

## Hepatitis D virus infection

# DIFFERENTIATING COINFECTION AND SUPERINFECTION

### Patient 1

#### Case history

- Jaundice
- Abdominal pain
- Nausea
- Onset one week ago
- Intravenous drug use
- Chronic hepatitis B infection



Diana Doe,  
42-years-old

#### Laboratory report

ALT	610 (5–35 IU/L)
<b>Hepatitis B:</b>	
HBsAg	+
Anti-HBc IgM	–
Anti-HBc	+
<b>Hepatitis D:</b>	
Anti-HDV	+
HDV RNA	+

#### Interpretation

Diana Doe is a chronic hepatitis B carrier. Her lab report confirms this: we see positive HBsAg as a sign of an ongoing infection. In line with the positive surface antigen, her anti-HCV antibodies are also positive. In addition to her HBV infection, we find

positive results for hepatitis D markers: positive anti-HDV antibodies as well as detectable HDV RNA. Thus, Diana has a HDV infection on top of her chronic hepatitis B infection—a HDV superinfection.

	Laboratory report	HBV/HDV coinfection	HDV superinfection
HBsAg	+	+	+
Anti-HBc IgM	–	+	–
Anti-HBc, total	+	+	+
Anti-HDV (IgG+IgM)	+	+(late)	+
HDV RNA	+	+	+

## Patient 2

### Case history

- Sudden onset
- Nausea
- Abdominal pain
- Fever
- Jaundice
- No medical history



Dave Doe,  
35-years-old

### Laboratory report

ALT	920 (5–35 IU/L)
<b>Hepatitis B:</b>	
HBsAg	+
Anti-HBc IgM	+
Anti-HBc	+
<b>Hepatitis D:</b>	
Anti-HDV	+
HDV RNA	+

### Interpretation

Dave Doe is suffering from classic symptoms of hepatitis. Next to the positive markers of a live hepatitis B virus (HBsAg and HBV DNA), we also find positive core IgM antibodies in Dave's lab report. These markers indicate an acute hepatitis B

infection. Furthermore, we find markers of an acute hepatitis D infection: positive anti-HDV antibodies as well as detectable HDV RNA. Dave was infected by HBV and HDV simultaneously—thus, he suffers from a HBV/HDV coinfection.

	Laboratory report	HBV/HDV coinfection	HDV superinfection
HBsAg	+	+	+
Anti-HBc IgM	+	+	–
Anti-HBc, total	+	+	+
Anti-HDV (IgG+IgM)	+	+(late)	+
HDV RNA	+	+	+



### DIAGNOSIS

*Diana suffers from a HDV superinfection.*

*Dave suffers from a HBV/HDV coinfection.*