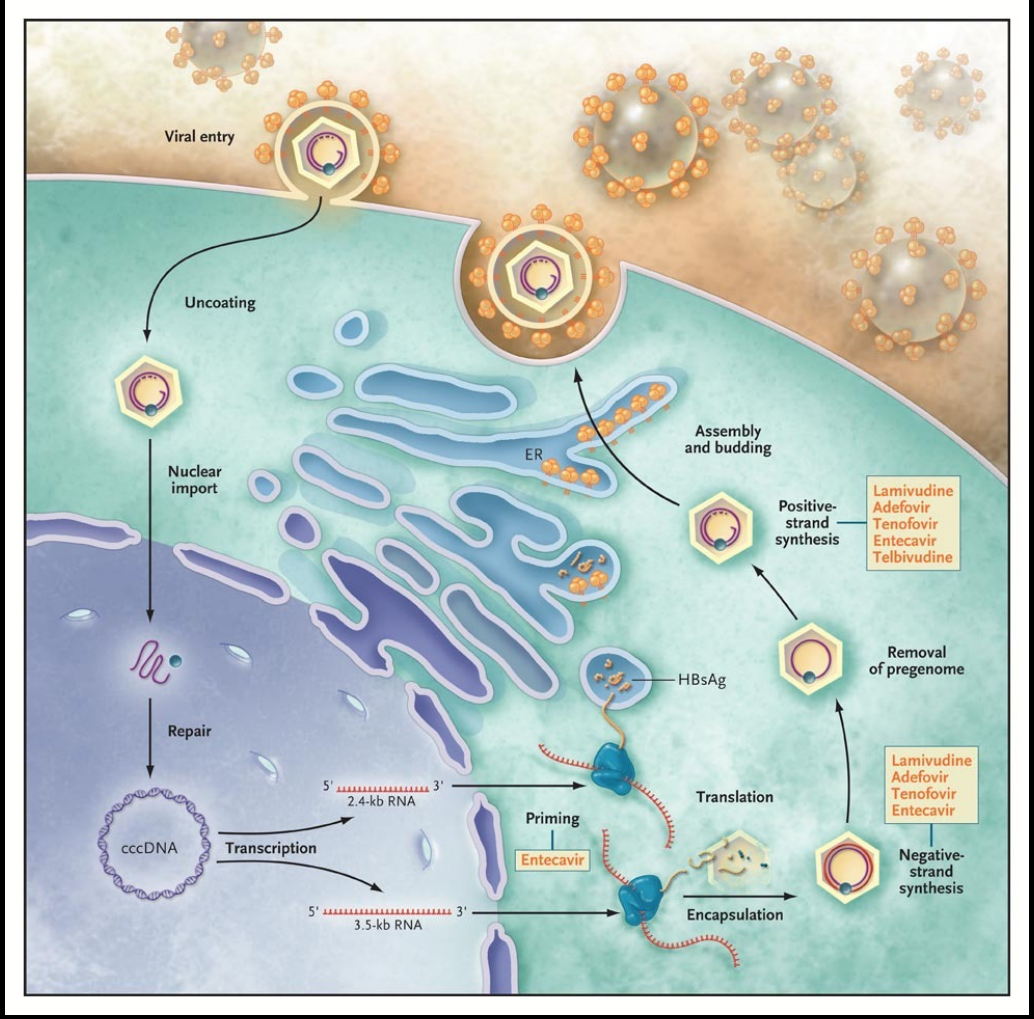
Hepatitis B: *Diagnosis & Management*

Joanna Breems MD, FACP

WA ACP Annual Meeting 2020

No conflicts of interest to disclose

Steps of HBV Replication.

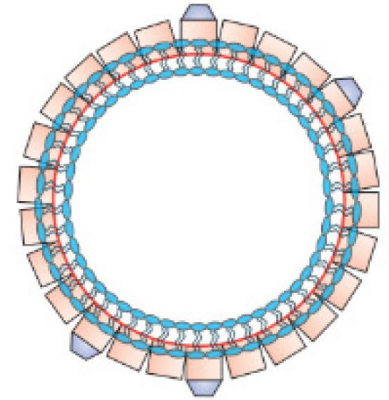


Dienstag JL. N Engl J Med 2008;359:1486-1500.

