Hepatitis B Project ECHO

Feb. 25th, 2021
12pm Eastern Time
Reoccurring every 4th Thursday

Agenda

Project ECHO Defined and Session Format (2 minutes) *Catherine Freeland*

Introductions (10 minutes)

Didactic Presentation: Hepatitis B Testing (15 minutes) *Jon Fenkel MD*

- At the end of the session, participants will have an understanding of hepatitis B testing and serology interpretation.

Case Presentation (5-10 minutes) *Jody Gilmore MSN, CRNP, PPMC*

Case Feedback and Recommendations (15 minutes)

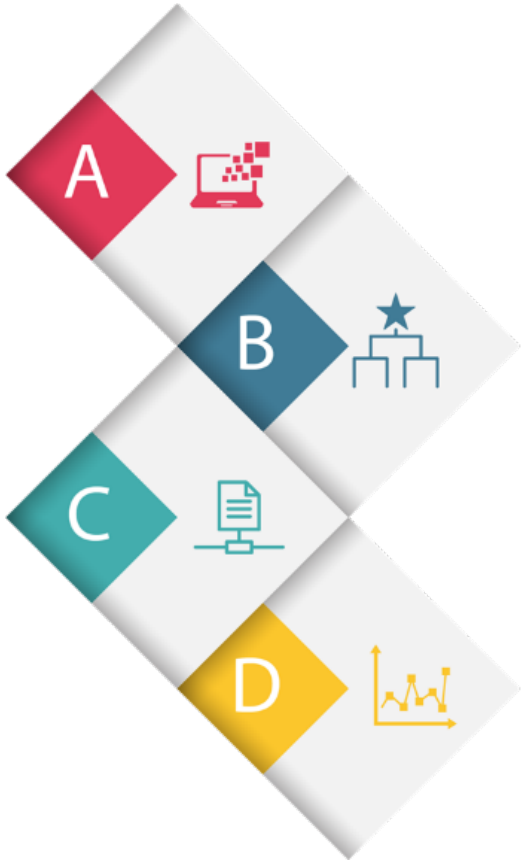
The ECHO Model

Amplification – Use **Technology** to leverage scarce resources

Share **B**est **Practices** to reduce disparity

Case Based Learning to master complexity

Web-based **D**atabase to **Monitor Outcomes**



Introductions

Name, Affiliation

HBV ECHO:
Hepatitis B Testing Overview

February 25, 2021

Jonathan Fenkel, MD, FACP
Director, Jefferson Hepatitis C Center
Associate Medical Director of Liver Transplantation
Thomas Jefferson University Hospital
Associate Professor of Medicine
Sidney Kimmel Medical College at Thomas Jefferson University

