

# STANDARD DOSING CHART FOR ANTI-HIV DRUGS

A PUBLICATION FROM

PROJECT

*inform*

Information,  
Inspiration and  
Advocacy for People  
Living With HIV/AIDS

APRIL 2004

## General concerns about anti-HIV drugs

### Lipodystrophy

A side effect that *may* be related to anti-HIV therapy is fat maldistribution or body composition changes, commonly called *lipodystrophy syndrome(s)*. This includes sunken cheeks in the face; loss of fat in the arms and legs; loss of shape in the buttocks; breast enlargement; fat pad in the back, or *buffalo hump*; and increase in fat around the gut, or *central or truncal obesity*.

### Mitochondrial toxicity

Mitochondrial toxicity is a side effect that may be caused by NRTIs. Symptoms can include myopathy (muscle cell destruction and weakness), peripheral neuropathy (numbness and tingling in fingers and toes), and pancreatitis (inflammation of the pancreas). One potentially life-threatening outcome of this condition is *lactic acidosis*, a result of abnormally high levels of lactate in the body's cells. In

early stages of lactic acidosis, people experience muscle weakness, shortness of breath, nausea, vomiting and pain in the gut. Another outcome of mitochondrial toxicity is *hepatic steatosis*, or "fatty liver", and often leads to lactic acidosis.

### Bone problems

Other side effects that anti-HIV therapy may cause are *avascular necrosis* and *osteonecrosis*. These are caused by a lack of blood supply in the bone that leads to deterioration and death of bone tissue. This may then lead to the bone fracturing or collapsing.

### Publications

For more information on these topics, read Project Inform's publications, *Lipodystrophy*, *Mitochondrial Toxicity and Lactic Acidosis*, *Bone Complications*, and *Drug Interactions*, available at 1-800-822-7422.

## fusion inhibitors

T20 (Fuzeon, enfuvirtide)

Standard dosing (2x/day):  
one injection = 90mg; total daily dose = 180mg.

DOSE 1 (90mg)



DOSE 2 (90mg)



- Most common side effect—injection site reactions (98%) including redness, pain, itching, swelling and hardened skin at site of injection.

- Rare hypersensitivity reactions have occurred and should be reported immediately to your doctor. Signs include trouble breathing, fever with vomiting and rash, blood in urine and swelling of feet.
- People on T20 in studies got bacterial pneumonia more often than people not on T20.
- No cross resistance.
- No significant drug interactions.

Patient Assistance Program: 1-877-757-6243 (info only), 1-866-694-6670 (to enroll), or [www.rocheusa.com/programs](http://www.rocheusa.com/programs)  
Manufacturer and website: Roche Laboratories/Trimeris; [www.fuzeon.com](http://www.fuzeon.com)

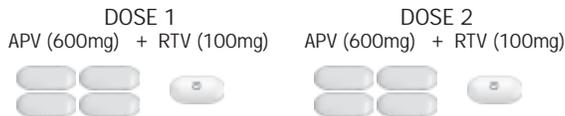
# protease inhibitors

## Amprenavir (Agenerase)

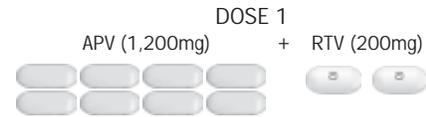
Standard dosing (2x/day):  
one pill = 150mg; total daily dose = 2,400mg.



Ritonavir boosted dosing scheme #1 (2x/day):  
one pill = APV 150mg, RTV 100mg;  
total daily dose = APV 1,200mg, RTV 200mg.



Ritonavir boosted dosing scheme #2 (1x/day):  
one pill = APV 150mg, RTV 100mg;  
total daily dose = APV 1,200mg, RTV 200mg.



- Side effects include rash, fatigue, vomiting, headache and diarrhea.
- Can be taken with or without food.
- People on the oral solution should avoid alcohol.
- Oral solution should not be taken by pregnant women, children under age of four, people with liver or kidney failure, or people taking disulfiram or metronidazole.

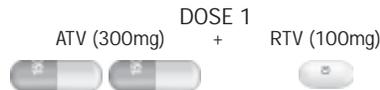
Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treat hiv.com/2.products.html](http://www.treat hiv.com/2.products.html)

## Atazanavir (Reyataz)

Standard dosing (1x/day):  
one pill = 200mg; total daily dose = 400mg.