The NEW ENGLAND JOURNAL of MEDICINE

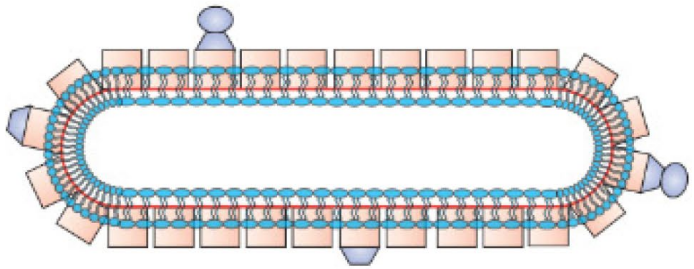
Subviral particles

Sphere



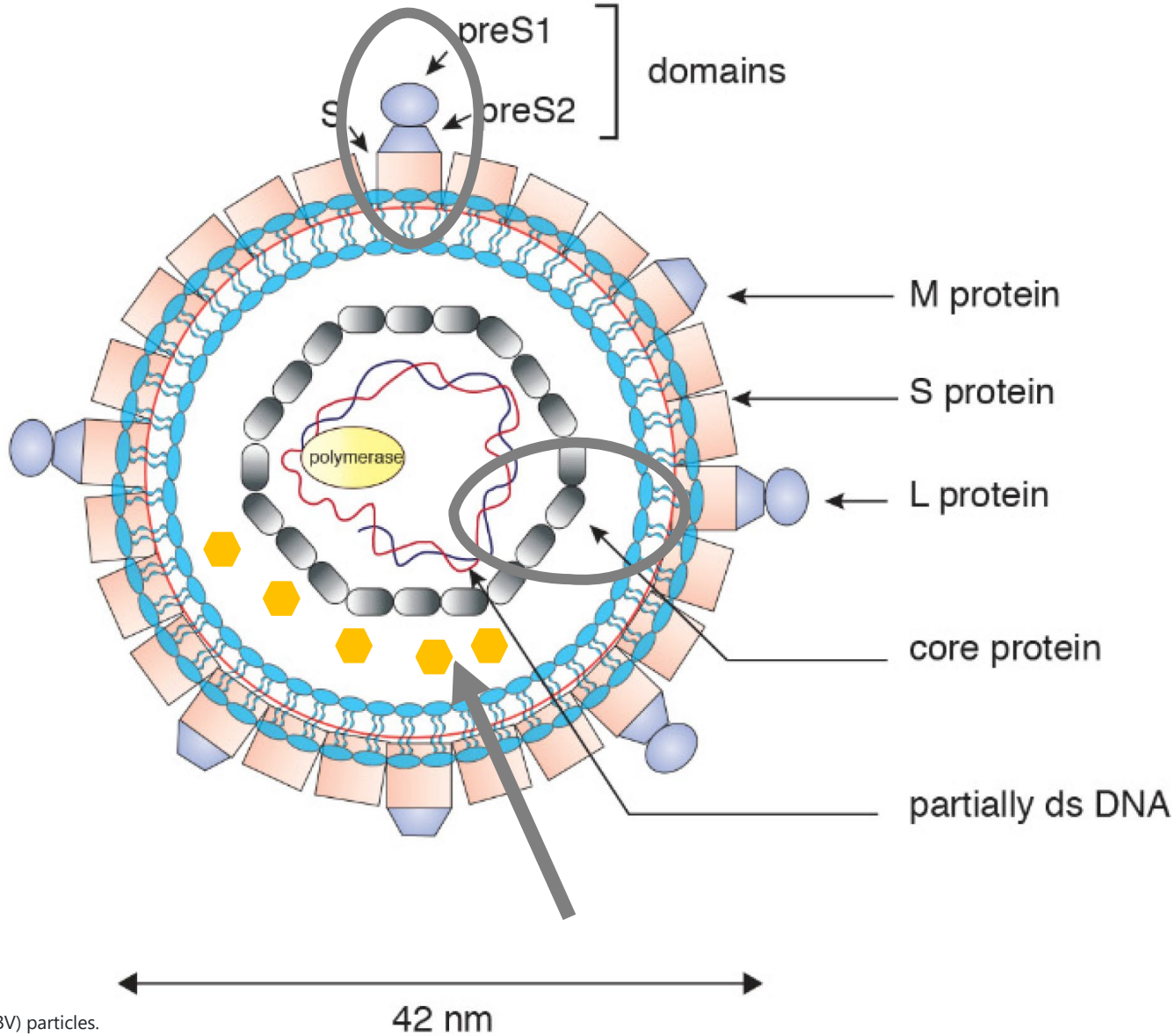
22 nm

Filament



22 nm

Dane particle



Herrscher C, Roingeard P, and Blanchard E. Hepatitis B Virus Entry into Cells. Figure 1. Schematic diagram of hepatitis B virus (HBV) particles. *Cells*.2020;9(6),1486. https://doi.org/10.3390/cells9061486

SCREENING

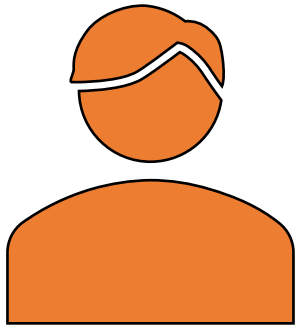
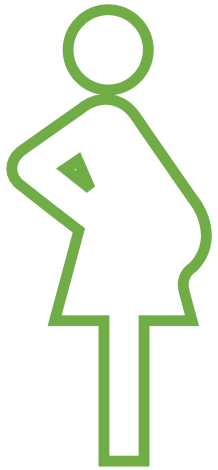
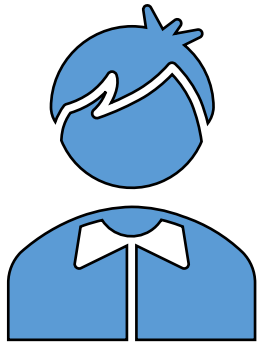
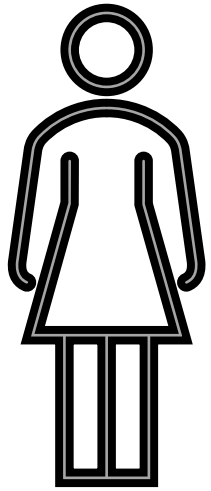
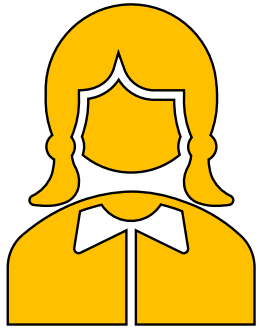
THE WHY

- Screen for possible Hepatitis B infection and disease
- Identify persons at risk of reactivation leading to disease
- Identify who to vaccinate

