

# Hepatitis C in People of Reproductive Age, Pregnancy and Children

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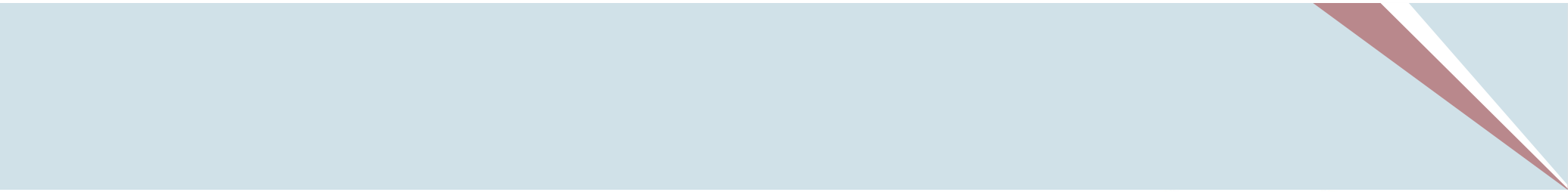
Division of Liver Diseases

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The word women may be used throughout the presentation to align with the language of the studies represented in this talk; however, we acknowledge that not all pregnant people identify as cis women and understand the importance of using gender-inclusive language in order to support all of our patients.

# Learning Objectives

By the end of this presentation, participants will be able to:

- Explain changes in hepatitis C epidemiology nationally, including among people of childbearing age and pregnant people
- Recall current hepatitis C screening and treatment guidelines for people of childbearing age, pregnant people and children
- Describe the risk of gestational parent-to-child transmission of hepatitis C
- Understand the impact of hepatitis C on pregnancy

# Epidemiology

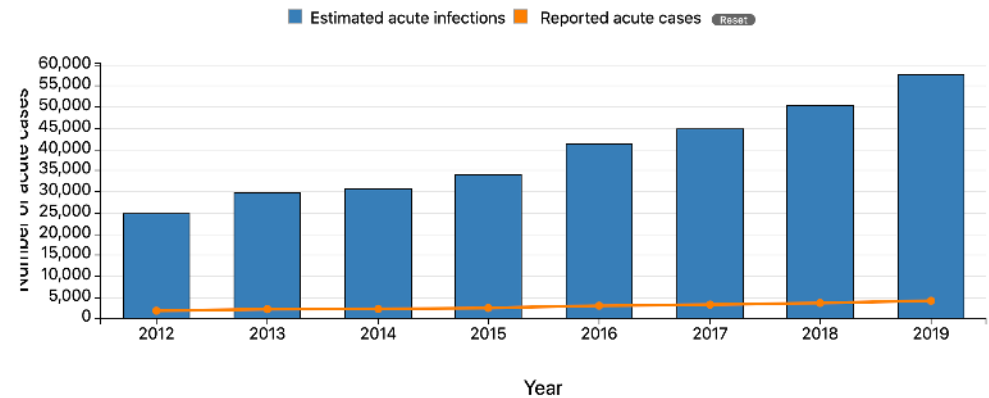
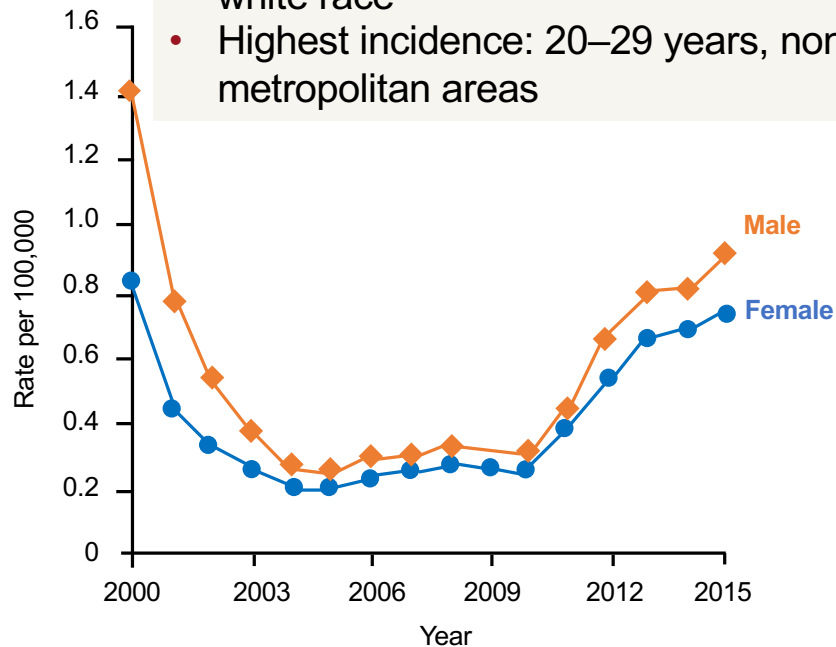
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# HCV in the United States

- >2 million estimated cases of chronic HCV
  - Most common bloodborne infection in the country
- >40% of women living with HCV are of childbearing age
  - 15% of women of childbearing age and living with HCV will become pregnant (but likely an underestimate)

# Incidence of Acute HCV is Increasing

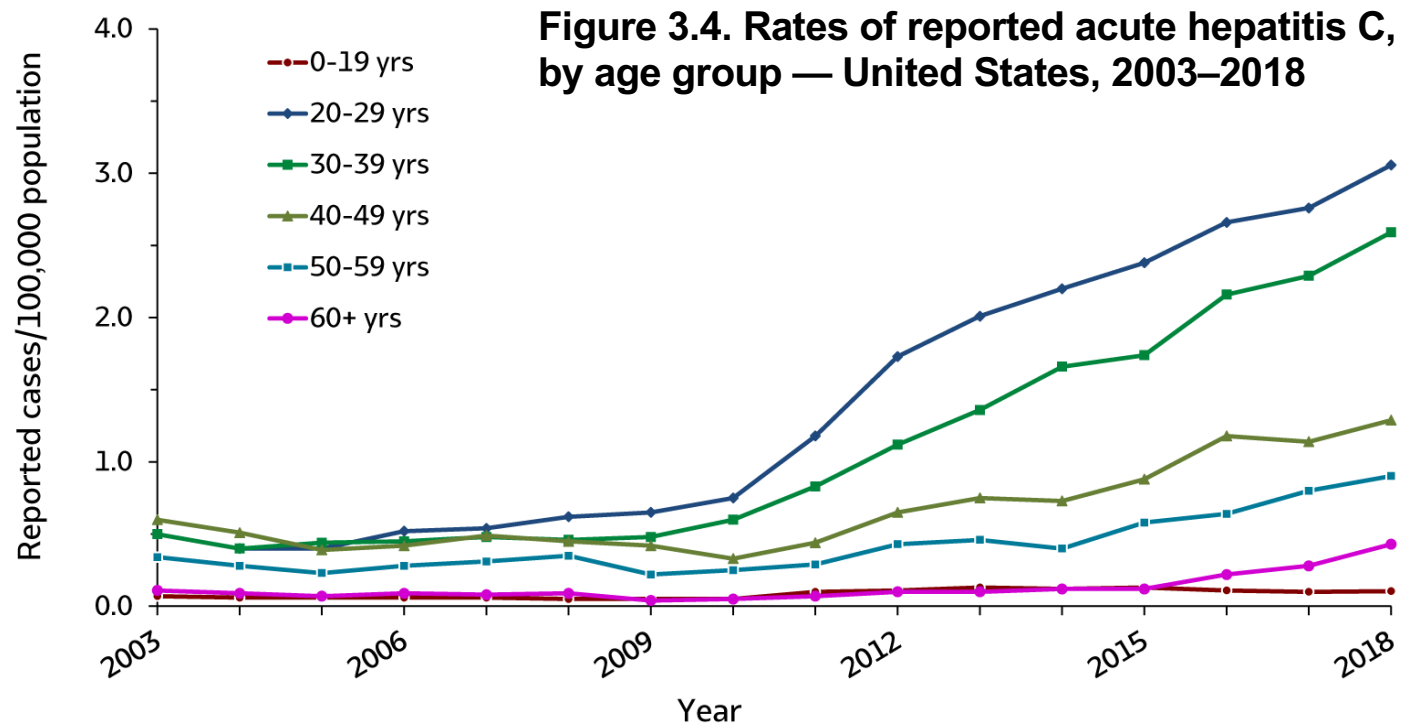
- ~33,900 new HCV infections in 2015
- 1:1 male: female ratio, predominantly white race
- Highest incidence: 20–29 years, non-metropolitan areas



