

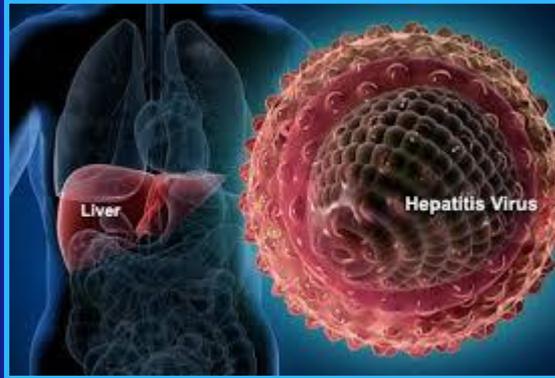


Perinatal Medicine 2019

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HEPATITIS B AND PREGNANCY



ALIN BAŞGÜL YIĞİTER

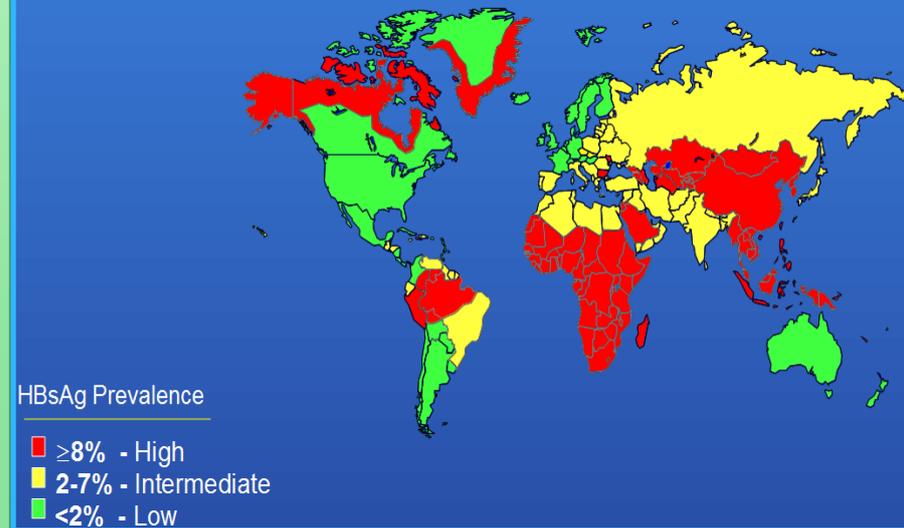
Hepatitis B virus (HBV) infection

- Significant global health problem
- 350-400 million chronically infected individuals worldwide
- The most common form of chronic hepatitis around the world.
- Chronic carriers can continue to transmit the disease for many years before becoming symptomatic.
- Infection occurs very often in early childhood
- Chronic HBV infection leads to increased risk for chronic hepatic insufficiency, cirrhosis, and hepatocellular carcinoma (HCC).



- >2 billion people infected with HBV at some time
- The areas of highest incidence are Asia, Africa, Middle East, Eastern Europe.
- Low incidence America, Europe; Australia

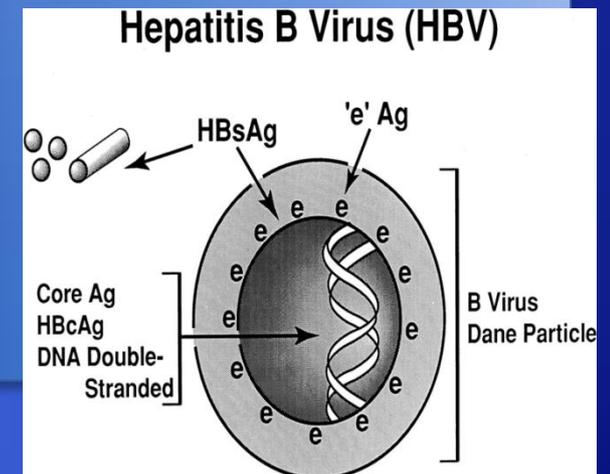
Geographic Distribution of Chronic HBV Infection



- Almost 5% of the women in the world are Hepatitis B surface antigen (HBsAg) positive.
- The babies born to HBsAg positive mothers are 65 to 90% likely to become chronic hepatitis B carrier when untreated.
- Perinatal HBV transmission can be prevented by identifying HBV-infected pregnant women

HBV can not infect the fetus

- HBV is an enveloped virus ,double-stranded, circular DNA genome.
- Replicating in hepatocytes.
- HBV too big to cross the placenta
- Breaks in the maternal-fetal barrier
- Amniocentesis.
- Delivery.
- Prophylaxis essential



- Perinatal transmission most important mode of infection.
- HBV carrier plus (HbeAg) positive
- 90% likelihood of becoming infected.
- 25% of infected infants chronic carriers.