Disclosures

Consultant: Gilead

There WILL NOT be discussion of off-label usage

There WILL NOT be discussion of investigational agents

Lecture Outline

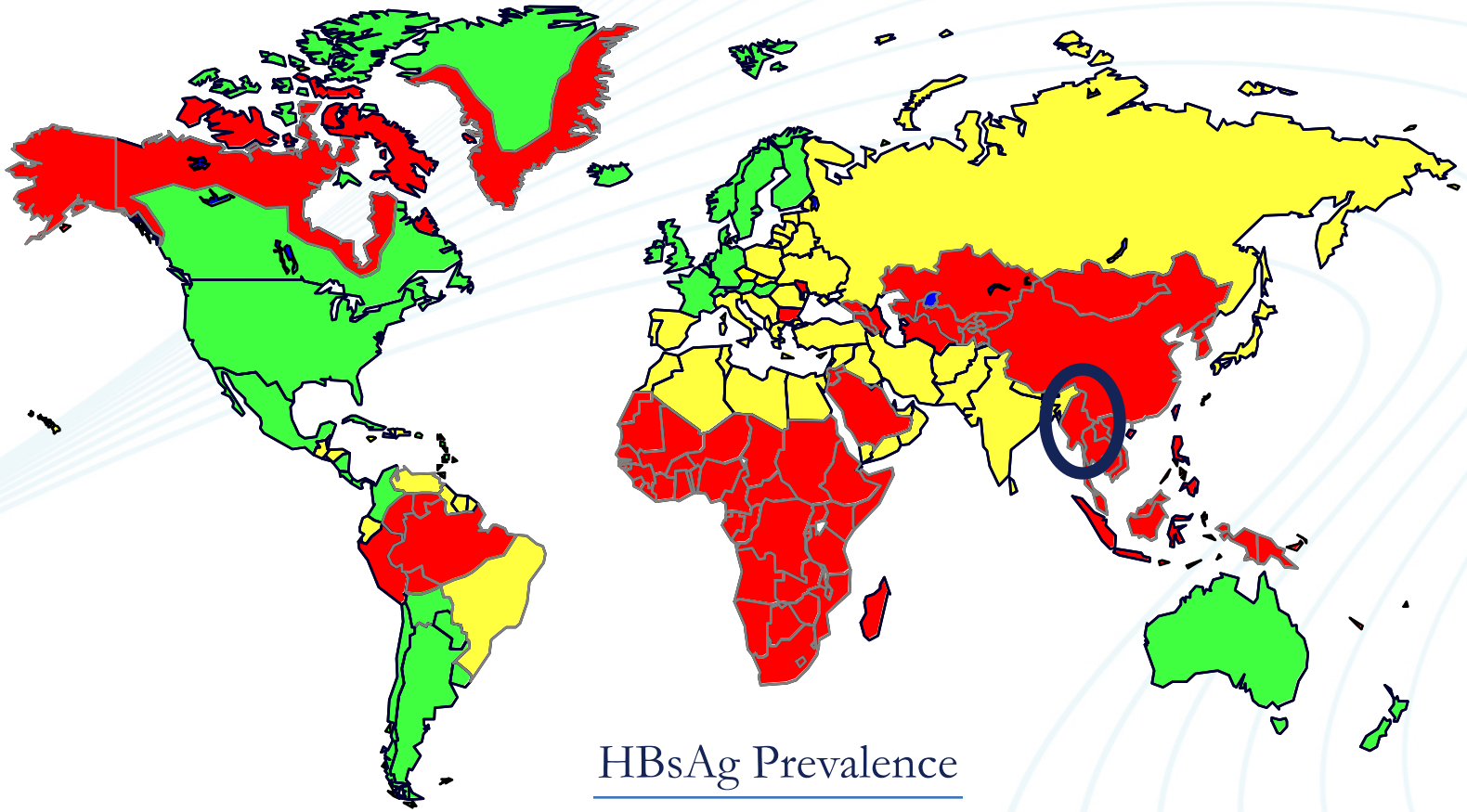
- Who should be tested?
- What tests do we use to screen?
- What tests do we use to determine who needs treatment?
- What tests do we use to monitor a patient on treatment?

Case Presentation

- 19 yo female presents for new patient H&P
  - Feels well, no complaints
  - Former Burmese refugee, lived in US since age 12
  - Starting college in the fall
  - Lives with 8 other relatives & friends

*What is the likelihood of this patient having HBV?

HBV Geographic Prevalence



Who should be tested?

- AASLD/USPSTF: Risk factor-based screening for non-pregnant women
  - Most common:
    - Patient or parents born in country w/ prevalence >2%
    - Multiple sexual partners
    - Coinfected with HIV or HCV
    - IVDU
- All Pregnant Women should be screened
  - CDC and ACOG recommend HBV screening at initial prenatal visit with Hep B sAg testing
    - If + → eAg, DNA quant, ALT

TABLE 3. Groups at High Risk for HBV Infection Who Should Be Screened

- Persons born in regions of high or intermediate HBV endemicity (HBsAg prevalence of ≥2%)
  - Africa (all countries)
  - North, Southeast, East Asia (all countries)
  - Australia and South Pacific (all countries except Australia and New Zealand)
  - Middle East (all countries except Cyprus and Israel)
  - Eastern Europe (all countries except Hungary)
  - Western Europe (Malta, Spain, and indigenous populations of Greenland)
  - North America (Alaskan natives and indigenous populations of Northern Canada)
  - Mexico and Central America (Guatemala and Honduras)
  - South America (Ecuador, Guyana, Suriname, Venezuela, and Amazonian areas)
  - Caribbean (Antigua-Barbuda, Dominica, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, and Turks and Caicos Islands)
- U.S.-born persons not vaccinated as an infant whose parents were born in regions with high HBV endemicity (≥8%)*
- Persons who have ever injected drugs*
- Men who have sex with men*
- Persons needing immunosuppressive therapy, including chemotherapy, immunosuppression related to organ transplantation, and immunosuppression for rheumatological or gastroenterologic disorders.
- Individuals with elevated ALT or AST of unknown etiology*
- Donors of blood, plasma, organs, tissues, or semen
- Persons with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis, and home dialysis patients*
- All pregnant women
- Infants born to HBsAg-positive mothers*
- Persons with chronic liver disease, e.g., HCV*
- Persons with HIV*
- Household, needle-sharing, and sexual contacts of HBsAg-positive persons*
- Persons who are not in a long-term, mutually monogamous relationship (e.g., >1 sex partner during the previous 6 months)*
- Persons seeking evaluation or treatment for a sexually transmitted disease*
- Health care and public safety workers at risk for occupational exposure to blood or blood-contaminated body fluids*
- Residents and staff of facilities for developmentally disabled persons*
- Travelers to countries with intermediate or high prevalence of HBV infection*
- Persons who are the source of blood or body fluid exposures that might require postexposure prophylaxis
- Inmates of correctional facilities*
- Unvaccinated persons with diabetes who are aged 19 through 59 years (discretion of clinician for unvaccinated adults with diabetes who are aged ≥60 years)*

