

*Hepatitis B*

# Interpreting Hepatitis B Serologies

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# Disclosures

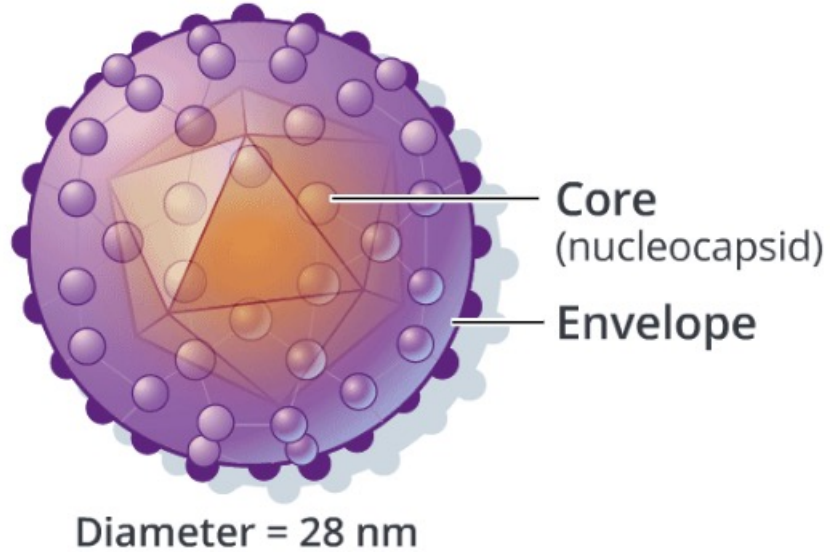
H. Nina Kim, MD MSc

Gilead Sciences provides program funding to my institution

# Hepatitis B (HBV) Serologies

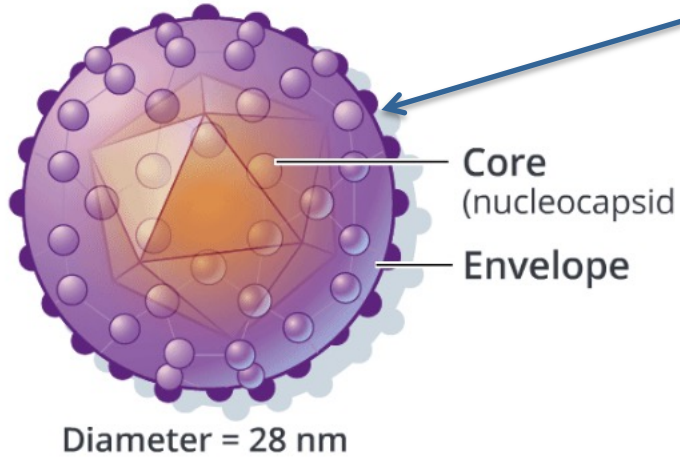
- Virology – key structures
- Acute HBV infection
- Chronic HBV infection
- Hep B serologic profiles