Pregnancy and HBV Infection

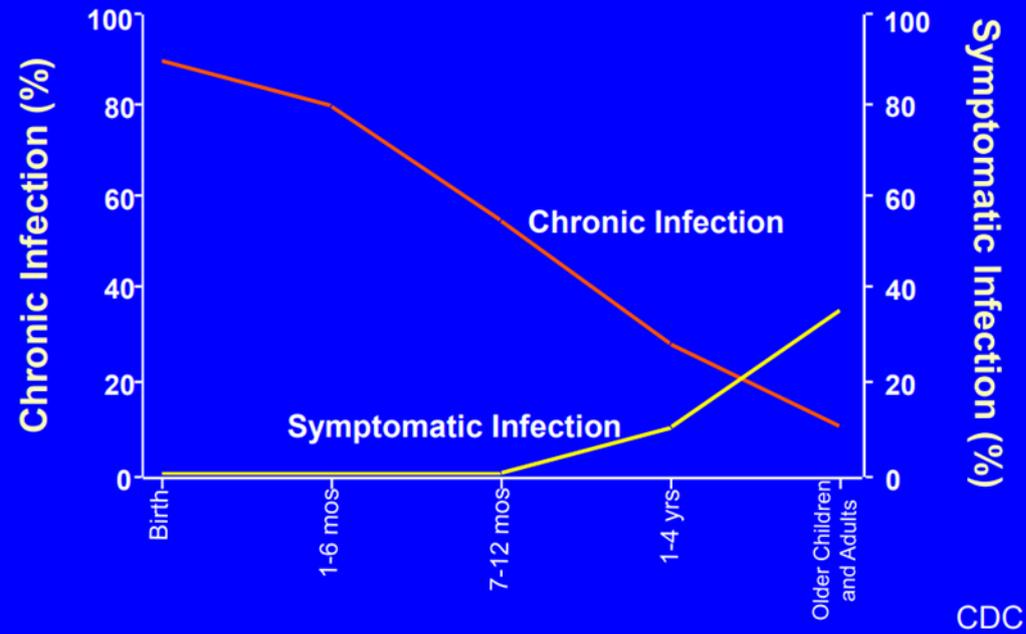
Perinatal Transmission Rates of Hepatitis B

Virus	Clinical Status	Transmission Rate
HBsAg +	HBeAg -	10-20%
HBsAg +	HBeAg +	90%
	Acute Hepatitis B first trimester	10%
	Acute Hepatitis B third trimester	80-90%

HBsAg and HBeAg positive MTCT 90%

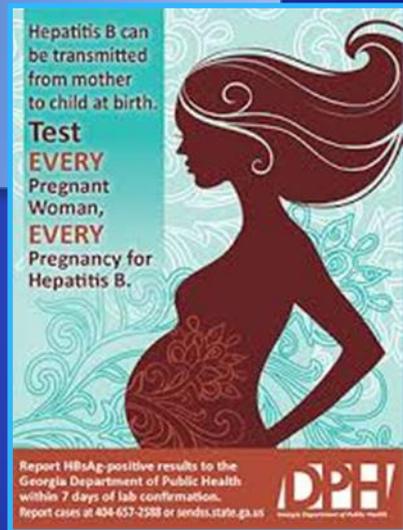
- Hepatitis B is most commonly spread from mother to child at birth (perinatal transmission)
- Infection in adulthood chronic hepatitis <5%.
- About 85-95% of infected infants become chronic HBV carriers
- 20% to 30% of children infected between age 1 year and 5 years become chronic HBV carriers

Outcome of Hepatitis B Virus Infection by Age at Infection



The risk of developing CHB is inversely proportional to age at time of exposure:

- Universal screening of pregnant women for HBsAg
- Screening all HBsAg-positive pregnant women for HBV DNA
- All HBsAg-positive women should have household contacts, other children and sexual partners screened and vaccinated.