Acute Hepatitis C								
	2012	2013	2014	2015	2016	2017	2018	2019
<b>Reported acute cases</b>	1,778	2,138	2,194	2,436	2,967	3,216	3,621	4,136
<b>Estimated acute infections</b>	24,700	29,700	30,500	33,900	41,200	44,700	50,300	57,500

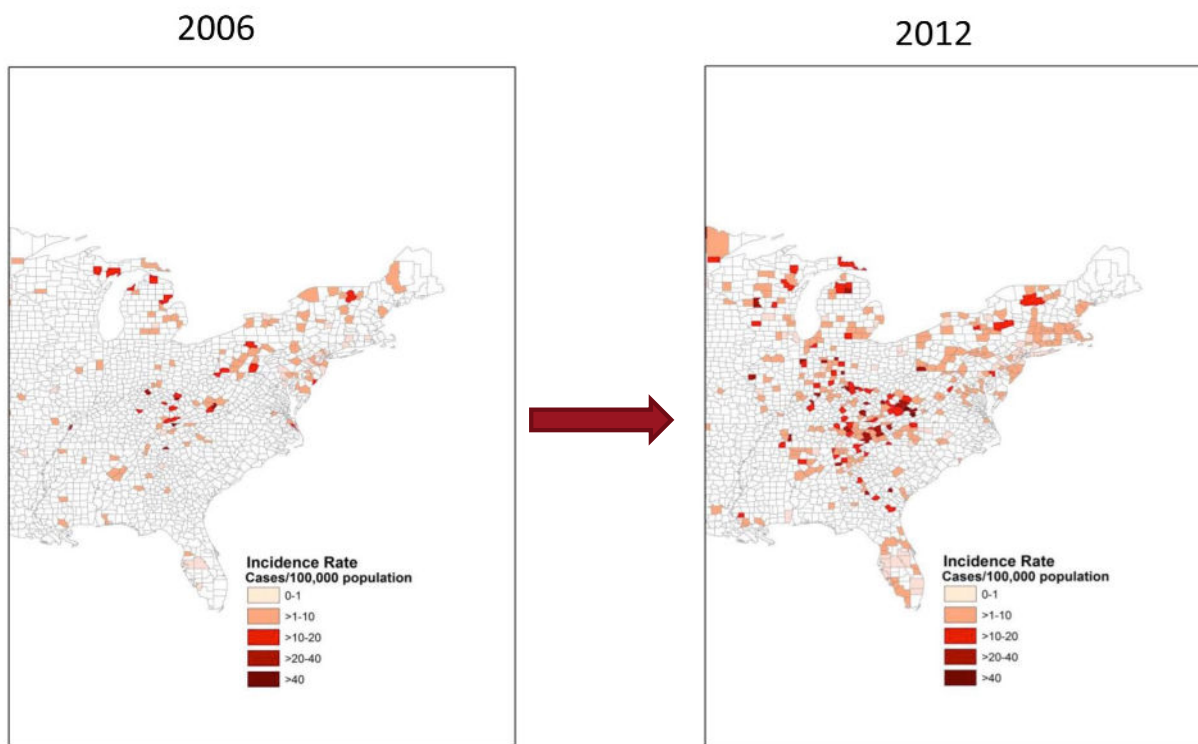
Centers for Disease Control. Viral Hepatitis Surveillance United States, 2015, 2019. Available at: <https://www.cdc.gov/hepatitis/statistics/2015surveillance/pdfs/2015HepSurveillanceRpt.pdf> (accessed May 2022); Suryaprasad AG. Clin Infect Dis 2014;15:59:1411–9; Zibbell JE, et al. MMWR Morb Mortal Wkly Rep 2015;64:453–8; Centers for Disease Control unpublished data

# The Epidemiology Of HCV Is Changing



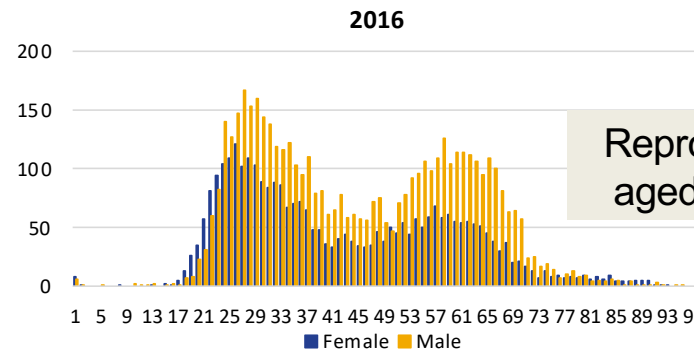
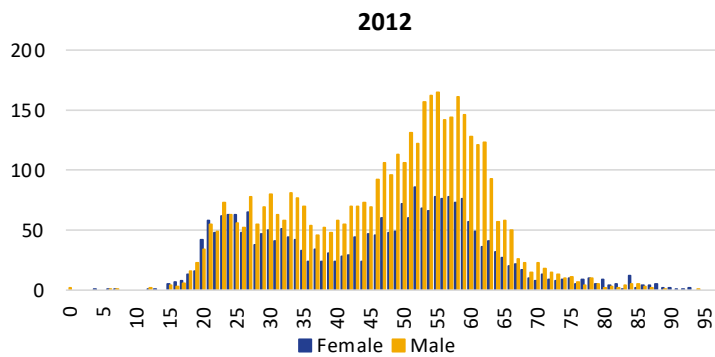
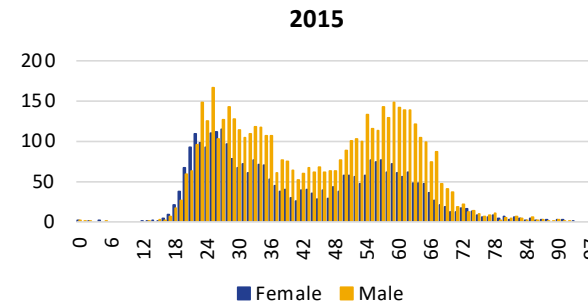
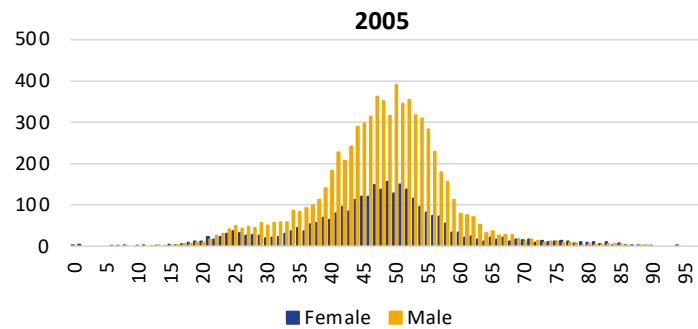
Highest incidence in 20-29 age group

