Epivir is an Antiretroviral Agent, Reverse Transcriptase Inhibitor (Nucleoside) used for treatment of HIV-1 infection.
Epivir-HBV is and Antiretroviral Agent, Reverse Transcriptase Inhibitor (Nucleoside) used for the treatment of chronic hepatitis B.
Lamivudine is a cytosine analog. After lamivudine is triphosphorylated, the principle mode of action is inhibition of HIV reverse transcription via viral DNA chain termination; inhibits RNA- and DNA-dependent DNA polymerase activities of reverse transcriptase. The monophosphate form of lamivudine is incorporated into the viral DNA by hepatitis B virus polymerase, resulting in DNA chain termination.

Pre-Authorization Criteria: treatment of chronic hepatitis B associated with evidence of hepatitis B viral replication and active liver inflammation; HIV infection in combination with other antiretroviral agents

Off-Label: Postexposure prophylaxis for HIV exposure (as a component of a multidrug regimen)

Note: Use only if other anti-HBV agents with more favorable resistance patterns have failed or cannot be used; has not been evaluated in patients with HBV-HIV-1 coinfection

Note: Use with caution; heightened risk of causing significant patient harm when used in error.

Dosing: Adult:
Note: The formulation and dosage of Epivir-HBV® are not appropriate for patients infected with both HBV and HIV

HIV: Oral (use with at least two other antiretroviral agents): 150 mg twice daily or 300 mg once daily <50 kg (DHHS [pediatric], 2010): 4 mg/kg twice daily (maximum: 150 mg twice daily)

Postexposure prophylaxis for HIV exposure (unlabeled use [CDC, 2005]): Oral: 150 mg/dose twice daily or 300 mg/dose once daily (in combination with zidovudine, tenofovir, stavudine, or didanosine, with or without a protease inhibitor depending on risk)

Treatment of hepatitis B (Epivir-HBV®): Note: Use in HBV treatment is discouraged due to rapid resistance development; consider use only if other anti-HBV antiviral regimens with more favorable resistance patterns cannot be used. Oral: 100 mg/day
Treatment duration (AASLD practice guidelines):
Hepatitis Be antigen (HBeAg) positive chronic hepatitis: Treat ≥1 year until HBeAg seroconversion and undetectable serum HBV DNA; continue therapy for ≥6 months after HBeAg seroconversion

HBeAg negative chronic hepatitis: Treat >1 year until hepatitis B surface antigen (HBsAg) clearance
Note: Patients not achieving <2 log decrease in serum HBV DNA after at least 6 months of therapy should either receive additional treatment or be switched to an alternative therapy (Lok, 2009).

Treatment of hepatitis B/HIV coinfection (in patients with both infections requiring treatment): Note: The formulation and dosage of Epivir-HBV® are not appropriate for patients infected with both HBV and HIV.

Oral: 150 mg/dose twice daily or 300 mg/dose once daily, in combination with other antiretrovirals in an antiretroviral (ARV) regimen (DHHS, 2013)

Dosing: Pediatric:
HIV: Oral (use with at least two other antiretroviral agents)
Infants 1-3 months (DHHS [pediatric], 2010): 4 mg/kg/dose twice daily
Infants and Children 3 months to 16 years: 4 mg/kg/dose twice daily (maximum: 150 mg/dose twice daily)
Alternate weight-based dosing using scored 150 mg tablets (DHHS [pediatric], 2010):
14-21 kg: 75 mg/dose twice daily (150 mg/day)
22-29 kg: 75 mg in the morning, 150 mg in the evening (225 mg/day)
≥30 kg: 150 mg/dose twice daily (300 mg/day)

Children >16 years: Refer to adult dosing.

Postexposure prophylaxis for HIV exposure (unlabeled use [CDC, 2005]): Adolescents ≥16 years; Refer to adult dosing.

Treatment of hepatitis B/HIV coinfection (in patients with both infections requiring treatment): Note: The formulation and dosage of Epivir-HBV® are not appropriate for patients infected with both HBV and HIV. Oral:
Infants and Children: 4 mg/kg/dose (maximum: 150 mg/dose) twice daily, in combination with other antiretrovirals in an ARV regimen (CDC, 2009)

Adolescents: Refer to adult dosing.