Ritonavir boosted dosing (1x/day):  
one pill = ATV 150mg, RTV 100mg;  
total daily dose = ATV 300mg, RTV 100mg.



- Once daily dosing.
- Should be taken with food.
- No observed effect on cholesterol and triglycerides.
- Some people (35–47%) get elevated bilirubin levels, which do not indicate liver problems.
- Should not be taken with long acting acid reducers, like Tagamet, Prilosec, Prevacid, etc.
- Dose adjustments needed with efavirenz and ddI.
- Atazanavir has many drug interactions. Consult the prescription packet for more information.
- Atazanavir must be boosted with ritonavir if tenofovir is part of the regimen.

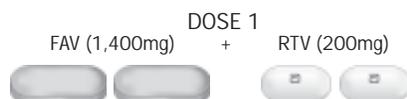
Patient Assistance Program: 1-800-272-4878, 1-877-758-7877, or [http://bmsvirology.com/more\\_info.html#americares](http://bmsvirology.com/more_info.html#americares)  
Manufacturer and website: BristolMyersSquibb; [www.reyataz.com](http://www.reyataz.com)

## Fosamprenavir (Lexiva)

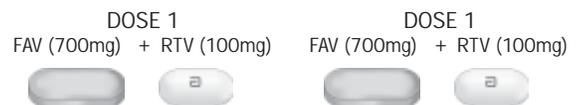
Dosing scheme #1, *without* PI resistance (2x/day):  
one pill = 700mg; total daily dose = 2,800mg.



Dosing scheme #2, *without* PI resistance (1x/day):  
one pill = FAV 700mg, RTV 100mg;  
total daily dose = FAV 1,400mg, RTV 200mg.



Dosing scheme #3, *with/without* PI resistance (2x/day):  
one pill = FAV 700mg, RTV 100mg;  
total daily dose = FAV 1,400mg, RTV 200mg.



- Fosamprenavir converts to amprenavir in the body.
- Similar side effects and resistance to amprenavir.
- **With ritonavir boosting:** refer to dosing schemes #2 or #3 above.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treat hiv.com/2.products.html](http://www.treat hiv.com/2.products.html)

Indinavir (Crixivan)

Standard dosing (3x/day):  
one pill = 400mg; total daily dose = 2,400mg.

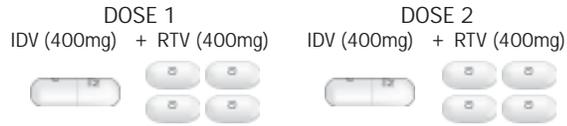


Ritonavir boosted dosing scheme #1 (2x/day):  
one pill = IDV 400mg, RTV 100mg;  
total daily dose = IDV 1,600mg, RTV 400mg.



■ Should be taken on empty stomach, at least 1 hour before or 2 hours after a meal.

Ritonavir boosted dosing scheme #2 (2x/day):  
one pill = IDV 400mg, RTV 100mg;  
total daily dose = IDV 800mg, RTV 400mg.



- Must be taken every 8 hours.
- Most serious side effect is kidney stones. Drink large amounts (8 glasses) of water daily to reduce risk.
- If taken in a combination with ddI, take indinavir at least 1 hour before or 2 hours after ddI.
- Indinavir has many drug interactions. Consult the prescription packet for more information.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: Merck; [www.crixivan.com](http://www.crixivan.com)

Kaletra (lopinavir/ritonavir)

Standard dosing (2x/day):  
one pill = LPV/RTV, 133mg/33mg;  
total daily dose = LPV/RTV, 800mg/200mg.

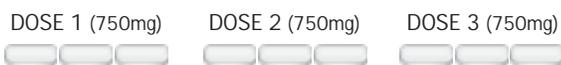


- Most common side effects are diarrhea, nausea, headaches and loss of strength.
- Can be taken with or without food.
- Dose of Kaletra should be increased to four capsules twice a day if taken with efavirenz or nevirapine.
- Kaletra has many drug interactions. Consult the prescription packet for more information.