# New HCV in the US: Emerging Epidemic Among Young Heroin Users (< 30 y/o)



- HCV: 13% annual increase rural; 5% annual increase urban
- Regional doubling of first time heroin users
- 3 of 4 had history of prescription opioid abuse
- 97% initiated drug use before age 20

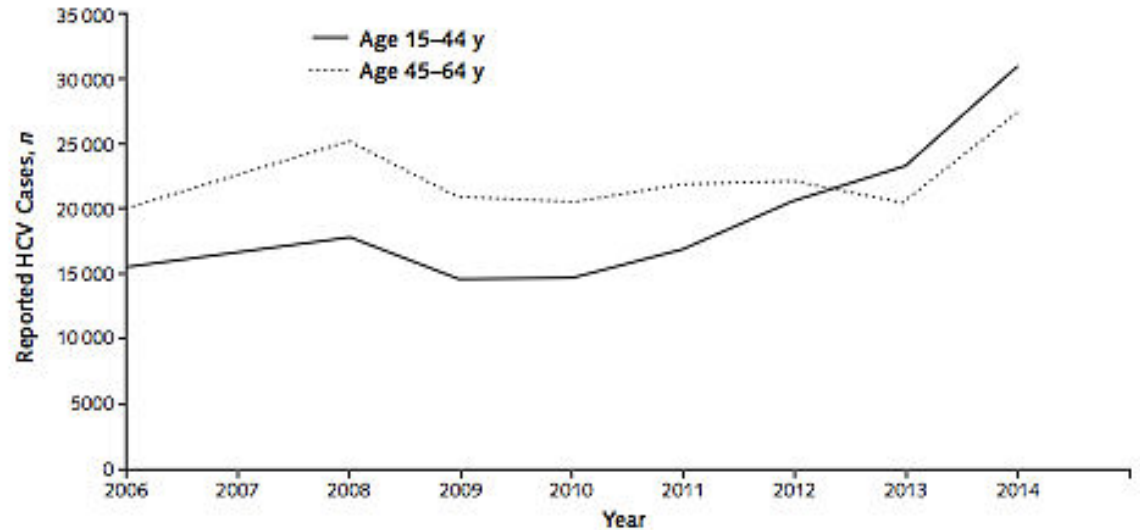
# Bimodal HCV Distribution in NYS: Newer Peak Includes Reproductive-Aged Women



Slide courtesy of NYS DOH Bureau of Viral Hepatitis.

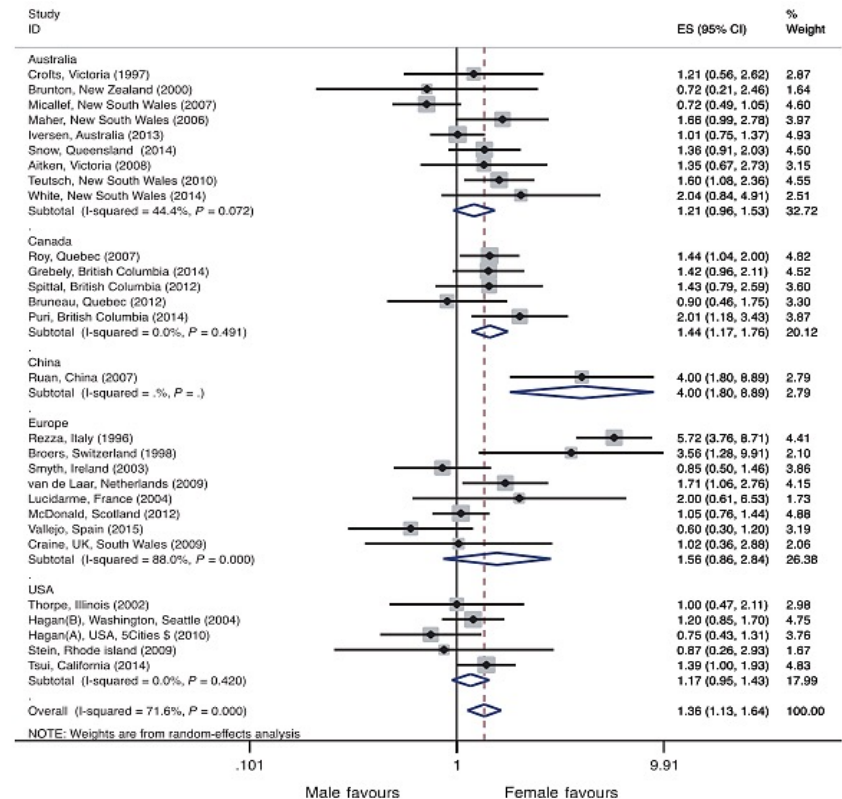
# HCV in Women of Childbearing Age

- Among women of childbearing age:
  - # of acute cases increased 3.4-fold
  - # of past or present cases doubled
  - Rate higher than in older women since 2013



# Incidence of HCV Higher in Women Than Men Who Inject Drugs

- Meta-analysis of 28 studies with 9,325 persons who inject drugs (PWID)
- Women were **36%** more likely to be anti-HCV positive than males
- Varies by country:
  - Highest in China and Europe
  - **17%** higher in US cohorts



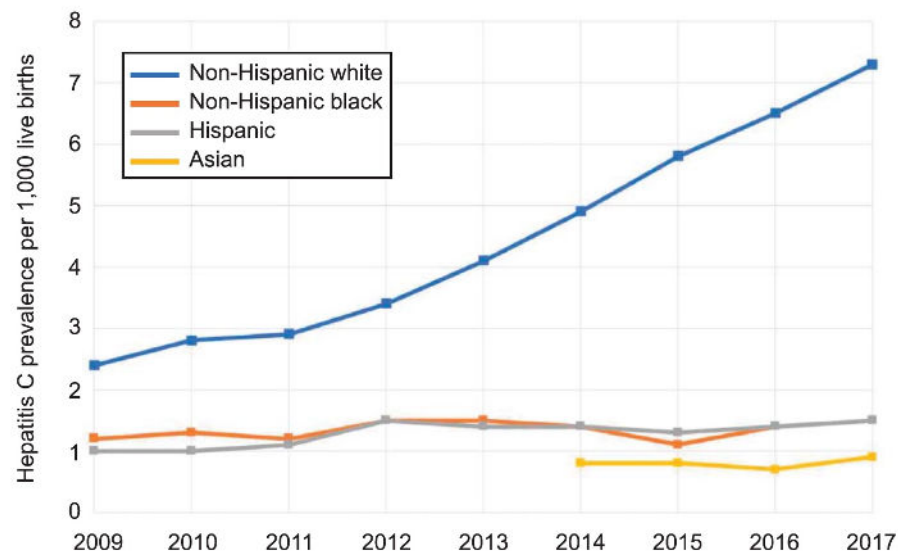
## Why Might Women Be At Higher Risk?