# Hepatitis B Virus: Key Structures



# Hepatitis B Virus: Surface Antigen

## Intact Hepatitis B Virion



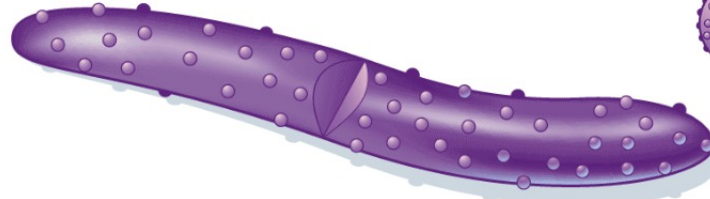
## Hepatitis B surface Ag



## Subviral Lipoprotein Particles (Excess Envelope)

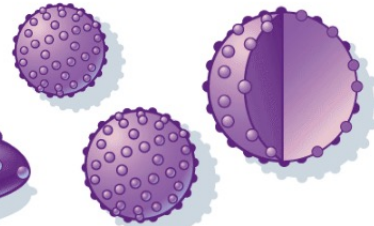
### Filamentous Particles

- width 16-25 nm
- length several hundred nm

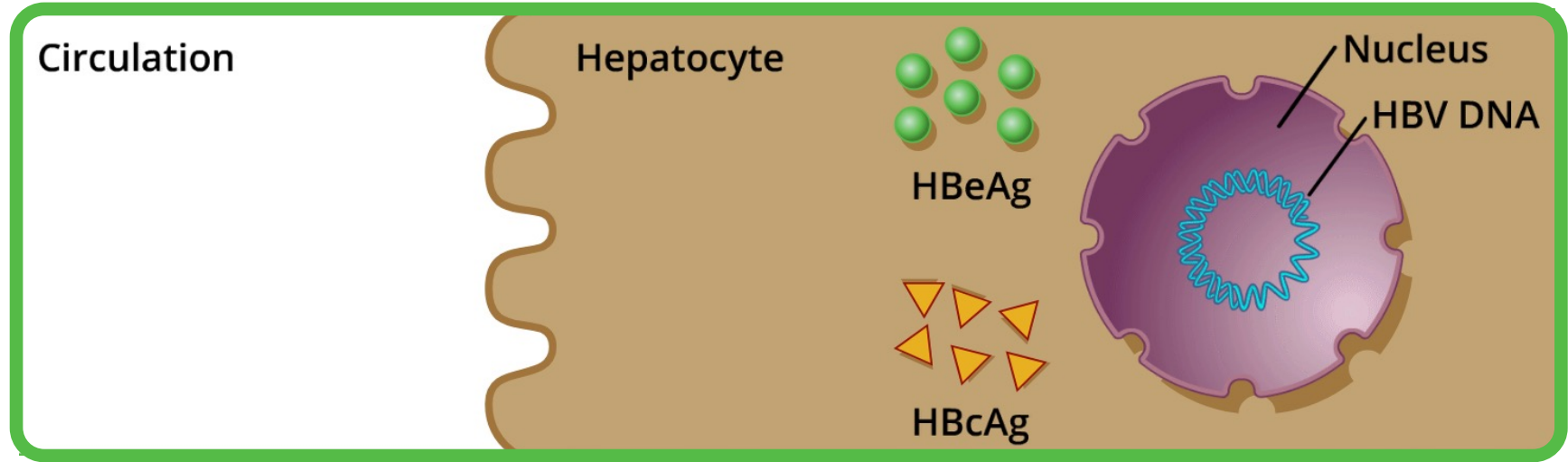


### Spherical Particles

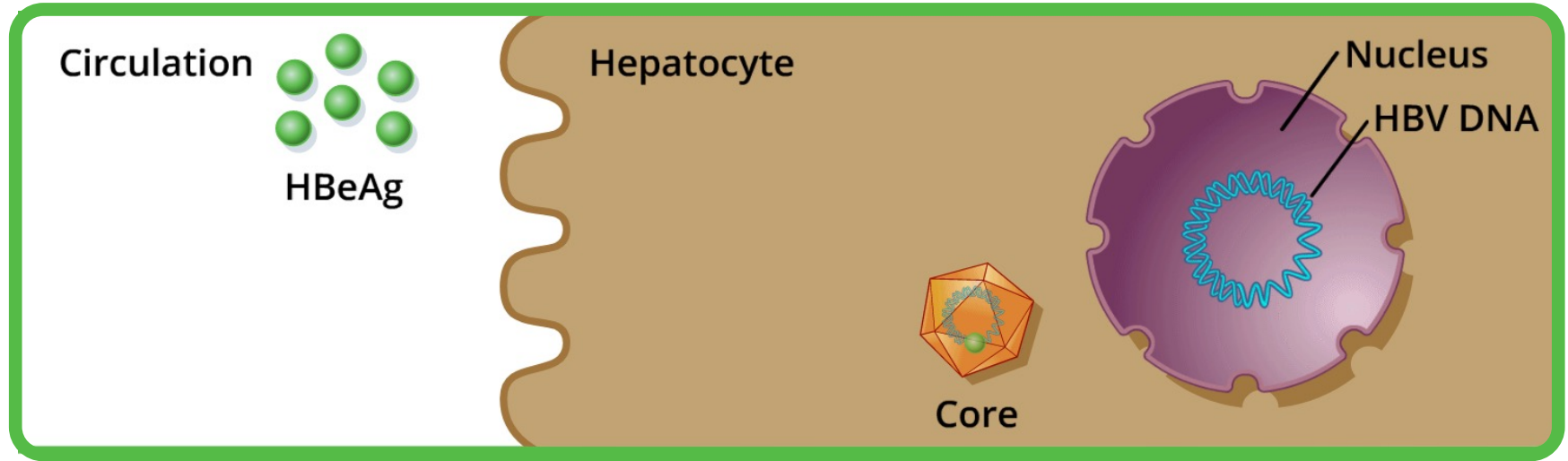
- diameter 16-25 nm



