stavudine (stav-yoo-deen)

**Classification**
Antiretroviral
Pharmacologic: nucleoside reverse transcriptase inhibitors

**Pregnancy Category**
C

**Indications**
HIV infection unresponsive or intolerant to conventional therapy.

**Action**
Converted intracellularly to stavudine triphosphate, which inhibits viral DNA synthesis and replication.

**Therapeutic Effects:**
Virustatic action against HIV. Decreased viral load and increased cell count. Not curative, but may slow progression of HIV infection and decrease the incidence and severity of its sequelae.

**Pharmacokinetics**

- **Absorption:** Well absorbed after oral administration (76–80% bioavailability).
- **Distribution:** Crosses the blood-brain barrier; enters RBCs and plasma equally.
- **Metabolism and Excretion:** Converted intracellularly to stavudine triphosphate, which is the active drug; 40% excreted unchanged in urine; 50% nonrenally eliminated.
- **Half-life:**
  - Adults—1–1.6 hr; children—0.9–1.1 hr; adults with renal impairment—4.8 hr; intracellular half-life—3.5 hr.

**TIME/ACTION PROFILE (blood levels)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>unknown</td>
<td>0.5–1.5 hr</td>
<td>12 hr</td>
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</tbody>
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**Contraindications/Precautions**

- **Contraindicated in:** Hypersensitivity.
- **Use Cautiously in:** History of alcohol abuse; Hepatic impairment; Renal impairment (dose and/or q.dosing interval recommended if CCr <50 mL/min); History of peripheral neuropathy; OB, Lactation: Safety not established; avoid breast feeding by HIV-infected mothers because of transmission of the virus in breast milk; concurrent use with didanosine during pregnancy may ↑ the risk of fetal lactic acidosis.

**Adverse Reactions/Side Effects**

- CNS: headache, insomnia, weakness.
- GI: HEPATOMEGALY (WITH STEATOSIS), HEPATIC TOXICITY, PANCREATITIS, anorexia, diarrhea.
- F and E: LACTIC ACIDOSIS.
- Hemat: anemia.
- MS: arthralgia, myalgia.
- Endo: fat redistribution.
- Neuro: peripheral neuropathy.
- Misc: immune reconstitution syndrome.

**Interactions**

- Drug-Drug: Use cautiously with drugs causing peripheral neuropathy (chloramphenicol, captopril, diazoxide, dapsone, diethylaminoethanol, ethambutol, ethionamide, hydralazine, hydralazine, iodipamide, lithium, metronidazole, methotrexate, phenytoin, vincristine). Concurrent use with didanosine may ↑ risk of pancreatitis and hepatotoxicity. Concurrent use with hydroxyurea may ↑ risk of hepatotoxicity (avoid concurrent use). Concurrent use with stavudine is not recommended because of possible antiretroviral antagonism.

**Route/Dosage**

- **PO (Adults ≥60 kg):** 40 mg q 12 hr.
- **PO (Adults <60 kg):** 30 mg q 12 hr.
- **PO (Children ≥30 kg):** 30 mg q 12 hr.
- **PO (Children at least 14 days old and <30 kg):** 1 mg/kg q 12 hr (not to exceed 40 mg q 12 hr).
- **PO (Infants birth–13 days):** 0.5 mg/kg q 12 hr.

**Renal Impairment**

- **PO (Adults ≥60 kg):** CCr 26–50 mL/min—20 mg q 12 hr; CCr 10–25 mL/min or Hemodialysis—10 mg q 24 hr.
- **PO (Adults <60 kg):** CCr 26–50 mL/min—15 mg q 12 hr; CCr 10–25 mL/min or Hemodialysis—10 mg q 24 hr.

**NURSING IMPLICATIONS**

- **Assess patient for change in severity of symptoms of HIV infection and for symptoms of opportunistic infections during therapy.
-** Monitor for signs and symptoms of peripheral neuropathy (tingling, burning, numbness, or pain in hands or feet); may be difficult to differentiate from peripheral neuropathy/GR.
- Lactation: Safety not established; avoid breast feeding by HIV-infected mothers because of transmission of the virus in breast milk; concurrent use with didanosine during pregnancy may ↑ the risk of fetal lactic acidosis.
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dine therapy is discontinued promptly or may temporarily worsen after discon-
tinuation of therapy. 

● Assess patient for signs of pancreatitis (nausea, vomiting, abdominal 
pain) periodically throughout therapy. Occurs rarely, but may require discon-
tinuation of therapy. 

● Lab Test Considerations: Monitor viral load CD4 counts before and regularly 
during therapy. 

● Monitor liver function. May cause ↑ levels of AST, ALT, and alkaline 
phosphatase, which usually resolve after interruption of therapy. Lactic 
acidosis may occur with hepatic toxicity causing hepatic steatosis; may 
be fatal, especially in women. 

● May cause ↑ serum amylase and lipase levels. 

Potential Nursing Diagnoses 

Risk for infection (Indications) 

Implementation 

● PO: May be administered without regard to food. 

● Shake solution vigorously before administration. Keep refrigerated; discard un-
used portion after 30 days. 

Patient/Family Teaching 

● Instruct patient to take stavudine as directed. Emphasize the importance of com-
pliance with full course of therapy, not taking more than the prescribed amount, 
and not discontinuing without consulting health care professional. Take missed 
doses as soon as possible unless almost time for next dose. Do not double doses. 

● Caution patient not to share medication with others. 

● Instruct patient to notify health care professional promptly if signs of 
lactic acidosis (unexplained weight loss, abdominal discomfort, nausea, 
vomiting, fatigue, dyspnea, motor weakness), signs of Immune Recon-
istitution Syndrome (signs and symptoms of an infection), peripheral 
neuropathy, or pancreatitis occur. 

● Instruct patient to notify health care professional of all Rx or OTC medications, vi-
tamins, or herbal products being taken and consult health care professional be-
fore taking any new medications. 

● Instruct patient to avoid sexual contact or exposure to infected blood to prevent spreading HIV to others. 

● Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and consult health care professional before taking any new medications. 

● Instruct patient to maintain adequate hydration by drinking at least 1.5 L/day. 

● Instruct patient to notify health care professional promptly if signs of 
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