Patient Assistance Program: 1-800-222-6885, or [www.abbottvirology.com/Pages/Assistance.asp](http://www.abbottvirology.com/Pages/Assistance.asp)  
Manufacturer and website: Abbott Virology; [www.kaletra.com](http://www.kaletra.com)

Nelfinavir (Viracept)

Standard dosing scheme #1 (3x/day):  
one pill = 250mg; total daily dose = 2,250mg.



Standard dosing scheme #2 (2x/day):  
one pill = 250mg; total daily dose = 2,500mg.



Standard dosing scheme #3 (2x/day):  
one pill = 625mg; total daily dose = 2,500mg.

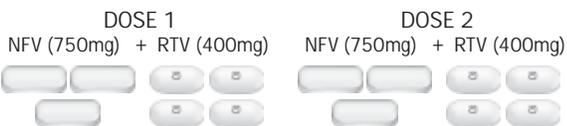


- Should be taken with food.
- Consult your doctor or pharmacist about dosing the oral solution.

Ritonavir boosted dosing scheme #1 (2x/day):  
one pill = NFV 250mg, RTV 100mg;  
total daily dose = NFV 1,000mg, RTV 800mg.



Ritonavir boosted dosing scheme #2 (2x/day):  
one pill = NFV 250mg, RTV 100mg;  
total daily dose = NFV 1,500mg, RTV 800mg.



- Most common side effect is diarrhea, may be controlled with over-the-counter therapies like Imodium or "bulking agents". (Note: Imodium may cause drowsiness, may be useful to take in the evening).

Patient Assistance Program: 1-888-777-6637  
Manufacturer and website: Agouron-Pfizer; [www.viracept.com](http://www.viracept.com)

# protease inhibitors

## Ritonavir (Norvir)

Standard dosing (2x/day):  
one pill = 100mg; total daily dose = 1,200mg.



■ Most common side effects are diarrhea and nausea. Appears worse in first few weeks after starting therapy.

- People with liver dysfunction (hepatitis B or C, etc.) should be cautious when using ritonavir.
- When starting ritonavir, should use 300mg 2x/day for 2 days, 400mg 2x/day for 2 days, 500mg 2x/day for 2 days, and then standard 600mg 2x/day dose.
- Ritonavir has many drug interactions. Consult the prescription packet for more information.
- Consult your doctor or pharmacist about dosing of oral solution.

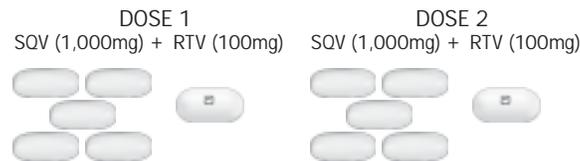
Patient Assistance Program: 1-800-222-6885, or [www.abbottvirology.com/Pages/Assistance.asp](http://www.abbottvirology.com/Pages/Assistance.asp)  
Manufacturer and website: Abbott Virology; [www.norvir.com](http://www.norvir.com)

## Saquinavir

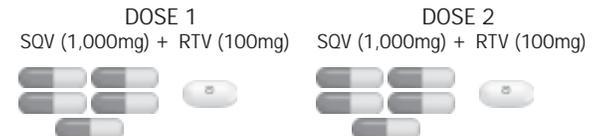
Saquinavir sgc (Fortovase) standard dosing (3x/day):  
one pill = 200mg; total daily dose = 3,600mg.



Ritonavir boosted dosing for Fortovase (2x/day):  
one pill = SQV 200mg, RTV 100mg;  
total daily dose = SQV 2,000mg, RTV 200mg.



Ritonavir boosted dosing for Invirase (2x/day):  
one pill = SQV 200mg, RTV 100mg;  
total daily dose = SQV 2,000mg, RTV 200mg.



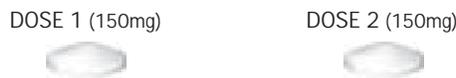
- Both versions should be taken with food, preferably within 2 hours of a high fat meal.
- Side effects of both are relatively rare. Most common include diarrhea and nausea.
- Saquinavir has many drug interactions. Consult the prescription packet for more information.
- Invirase should only be used boosted with ritonavir.