# Hepatitis B Virus: E antigen and Core antigen

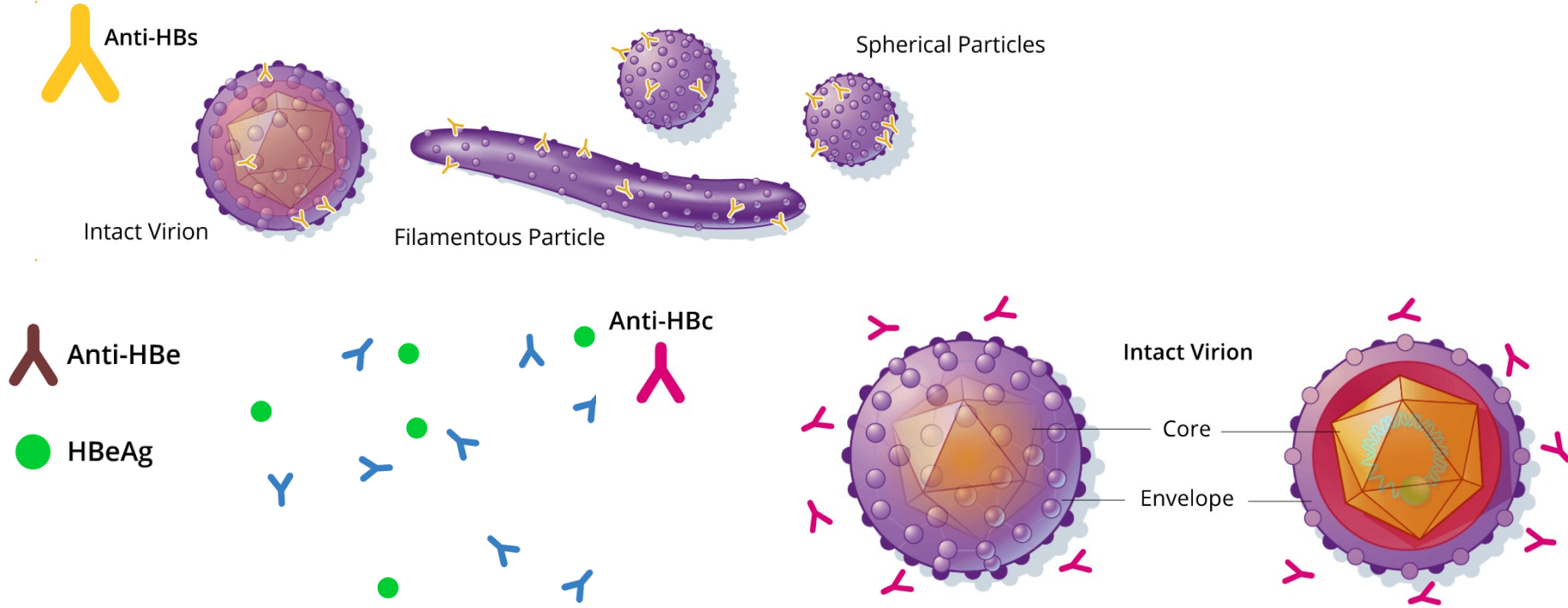


# Hepatitis B Virus: E antigen and Core antigen





# Hepatitis B Virus: Antibodies

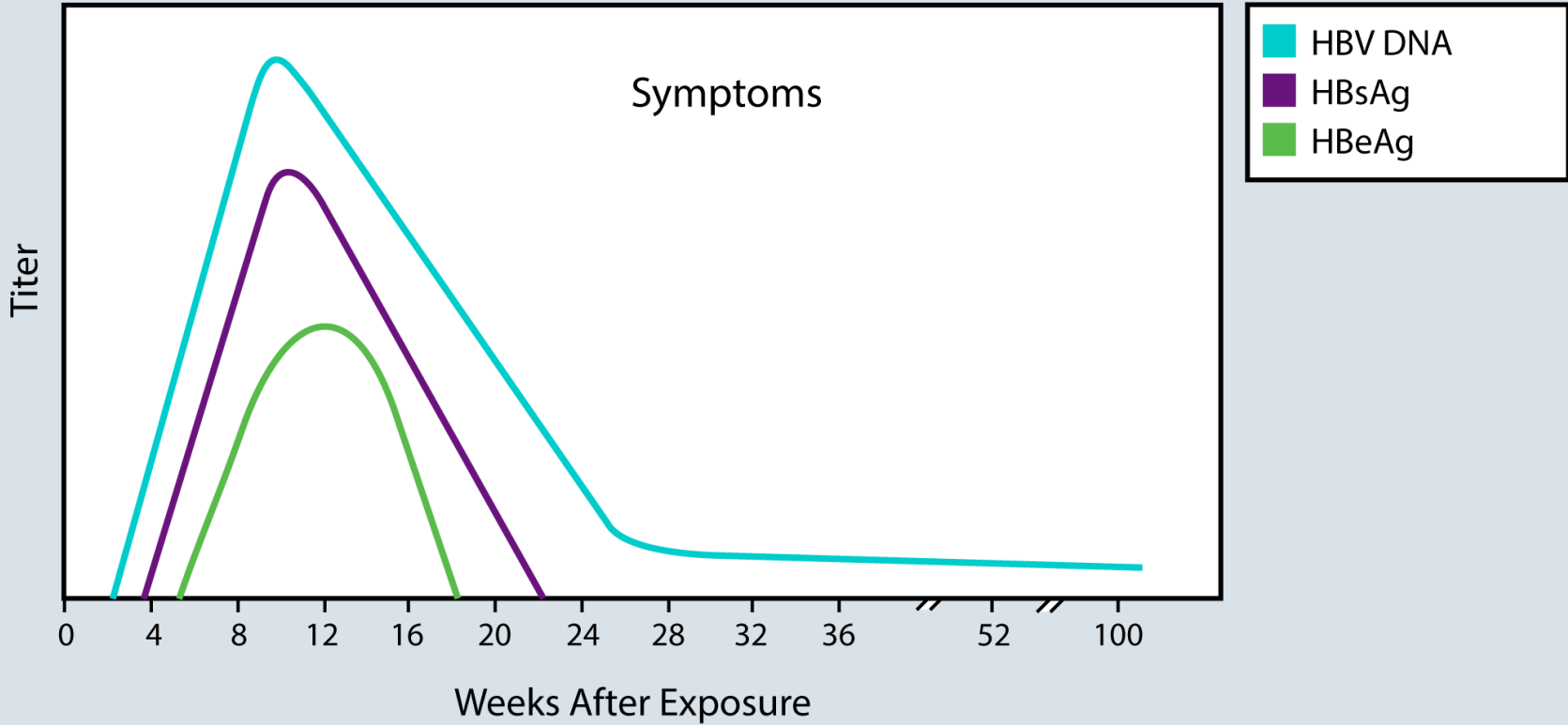




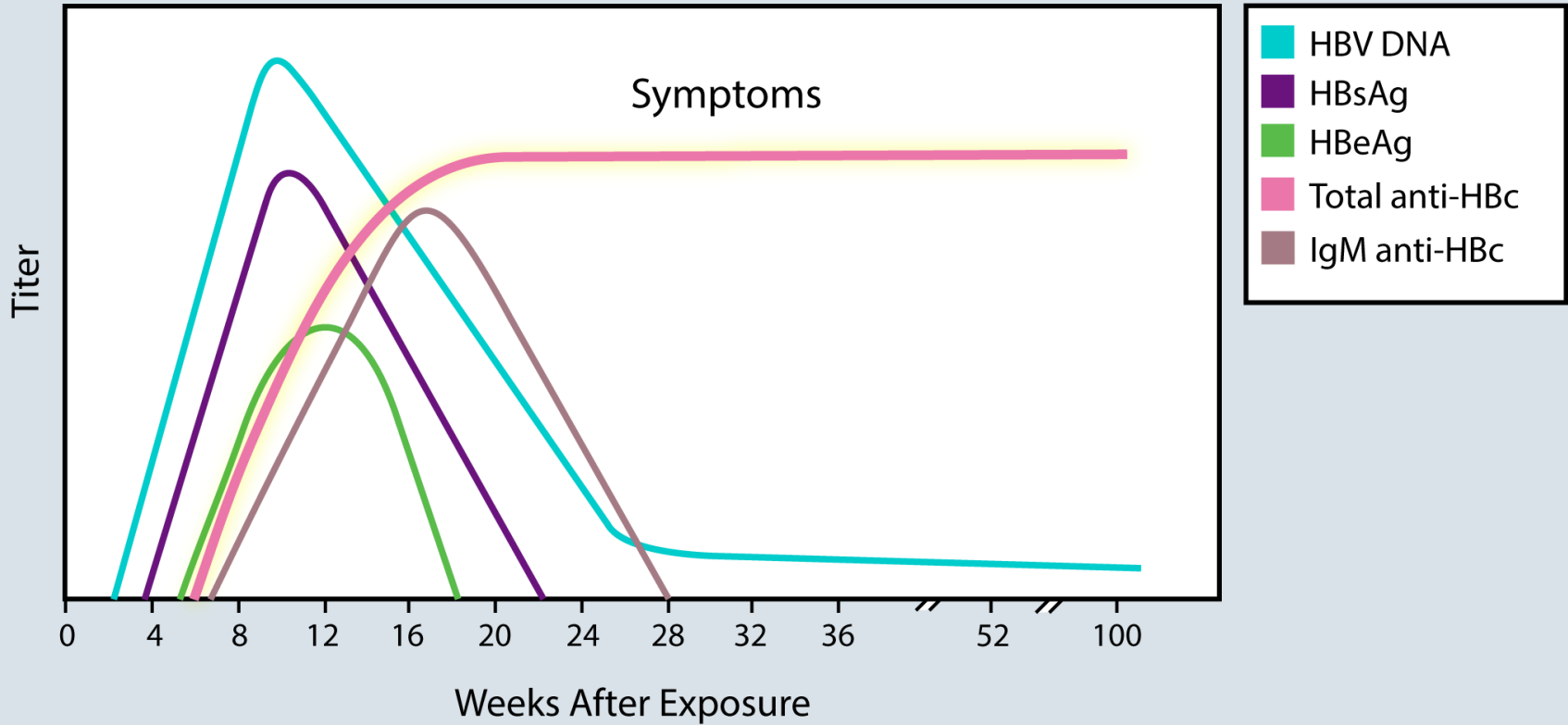