Treatment of hepatitis B (Epivir-HBV®): Note: Not a preferred agent in chronic HBV treatment due to high rates of resistance; consider alternative agents: Oral: Children 2-17 years: 3 mg/kg/dose once daily (maximum: 100 mg/day)

Treatment duration (AASLD practice guidelines):
Hepatitis Be antigen (HBeAg) positive chronic hepatitis: Treat ≥1 year until HBeAg seroconversion and undetectable serum HBV DNA; continue therapy for ≥6 months after HBeAg seroconversion
HBeAg negative chronic hepatitis: Treat >1 year until hepatitis B surface antigen (HBsAg) clearance
Note: Patients not achieving <2 log decrease in serum HBV DNA after at least 6 months of therapy should either receive additional treatment or be switched to an alternative therapy (Lok, 2009).

**Dosing: Geriatric:**
Refer to adult dosing.

**Dosing: Renal Impairment:**
**HIV:**
Patients ≤16 years: Insufficient data; however, dose reduction should be considered.
Patients >16 years:
- $\text{Cl}_\text{cr}$ 30-49 mL/minute: Administer 150 mg once daily
- $\text{Cl}_\text{cr}$ 15-29 mL/minute: Administer 150 mg first dose, then 100 mg once daily
- $\text{Cl}_\text{cr}$ 5-14 mL/minute: Administer 150 mg first dose, then 50 mg once daily
- $\text{Cl}_\text{cr}$ <5 mL/minute: Administer 50 mg first dose, then 25 mg once daily

**Treatment of hepatitis B patients:** Adults:
- $\text{Cl}_\text{cr}$ 30-49 mL/minute: Administer 100 mg first dose, then 50 mg once daily.
- $\text{Cl}_\text{cr}$ 15-29 mL/minute: Administer 100 mg first dose, then 25 mg once daily.
- $\text{Cl}_\text{cr}$ 5-14 mL/minute: Administer 35 mg first dose, then 15 mg once daily.
- $\text{Cl}_\text{cr}$ <5 mL/minute: Administer 35 mg first dose, then 10 mg once daily.

**Dialysis:** Negligible amounts are removed by 4-hour hemodialysis or peritoneal dialysis. Supplemental dosing not needed; however, dosing after dialysis is recommended (DHHS, 2013).

**Dosing: Hepatic Impairment:**
No dosage adjustment necessary. However, has not been studied in the setting of decompensated liver disease.

**Dosage Forms: U.S.:**
Excipient information presented when available (limited, particularly for generics); consult specific product labeling.
Solution, Oral:
Epivir: 10 mg/mL (240 mL) [contains methylparaben, propylene glycol, propylparaben; strawberry-banana flavor]
Epivir HBV: 5 mg/mL (240 mL) [contains methylparaben, propylene glycol, propylparaben; strawberry-banana flavor]
Tablet, Oral:
Epivir: 150 mg, 300 mg
Epivir HBV: 100 mg
Generic: 150 mg, 300 mg

Generic Equivalent Available: U.S.-May be product dependent

**Administration:**
May be administered without regard to meals. Adjust dosage in renal failure.
Adverse Reactions:
>10%: Headache, fatigue, insomnia, nausea, diarrhea, pancreatitis, abdominal pain, vomiting, neutropenia, transaminases increased, myalgia, neuropathy, musculoskeletal pain, nasal signs and symptoms, cough, sore throat.
Other Severe Less Common Reactions: fat redistribution, immune reconstitution syndrome, lactic acidosis/hepatomegaly, HBV exacerbation, post treatment, peripheral neuropathy, rhabdomyolysis, anemia, severe, anaphylaxis, autoimmune disorders.

Exclusions:
Epivir is not to be used as monotherapy.
Epivir is not to be used in combination with emtricitabine.
Epivir for postexposure prophylaxis for HIV exposure is an unlabeled use and therefore not covered.
Epivir HBV is not to be used in patients with HIV/HBV coinfection.
Epivir-HBV is not to be used for treatment of HIV.

U.S. BOXED WARNING:
Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases, associated with nucleoside analogue used alone or in combination; suspend treatment if clinical or laboratory findings suggest lactic acidosis or hepatotoxicity.
Lamivudine dosage forms contain higher dose used to treat HIV compared to lamivudine-HBV dosage forms used to treat chronic HBV; ensure patients receive correct dosage form for indicated use.
Severe acute HBV exacerbations in HBV/HIV co-infected patients upon lamivudine discontinuation; monitor hepatic function closely for at least several months in HBV/HIV co-infected patients who discontinue abacavir/lamivudine; initiate anti-HBV treatment if needed.

References:
15. [www.uptodate.com](http://www.uptodate.com): Lamivudine: Drug Information

**REVISION HISTORY:**

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Date Approved by P&T Committee: 2/18/20
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