Patient Assistance Program: 1-877-757-6243, or [www.rocheusa.com/programs/patientassist.asp](http://www.rocheusa.com/programs/patientassist.asp)  
Manufacturer and website: Roche Pharmaceuticals; [www.fortovase.com](http://www.fortovase.com); [www.rocheusa.com/products/invirase](http://www.rocheusa.com/products/invirase)

# nucleoside (NRTI) and nucleotide (NtRTI) reverse transcriptase inhibitors

## 3TC (Epivir, lamivudine)

Standard dosing (2x/day):  
one pill = 150mg; total daily dose = 300mg.



- Can be taken with or without food.
- Side effects associated with 3TC are rare, but may include headaches, nausea, general sense of feeling ill, diarrhea, anemia and hair loss.
- Consult your doctor or pharmacist about dosing the oral solution.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treathiv.com/2.products.html](http://www.treathiv.com/2.products.html)

# nucleoside (NRTI) and nucleotide (NtRTI) reverse transcriptase inhibitors

Abacavir (Ziagen)

Standard dosing (2x/day):  
one pill = 300mg; total daily dose = 600mg.



- Can be taken with or without food.
- Should not be used together with tenofovir.

- Most common side effects include nausea, vomiting, headache and fatigue.
- About 5% of people develop a hypersensitivity to abacavir, resulting in flu-like symptoms or respiratory involvement including shortness of breath, cough or inflammation of the pharynx. If this occurs, contact your doctor immediately; abacavir (or Trizivir) should be stopped immediately. Do not start taking abacavir (or Trizivir) again as this can lead to severe side effects.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treathiv.com/2.products.html](http://www.treathiv.com/2.products.html)

AZT (Retrovir, zidovudine)

Standard dosing scheme #1 (3x/day):  
one pill = 100mg; total daily dose = 600mg.



Standard dosing scheme #2 (2x/day):  
one pill = 300mg; total daily dose = 600mg.

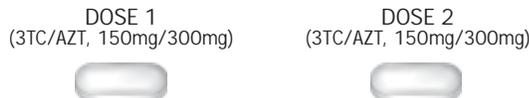


- Can be taken with or without food.
- Most common side effects are headache, nausea and general sense of feeling ill. Side effects usually diminish after six to eight weeks of therapy.
- Should not be used together with d4T.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treathiv.com/2.products.html](http://www.treathiv.com/2.products.html)

Combivir (3TC/AZT)

Standard dosing (2x/day):  
one pill = 3TC/AZT, 150mg/300mg;  
total daily dose = 3TC/AZT, 300mg/600mg.



- Should not be used by people who weigh less than 40kg (88lbs) or who have liver or kidney dysfunction.
- Can be taken with or without food.
- See comments in AZT and 3TC sections.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treathiv.com/2.products.html](http://www.treathiv.com/2.products.html)

d4T (Zerit, stavudine)

Standard dosing (2x/day):  
one pill = 40mg; total daily dose = 80mg.



- Can be taken with or without food.
- Most common side effect is pain/tingling in feet and/or hands (*peripheral neuropathy*). May cause anemia.

- Rare incidence of pancreatitis has been observed. Symptoms include sharp pain in upper abdomen, nausea and vomiting. Stop drug immediately if this occurs. Alcohol use increases risk of pancreatitis.
- Using ddI or hydroxyurea may increase the risk for pancreatitis.
- Should not be used together with AZT or ddI or by pregnant women or by women who are planning to conceive.

Patient Assistance Program: 1-800-272-4878, 1-877-7587877, or [http://bmsvirology.com/more\\_info.html#americares](http://bmsvirology.com/more_info.html#americares)  
Manufacturer and website: Bristol-Myers Squibb; [www.zerit.com](http://www.zerit.com)

# nucleoside (NRTI) and nucleotide (NtRTI) reverse transcriptase inhibitors

## ddC (Hivid, zalcitabine)

Standard dosing (3x/day):  
one pill = 0.75mg; total daily dose = 2.25mg.

DOSE 1 (.75mg)      DOSE 2 (.75mg)      DOSE 3 (.75mg)



■ Most common side effects include pain/tingling in feet and/or hands (*peripheral neuropathy*), low platelets (*thrombocytopenia*) and mouth sores.

- Can be taken with or without food.
- Most serious side effect is pancreatitis, which has been fatal in some people. Symptoms include sharp pain in upper abdomen, nausea and vomiting. Stop drug immediately and consult a doctor if this occurs. Alcohol use increases risk of pancreatitis.
- Consult your doctor or pharmacist about dosing the oral solution.
- Should not be used with ddI EC, ddI or d4T.