# Hepatitis B Virus: Standard Serologic Panel

- Surface Antigen (HBsAg)
- Surface Antibody (anti-HBs)
- Core Antibody, total (anti-HBc)

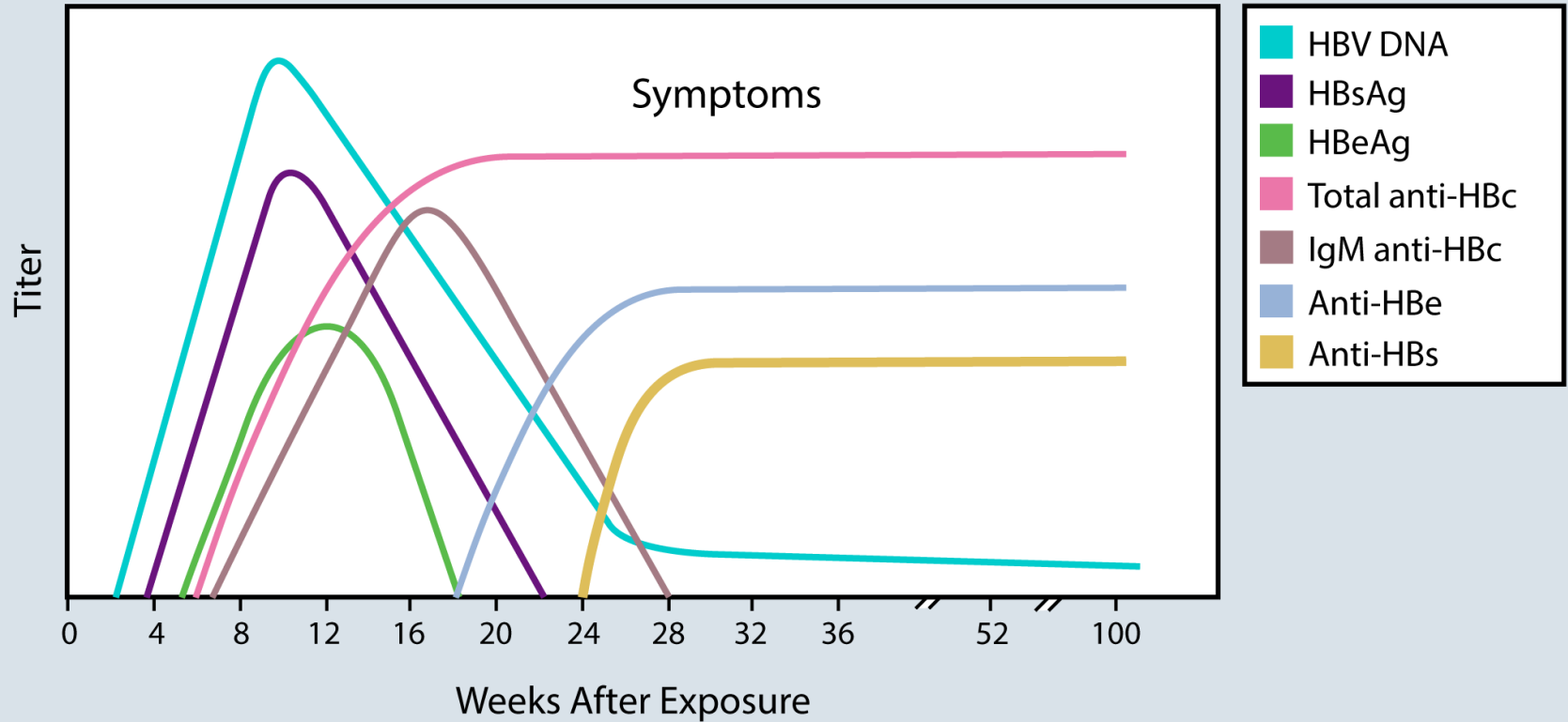
# Virologic and Serologic Response to Acute HBV Infection with Recovery



