INFECTIONIOUS HEPATITIS: RECOMMENDED DIAGNOSTIC APPROACH

Hepatitis B Virus

Suspected acute hepatitis
>>Order: Acute Unknown hepatitis screen

- Results consistent with
  - Acute HBV or
  - Delayed Anti-HBs response after acute HBV infection
  - In 3 - 6 months
  >>Order: Acute HBV follow up

- NON-REACTIVE HBsAg
- REACTIVE Anti-HBs

STOP

Suspected chronic hepatitis
>>Order: Chronic unknown hepatitis screen

- Results consistent with
  - Chronic HBV infection or
  - "Flare-up" chronic HBV or
  - Occult chronic HBV
  >>Order
  > Chronic HBV Monitoring
  > HBV viral load

- NON-REACTIVE HBeAg

- ALT normal
  - In 6 - 12 months
  >>Order
  > Chronic HBV monitoring

- ALT 1-2X ULN
  - In 6 months
  >>Order
  > Chronic HBV monitoring

- ALT >2X ULN
  - In 1 - 3 months
  >>Order
  > Chronic HBV monitoring
  > HBV genotype if considering interferon Rx

- ALT normal &
  - HBV DNA < 2,000 IU/ml
  - Every 6 months
  >>Order
  > Chronic HBV monitoring

- ALT 1-2X ULN &
  - HBV DNA 2,000 - 20,000 IU/ml
  - Every 3 months
  >>Order
  > HBV viral load

- ALT ≥ 2X ULN &
  - HBV DNA ≥20,000 IU/ml
  - Treat if persistent

Acute Unknown Hep Screen: HBsAg, HBc IgM, Anti-HCV, Anti-HAV IgM

Chronic Unknown Hep Screen: HBsAg, Anti-HBs, Anti-HBc total, Anti-HCV

Acute HBV follow-up: Anti-HBs, HBsAg, Anti-HBc total

Chronic HBV monitoring: HBeAg, Anti-Hbe

Date: 25 April 2012
Suspected acute hepatitis
>>Order: Acute Unknown hepatitis screen

Suspected chronic hepatitis
>>Order: Chronic unknown hepatitis screen

REACTIVE Anti-HCV

HCV RNA PCR*

POSITIVE HCV RNA PCR

Currently infected and infectious
>>Order
> HCV Genotyping

Treatment decision

Monitor treatment response
>>Order
> HCV quantitative PCR

NEGATIVE HCV RNA PCR

HCV LIA

POSITIVE LIA

Previously infected and recovered

NEGATIVE LIA

Biological false-POSITIVE screen

* If specimen is unsuitable for PCR (aged) then anti-HCV-reactive specimens will be confirmed employing HCV LIA

Acute Unknown Hep Screen: HBsAg, HBeM, Anti-HCV, Anti-HAV IgM
Chronic Unknown Hep Screen: HBsAg, Anti-HBs, Anti-HBc, Anti-HCV

Date: 25 April 2012
Suspected previous hepatitis exposure

**Order:** Previous hepatitis exposure

- **REACTIVE** Anti-HAV
  - **Hepatitis A**
- **REACTIVE** HBsAg
  - **REACTIVE** Anti-HBc
  - **NON-REACTIVE** Anti-HBs
  - **NON-REACTIVE** Anti-HAV
  - **NON-REACTIVE** Anti-HCV
- **NON-REACTIVE** HBsAg
  - **REACTIVE** Anti-HBc
  - **REACTIVE** Anti-HBs
  - **NON-REACTIVE** Anti-HAV
  - **NON-REACTIVE** Anti-HCV
- **NON-REACTIVE** HBsAg
  - **NON-REACTIVE** Anti-HBc
  - **NON-REACTIVE** Anti-HBs
  - **NON-REACTIVE** Anti-HAV
  - **NON-REACTIVE** Anti-HCV
- **REACTIVE** Anti-HCV
  - Refer to Hepatitis C

**Results consistent with**
- ☑ Past/Resolved HBV infection

**Results consistent with**
- ☑ Acute HBV or
- ☑ Delayed Anti-HBs response after acute HBV infection
  - In 3 - 6 months

**Order:** Acute HBV follow up

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**Date:** 25 April 2012
INFECTIONOUS HEPATITIS: RECOMMENDED DIAGNOSTIC APPROACH

Hepatitis D virus co-infection/super-infection

Confirmed chronic HBV with worsening liver disease
>>Order: Hepatitis D serology

<table>
<thead>
<tr>
<th>Reactive Anti-HDV</th>
<th>Non-Reactive Anti-HDV</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDV Ag</td>
<td></td>
</tr>
<tr>
<td>Anti-HDV IgM</td>
<td></td>
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</tbody>
</table>

Date: 25 April 2012
INFECTION HEPATITIS: RECOMMENDED DIAGNOSTIC APPROACH

Hepatitis B test order guidelines

**Hepatitis B profiles**
These markers are indicated for the different clinical scenarios. Order by Profile Name preferred, otherwise by individual marker.