- Women who inject drugs have been shown to higher incidence of HIV and injection-related risk behaviors
  - Higher rates of equipment and syringe sharing in women than men
  - More women using injection equipment after their male partners
  - More women being injected by others
- More likely than males to have IDU sex partners
  - Overlapping sexual and injection partnerships → increased injection risk
- Female PWID face stigma – less likely to participate in harm reduction services

**It is critical to counsel women on harm reduction services  
and safe injection practices!**

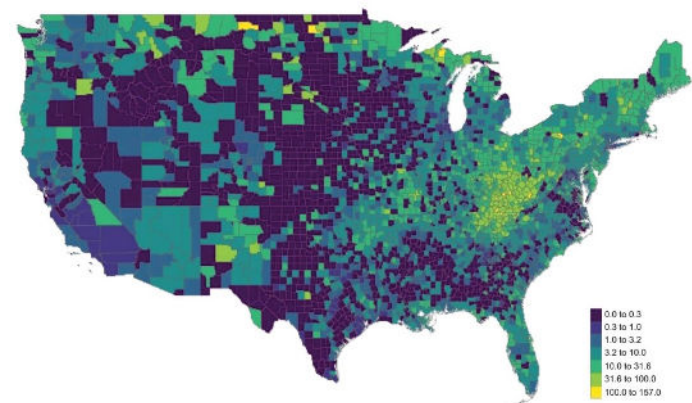
# How about HCV in pregnancy?

Population-based retrospective cohort study of U.S. live births from 2009-2017 using National Center for Health Statistics birth records



**Fig. 3.** Racial trends in maternal hepatitis C prevalence per 1,000 live births.

Overall, reported prevalence of **maternal HCV infection has increased by 161%** from 2009 to 2017



# Case Study

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## Case Study

- 31 y/o G2P0010 female, currently 26 weeks pregnant, transferred from outside hospital for elevated liver tests and jaundice
  - Patient developed elevated liver tests and pruritus (itching) 2 weeks prior
  - Bile acids 45, HCV RNA 1350000, AST 581, ALT 382. HCV genotype 1a
  - Person who is currently on methadone, previously used heroin, last use a “few months” prior to this visit
- What would you do for this patient?
  - What are the key considerations for identification, management, and counseling of women with hepatitis C during pregnancy?

## What Are The Key Questions Surrounding HCV In Pregnancy?

- Who do we screen for HCV during pregnancy?
- How do we monitor and manage pregnant women with HCV?
- How does having HCV affect pregnancy?
- How common is mother-to-child transmission?
- How do we evaluate for mother-to-child transmission?



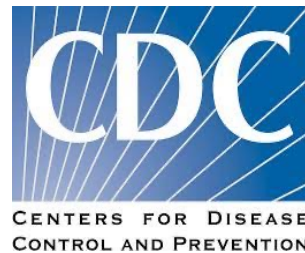
# Testing for HCV During Pregnancy

## Is Risk-Based Screening Reliable?

- Retrospective secondary data analysis of all pregnant women presenting to UMMC in 2016:
  - 1426 pregnancies reviewed
  - Among women with any HCV risk factor → **64.1% were not tested** for HCV
  - 10% of women found to be HCV+ **had no reported risk factors**

These types of studies suggest that risk-based screening may not be effective (similar to what we have seen with HIV and hepatitis B in the past)

# Universal HCV Screening Now Recommended During Pregnancy



# New York State Law for HCV Testing

**Effective May 3, 2024**, New York State requires a hepatitis C screening test be provided to:

- Every person 18 years and older.
- People younger than 18 if there is indication of risk.
- **All pregnant people during each pregnancy. Screening test results must be recorded in the pregnant person's medical record at or before the time of hospital admission for delivery.**

If the screening test is reactive, a hepatitis C RNA test must be performed on the same specimen or a second specimen collected at the same time as the initial test, to confirm diagnosis of current hepatitis C infection.

If the hepatitis C RNA test is detectable, the health care provider must either offer the person follow-up hepatitis C health care and treatment, or refer the person to a health care provider who can.

<https://www.health.ny.gov/publications/1820.pdf>




# Monitoring People With HCV During Pregnancy

# What Should A Primary Provider Know About Monitoring A Woman With HCV?

AASLD guidelines:



## Recommendations for Monitoring HCV-Infected Women During Pregnancy

RECOMMENDED	RATING 
HCV RNA and routine liver function tests are recommended at initiation of prenatal care for HCV-antibody–positive pregnant women to assess the risk of mother-to-child transmission (MTCT) and degree of liver disease.	I, B
All pregnant women with HCV infection should receive prenatal and intrapartum care that is appropriate for their individual obstetric risk(s) as there is no currently known intervention to reduce MTCT.	I, B
In HCV-infected pregnant women with pruritus or jaundice, there should be a high index of suspicion for intrahepatic cholestasis of pregnancy (ICP) with subsequent assessment of alanine aminotransferase (ALT), aspartate aminotransferase (AST), and serum bile acids.	I, B
HCV-infected women with cirrhosis should be counseled about the increased risk of adverse maternal and perinatal outcomes. Antenatal and perinatal care should be coordinated with a maternal-fetal medicine (ie, high-risk pregnancy) obstetrician.	I, B

# What is the Impact of HCV on Pregnancy?

- There may be a negative impact on pregnancy of having HCV, but difficult to tease apart from effect of associated factors (such as injection drug use):
  - Meta-analysis of >4m women and >5000 HCV infection cases
    - Preterm birth - OR 1.62 (95% CI 1.48-1.76)<sup>1</sup>,
    - Intrauterine growth restriction - OR 1.53 (95% CI 1.40-1.68)<sup>2</sup>
    - Low birth weight – OR 1.97 (95% CI 1.43-2.71)<sup>2</sup>
  - Swedish birth registry of >1 m women, >2000 HCV births, 2001-2011<sup>3</sup>
    - Preterm birth (aRR 1.32 (95% CI 1.08-1.60)
    - Late neonatal death (aRR 3.79 (95% CI:1.07-13.79)

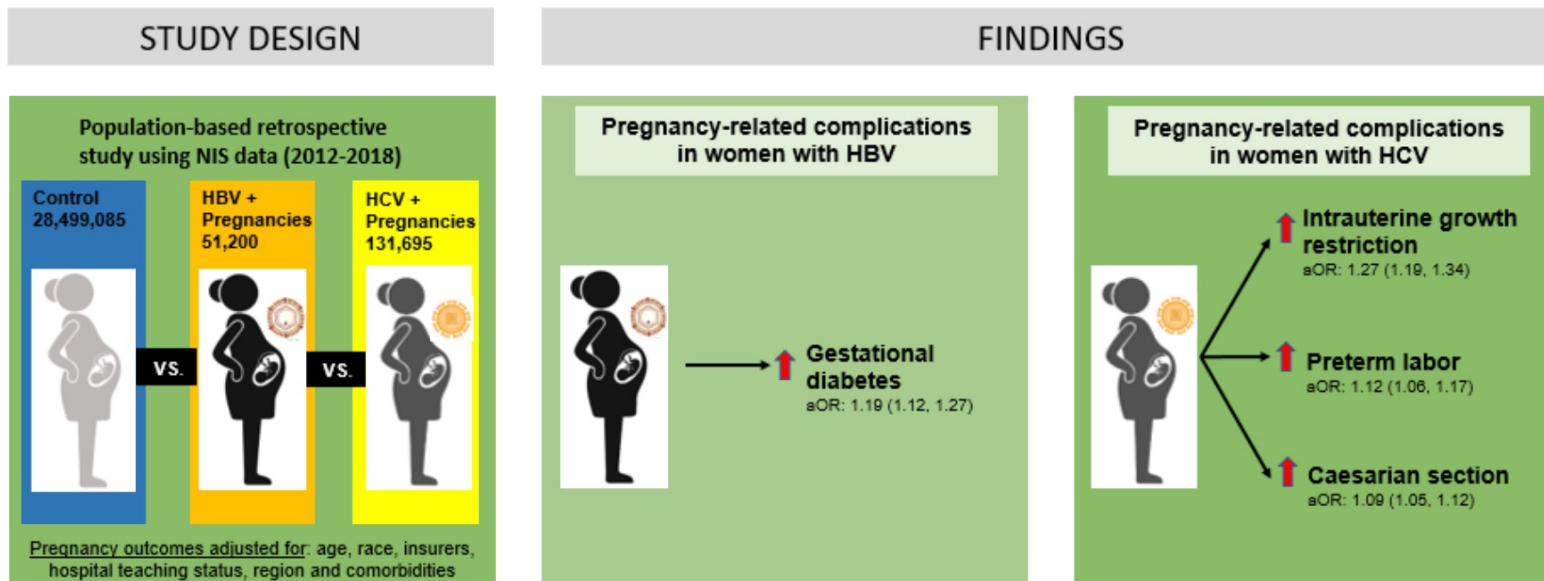
<sup>1</sup>Huang Q, et al. *J of Viral Hepatitis* 2015.