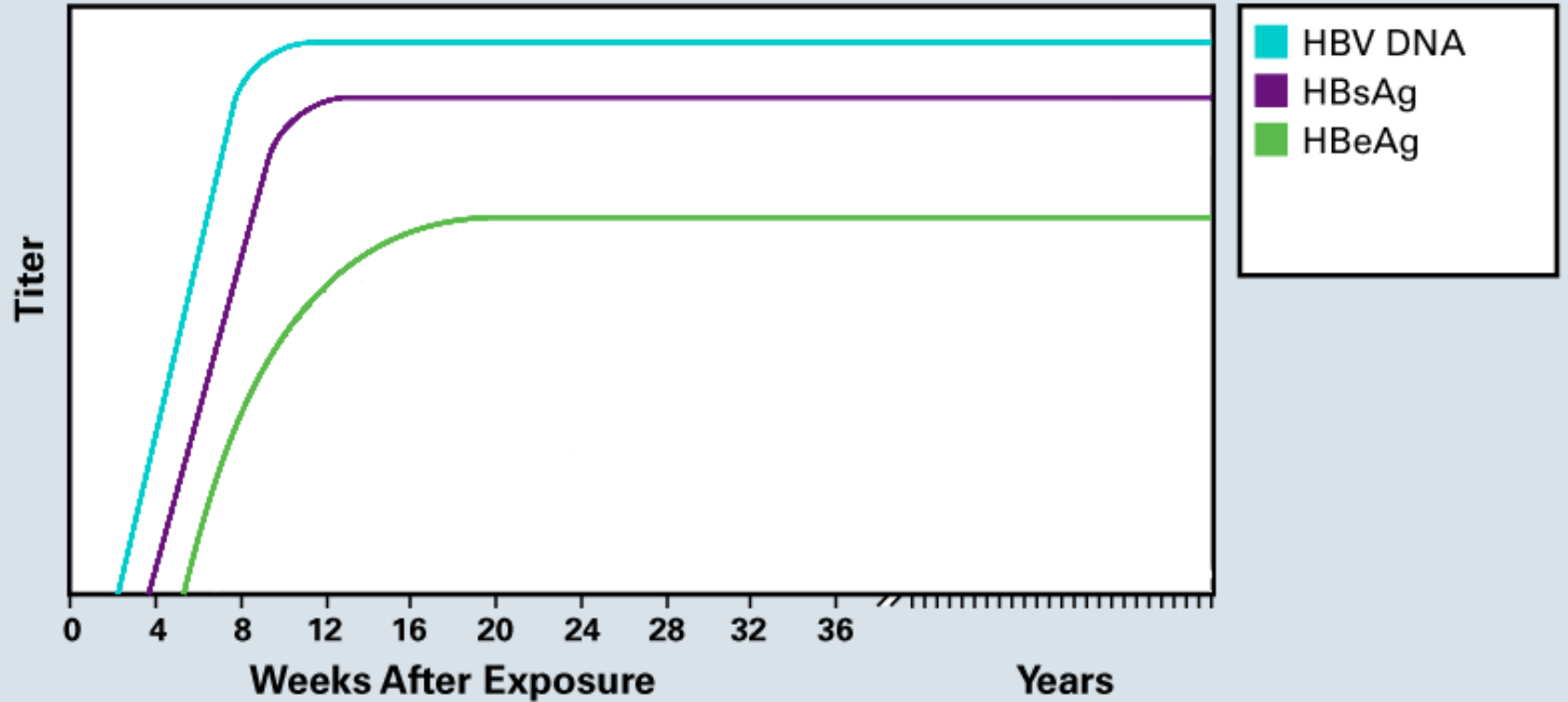
# Virologic and Serologic Response to Acute HBV Infection with Recovery