*Indicates those who should receive hepatitis B vaccine, if seronegative.

What tests do we use to screen?

1. **HBsAg (Hepatitis B surface antigen)** –
   A "positive" or "reactive" HBsAg test result means that the person is infected with hepatitis B.

2. **anti-HBs or HBsAb (Hepatitis B surface antibody)** –
   A "positive" or "reactive" anti-HBs (or HBsAb) test result indicates that a person is protected against the hepatitis B virus.

3. **anti-HBc or HBcAb (Hepatitis B core antibody)** –
   A "positive" or "reactive" anti-HBc (or HBcAb) test result indicates a past or current hepatitis B infection.

Other Testing Tips

- **Anti-HBc IgM and IgG (total) testing** can usually indicate what type of HBV infection – acute vs. chronic
  - IgM = Recent (Acute) infection
  - IgG = Chronic infection
- **HBeAg and HBeAb** (hepatitis B e Antigen / Antibody)
  - Useful to have if chronic infection confirmed to guide treatment decisions
  - eAg usually present in early infection and is associated with increased viral replication (higher viral loads)
- **HBV DNA quantitative PCR (aka viral load)**
  - Measures amount of virus in the blood
  - Useful to guide treatment decisions and HCC risk

Serologic Response to HBV Infection

	Acute	Recovery	Chronic	Vaccine
HBsAg	+	-	+ (x6mo)	-
HBsAb	-	+	-	+
HBcAb	IgM	IgG	+	-
HBeAg	+	-	+/-	-
HBeAb	-	+	+/-	-
DNA	+	-	+	-

HBsAg	Anti-HBc (Total or IgG)	Anti-HBs	Interpretation	Management
+	+	−/+	Current infection	> See *Evaluation*, *Counseling*, *Management*, *Treatment*, and *HCC Surveillance* (pages 4, 5, 6, 7) > Refer household and sexual contacts for HBV screening; if susceptible, vaccinate
−	+	+	Prior infection with immune control	> No transmission risk; HBV dormant in liver > Reactivation risk if on immunosuppressive medications
−	+	−	Prior infection or occult infection[1]	> If immunocompetent[2], counsel as prior infection above > Reactivation risk if on immunosuppressive medications > If immunocompromised, check HBV DNA for occult infection[1]
−	−	+	Immune from prior vaccination	Protected for life. No need for booster vaccine
−	−	−	Susceptible	VACCINATE[3]

