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WHISE

Viral Hepatitides B and C:
Gender Issues, Care Opportunities and Pregnancies

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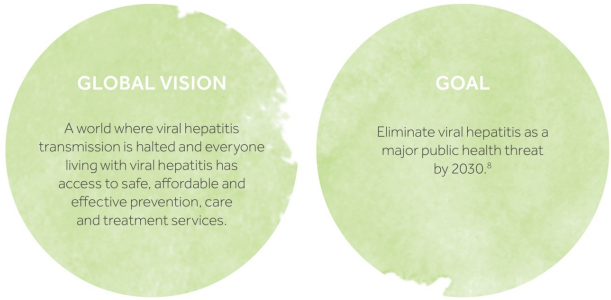
Objectives

- Delineate global burden of HBV and HCV in women of childbearing potential (WOCP) and in pregnancy
- Outline recommendations for screening for HBV and HCV in WOCA and pregnant people
- Outline recommendations for treatment in WOCA and pregnant people
- Delineate gaps in care

World Health Organization: Global Health Strategy Interventions 2022-2023

1. Primary prevention (i.e. vaccination)
2. Harm reduction for PWIDs
3. Prevention of vertical transmission
4. Prevention and treatment and care for children and adolescents
5. Infection prevention and control
6. Integrated testing
7. Partner notification/ services
8. Stigma and discrimination in healthcare settings



Priority populations:

1. Pregnant breastfeeding women
2. Women and girls, including adolescent girls and young women

Global Health Strategy Interventions https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/strategies/global-health-sector-strategies2022-2023.

Burden of HBV and HCV Among Women of Childbearing Potential (WOCP)

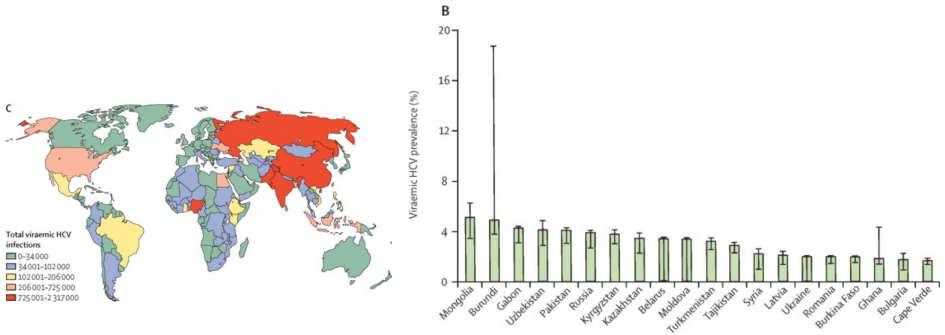
Women of childbearing age account for a quarter of the world's population

Hepatitis B

- 65 million women of childbearing potential globally

Hepatitis C

- Polaris Estimated 14.9 million women age 15-49 globally→ 1/5 global HCV infection



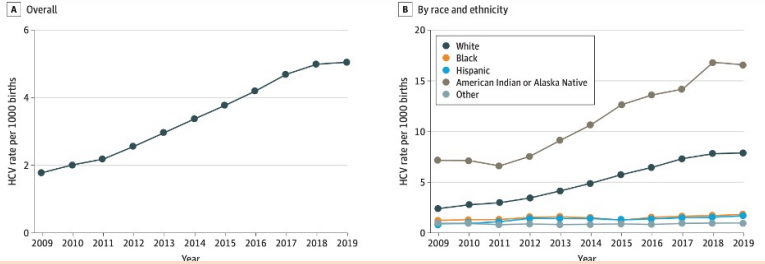
Global hepatitis report. WHO; 2017. Available from: https://www.who.int/hepatitis/publications/global-hepatitis-report2017/en/

Dugan E et al. *Lancet Gastroenterology & Hepatology*. 2021.

Burden of HBV and HCV in Pregnant People

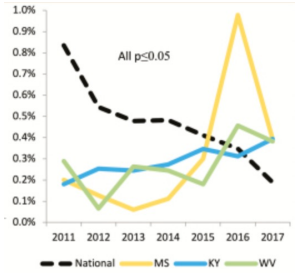
- 4.5 million patients with HBV give birth annually
- HCV: 0.1% to 4.1% prevalence of HCV in pregnant people
- Burden of HBV/ HCV in pregnant people varies by geographical region