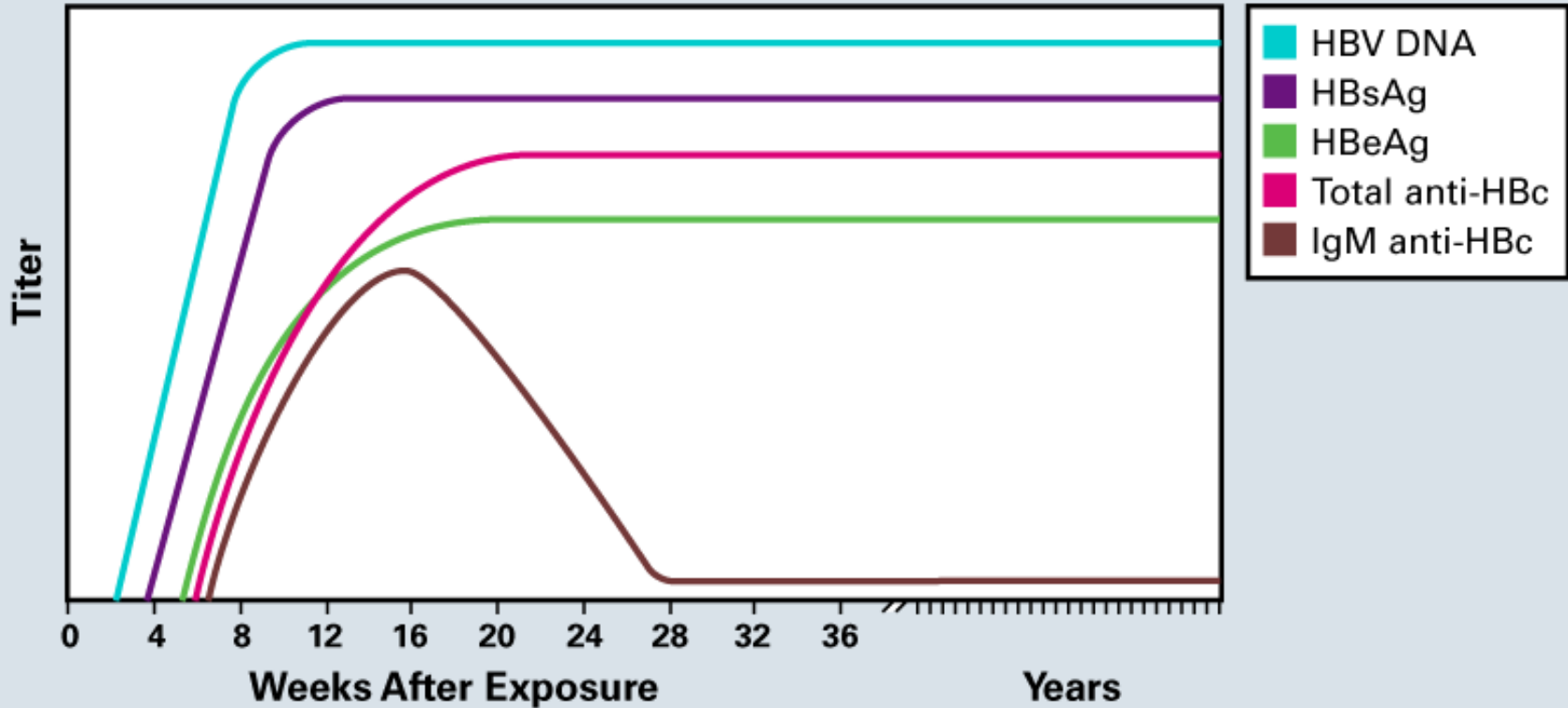
# Virologic and Serologic Response to Acute HBV Infection with Recovery



