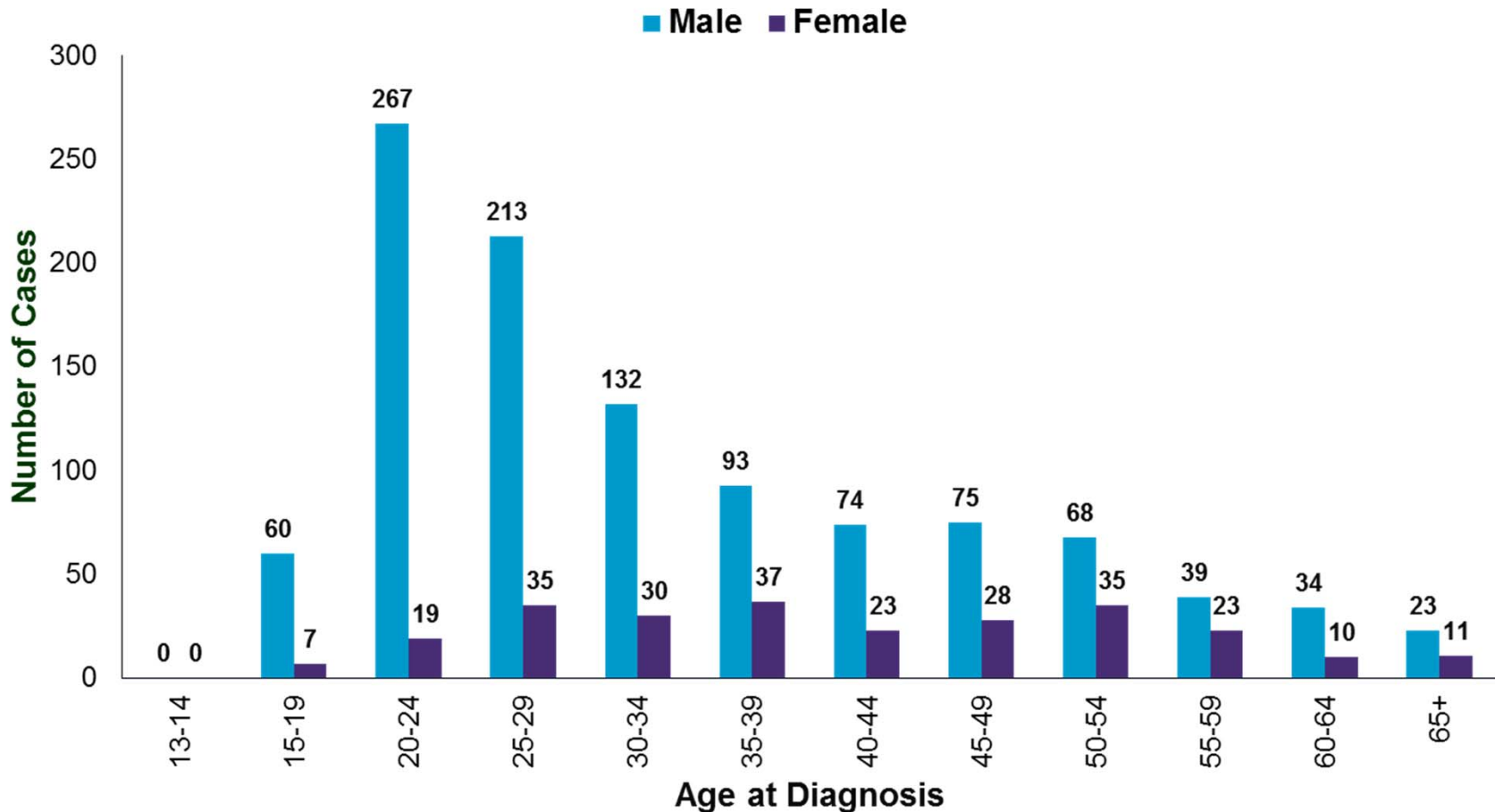
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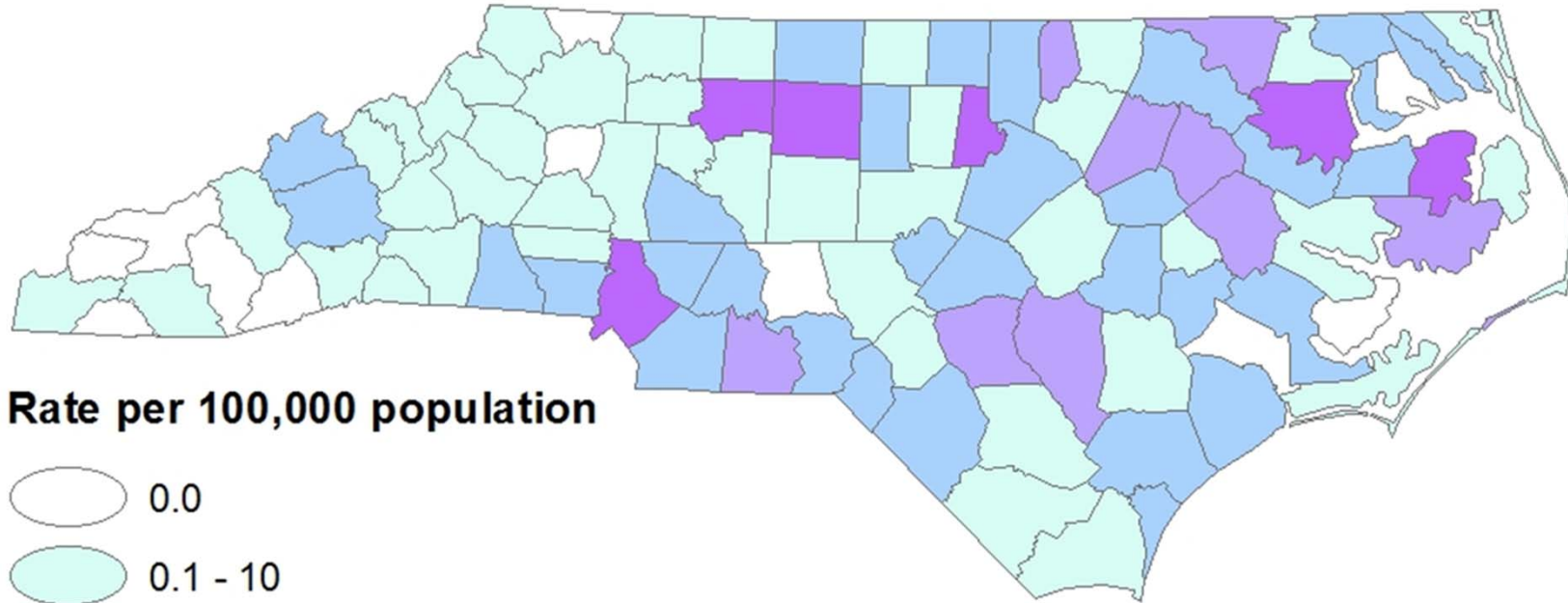
Age Distribution of Newly Diagnosed Adult/Adolescent HIV Infections by Gender in North Carolina, 2015