HCV Rate among all US Births 2009-2019



HCV in pregnancy rate up from 1.8 to 5.1/ 1000

HBV among WOCP, 2011-2017



Chronic HBV rate down from 0.83% to 0.19%, but up in MS, KY, WV

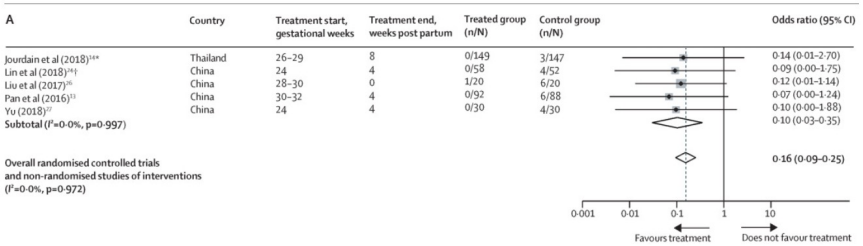
World Health Organization. Prevention of Mother-to-Child Transmission of Hepatitis B Virus (HBV): Guidelines on Antiviral Prophylaxis in Pregnancy.2020; Kushner T, Reau N, et al. *J Hepatology*. 2021; Patrick S et al. *JAMA Health Forum*. October 2021; Kushner T et al. *CID*. 2021.

Pregnancy and Mother-to-Child Transmission (MTCT)

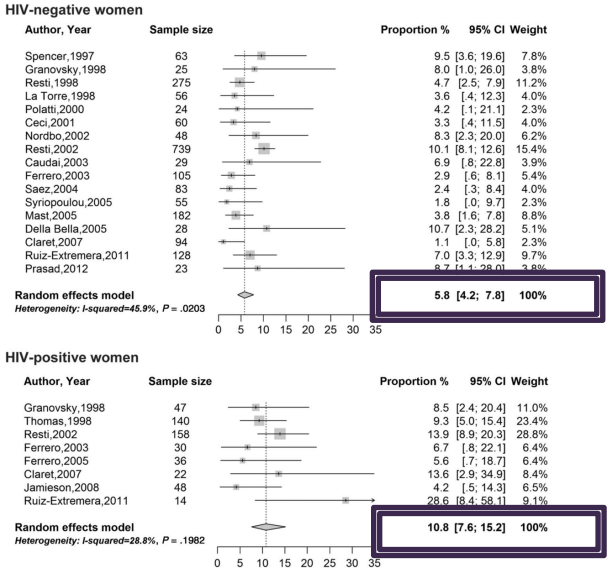
MTCT is a major contributor to global burden of disease

Hepatitis B

- Without immunoprophylaxis, HBV transmission is up to 90%
- Neonatal HBIG and HBV Vaccine decrease risk; Maternal antiviral therapy further decreases risk



Hepatitis C



Funk et al. *Lancet Infect Disease.* 2021; Goldstein, S. T. et al. *Int. J. Epidemiol.* 34, 1329–1339 (2005); Benova, et al. *Clinical Infectious Diseases*, 2014.

Risk Factors for MTCT

Risk Factors for MTCT	Increases transmission?
Biological	
High viral load (HBeAg+) / HCV (HCV RNA > 10^6log)	Yes
HIV Coinfection	Yes for HCV
Mode of delivery	Inconclusive
Breastfeeding	No
Invasive Fetal Testing	Potentially for patients with high viral load
PROM	No (with proper prophylaxis)
Social/environmental	
Lack of maternal knowledge	Yes
Lack of formal hospital policies	Yes
High cost/other barriers to access	Yes
Perceived stigma (particularly in developing countries)	Yes

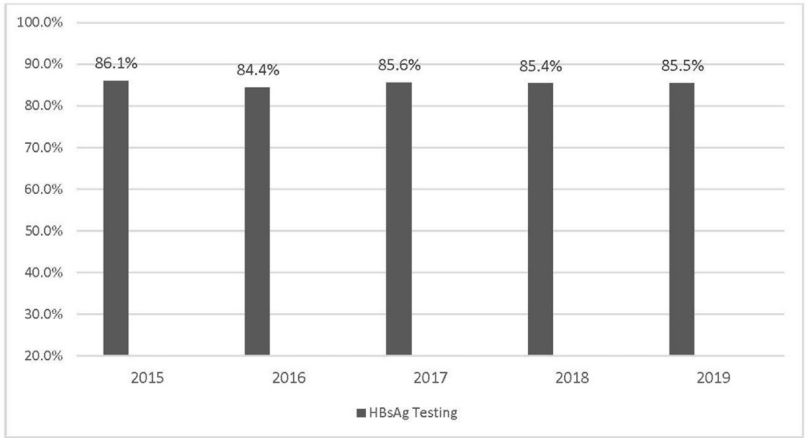
Recommendations for HBV/ HCV Testing in Women

	AASLD	ACOG	EASL	APASL	CDC
HCV					
Women	Screen all age 18+	N/a	Risk-based	Risk-based	Screen all age 18+
During Pregnancy	✓	✓ (2022)	N/A	N/A	✓ (2020)
HBV					
Women	Risk-Based	Risk-Based	Risk-Based	Risk-Based	✓ (2023)
During Pregnancy	✓	✓	✓	✓	✓

Is screening actually being done?