## Chronic HBV Infection with Persistent HBeAg



## Chronic HBV Infection with Persistent HBeAg




# Hepatitis B Serologies

Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
Never infected (susceptible)					
Acute infection					
Recovery from past infection					
Chronic infection					
Isolated core antibody					
Immunized (or passive Ab receipt)					



# Hepatitis B Serologies



Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
<b>Never infected (susceptible)</b>	-	-	-	-	-
Acute infection					
Recovery from past infection					
Chronic infection					
Isolated core antibody					
Immunized (or passive Ab receipt)					

# Hepatitis B Serologies

Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
Never infected (susceptible)	-	-	-	-	-
<b>Acute infection</b>	+	+	-	+	+
Recovery from past infection					
Chronic infection					
Isolated core antibody					
Immunized (or passive Ab receipt)					

# Hepatitis B Serologies

Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
Never infected (susceptible)	-	-	-	-	-
Acute infection	+	+	-	+	+
<b>Recovery from past infection</b>	-	+	+	-	-
Chronic infection					
Isolated core antibody					
Immunized (or passive Ab receipt)					

# Hepatitis B Serologies

Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
Never infected (susceptible)	-	-	-	-	-
Acute infection	+	+	-	+	+
Recovery from past infection	-	+	+	-	-
<b>Chronic infection</b>	+	+	-	-	+
Isolated core antibody					
Immunized (or passive Ab receipt)					

# Hepatitis B Serologies

Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
Never infected (susceptible)	-	-	-	-	-
Acute infection	+	+	-	+	+
Recovery from past infection	-	+	+	-	-
Chronic infection	+	+	-	-	+
<b>Isolated core antibody</b>	-	+	-	-	+/-
Immunized (or passive Ab receipt)					

# Hepatitis B Serologies

Profile	HBsAg	Total core Ab	Anti-HBs	Core IgM Ab	HBV DNA
Never infected (susceptible)	-	-	-	-	-
Acute infection	+	+	-	+	+
Recovery from past infection	-	+	+	-	-
Chronic infection	+	+	-	-	+
Isolated core antibody	-	+	-	-	+/-
<b>Immunized (or passive Ab receipt)</b>	-	-	+	-	-

[Quick Reference](#) >[Self Study](#) >[Hepatitis B Primary Care Guidance](#)[HBV Medications](#) >[HBV Vaccines](#) >[Clinical Challenges](#)[Tools & Calculators](#) >

# Hepatitis B Online

A free educational website from the  
University of Washington Infectious Diseases Education & Assessment (IDEA) program

[Contributors](#)

Funded by  
Centers for Disease Control and Prevention (CDC)

## Course Modules

Quick Access to Course Information  
Self Study with Progress Tracker  
Free CME and CNE/CE

[Start the Self-Study Modules »](#)

## Hepatitis B Virus

### HBV Epidemiology

Reviews United States and global HBV incidence and prevalence, populations at risk for HBV acquisition, and the clinical and laboratory criteria for HBV case definitions.

#### Quick Reference >

Rapidly access info about  
Epidemiology

#### Self-Study **CNE/CME**

Track progress and receive CE credit

### HBV Screening and Diagnosis

Details the groups considered at priority for HBV testing, the recommended screening and diagnostic tests, and how to interpret HBV diagnostic test results.

#### Quick Reference >

Rapidly access info about Screening  
and Diagnosis

#### Self-Study **CNE/CME**

Track progress and receive CE credit

### HBV Immunizations

Identifies indications for HBV vaccine, describes dosing schedules and administration of vaccines, and management of vaccine nonresponders.

#### Quick Reference >

Rapidly access info about  
Immunization

#### Self-Study **CNE/CME**

Track progress and receive CE credit



# Acknowledgments

**Hepatitis B Online** is funded by a cooperative agreement from the Centers for Disease Control and Prevention (CDC-RFA- PS21-2105). This project is led by the University of Washington Infectious Diseases Education and Assessment (IDEA) Program.



*The content in this presentation are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention.*