PREVENTION

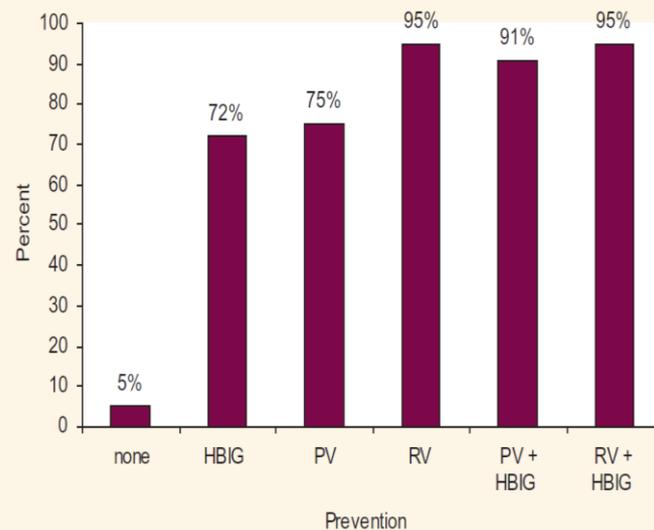
- HBV can be prevented by safe and effective vaccine since 1982.
- WHO HBV vaccine within 24 hours of birth for ALL babies.
- The vaccine is 95% effective in preventing infection and the development of chronic disease and liver cancer due to HBV.
- HBIG and vaccination are 85-95% effective in preventing HBV infection and the chronic carrier state.
- Only HBV vaccine within 24 h after birth is 70-95% effective in preventing perinatal HBV infection.
- With vaccine protective antibody levels in more than 95% of infants, children and young adults.
- Protection 20 years or even lifelong.

- An anti-HBs titer greater than 10 IU/L after 2-3 months is regarded as being protective.



Postexposure Immunization

- The vertical transmission rate is decreased
- Protection is highest in neonates when
- HBIG is given with the first dose of HBV vaccine.



If you're pregnant and have chronic hepatitis B, your baby will need two shots within the first 12 hours of life.



Visit www.hepb.org for more information

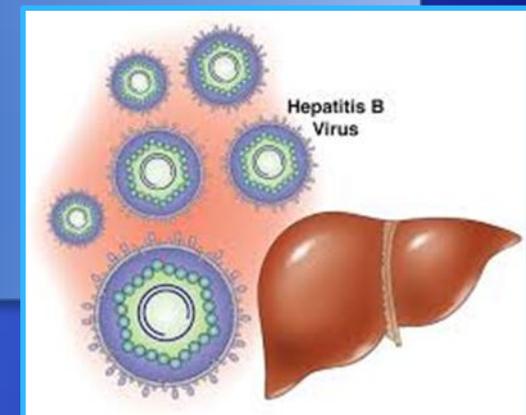
HBV Infection Symptoms

- Mostly asymptomatic in acute infection phase.
- Jaundice, dark urine, fatigue, nausea, vomiting and abdominal pain.



The treatment does not cure hepatitis B infection

- There is no specific treatment for acute hepatitis B.
- Bedrest, adequate nutrition, lots of fluid intake that can be lost from vomiting and diarrhea.
- Chronic infection is characterized by the persistence of HBsAg for at least 6 months (with or without concurrent HBeAg).
- Chronic hepatitis B infection can be treated with medicines, including oral antiviral agents.
- Treatment can slow the progression of cirrhosis, reduce incidence of liver cancer and improve long term survival.
- Only suppresses the replication of the virus.
- Life long treatment.



If a Pregnant lady is HbsAG negative and nonimmune what to do

- Recommend recombinant HBV vaccine
- During or after delivery at 0,1,6th months .
- If she has risk factors for being contaminated recommend the vaccine during pregnancy.



If a pregnant woman is HBsAg positive What to do:

- Consult her to either infectious diseases, or gastroenterologist
- Ask blood tests: ALT, HBsAg, HBeAg, AntiHBe, HBV DNA viral load blood test
- If HBV DNA > 200000 IU/ml start 3rd trimester tenofovir,
- Postpartum prevention prophylaxis to neonate
- If HBV DNA < 200000 IU/ml but previous babies are hbsag positive consider 3rd trimester antiviral treatment .
- When first pregnancy or previous babies are hbs ag negative prevention prophylaxis to neonate with vaccine and HBIG



Management Algorithm for Interrupting Mother to Child Transmission of Hepatitis B Virus