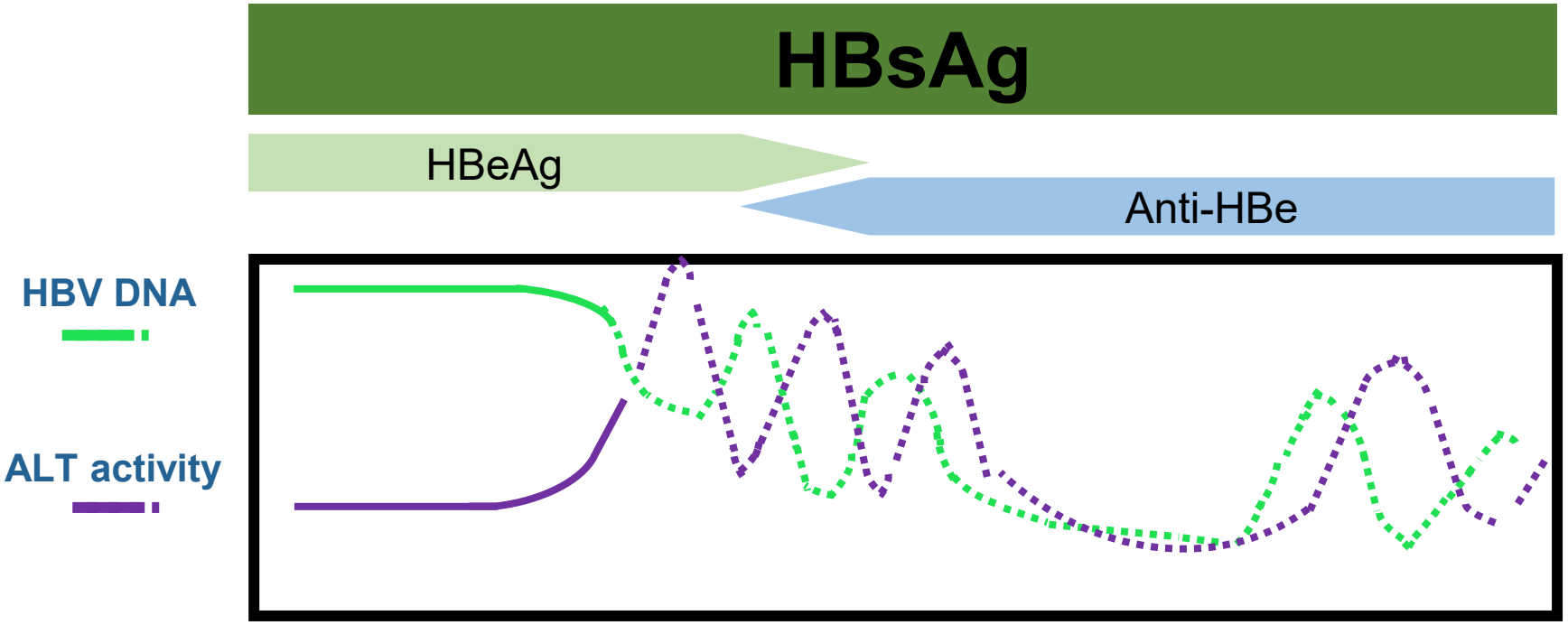
THE HOW

- HBsAg = current infection
- Anti-HBs = immunity
- Anti-HBc = ever infected

SCREENING – INTERPRETING RESULTS

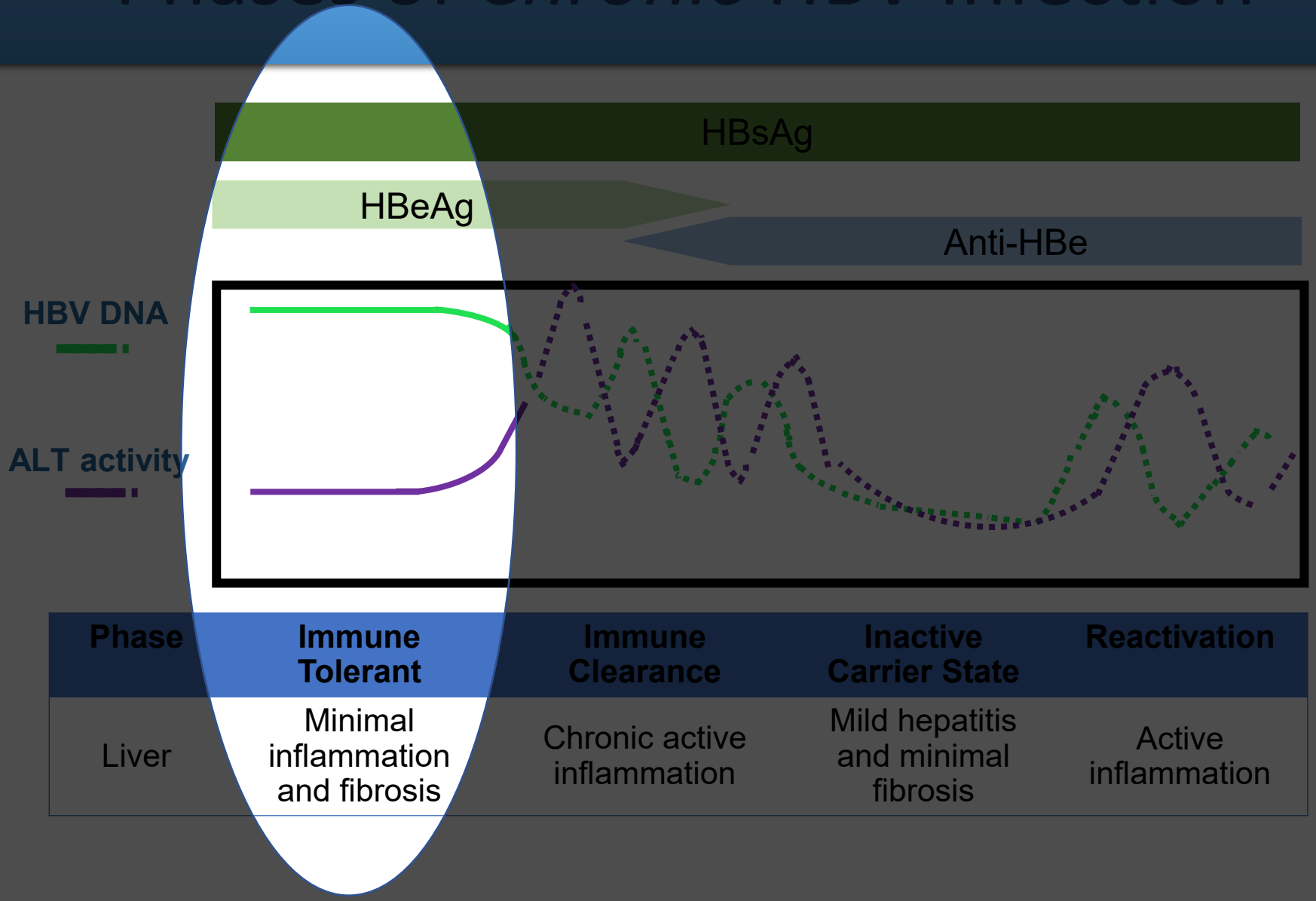
HBsAg – Negative Anti-HBs – Negative Anti-HBc – Negative	HBsAg – Negative Anti-HBs – Positive Anti-HBc – Negative	HBsAg – Negative Anti-HBs – Positive Anti-HBc – Positive	HBsAg – Positive Anti-HBs – Negative Anti-HBc – Positive	HBsAg – Negative Anti-HBs – Negative Anti-HBc – Positive
				
