significance include:

HBsAg: Hepatitis B surface antigen (found on the surface of the virus), indicating ongoing infection or carrier state

Anti-HBs: Antibody to surface antigen HBsAg, indicating resolving or past infection

HBcAg: Hepatitis B core antigen (found on the inner core of the virus), detected only in the liver

Anti-HBc: Antibody to core antigen HBcAg, indicating ongoing or past infection

HBeAg: Hepatitis B antigen (another component of the HBV core), indicating active infection

Anti-HBe: Antibody to HBeAg, indicating resolving or past infection

IgM anti-HBc: IgM antibody to core antigen

Tests are available for detection of all the HBV antigens and antibodies except HBcAg. HBsAg is detectable during acute infection. Presence of HBsAg indicates that the individual has been infected with the hepatitis virus. If the infection is self-limiting, HBsAg disappears in most patients before serum anti-HBs can be detected (termed the *window phase of infection*). IgM anti-HBc is highly specific in establishing the diagnosis of acute infection, as well as during the window phase in older children and adults. However, IgM anti-HBc usually is not present in perinatal HBV infection. Clinical improvement is usually associated with a decrease in or disappearance of these antigens followed by the appearance of their antibodies. For example, anti-HBc of the IgM class often occurs early in the disease followed by a rise in anti-HBc of the IgG class. Because the antibodies persist indefinitely, they are used to identify the carrier state (individuals with HBV who have no clinical disease but are able to transmit the organism). Persons with chronic HBV infection have circulating HBsAg and anti-HBc, and on rare occasions, anti-HBsAg is present. Both anti-HBs and