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Before delivery

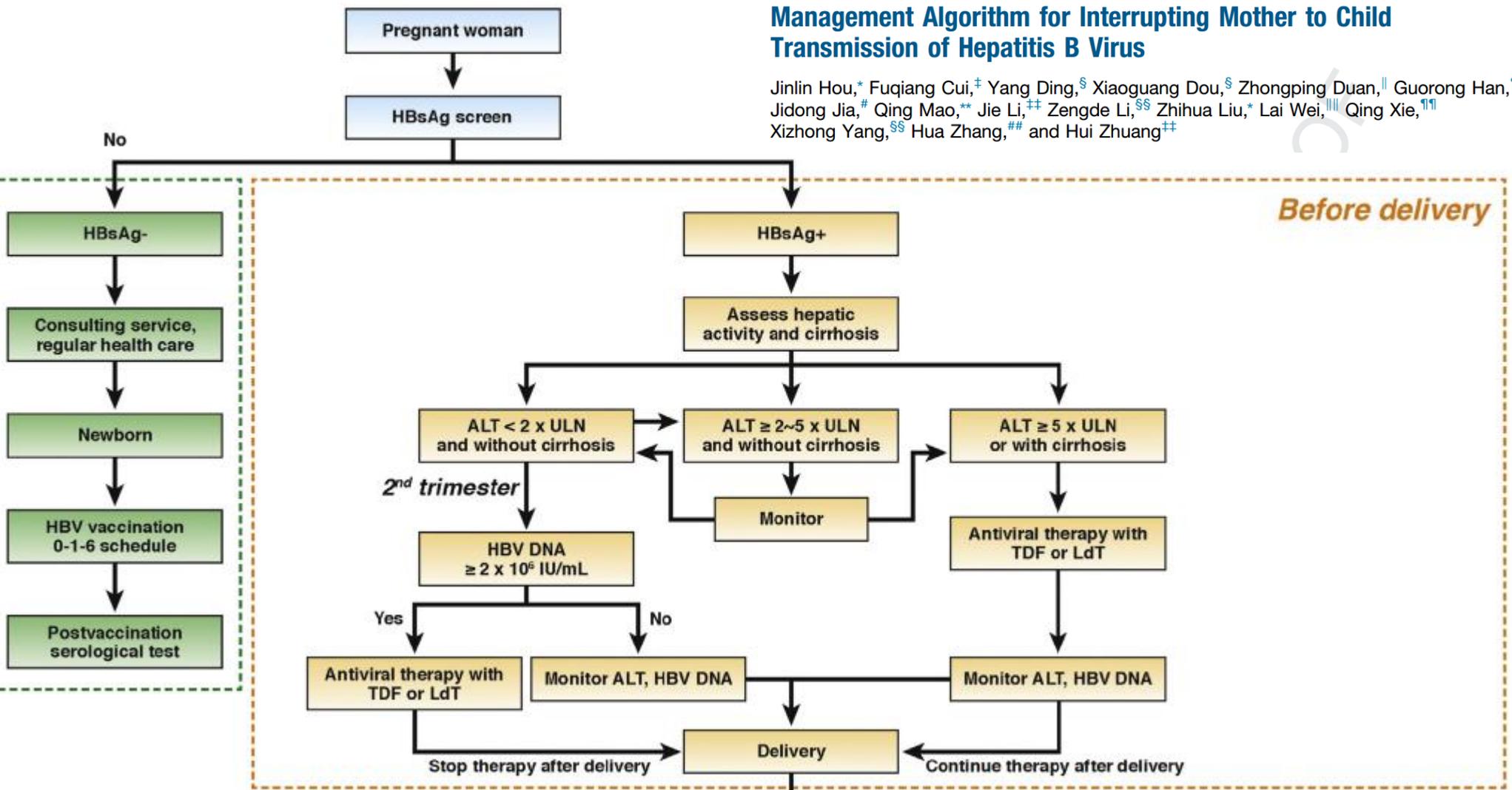


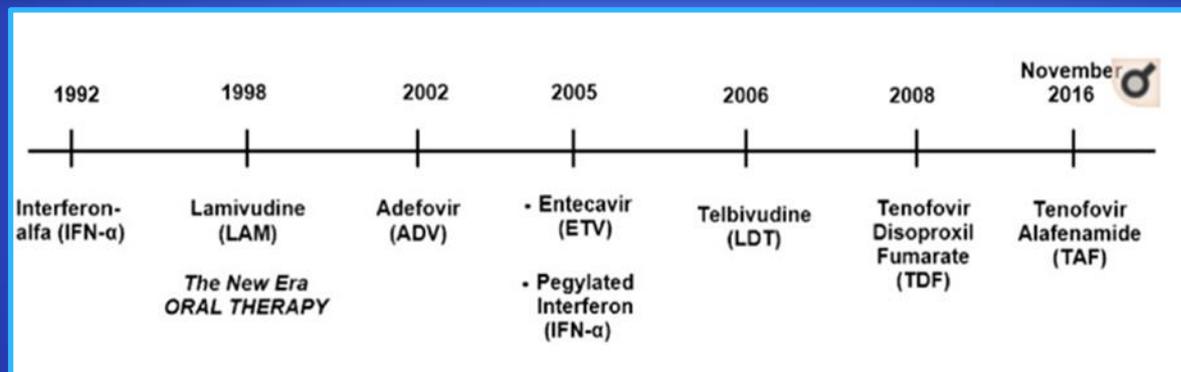
Table 1. Recommendations for Antiviral Intervention to Prevent Mother-To-Child Transmission in Pregnant Women With Chronic HBV Infection

