VENTURA COUNTY
HEALTH CARE PLAN

**Prior Authorization DRUG Guidelines**

# VIREAD (Tenofovir)

Effective Date: 1/28/14

Date Developed: 1/28/14 by Catherine Sanders, MD

Last Approval Date: 1/26/16, 1/24/17, 1/23/18, 1/22/19, 2/18/20

Viread is an Antiretroviral Agent, Reverse Transcriptase Inhibitor (Nucleotide) used in the treatment of HIV-1 infection and chronic hepatitis B. Tenofovir disoproxil fumarate (TDF), is an analog of adenosine 5'-monophosphate; it interferes with the HIV viral RNA dependent DNA polymerase resulting in inhibition of viral replication. TDF is first converted intracellularly by hydrolysis to tenofovir and subsequently phosphorylated to the active tenofovir diphosphate. Tenofovir inhibits replication of HBV by inhibiting HBV polymerase.

**Pre-Authorization Criteria:**
Viread is used in the treatment of patients with HIV-1 infection in adults and pediatric patients ≥2 years of age. Treatment of HIV in patients with unrecognized/untreated hepatitis B virus (HBV) may lead to rapid HBV resistance. Patients should be tested for presence of chronic hepatitis B infection prior to initiation of therapy. In patients coinfected with HIV and HBV, an appropriate antiretroviral combination should be selected due to HIV resistance potential; these patients should receive tenofovir dosed for HIV therapy.
Viread is also used as first line treatment of chronic hepatitis B virus (HBV) in patients ≥12 years of age.

VCHCP requires that Viread be prescribed by an Immunology Clinic physician with current American Academy of HIV Medicine (AAHIVM) certification or a physician boarded in Infectious Disease.

**Dosing: Adult:**
Hepatitis B infection: Oral: 300 mg once daily
Note: Tenofovir is recommended for first-line treatment of HBV (Lok, 2009). Concurrent use with adefovir and/or tenofovir combination products should be avoided.
*Treatment duration (AASLD practice guidelines, 2009):*
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).
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
Decompensated liver disease: Lifelong treatment is recommended
HIV infection: Oral: 300 mg once daily (in combination with other antiretrovirals)

**Dosing: Pediatric:**
Hepatitis B infection: Oral: Children ≥12 years (and ≥35 kg) and Adolescents: Refer to adult dosing.
HIV infection: Oral:
Children 2 to <12 years: 8 mg/kg once daily (maximum: 300 mg once daily) (in combination with other antiretrovirals)
Dosing recommendations based on body weight if using the oral powder: Note: One level scoop of powder = 40 mg tenofovir
10 to <12 kg: 80 mg once daily
12 to <14 kg: 100 mg once daily
14 to <17 kg: 120 mg once daily
17 to <19 kg: 140 mg once daily
19 to <22 kg: 160 mg once daily
22 to <24 kg: 180 mg once daily
24 to <27 kg: 200 mg once daily
27 to <29 kg: 220 mg once daily
29 to <32 kg: 240 mg once daily
32 to <34 kg: 260 mg once daily
34 to <35 kg: 280 mg once daily
≥35 kg: 300 mg once daily
Dosing recommendations based on body weight if using the oral tablets:
17 to <22 kg: 150 mg once daily
22 to <28 kg: 200 mg once daily
28 to <35 kg: 250 mg once daily
≥35 kg: 300 mg once daily
Children ≥12 years (and ≥35 kg) and Adolescents: Refer to adult dosing.

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

**Dosing: Renal Impairment:**
Children: No dosage adjustment provided in manufacturer's labeling; has not been studied.
Adults: Note: Use of powder formulation has not been evaluated in renal impairment.
$Cl_{cr}$ ≥50 mL/minute: No dosage adjustment necessary.
$Cl_{cr}$ 30-49 mL/minute: 300 mg every 48 hours
$Cl_{cr}$ 10-29 mL/minute: 300 mg every 72-96 hours
$Cl_{cr}$ <10 mL/minute without hemodialysis: No dosage adjustment provided in manufacturer's labeling; has not been studied.
Hemodialysis: 300 mg following dialysis every 7 days or after a total of ~12 hours of dialysis (usually once weekly assuming 3 dialysis sessions lasting about 4 hours each).