NOT IMMUNE NEVER EXPOSED	IMMUNE VACCINATED	IMMUNE PREVIOUSLY INFECTED	CHRONIC HBV INFECTION	ISOLATED CORE ANTIBODY POSITIVE

Phases of *Chronic* HBV Infection



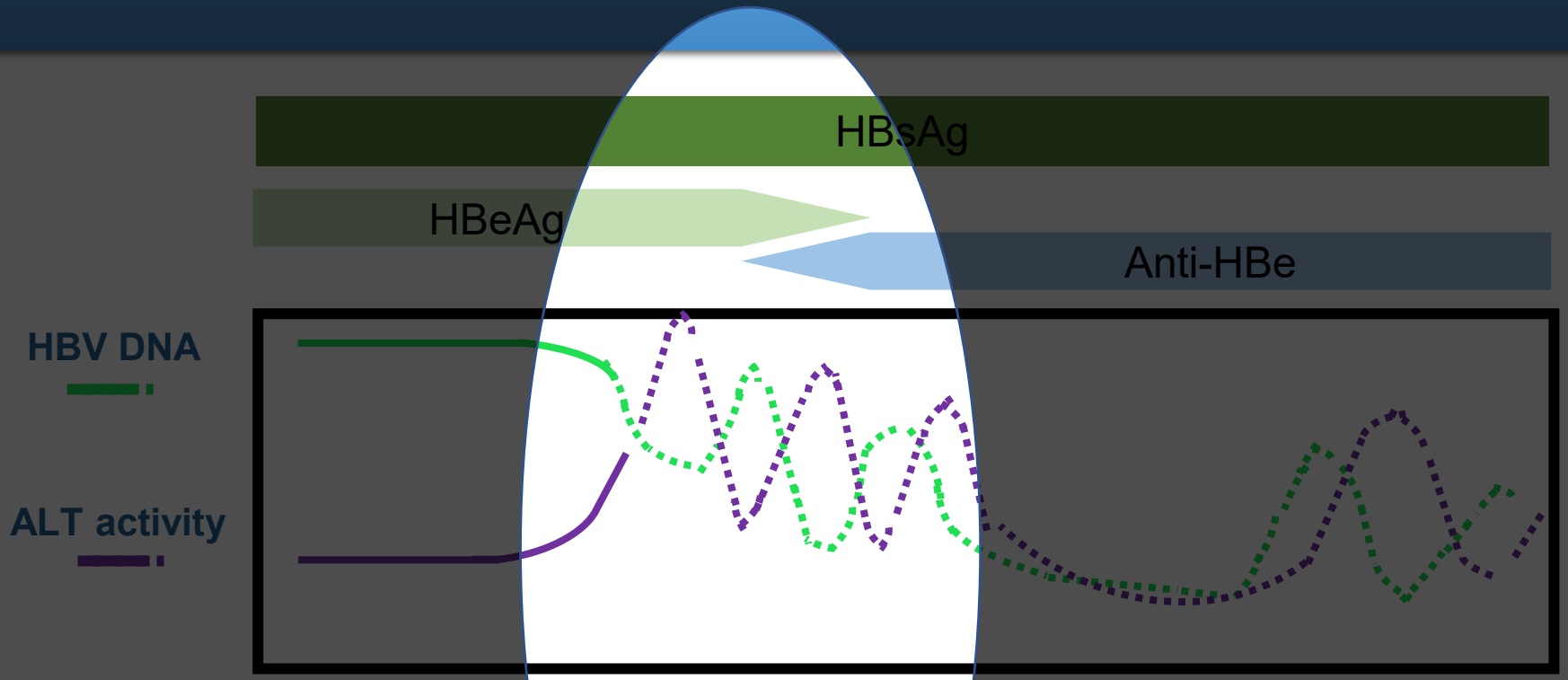
Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