<sup>2</sup>Huang Q, et al. *Medicine* 2016.

<sup>3</sup>Stokkeland K, *Eur J Epidemiol* 2017.

# Evaluation of Nationwide Inpatient Sample

## Hepatitis C is Associated with More Adverse Pregnancy Outcomes than Hepatitis B: A 7-Year National Inpatient Sample Study



# Impact of HCV Viral Parameters on Pregnancy Complications & Risk of MTCT

## STUDY DESIGN

Population-based retrospective study using ICES data (2000-2018)

1,780 HCV RNA+ pregnancies

390 HCV Ab+/RNA- pregnancies

Pregnancy outcomes adjusted for: Age, parity, diabetes, multiple gestations, cirrhosis, alcohol and substance use, HIV co-infection

## OUTCOMES

### Adverse pregnancy outcomes

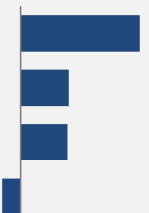
- Gestational diabetes
- Intrahepatic cholestasis of pregnancy
- Small for gestational age
- Large for gestational age
- Antepartum hemorrhage
- Postpartum hemorrhage
- Preterm delivery

## FINDINGS

### Pregnancy outcomes

#### HCV RNA+ vs. HCV Ab+/RNA-

- Intrahepatic cholestasis of pregnancy: OR 4.55
- Preterm delivery: OR 1.84
- Postpartum hemorrhage: OR 1.78
- Gestational diabetes: OR 0.71



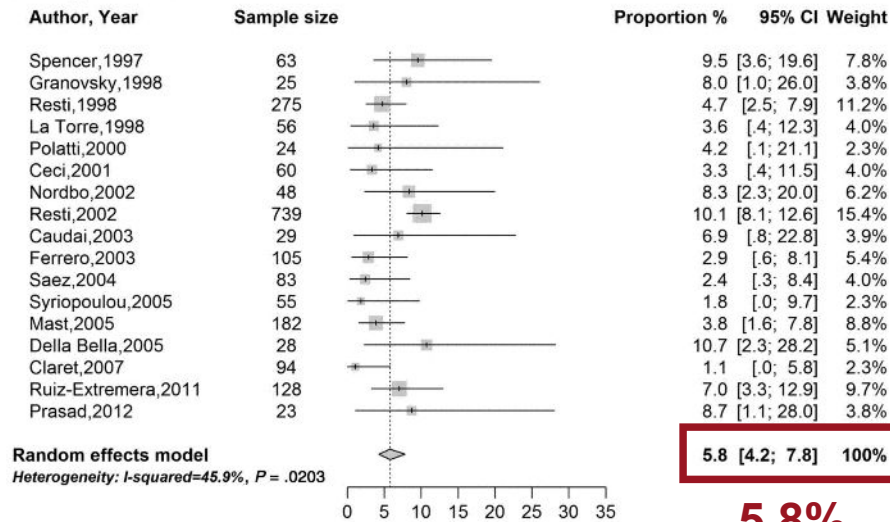


# **Mother-to-Child Transmission (MTCT) of HCV**

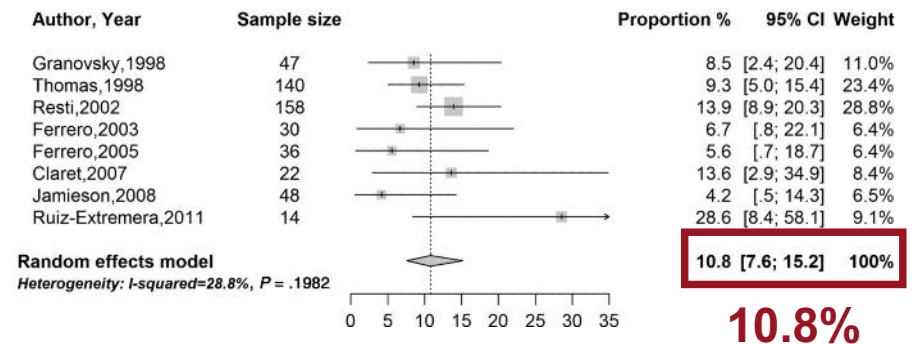
# What is the Risk of Mother-to-Child Transmission of HCV?

Systematic review and meta-analysis of 109 studies with HCV Ab+, RNA + mothers

## HIV-negative women



## HIV-positive women



Ades A, et al. 2022: Estimated vertical transmission to be **7.2%** (95% CI 5.6-8.9); in HIV coinfectd **12.1%** (8.6-16.8).

Overall VT rates are about **24%** higher than previously thought

## Can You Prevent Transmission During and After Pregnancy?

Variable	Studies; # women	Precision of Evidence	Summary of findings
Elective C/S vs. vaginal delivery	4 cohort studies; N=2080	Low	No differences, but trends in opposite directions in highest quality studies
All C/S vs. vaginal delivery	11 cohort studies; N=2308	Low	No association
Invasive fetal monitoring vs. none	3 cohort studies; N=928	Low	Inconsistent but one good quality study OR=6.7 (95% CI 1.1-36)
Prolonged rupture of membranes vs. no	2 cohort studies; N=245	Low	Yes with > 6 hours having OR=9.3 (95% CI 1.5-18)
Breastfeeding	14 cohort studies; 2971 patients	High	No association

# What is the Impact of Transmission on Children?

- MTCT is the most common cause of HCV in children
- 25-40% of infants clear HCV by 2-3 years
- Impact on children:
  - Quality of life
    - Reduced physical functioning
    - Executive function impairment in 20% of infected children
    - Worse cognitive functioning than uninfected children
    - Parental emotional impact and decrement in parental quality of life
  - Higher rates of cirrhosis in children who acquire HCV through MTCT
  - Hepatocellular carcinoma – 2<sup>nd</sup> most common hepatic malignancy in children

Murray, et al. *Diseases of the Liver in Children*. Springer 2014.

Modin et al. *Journal of Hepatology* 2018.


Younossi, et al. *Hepatology* 2007.