Patient Assistance Program: 1-877-757-6243, or [www.rocheusa.com/programs/patientassist.asp](http://www.rocheusa.com/programs/patientassist.asp)  
Manufacturer and website: Roche Pharmaceuticals; [www.rocheusa.com/products/hivid](http://www.rocheusa.com/products/hivid)

## ddI EC & ddI

ddI EC (Videx EC, didanosine EC)  
standard dosing #1 (1x/day):  
one pill = 400mg; total daily dose = 400mg.

DOSE 1 (400mg)



ddI EC (Videx EC, didanosine EC)  
standard dosing #2 (1x/day, see notes):  
one pill = 250mg; total daily dose = 250mg.

DOSE 1 (250mg)



ddI (Videx, didanosine) dosing scheme #1 (2x/day):  
one pill = 100mg; total daily dose = 400mg.

DOSE 1 (200mg)      DOSE 2 (200mg)



ddI (Videx, didanosine) dosing scheme #2 (1x/day):  
one pill = 200mg; total daily dose = 400mg.

DOSE 1 (400mg)



### **ddI EC and ddI:**

- Most serious side effect is pancreatitis, which has been fatal in some people. Symptoms include sharp pain in upper abdomen, nausea and vomiting. Stop drug immediately and consult a doctor if this occurs. Alcohol use increases risk of pancreatitis.
- Must be taken on an empty stomach without food.
- When used with hydroxyurea, may increase the risk for pancreatitis.
- Most common side effects include increased uric acid levels (a measure of kidney function), headaches, sleeplessness, diarrhea and pain/tingling in feet and/or hands (*peripheral neuropathy*).
- People under 60kg (132 lbs.) should use 250mg once a day.
- When used with tenofovir, the ddI EC dose should be changed to 250mg.
- People with kidney dysfunction should consult their doctors about dosing.
- ddI EC and ddI should not be used together with d4T or ddC or by pregnant women or by women who are planning to conceive.
- Dose adjustments needed when used with atazanavir.

### **ddI only:**

- Cannot be taken within two hours of drugs which require an acidic stomach environment, including many protease inhibitors and common therapies, such as dapson.
- 2/x day dosing is recommended over 1x/day.

Patient Assistance Program: 1-800-272-4878, 1-877-7587877, or [http://bmsvirology.com/more\\_info.html#americares](http://bmsvirology.com/more_info.html#americares)  
Manufacturer and website: Bristol-Myers Squibb; [www.videxec.com](http://www.videxec.com)

# nucleoside (NRTI) and nucleotide (NtRTI) reverse transcriptase inhibitors

FTC (Emtriva, emtricitabine)

Standard dosing (1x/day):  
one pill = 200mg; total daily dose = 200mg.

DOSE 1 (200mg)



- Taken once daily.
- Side effects from FTC are rare, with headache, diarrhea, nausea, and rash the most common.
- Close cousin to 3TC.
- Cross resistant to 3TC and ddC.
- No significant drug interactions.

Patient Assistance Program: 1-800-226-2056, or [www.gilead.com/wt/sec/patient\\_assist](http://www.gilead.com/wt/sec/patient_assist)  
Manufacturer and website: Gilead Sciences; [www.emtriva.com](http://www.emtriva.com)

Tenofovir (Viread)

Standard dosing (1x/day):  
one pill = 300mg; total daily dose = 300mg.

DOSE 1 (300mg)



- Should be taken with food.
- Potential side effect is kidney dysfunction.

- Should be used with caution with other drugs that are eliminated by the kidneys, such as ganciclovir and valacyclovir.
- When used with atazanavir, atazanavir must be boosted with ritonavir.
- Should not be used together with abacavir.
- The combination of tenofovir and ddI should be used with caution as it increases the blood levels of ddI. Monitor for ddI side effects.

Patient Assistance Program: 1-800-226-2056, or [www.gilead.com/wt/sec/patient\\_assist](http://www.gilead.com/wt/sec/patient_assist)  
Manufacturer and website: Gilead Sciences; [www.viread.com](http://www.viread.com)

Trizivir (3TC/AZT/ABV)

Standard dosing (2x/day):  
one pill = 3TC/ABV/AZT, 150mg/300mg/300mg;  
total daily dose = 3TC/ABV/AZT, 300mg/600mg/600mg.