Phases of *Chronic* HBV Infection



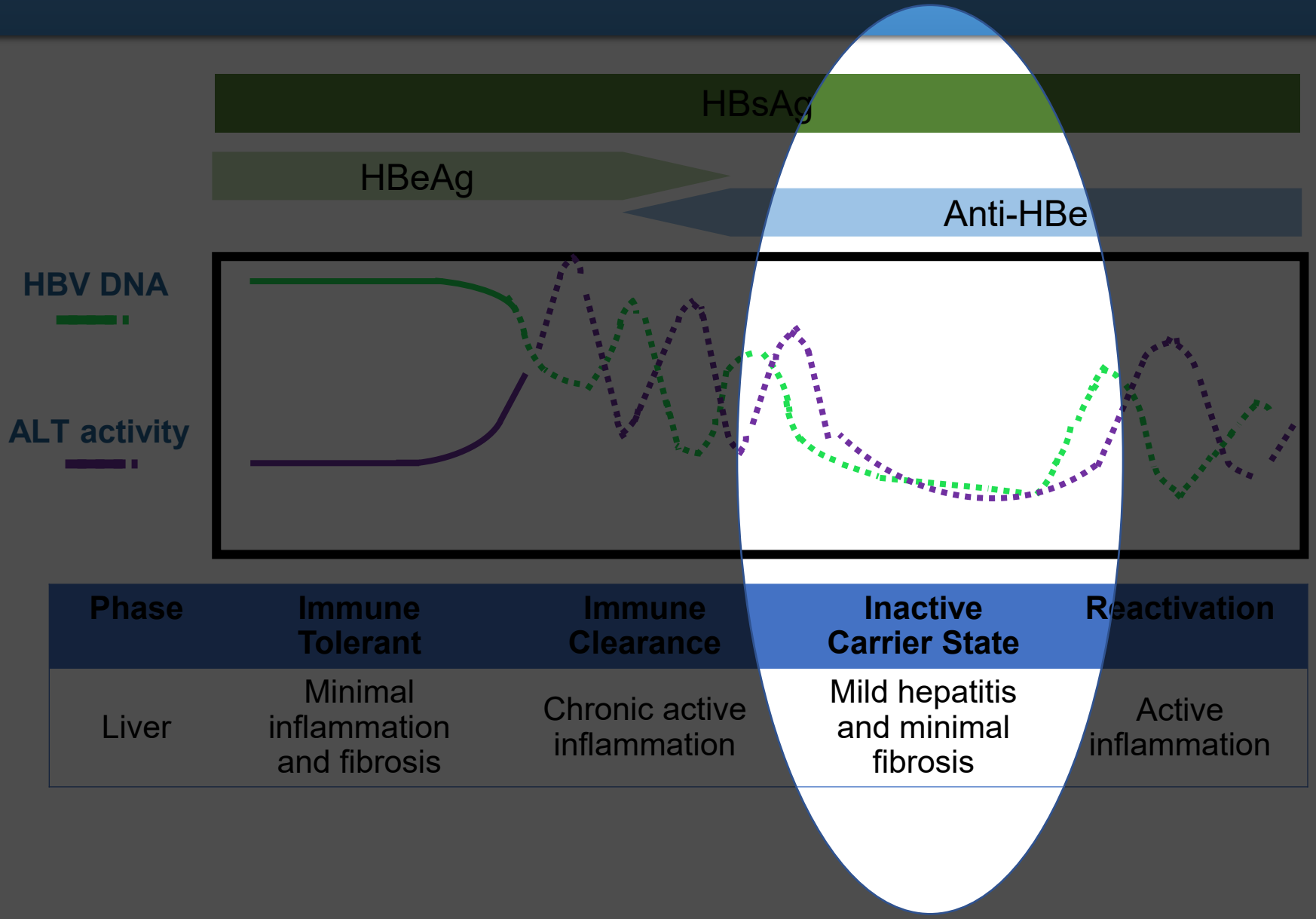
Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

Phases of *Chronic* HBV Infection



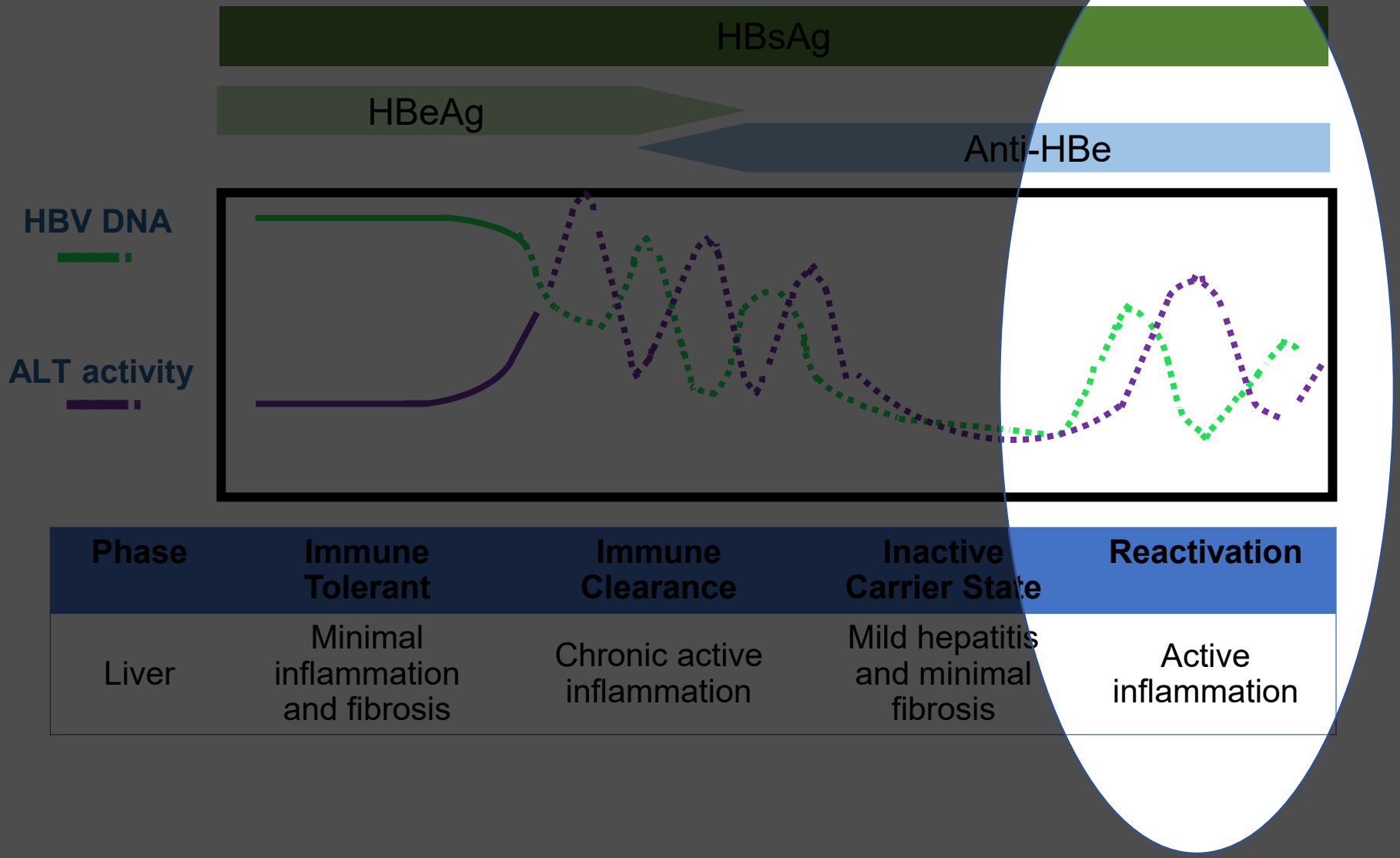
Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