**Dosing: Hepatic Impairment:**
No dosage adjustment necessary.

**Dosage Forms: U.S.:**

Excipient information presented when available (limited, particularly for generics); consult specific product labeling.
Powder, Oral, as disoproxil fumarate:
Viread: 40 mg/g (60 g)
Tablet, Oral, as disoproxil fumarate:
Viread: 150 mg, 200 mg, 250 mg
Viread: 300 mg [contains fd&c blue #2 aluminum lake]

Generic Equivalent Available: U.S.-No

**Administration:**
Tablets may be administered without regard to meals. Powder should be mixed with 2-4 ounces of soft food (applesauce, baby food, yogurt) and swallowed immediately (avoids bitter taste); do not mix in liquid (powder may float on top of the liquid even after stirring). Measure powder using only the supplied dosing scoop.

**Exclusions:**
Viread is not to be used as monotherapy. (Clinical trials in HIV-infected patients whose regimens contained only three nucleoside reverse transcriptase inhibitors (NRTI) show less efficacy, early virologic failure and high rates of resistance substitutions. Use three NRTI regimens with caution and monitor response carefully. Triple drug regimens with two NRTIs in combination with a non-nucleoside reverse transcriptase inhibitor or a HIV-1 protease inhibitor are usually more effective.)
Viread is not to be used to treat HBV in patients <12 years of age.

**Adverse Reactions:**
>10%: Insomnia, pain, dizziness, depression, fever, rash, triglycerides increased, abdominal pain, nausea, diarrhea, vomiting, creatine kinase increased, weakness
Other Serious Less Common Reactions: lactic acidosis, hepatomegaly, hepatotoxicity, HBV exacerbation, post-treatment, neprotoxicity, myopathy, rhabdomyolysis, osteomalacia, fractures, fat redistribution, pancreatitis, neutropenia, hypersensitivity reaction, immune reconstitution syndrome, autoimmune disorders.

**U.S. BOXED WARNING:**
Lactic acidosis and severe hepatomegaly with steatosis, including fatal cases, associated with nucleoside analogue use alone or in combination; suspend treatment if clinical or laboratory findings suggest lactic acidosis or hepatotoxicity.
Severe acute exacerbations of hepatitis may occur in HBV-infected patients when discontinuing tenofovir; monitor hepatic function closely for at least several months after discontinuation of tenofovir; initiate anti-HBV treatment if needed.

**References:**
1. DHHS Panel on Antiretroviral Guidelines for Adults and Adolescents, "Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents, Department of Health and Human Services," February 12, 2013;1-267. Available at http://www.aidsinfo.nih.gov

2. DHHS Panel on Opportunistic Infections (OI) in HIV-Infected Adults and Adolescents, "Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents: Recommendations from the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), and the HIV Medicine Association (HIVMA) of the Infectious Diseases Society of America (IDSA)," May 7, 2013. Available at http://aidsinfo.nih.gov/contentfiles/lvguidelines/adult_oi.pdf
3. Lok AS and McMahon BJ, "Chronic Hepatitis B: Update 2009," *Hepatology*, 2009. Available at http://www.aasld.org/practiceguidelines/Documents/Bookmarked%20Practice%20Guidelines/Chronic_Hep_B_Update_2009%208_24_2009.pdf [PubMed 19714720]
4. Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children, "Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection," November 5, 2012. Available at http://www.aidsinfo.nih.gov
5. www.uptodate.com: Tenofovir: Drug Information
6. www.epocrates.com: Viread Drug Information

**Revision History:**

Date Reviewed/No Updates: 1/13/15 by C. Sanders, MD
Date Approved by P&T Committee: 1/27/15
Date Reviewed/No Updates: 1/26/16 by C. Sanders, MD; R. Sterling, MD
Date Approved by P&T Committee: 1/26/16
Date Reviewed/No Updates: 1/24/17 by C. Sanders, MD; R. Sterling, MD
Date Approved by P&T Committee: 1/24/17
Date Reviewed/No Updates: 1/23/18by C. Sanders, MD; R. Sterling, MD
Date Approved by P&T Committee: 1/23/18
Date Reviewed/No Updates: 1/22/19 by C. Sanders, MD; R. Sterling, MD
Date Approved by P&T Committee: 1/22/19
Date Reviewed/No Updates: 2/18/20 by H. Taekman, MD; R. Sterling, MD
Date Approved by P&T Committee: 2/18/20

| Revision Date | Content Revised (Yes/No) | Contributors | Review/Revision Notes |
|---|---|---|---|
| 1/24/17 | No | Catherine Sanders, MD; Robert Sterling, MD | Annual review |
| 1/23/18 | No | Catherine Sanders, MD; Robert Sterling, MD | Annual review |
| 1/22/19 | No | Catherine Sanders, MD; Robert Sterling, MD | Annual review |
| 2/18/20 | No | Howard Taekman, MD; Robert Sterling, MD | Annual review |