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# **Infant/Child Testing Guidelines**

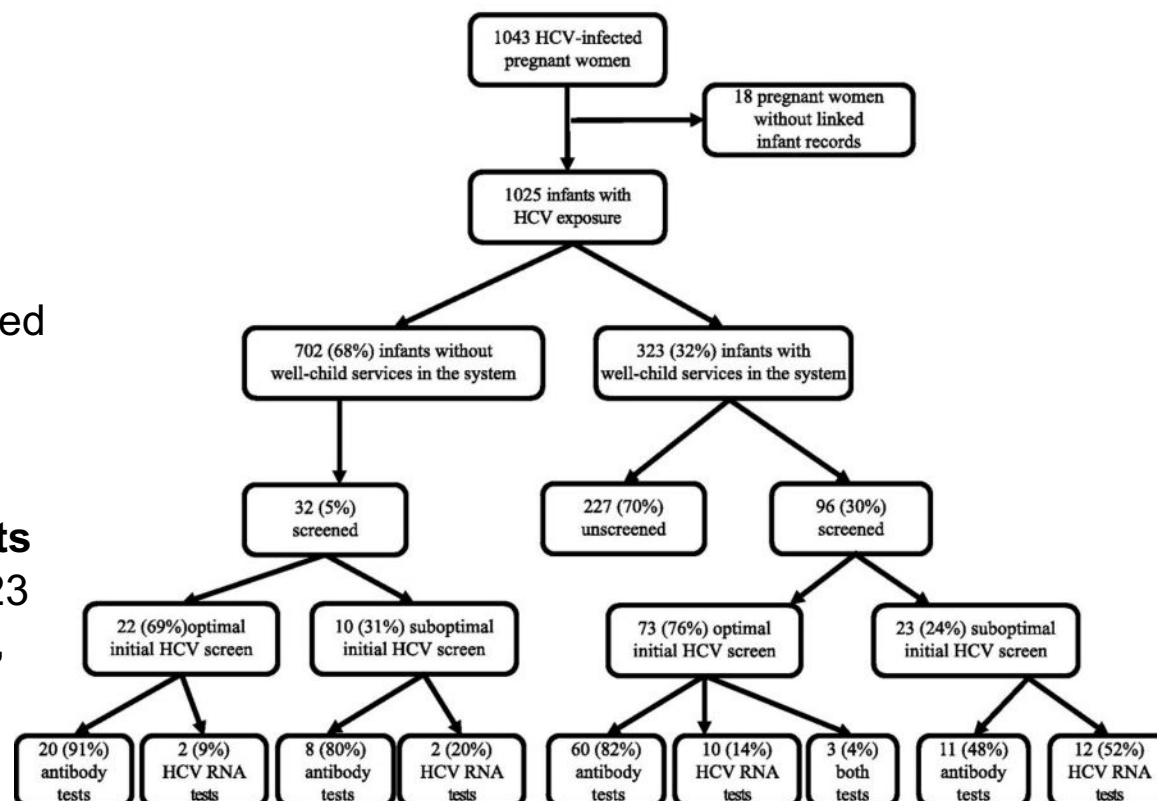
# Which Children Do We Screen For HCV?

## AASLD Guidelines

Recommendations for HCV Testing of Perinatally Exposed Children and Siblings of Children With HCV Infection	
RECOMMENDED	RATING 
All children born to HCV-infected women should be tested for HCV infection. Testing is recommended using an antibody-based test at or after 18 months of age.	I, A
Testing with an HCV-RNA assay can be considered in the first year of life, but the optimal timing of such testing is unknown.	IIa, C
Testing with an HCV-RNA assay can be considered as early as 2 months of age.	IIa, B
Repetitive HCV RNA testing prior to 18 months of age is not recommended.	III, A
Children who are anti-HCV positive after 18 months of age should be tested with an HCV-RNA assay after age 3 to confirm chronic hepatitis C infection.	I, A
The siblings of children with vertically-acquired chronic HCV should be tested for HCV infection, if born from the same mother.	I, C

# Are We Actually Testing Children?

- Population-based, retrospective cohort of pregnant women who delivered between 2006 and 2014
- Identified as HCV infected or HCV uninfected by billing codes
- Infant records linked to HCV-infected pregnant women queried for HCV tests and the receipt of well-child services
- Among **1025 HCV-exposed infants** with available pediatric records, 323 (31%) received well-child services, and among these, **only 96 (30%) were screened for HCV.**



# Good News! CDC has updated their guidelines

## CDC Recommendations for Hepatitis C Testing Among Perinatally Exposed Infants and Children — United States, 2023

*Recommendations and Reports / November 3, 2023 / 72(4);1–19*

### Four New CDC Recommendations

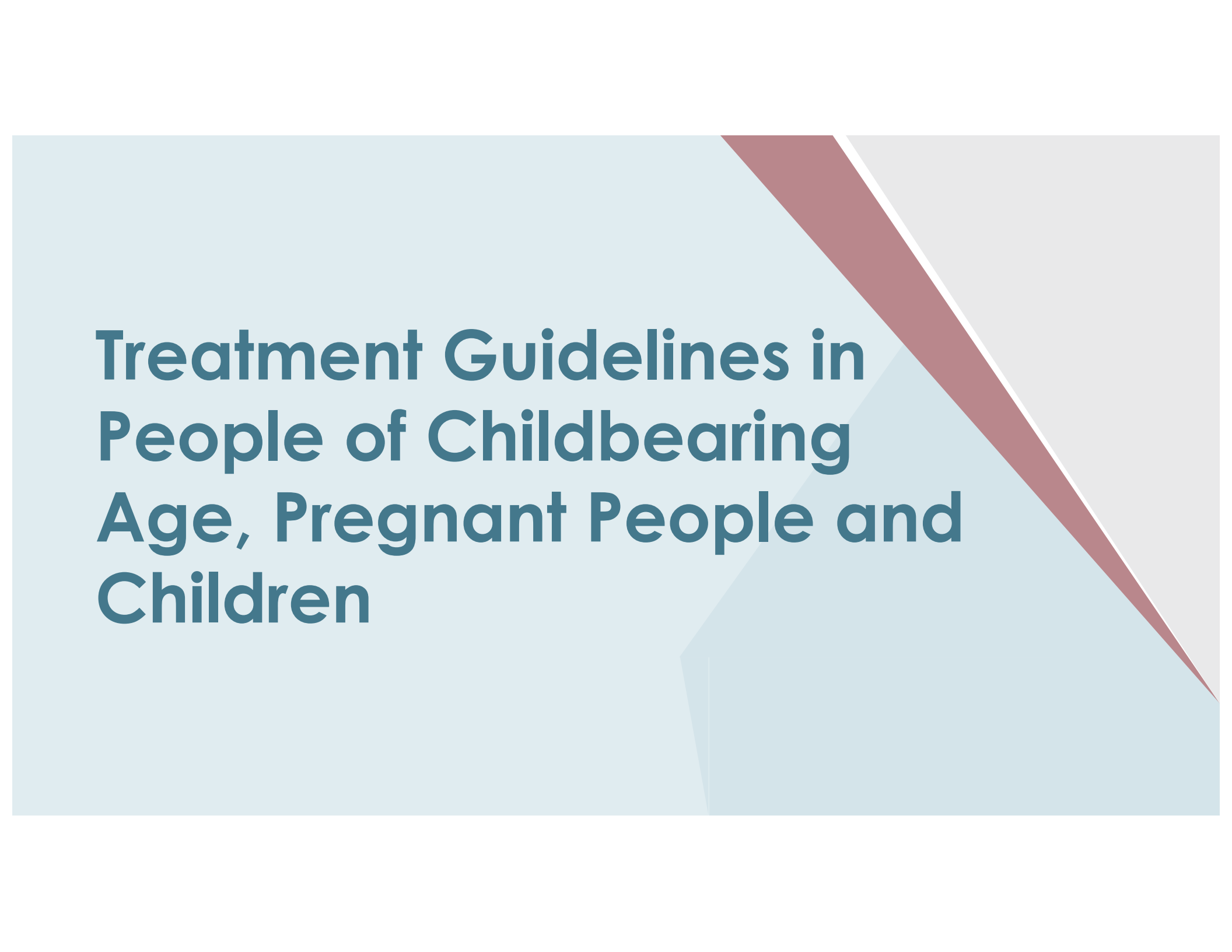
- 1) *HCV testing of all perinatally exposed infants with a nucleic acid test (NAT) for detection of HCV RNA **at age 2–6 months**;*
- 2) ***consultation with HCP with expertise in pediatric hepatitis C management** for all infants/children with detectable HCV RNA;*
- 3) *perinatally exposed infants/ children with **undetectable HCV RNA** at or after age 2 months **do not require further follow-up***
- 4) *a NAT for HCV RNA is recommended for perinatally exposed infants and children aged 7–17 months who previously have not been tested, and a hepatitis C virus antibody (anti-HCV) test followed by a reflex NAT for HCV RNA (when anti-HCV is reactive) is recommended for perinatally exposed children aged  $\geq 18$  months who previously have not been tested.*