HBV

Optum Clinformatics Database; 500,000+ pregnancies 2015-2020

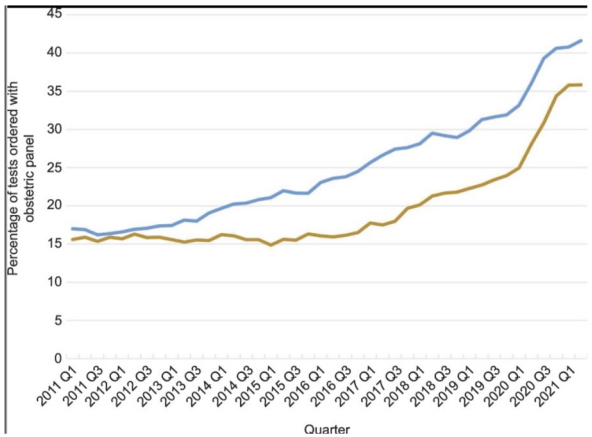


0.5 million (»14%) pregnant persons who gave birth annually were **not** tested for HBsAg to prevent perinatal transmission

Pham TTh, et al. Am J Prev Med 2023;000(000):1–8.

HCV

Retrospective study using Quest laboratory data, 2011-2021



Pregnant persons HCV Ab screens (percentage), by commercial (*blue line*) and Medicaid insurance (*brown line*).

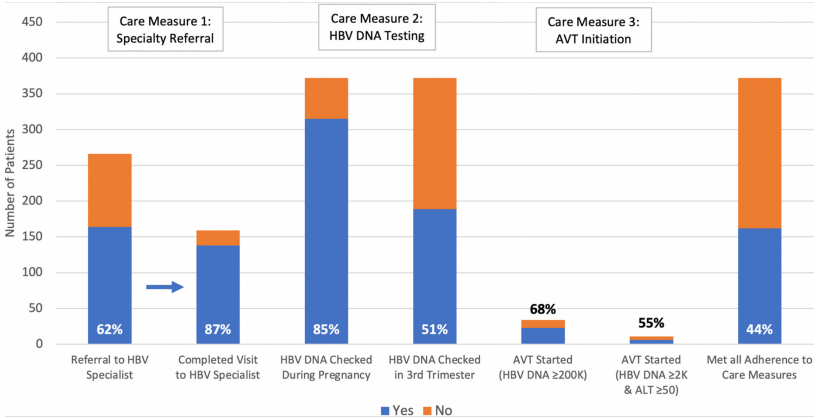
"Despite progression in pregnant persons screened for HCV, current testing rates fall short of universal recommendations"

Kaufman H, et al. *Obstetrics and Gynecology* 2022.

Treatment of HBV in Pregnant People

- The infants of all HBsAg-positive women should receive immunoprophylaxis
- Antiviral therapy should be started at 28-32 weeks of gestation in most of the studies if HBV DNA >200,000 IU/mL (1 million copies/mL) is a conservative recommendation to start treatment
- For pregnant women with immune-active hepatitis B, treatment should be based on recommendations for nonpregnant women.
- Breastfeeding is not contraindicated. C-section is not indicated owing to insufficient data to support benefit.

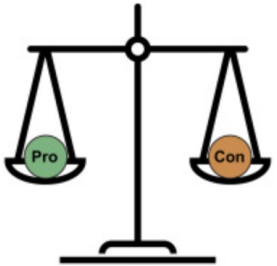
AASLD
AMERICAN ASSOCIATION FOR THE STUDY OF LIVER DISEASES



Terrault et al. *Hepatology*. 2018; Kushner T et al. *JVH*. 2021.

Treatment of HCV in Pregnant People

Treatment with DAAs during pregnancy



Pro	Con
1. Maternal cure while engaged in pregnancy care	1. Human safety in pregnancy not established
2. Possible decrease in MTCT	2. Safety during breastfeeding not established
3. Maternal treatment while under insurance coverage	3. More established data for treatment prior to pregnancy or children starting at age 3
4. Decrease in community transmission	4. Difficulty in accessing DAA therapy in time (prior to delivery)
5. Potential decrease in HCV-associated adverse pregnancy outcomes?	5. Cost-effectiveness not established

Kushner T and Reau N. *Journal of Hepatology 2021*

Barriers to Care in WOCA and Pregnant Women

- Stigma
- Difficulty in engagement of women postpartum
- “Fears” of offering treatment to pregnant women
- Fragmented health care system – no communication between PCP, Ob/Gyn, and liver specialists → co-location of care may help
- Disconnect between care of mothers and infants

Where Do We Go From Here to Optimize Care of Women With HBV and HCV?

- Need to develop systems to improve screening for HBV and HCV, particularly in pregnancy setting
- Efforts to combat stigma in WOCB and in pregnant women living with HBV/ HCV to improve care
- Need more robust safety data to inform HCV treatment in pregnant people
- Increased interdisciplinary involvement to engage Ob/ GYN and primary care women's health providers in HBV and HCV screening and treatment

Thank You!

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