Chronic HBV Classification

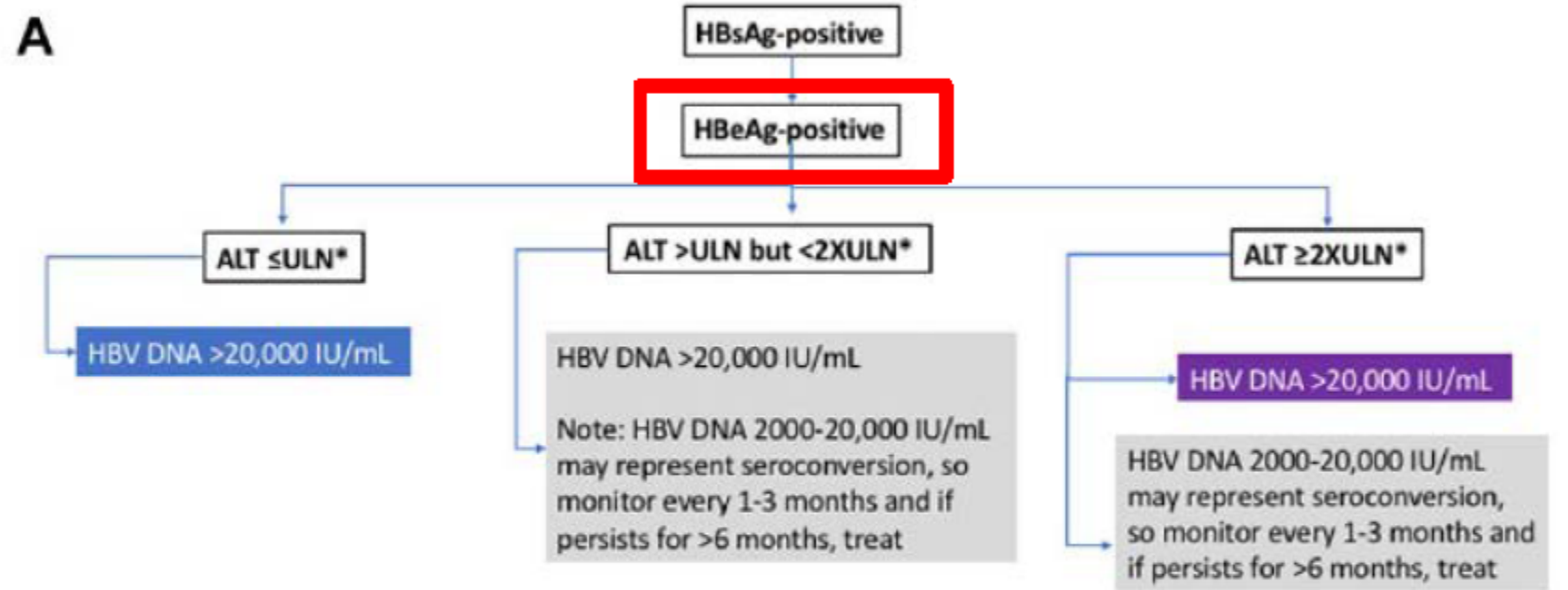
- Preferred terminology has changed in past few years
- In US, we now use:
  - **Immune-tolerant chronic HBV**
    - eAg+, high viral load, normal liver enzymes
    - No significant liver inflammation or fibrosis
  - **Immune-active chronic HBV**
    - eAg+ or eAg-
    - Viral load >20,000 IU/mL in eAg+, >2000 IU/ml in eAg -
    - Intermittent or persistent elevated liver enzymes
    - Moderate/severe liver inflammation +/- fibrosis
  - **Inactive chronic HBV**
    - Low viral load (<2000 IU/mL); Normal liver enzymes
    - eAg - / eAb+; No significant fibrosis
- European Guidelines use terminology of "*chronic infection*" and "*chronic hepatitis*" both possible in eAg+ or eAg- pts

Terrault N et al. Hepatology 2018; 67: 1560-99.
EASL 2017 Clinical Practice Guidelines; J Hepatol 2017; 67: 370-98.

What tests do we use to determine who needs treatment?

- Need to know 4 things to decide if Rx needed
  - e-Antigen status
  - Liver enzymes (ALT)
  - Viral load
  - Cirrhosis?
- Other helpful things:
  - Fibrosis stage; coinfection status (C/D/HIV); CKD? FHX HCC/cirrhosis? transplant? Osteopenia?