<table>
<thead>
<tr>
<th>A</th>
<th>Acute Hepatitis Screen Unknown etiology</th>
<th>HBsAg</th>
<th>HBe IgM</th>
<th>Anti-HCV</th>
<th>Anti-HAV IgM</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Acute Hepatitis B Follow-up HBV</td>
<td>Anti-HBs</td>
<td>HBsAg</td>
<td>Anti-HBc total</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Chronic Hepatitis B monitoring HBV</td>
<td>HBeAg</td>
<td>Anti-HBe</td>
<td>HBV Viral Load</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Chronic Hepatitis Screen Unknown etiology</td>
<td>HBsAg</td>
<td>Anti-HBs</td>
<td>Anti-HBc total</td>
<td>Anti-HCV</td>
</tr>
<tr>
<td>E</td>
<td>Previous Hepatitis Exposure Screen Unknown etiology</td>
<td>HBsAg</td>
<td>Anti-HBs</td>
<td>Anti-HBc total</td>
<td>Anti-HAV tI</td>
</tr>
</tbody>
</table>

**Hepatitis B Molecular Diagnostic Tests**
These instructions govern the prudent use of molecular diagnostic tests to support Hepatitis B management.

**HBV DNA PCR (quantitative viral load)**

1. For a patient who has not been on treatment a maximum of 2 tests will be processed.
   - Indications: Follow-up for patient with indeterminate HBV serology
   - Determine eligibility for antiviral therapy
   - Precore mutant (persistent NON-REACTIVE HBeAg)

2. For a non-transplant patient who is on or has completed treatment, a maximum of 1 test every 3 months will be processed.

**HBV Lamivudine resistance (YMDD) mutation**

1. For patients with continuously rising HBV DNA while on lamivudine after an initial fall in HBV DNA quantity while on lamivudine.

**REFERENCES**


Date: 25 April 2012
Hepatitis C test order guidelines

Hepatitis C profiles
These markers are indicated for the different clinical scenarios. Order by Profile Name preferred, otherwise by individual marker

<table>
<thead>
<tr>
<th>Profile</th>
<th>Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Hepatitis Screen</td>
<td>HBsAg, HBC IgM, Anti-HCV, Anti-HAV IgM</td>
</tr>
<tr>
<td>Chronic Hepatitis Screen</td>
<td>HBsAg, Anti-HBs, Anti-HBC total, Anti-HCV</td>
</tr>
<tr>
<td>Previous Hepatitis Exposure Screen</td>
<td>HBsAg, Anti-HBs, Anti-HBC total, Anti-HAV, Anti-HCV</td>
</tr>
</tbody>
</table>

Hepatitis C Molecular Diagnostic Tests
These instructions govern the prudent use of molecular diagnostic tests to support Hepatitis C management

HCV RNA PCR (quantitative detection)

1. For patient who has not been on treatment for HCV a maximum of 2 tests will be processed
   Indications: INDETERMINATE Anti-HCV (laboratory autoreflex)
   REACTIVE anti-HCV assessment of viremia status
   Follow-up of infants born to anti-HCV positive mothers (at 2 - 6 months old)
   Acute seroconversion suspected (e.g. 4 weeks after needlestick injury from HCV positive source)
   Immunosuppressed patient (non-seroconverting)

2. For patients who is on, or has completed treatment for HCV, a maximum of 3 post-treatment tests will be processed
   Indications: Week 12 early virologic response assessment (for non-genotypes 2 or 3 only)
   End of treatment: genotypes 1,4,5,6 after 48 weeks
                    genotypes 2,3 after 24 weeks
                    6, 12, 24, or 36 months after end of treatment to detect relapse

HCV Genotyping

1. HCV genotyping will only be provided pre-treatment in consultation with a Hepatologist/Gastroenterologist or Infectious Disease physician

REFERENCES