Phases of *Chronic* HBV Infection



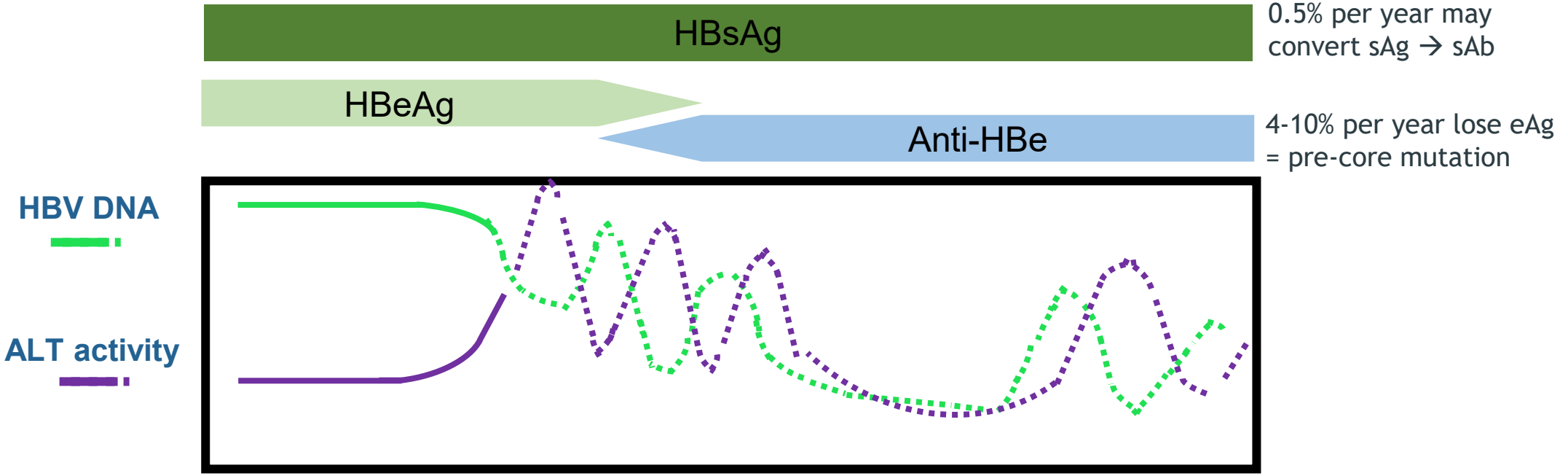
Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

Phases of *Chronic* HBV Infection



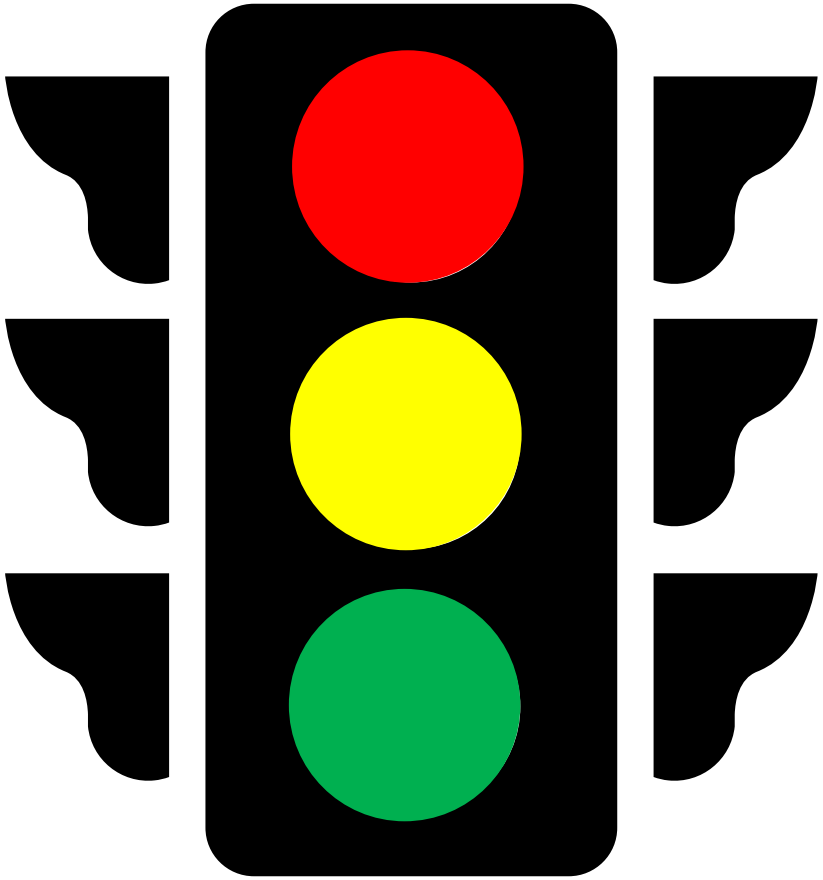
Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

Phases of *Chronic* HBV Infection



Phase	Immune Tolerant	Immune Clearance	Inactive Carrier State	Reactivation
Liver	Minimal inflammation and fibrosis	Chronic active inflammation	Mild hepatitis and minimal fibrosis	Active inflammation