Treatment Recommendations



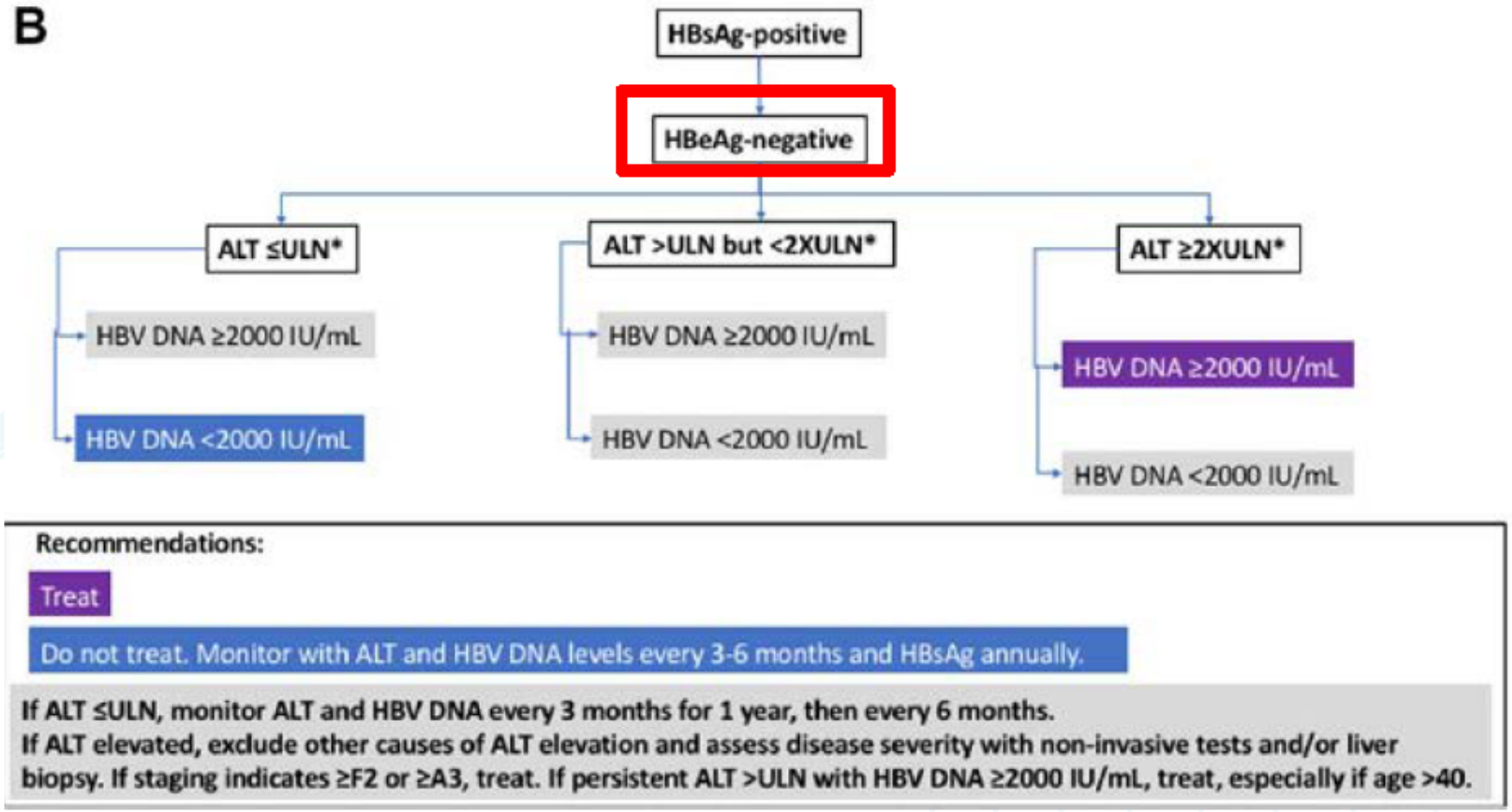
Recommendations:

Treat

Do not treat. Monitor with ALT and HBV DNA levels every 3-6 months and HBeAg every 6-12 months.

Exclude other causes of ALT elevation and assess disease severity with non-invasive tests and/or liver biopsy. If staging indicates ≥F2 or ≥A3, treat. If other causes of ALT >ULN excluded and elevation persists, treat, especially if age >40.

Treatment Recommendations



What tests do we use to monitor a patient on treatment?

- Labs: CMP, HBV DNA every 3-6 months
- Some medications require dose adjustment if renal dysfunction present
- Hepatocellular carcinoma (HCC) screening per guidelines
- If liver tests or DNA rise while on treatment:
  - Assess for adherence
  - Check for HDV superinfection
  - Check for HIV or HCV coinfection
  - Assess for other new medications or supplements that may cause liver injury

Take Home Points

- Screen all patients born outside US or whose parents were born outside US in a country with 2%+ prevalence for hep B
- Screen patients with risk factors for HBV
- Screening tests of choice for patients at risk are HBsAg, HBcAb and HBsAb
- To determine need for treatment check HBeAg/eAb, DNA quantitative PCR, ALT, and imaging to look for cirrhosis
- On treatment – monitor CMP+DNA & HCC screening

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Hepatitis B Case Presentation

Jody Gilmore MSN, CRNP, PPMC

Call for cases:

Please email Catherine.Freeland@hepb.org if you would like to submit a case for presentation.

CME Credit:

Post-Assessment: https://www.surveymonkey.com/r/6V2XHVJ

Next Session: March 25th @12PM ET