Societies	Threshold of HBV DNA level	Initiation time	Cessation time	Antivirals	Reference
AASLD (2018)	$>2 \times 10^5$ IU/mL	28–32 wk	At birth to 3 months	TDF	17
EASL (2017)	$>2 \times 10^5$ IU/mL	24–28 wk	Up to 12 weeks after delivery	TDF	18
APASL (2015)	$>6-7 \log_{10}$ IU/mL	28–32 wk	At delivery	TDF LdT	19
CMA (2015)	$>2 \times 10^6$ IU/mL	24–28 wk	At delivery	TDF LdT LAM	25
NICE (2013)	$>10^7$ IU/mL	The third trimester	4–12 weeks after birth	TDF	20

AASLD, American Association for the Study of Liver Diseases; APASL, Asian Pacific Association for the Study of the Liver; CMA, Chinese Medical Association; EASL, European Association for the Study of the Liver; LAM, lamivudine; NICE, National Institute for Health and Care Excellence.

ANTIVIRAL TREATMENT IN HBV

- >200,000 IU/mL or 1 million cp/ml viral load even the vaccine and HBIG may fail.
- Antiviral therapy at 28-32 weeks continuing 3 months postpartum with tenofovir may be recommended.
- Improves HBV suppression
- Reduces mother-to-child transmission in women with chronic hepatitis B virus infection with high viral load.
- Use of Telbivudine, lamivudine, and tenofovir appears to be safe in pregnancy with no increased adverse maternal or fetal outcome.
- Drug resistance is low, simple to take once a day
- Cost 400-1500 usd for a year treatment



Tenofovir (TDF) and MTCT of HBV

- Pregnancy risk category B by FDA
- Higher efficacy in treating CHB
- Lower potential for resistance development
- No increased risk in birth defects

- All patients with hepatitis B should be tested for hepatitis D virus (HDV).
- Also should be tested for are HCV and HIV
- 1% of persons living with HBV infection (2.7 million people) are also infected with HIV.
- Total and direct bilirubin, alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), prothrombin time (PT), total protein, albumin, serum globulin, and complete blood cell (CBC) count
- Elevation in ALT, which can range from 2- to 100-fold.

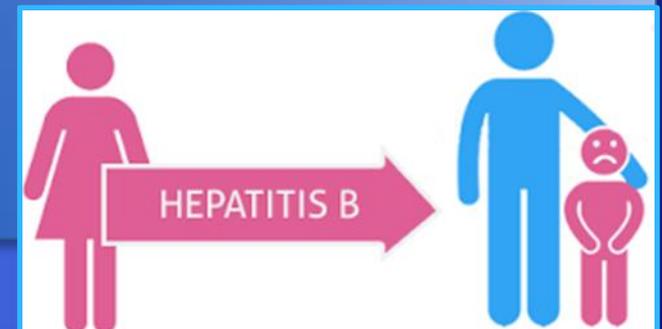


PRENATAL TESTING IN HBSAG POSITIVE PREGNANTS

- HBsAg + women, high viral load
- Counsel about the potential risk of transmission with invasive procedures.
- NIPT may be an option for some women.
- Amniocentesis is safer than CVS
- Avoid placental amniocentesis.

Delivery in HBsAg positive women

- The mode of delivery usual obstetric indications.
- Routine C/S not recommended to prevent MTCT
- Among cases of HBV MTCT risk factors;
- High maternal viremia
- Transfusion of the mother's blood to the fetus during labor contractions
- Infection after rupture of membranes
- Direct contact of the fetus with infected secretions or blood from the maternal genital tract.



WHAT NOT TO DO DURING DELIVERY FOR SAFETY OF THE FETUS

- Procedures that break the skin and mucosal barrier should be avoided
- Fetal scalp electrodes,
- Fetal scalp blood sampling,
- Vigorous suctioning of the newborn's airway
- Instrumental delivery, such as the use of vacuum extraction and forceps (fetal skin trauma)



Breastfeeding and HBV

- All women with hepatitis B should be encouraged to breastfeed their newborns (CDC).
- Provided immunoprophylaxis has been given at birth
- Breastfeeding by HBsAg-positive women has not been shown to increase rates of perinatal transmission.
- The benefits of breastfeeding outweigh any potential risk of infection for the vaccinated newborn.
- Women on antiviral therapy data from HIV literature to support the safety of lamivudine and tenofovir during breastfeeding,

THANK YOU