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Newly Diagnosed HIV Rates by County North Carolina, 2016



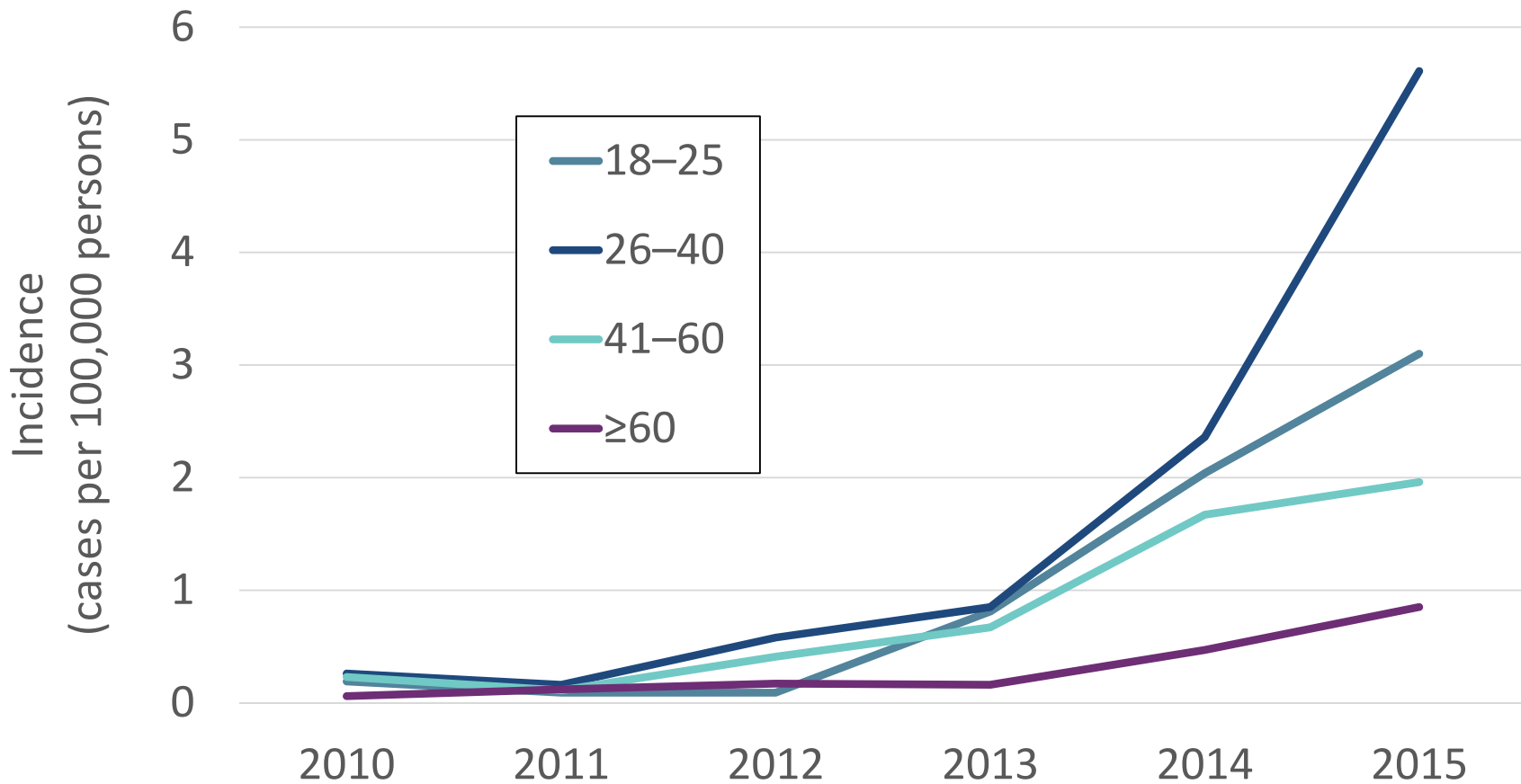
Rate per 100,000 population



Scott County, Indiana

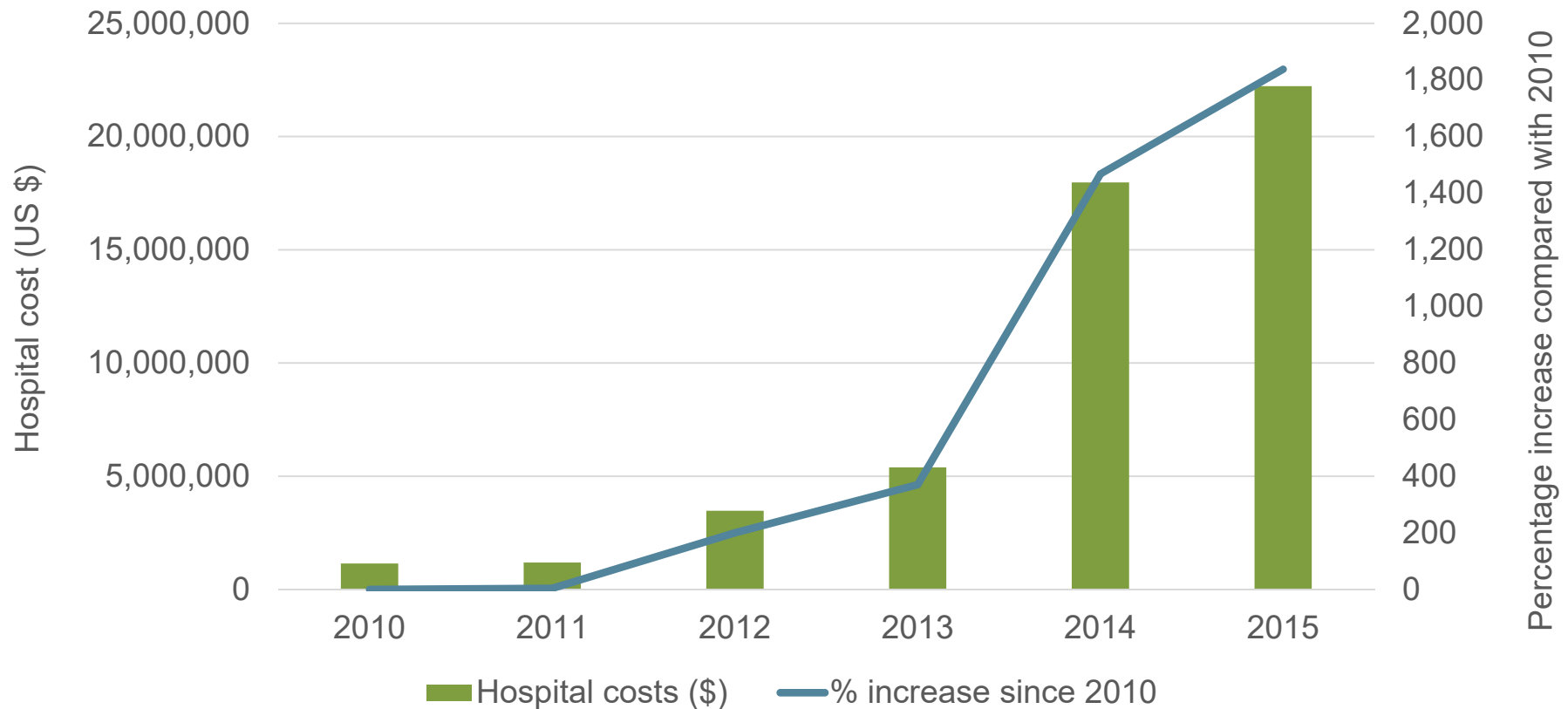


Incidence of Drug-Associated Endocarditis, by Age Group – North Carolina, 2010–2015



<https://www.cdc.gov/mmwr/volumes/66/wr/mm6622a1.htm> (Source: North Carolina Hospital Discharge database)

Hospital Costs of Drug-Associated Endocarditis – North Carolina, 2010–2015



<https://www.cdc.gov/mmwr/volumes/66/wr/mm6622a1.htm> (Source: North Carolina Hospital Discharge database)

Conquering the Syndemic

- Provide options to address drug dependence
- Reduce burden of HIV and viral hepatitis in the community
 - Vaccinate against HBV
 - Increase screening/testing
 - Help persons living with HIV achieve viral suppression
 - Link HCV infected patients to cure
- Harm reduction
 - Work with syringe service programs/harm reduction partners
 - Promote safer injection education and outreach
 - Reduce stigma

Questions?