DOSE 1  
(3TC/ABV/AZT,  
150mg/300mg/300mg)



DOSE 2  
(3TC/ABV/AZT,  
150mg/300mg/300mg)



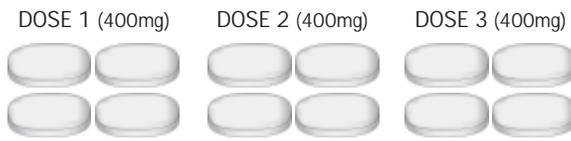
- Should not be used by people who weigh less than 40kg (88 lbs.) or who have liver or kidney dysfunction.
- Can be taken with or without food.
- See comments in AZT, 3TC and abacavir sections.
- About 5% of people develop a hypersensitivity to abacavir, resulting in flu-like symptoms or respiratory involvement including shortness of breath, cough or inflammation of the pharynx. If this occurs, contact your doctor immediately; Trizivir should be stopped immediately. Do not start taking Trizivir again as this can lead to severe side effects.

Patient Assistance Program: 1-866-728-4368, or <http://bridgestoaccess.gsk.com>  
Manufacturer and website: GlaxoSmithKline; [www.treathiv.com/2.products.html](http://www.treathiv.com/2.products.html)

# non-nucleoside reverse transcriptase inhibitors (NNRTIs)

## Delavirdine (Rescriptor)

Standard dosing scheme #1 (3x/day):  
one pill = 100mg; total daily dose = 1,200mg.



Standard dosing scheme #2 (3x/day):  
one pill = 200mg; total daily dose = 1,200mg.



- Delavirdine has many drug interactions. Consult the prescription packet for more information.
- Can be taken with or without food. Can be dissolved in water or other liquids if drunk immediately.
- Most serious side effect is severe rash, which may require hospitalization. Rash usually occurs within first 3 weeks of starting drug. Mild rashes can be managed with antihistamines or topical agents.

Patient Assistance Program: 1-888-777-6637  
Manufacturer and website: Agouron-Pfizer; www.rescriptor.com

## Efavirenz (Sustiva)

Standard dosing scheme #1 (1x/day):  
one pill = 200mg; total daily dose = 600mg.



Standard dosing scheme #2 (1x/day):  
one pill = 600mg; total daily dose = 600mg.



- Should be taken on an empty stomach.
- Most common side effect include neurological symptoms (primarily sleep disturbances, dizziness, drowsiness and lack of concentration).
- Should be taken at night to reduce likelihood of neurological side effects [using lorazepam (Ativan) or Benadryl may also help].
- Should not be taken by pregnant women.
- Dose adjustments needed when used with atazanavir.
- Interacts with many protease inhibitors. Consult the prescription packet for information.

Patient Assistance Program: 1-800-272-4878, 1-877-758-7877, or [http://bmsvirology.com/more\\_info.html#americares](http://bmsvirology.com/more_info.html#americares)  
Manufacturer and website: Bristol-Myers Squibb; www.sustiva.com

## Nevirapine (Viramune)

Standard dosing (2x/day):  
one pill = 200mg; total daily dose = 400mg.



- Small (4%) chance of serious liver toxicity. Most liver problems occur during the first 18 weeks of therapy, but can happen at any time. Women and people with high CD4+ cell counts may be at increased risk.

- Another serious side effect is severe rash, which may require hospitalization. Rash usually occurs within first 3 weeks of starting drug. Mild rashes can be managed with antihistamines or topical agents.
- Dose is escalated over first 2 weeks, typically beginning at 1x200mg tablet daily increased to 2x200mg tablets after 14 days.
- Can be taken with or without food.
- Consult your doctor or pharmacist about dosing for the oral solution.

Patient Assistance Program: 1-800-556-8317, or  
[http://us.boehringer-ingenheim.com/about/philanthropy/Patient\\_Assistance\\_Program.html](http://us.boehringer-ingenheim.com/about/philanthropy/Patient_Assistance_Program.html)  
Manufacturer and website: Boehringer-Ingelheim; www.viramune.com