*Proper identification of perinatally infected children, referral to care, and curative treatment are critical to achieving the goal of hepatitis C elimination.*

<https://www.cdc.gov/mmwr/volumes/72/rr/rr7204a1.htm>

## What Is The OB/GYN's Role In Ensuring Pediatric Testing?


- Important to communicate with pediatrician about maternal HCV infection
  - Transfer of care to pediatrician to alert them about maternal HCV status
  - Need for interventions to increase screening in infants who are at risk for perinatal HCV acquisition by including technology to improve the transfer of maternal HCV status to the pediatric record
  - Need to increase pediatric provider awareness regarding HCV screening guidelines



# Treatment Guidelines in People of Childbearing Age, Pregnant People and Children

# Treatment of Women of Childbearing Age

## AASLD Guidelines:


Recommendation Regarding HCV Treatment and Pregnancy	
RECOMMENDED	RATING 
For women of reproductive age with known HCV infection, antiviral therapy is recommended <b>before</b> considering pregnancy, whenever practical and feasible, to reduce the risk of HCV transmission to future offspring.	I, B

- Counsel about benefit of antiviral treatment prior to pregnancy
- If become pregnant on DAA therapy, should discuss the risks versus benefits of continuing treatment with providers
- Ribavirin is contraindicated in pregnancy due to teratogenicity (wait at least 6 months after ribavirin to get pregnant)

# Treatment in Children

## AASLD Guidelines

### Recommendations for Whom and When to Treat Among Children and Adolescents With HCV Infection

RECOMMENDED	RATING 
Direct-acting antiviral (DAA) treatment with an approved regimen is recommended for all children and adolescents with HCV infection aged $\geq 3$ years as they will benefit from antiviral therapy, regardless of disease severity.	I, B
The presence of extrahepatic manifestations—such as cryoglobulinemia, rashes, and glomerulonephritis—as well as advanced fibrosis should lead to early antiviral therapy to minimize future morbidity and mortality.	I, C

# Antiviral Therapy during pregnancy for Prevention of Transmission?

Many DAAs are considered pregnancy category B

**Table 1. Safety Profile of New DAAs in Pregnancy**

DAA Combination	Pregnancy Category
(1) Paritaprevir* + (2) ombitasvir*	(1) B, (2) B
(1) Paritaprevir* + (2) dasabuvir* + (3) ombitasvir*	(1) B, (2) B, (3) B
(1) Daclatasvir <sup>†</sup> + (2) asunaprevir <sup>‡</sup>	(1) N/A, (2) N/A
(1) Daclatasvir <sup>†</sup> + (2) asunaprevir <sup>‡</sup> + (3) beclabuvir	(1) N/A, (2) N/A, (3) N/A
(1) Sofosbuvir* + (2) ledipasvir*	(1) B, (2) B
(1) Sofosbuvir* + (2) ledipasvir* + (3) vedroprevir	(1) B, (2) B, (3) N/A
(1) Sofosbuvir* + (2) ledipasvir* + (3) GS-9669	(1) B, (2) B, (3) N/A
(1) Sofosbuvir* + (2) simeprevir*	(1) B, (2) C
(1) Grazoprevir, (2) elbasvir	(1) N/A, (2) N/A
(1) Daclatasvir <sup>†</sup> + (2) sofosbuvir*	(1) N/A, (2) B
(1) Sofosbuvir* + (2) velpatasvir	(1) B, (2) N/A
(1) Grazoprevir, (2) elbasvir ± (3) MK-3682	(1) N/A, (2) N/A, (3) N/A

\*FDA-approved DAA.

<sup>†</sup>Approved in Europe, Brazil, and Japan.

<sup>‡</sup>Approved in Japan.

Abbreviation: N/A, not available.

## Why Consider Antiviral Therapy in Pregnancy?

- Potential to reduce MTCT -- as is done for HBV
- Time when women are insured – opportune time to treat HCV concurrent with managing pregnancy
- Can target women with high risk behaviors to prevent transmission to others (e.g. injecting partners)

# What are the recommendations for antiviral therapy in pregnant people? - HCV



HCV Guidance: Recommendations for Testing, Managing, and Treating Hepatitis C



SMFM Consult Series

[smfm.org](http://smfm.org)

“Despite the lack of a recommendation, **treatment can be considered during pregnancy on an individual basis after a patient-physician discussion** about the potential risks and benefits.”  
AASLD/ IDSA HCV Guidance 2020.

“Women who become pregnant while on DAA therapy (with or without ribavirin) should discuss the risks versus benefits of continuing treatment with their physicians.”

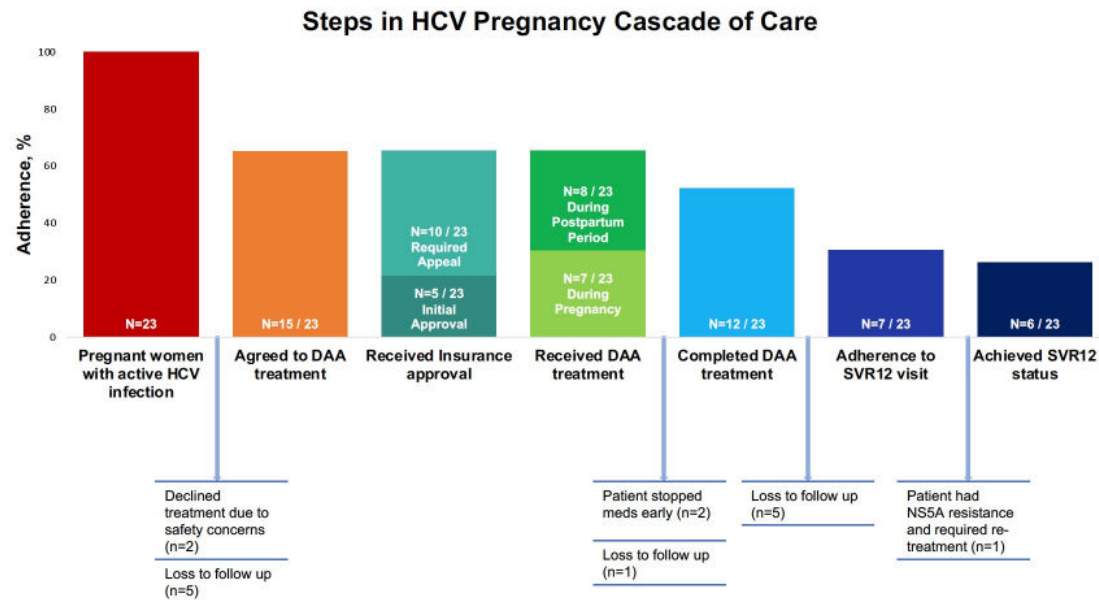
AASLD/ IDSA HCV Guidance 2021.

