Viral Hepatitis

Screen every adult once · read the HBV panel like a logic puzzle · HCV cures in 8-12 weeks, HBV controls long-term

Check HBV first
before rituximab AND before DAAs

THE HBV SEROLOGY PUZZLE *six standard answers; the last two are the ones that fool people*

Pattern	sAg / anti-HBs / anti-HBc	Meaning and why
Acute infection	+ / - / + (IgM)	Surface antigen = virus present; **IgM core = new** (first 6 months)
Chronic infection	+ >6 mo / - / + (IgG)	HBsAg past 6 months defines chronic. Next: HBeAg, HBV DNA, ALT to stage the phase
Vaccinated	- / + / -	Vaccine contains only surface antigen, so it raises anti-HBs and nothing else. **Negative core antibody is the giveaway**
Resolved infection	- / + / + (IgG)	Real infection exposed the immune system to core protein too. Controlled, not eradicated: **cccDNA persists**, which is why reactivation is possible
⚠ Window period	- / - / + (IgM)	HBsAg has fallen, anti-HBs not yet risen: **IgM anti-HBc is the ONLY positive marker**. Test only sAg and anti-HBs and an acute infection reads "negative"
⚠ Isolated anti-HBc	- / - / + (IgG)	Resolved with waned anti-HBs (commonest), occult infection (check DNA), window, or false positive. **Treat as prior infection when immunosuppression is planned: this pattern still reactivates**

SCREEN & STAGE *both viruses are now screen-everyone diseases*

UNIVERSAL SCREENING

HCV: every adult 18+ at least once and every pregnancy (CDC 2020): risk-based screening missed half of infections. **HBV: every adult 18+ once with the TRIPLE panel**, HBsAg + anti-HBs + anti-HBc (CDC 2023): one draw separates infected, immune, and exposed-and-reactivatable. Rescreen with ongoing risk. **Vaccinate:** HBV universal at 19-59 (ACIP 2022); HAV for all chronic liver disease.

ONCE DIAGNOSED, EITHER VIRUS

Stage fibrosis (platelets, FIB-4, elastography; biopsy is the exception): F3-F4 changes surveillance forever, even after cure. **Check companions:** HIV, HAV immunity, HDV if HBsAg+ with severe disease. **HCC ultrasound ± AFP q6 months for all cirrhosis**, and for HBV without cirrhosis in higher-risk groups, because integrated HBV DNA causes HCC without cirrhosis.

A, D AND E SMALL PRINT

HAV: acute only, never chronic; vaccine or immunoglobulin for contacts within 2 weeks; acute-on-chronic HAV is the preventable fulminant failure. **HDV:** exists only with HBsAg; the classic cause of sudden decompensation in a stable HBV carrier. **HEV:** up to 20-25% mortality in third-trimester pregnancy; chronic in transplant patients.

HEPATITIS B *treat the immune-active, watch the tolerant, prevent the reactivation*

Decision	Detail
Who gets treated	**ALT ≥ 2x normal PLUS DNA > 20,000 IU/mL (HBeAg+) or > 2,000 (HBeAg-)**: treatment helps when the immune system is actively damaging the liver. **Cirrhosis + any detectable DNA: treat regardless of ALT.** Immune-tolerant (high DNA, normal ALT): monitor, do not treat
The drugs	**Entecavir, TDF, or TAF once daily, usually indefinitely.** Choose by comorbidity: TDF stresses kidney and bone (prefer TAF or entecavir there); entecavir needs renal dosing. They suppress replication but cannot excise cccDNA, so this is **control, not cure**. Never lamivudine (resistance in most within years)
⚠ Reactivation prophylaxis	**Before rituximab/anti-CD20, stem cell transplant, or ≥ 20 mg prednisone ≥ 4 weeks: check HBsAg AND anti-HBc.** Either positive before anti-CD20 or transplant = **prophylactic entecavir or tenofovir, continued 12-18 months past the last dose**. Reactivation here can be fulminant and fatal, and is entirely preventable
Acute HBV / pregnancy	Acute: supportive (adults clear > 95%); antivirals + transplant-center call for fulminant disease (rising INR, encephalopathy). Pregnancy with DNA > 200,000: **tenofovir in the third trimester** on top of birth-dose vaccine + HBIG cuts vertical transmission
Chronicity by age	**~90% chronic if acquired at birth, under 5% as an adult**: the adult immune system clears it, the infant's tolerates it. Why birth-dose vaccination is the highest-yield intervention in hepatitis

NEEDLE STICK: WHAT TO DO TODAY

Source HBsAg+ and you are unvaccinated or a non-responder: HBIG plus start the vaccine series, ideally within 24 hours (effectiveness falls off after 7 days). Vaccinated with documented anti-HBs ≥ 10: nothing needed. **HCV: no prophylaxis and no immunoglobulin exists**, so the plan is baseline anti-HCV plus RNA at 3-6 weeks and antibody at 4-6 months, and **treat immediately if it seroconverts** rather than waiting for spontaneous clearance. Do not start DAAs prophylactically.

EXTRAHEPATIC CLUES THAT SHOULD TRIGGER TESTING

HCV: mixed cryoglobulinemia (palpable purpura, neuropathy, low complement), membranoproliferative glomerulonephritis, porphyria cutanea tarda, lichen planus. **HBV:** polyarteritis nodosa and membranous nephropathy. These are often the presenting complaint in a never-screened patient, and **treating the virus treats the syndrome**.

HEPATITIS C *find it, confirm it, cure it, close the loop*

Step	Detail
Antibody, then RNA	Positive anti-HCV = exposure ever; **RNA confirms current infection** (a quarter clear spontaneously and stay seropositive for life). Never diagnose, or recheck for reinfection, on antibody alone
Cure regimens	**Glecaprevir/pibrentasvir 8 weeks or sofosbuvir/velpatasvir 12 weeks**: pan-genotypic, cure > 95%, no genotyping on the simplified pathway. **Treat acute HCV immediately** (no more waiting 6 months), and **active drug use is not a contraindication**: treatment is prevention
⚠ The traps	**HBV triple panel first (FDA boxed warning: HBV reactivates when HCV suppression lifts).** Then the med list: amiodarone + sofosbuvir (bradycardia), PPIs starve velpatasvir of the acid it needs, statin dose caps, enzyme inducers gut DAA levels. **Protease-inhibitor regimens are barred in decompensated (Child-Pugh B/C) cirrhosis**: sofosbuvir-based + hepatology instead
After the cure	**SVR12 must actually be ordered**: an unconfirmed cure is an open loop. F3-F4 keeps **HCC surveillance q6 months indefinitely** (risk falls, never to baseline). No immunity is conferred: reinfection is possible and is treated again

PEARLS & PITFALLS

- **HBV causes HCC without cirrhosis**: it integrates into the host genome. HCV's cancer risk rides almost entirely on cirrhosis, which is why its surveillance is fibrosis-gated and HBV's is not.
- **Both disasters this sheet prevents are pre-treatment checks:** HBsAg + anti-HBc before rituximab, and the same panel before any DAA.
- **Anti-HCV stays positive for life after cure**, so a "positive hepatitis C test" in a cured patient means nothing without RNA. Document SVR12 where the next clinician will find it.

References: CDC universal hepatitis C screening (2020) and hepatitis B screening (2023) recommendations · AASLD chronic hepatitis B guidance · AASLD/IDSA HCV guidance and simplified treatment pathway · ACIP adult hepatitis B vaccination (2022).

Educational aid; verify against current guidance, local formulary and patient factors.

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