TO TREAT OR NOT TO TREAT



Stage of HBV Infection

- HBeAg status
- HBV Viral Load

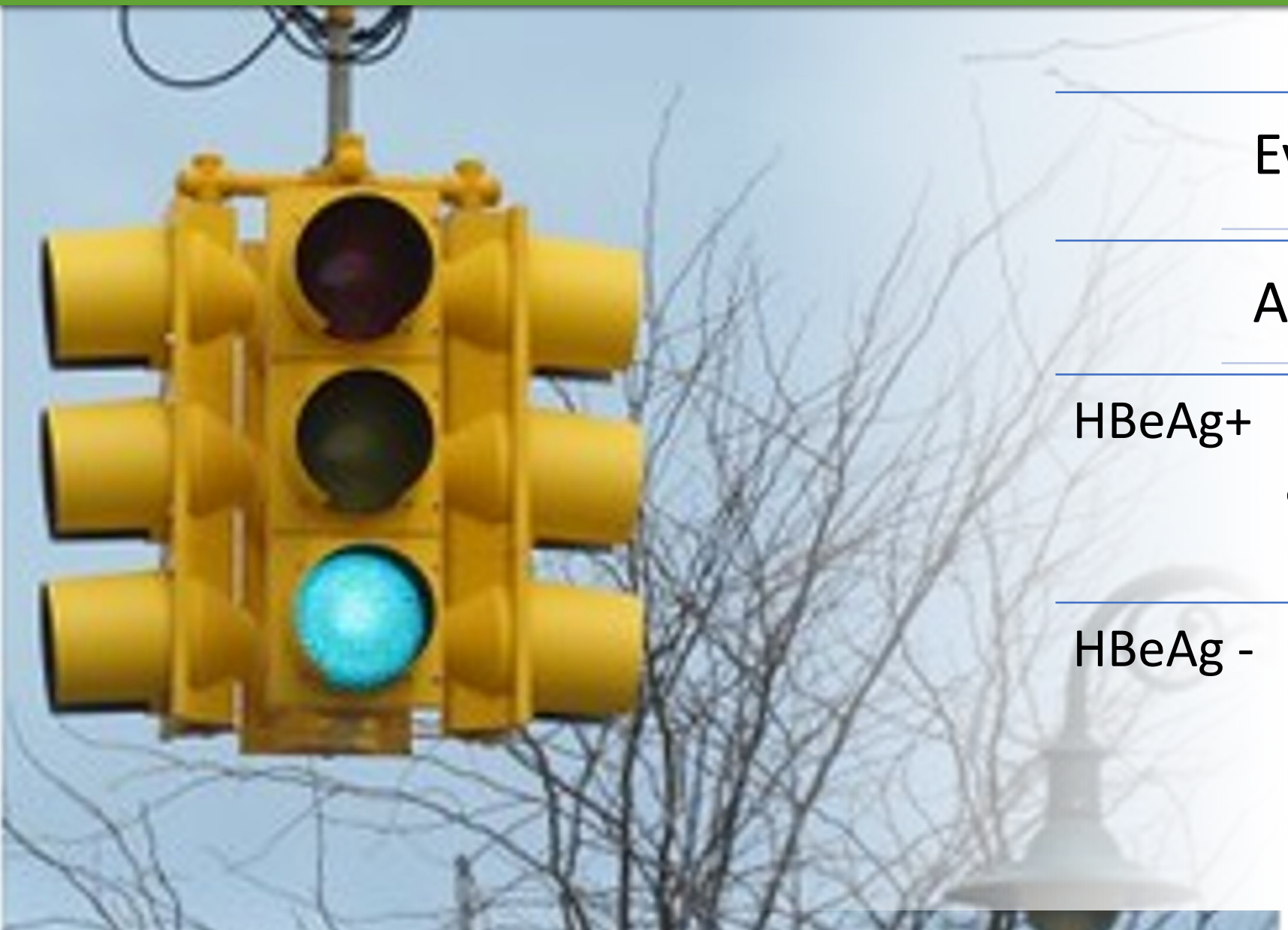
State of the Liver

- ALT
- Fibrosis estimate

Patient Factors

- Age
- Family history of HCC

TREAT



Evidence of cirrhosis

Acute liver failure

HBeAg+ ALT 2x ULN & HBV DNA ≥20,000

HBeAg - ALT 2X ULN & HBV DNA ≥ 2000

DON’T TREAT

Inactive Carrier State

Immune Tolerant Phase

HBeAg+ ALT normal
&
HBV DNA any level

HBeAg - ALT normal
&
HBV DNA < 2000

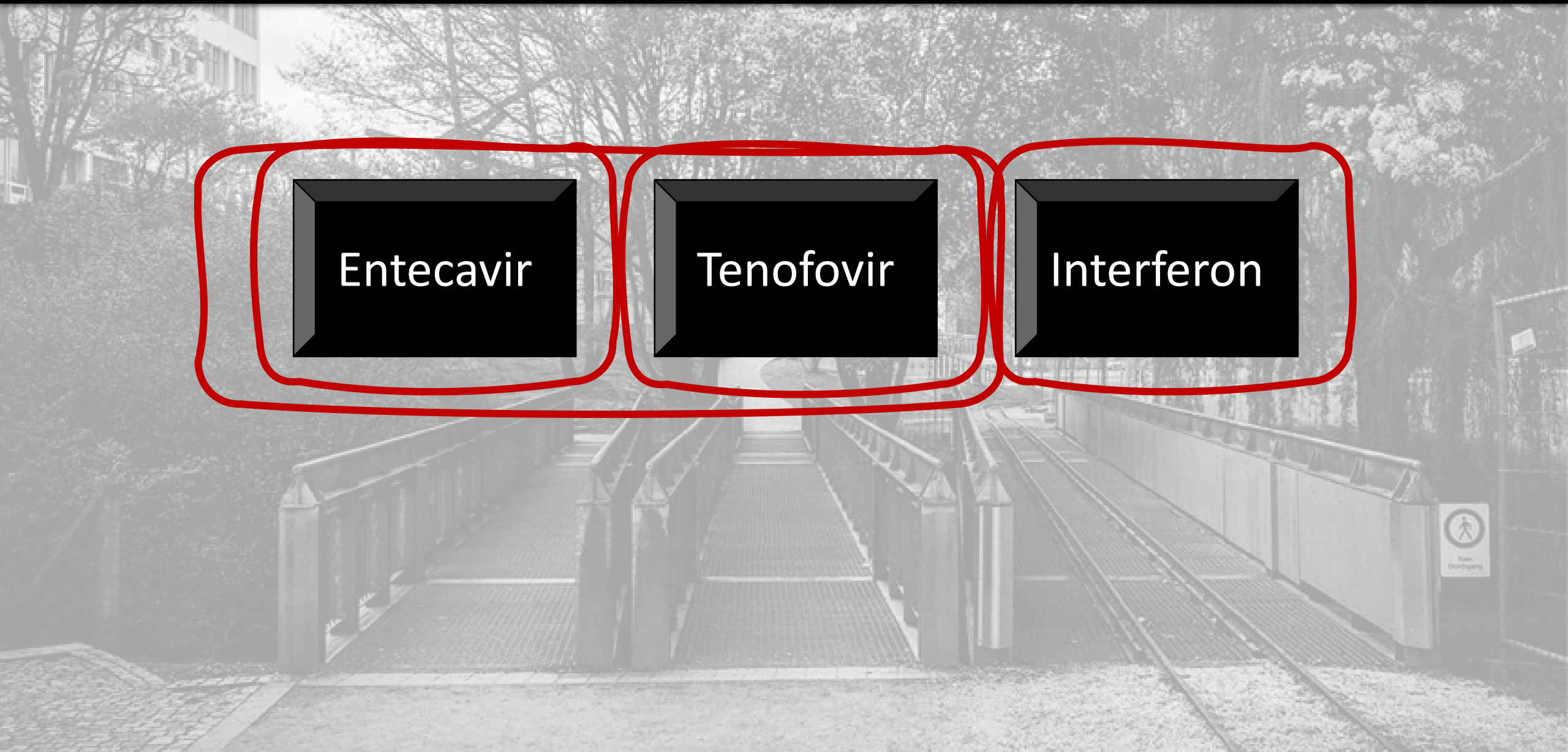
MAYBE

CHB or Isolated Core Ab+ prior to Immunosuppression

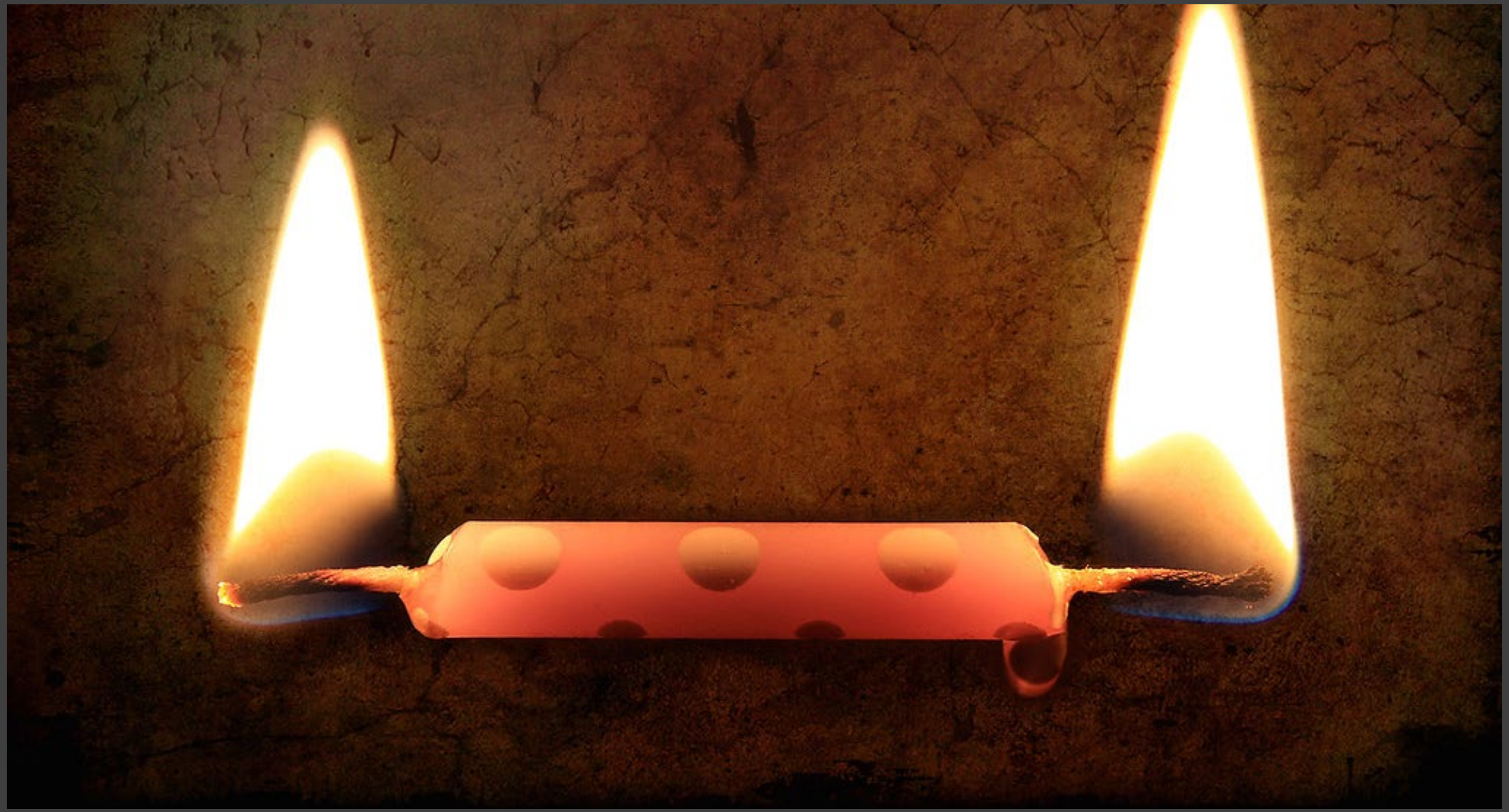
HBeAg+	ALT elevated <2xULN	&
	HBV DNA ≥ 20,000	
HBeAg -	ALT elevated <2xULN	*or*
	HBV DNA ≥ 2000	

State of the Liver	• ALT • Fibrosis estimate
Patient Factors	• Age • Family history of HCC

TREATMENT OF CHRONIC HBV



Don’t Forget HCC SCREENING



References

- Terrault NA, Lok ASF, McMahon BJ, *et al*. Update on Prevention, Diagnosis, and Treatment of Chronic Hepatitis B: AASLD 2018 Hepatitis B Guidance. *Hepatology.* 2018*:*67(4);1560-1599
- Myint A, Tong MJ, Beaven SW. Reactivation of Hepatitis B Virus: A Review of Clinical Guidelines. *Clinical Liver Disease.* 2020 15(4) https://doi.org/10.1002/cld.883
- Dienstag JL. Drug Therapy: Hepatitis B Virus Infection. N Engl J Med 2008;359:1486-1500.