“We recommend that DAA regimens **only be initiated in the setting of a clinical trial during pregnancy** and that people who become pregnant while taking a DAA should be counseled in a shared decision-making framework about the risks and benefits of continuation”

Am J Obstet Gynecol 2021

# Our center experience..

- Women's Liver Clinic – collocated in Obstetrics department
- 23 women with active HCV viremia offered HCV treatment in pregnancy



# Should we consider HCV treatment in pregnancy?

- Emerging Data of DAAs in pregnancy

Trial Number/ Trial Phase	Study Design	# of Participants (or Estimation)	Status
NCT04382404 Phase 1	SOF/VEL	10	Completed (CROI 2023)
NCT02683005 Phase 1	LDV/SOF	9	Completed (Chappell CA et al. <i>Lancet Microbe</i> . 2020;1:e200-e208.)
NCT05140941 (STORC) Phase 4	SOF/VEL	100	Recruiting

- Treatment in Pregnancy for Hepatitis C (TiP-HepC) registry CDC and Coalition for Global Hepatitis Elimination

## Contribute data to TiP-HepC registry

The TiP-HepC registry is collecting retrospective data on the outcomes of mother– infant pairs exposed to DAAs during pregnancy in routine clinical practice will be solicited and collected from participating clinical providers, health-care facilities, HCV treatment programmes, and other clinical practices worldwide.

[Submit or upload cases here](#)

## Treatment after pregnancy

- If treatment not done prior to or during pregnancy, it is imperative to treat after pregnancy
  - Cure mother while she is engaged in care/ has health insurance
  - Prevent risk to mother of future HCV complications
  - Decrease risk of mother-to-child transmission in future pregnancies
  - Decrease risk of household transmission of HCV

# Harm Reduction in Pregnancy

- Many women with HCV have a history of drug use – critical to address
  - Huge stigma with drug use during pregnancy – combat misinformation
  - Do not criminalize pregnant women who use drugs
  - Respect confidentiality; honest discussions with health care provider
  - Ensure access to harm reduction services
  - Facilitate access to methadone and buprenorphine
  - Ensure adequate pain relief during pregnancy
  - Support women through birth and after
  - Make it easier to navigate health and social services

## Back To Our Case...

- 31 y/o G2P0010 female, currently 26 weeks pregnant, transferred from outside hospital for elevated liver tests and jaundice.
  - Continued on methadone
  - Diagnosed with cholestasis of pregnancy and initiated on ursodiol for treatment
  - Diagnosed with hepatitis C (likely acute)
    - Had not been screened at initial prenatal visit
  - HCV RNA fluctuated during pregnancy, and liver tests improved with ursodiol
  - Delivery at 36 weeks gestation – uneventful NSVD. Neonatal jaundice diagnosed.
  - Initiated HCV treatment after breastfeeding and completed treatment, but did not present for SVR12 check.

## Conclusions

- HCV among women of childbearing age and during pregnancy is on the rise as a result of the opioid epidemic
  - As a result, HCV rates in children are increasing as well
- Mother-to-child transmission rates range from 6-11% (HIV significantly increases risk)
- All children of mothers with HCV should be tested at 2-6 months of age with HCV RNA and referred to HCV specialist if positive
- Treatment is currently recommended in children  $\geq 3$  years of age
- Studies are underway to determine safety and efficacy of HCV treatment in pregnancy
- Linkage to care of women with HCV is a critical part of the puzzle!

# Pregnancy & Substance Use: A Harm Reduction Toolkit

- [Harm Reduction Toolkit](#)
  - Information for pregnant and parenting people who use drugs, their loved one and their service providers
  - Information can be used to understand your rights, access services and find evidenced-based care

# Resources

- American Association for the Study of Liver Diseases (AASLD) and Infectious Disease Society of America (IDSA), Hepatitis C Practice Guidelines:
  - Hepatitis C in Pregnancy: [www.hcvguidelines.org/unique-populations/pregnancy](http://www.hcvguidelines.org/unique-populations/pregnancy)
  - Hepatitis C in Children: [www.hcvguidelines.org/unique-populations/children](http://www.hcvguidelines.org/unique-populations/children)
  - Simplified Hepatitis C Treatment for Treatment-Naive Patients Without Cirrhosis. [www.hcvguidelines.org/treatment-naive/simplified-treatment](http://www.hcvguidelines.org/treatment-naive/simplified-treatment)
- United States Preventative Services Task Force (USPSTF) Screening Recommendations in Adolescents and Adults: [www.uspreventiveservicestaskforce.org/uspstf/recommendation/hepatitis-c-screening](http://www.uspreventiveservicestaskforce.org/uspstf/recommendation/hepatitis-c-screening)
- FDA Approved Hepatitis C Treatment for Pediatric Patients. [www.fda.gov/news-events/press-announcements/fda-approves-new-treatment-pediatric-patients-any-strain-hepatitis-c](http://www.fda.gov/news-events/press-announcements/fda-approves-new-treatment-pediatric-patients-any-strain-hepatitis-c)
- Centers for Disease Control Perinatal Hepatitis C Information: [www.cdc.gov/nchhstp/pregnancy/challenges/hcv.html](http://www.cdc.gov/nchhstp/pregnancy/challenges/hcv.html)
- New York State Department of Health Hepatitis C Clinical Guidelines, Pregnancy: [www.hivguidelines.org/hepatitis-care/treatment-with-daa/#tab\\_4](http://www.hivguidelines.org/hepatitis-care/treatment-with-daa/#tab_4)

# Resources Continued

**HCV educational materials** are currently available free of charge through the NYS Department of Health AIDS Institute

- Educational materials targeting pregnant people:
  - *HCV and Pregnancy* Brochure, <https://www.health.ny.gov/publications/16039.pdf>
  - *Ask To Be Tested for Hepatitis C During Each Pregnancy* Poster, <https://www.health.ny.gov/publications/16112.pdf>
  - *Get Tested, Treated and Cured Before Becoming Pregnant* Poster, <https://www.health.ny.gov/publications/16114.pdf>
- Additional information on HCV prevention, screening, care, and treatment can be found at [https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis\\_c/](https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/)
- Hepatitis A, B and C in New York City: 2020 Annual Report [https://hepfree.nyc/wp-content/uploads/2020/04/2020-Annual-Report\\_Final\\_11-15-21.pdf](https://hepfree.nyc/wp-content/uploads/2020/04/2020-Annual-Report_Final_11-15-21.pdf)

# Treatment in Pregnancy for Hep C (TiP-HepC) Clinical Case Registry

- (TiP-HepC) collects clinical information after exposure to direct-acting antivirals (DAAs) during pregnancy: <https://redcap.emory.edu/surveys/?s=C99K9EEYHRLNY8AR>
- This registry was created to record outcomes of mother-infant pairs exposed to DAAs during pregnancy. Findings from the registry will be critical to advancing HCV treatment decision-making by clinical providers and programs worldwide. Please note this is NOT a surveillance registry.
- For more information about TiP-HepC: [\*Hepatitis C in pregnancy and the TiP-HepC registry\*](#) and <https://www.globalhep.org/evidence-base/treatment-pregnancy-hepatitis-c-tip-hepc-registry>.

# Contact Us

**For CMEs or educational opportunities, contact:**

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# Upcoming Webinars



TUESDAY, May 7, 2024 (4:30 - 5:30 PM EST)

## **Universal Screening and Vaccination to Achieve Viral Hepatitis Elimination**

Presenter: Douglas T. Dieterich, MD  
Director, Institute for Liver Medicine  
Mount Sinai Health System  
Professor of Medicine, Icahn School of Medicine



Presenter: Anna Mageras, MPH  
Program Manager, Division of Liver Diseases  
Department of Medicine, Icahn School of Medicine