



MODULE 3 : NURSING CARE

A COMPREHENSIVE GUIDE FOR THE CARE OF PERSONS WITH HIV DISEASE

PHARMACOLOGIC TREATMENT OF HIV/AIDS UPDATE OCTOBER 2000

FOREWORD:

Find enclosed an updated version of the Appendix 6 of Module 3: NURSING CARE. A comprehensive guide for the care of persons with HIV disease.

I am pleased to present you with this much-needed revision of the section on most currently used medications in HIV treatment. It is a condensed yet comprehensive reference tool. You will no doubt find it useful regardless of your scope of practice.

The number of pages dedicated to medications seems to have quadrupled since the first edition. This demonstrates the tremendous changes in the treatment of HIV infection in the past five years. The information in such a specialized field is continuously changing due to medical research and the approval of new antiretroviral drugs. Therefore I recommend that you do not restrict yourself to this reference alone.

The charts have the advantage of providing you with quick access and yet detailed information on each medication. The 3 ring binder format will facilitate the removal or addition of new material in an effort to keep the information up to date. This document is available on CANAC/ACIIS website. Feel free to download any extra copy you might need. All updates of this document will be also available to you on the website.

I want to thank the author Rachel Therrien, pharmacist from UHRESS (Unité Hospitalière de recherche, d'enseignement et de soins pour le sida) of the Centre hospitalier de l'Université de Montréal, Pavillon Hôtel-Dieu as well as the translators and reviewers Pierre Giguère and Lien Huang, both clinical pharmacists at the Immunodeficiency Clinic of the Ottawa Hospital for their contribution.

I hope that this resource will help you caring for people with HIV. Do not hesitate to share it with your colleagues.

Yours truly,

Diane Fillion
President
Canadian Association of Nurses in AIDS Care (CANAC)
October 2000

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Readers are cautioned that therapies in the field of HIV are constantly evolving. This publication is provided for reference only. It should not replace the discretion and judgement of the individual caregivers in the care of the persons with HIV.

APPENDIX 6: MEDICATIONS COMMONLY USED IN HIV INFECTION

The table below deals with the most common drugs used in the prevention and treatment of HIV infection, and the treatment of most opportunistic infections. Also are reported generic and trade names, general side effects, drug interactions and some specific recommendations.

Doses are derived from a national literature review. In many instances, it is necessary to refer to the practitioner.

HIV INFECTION				
Nucleoside reverse transcriptase inhibitors (NRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
Abacavir (ABC or ABV) <i>Ziagen</i> [®]	Treatment : 300 mg (1 tablet of 300 mg or 15 mL of oral solution 20 mg/mL) twice daily	Nausea/vomiting, malaise and fatigue, headache, diarrhea, anorexia, abdominal bloating, fever, rash +/- pruritis. Hypersensitivity reaction (3%) The reaction is characterized by general symptoms involving several organs. Occurs generally within first 6 weeks – average onset: 11 days. Most frequent signs and symptoms: fever, gastrointestinal side effects (nausea, vomiting, diarrhea and abdominal pain), respiratory manifestations (pharyngitis, shortness of breath and cough), rash, lethargy or malaise. Lactic acidosis and hepatic steatosis (rare but potentially life threatening)	Alcohol: \downarrow 41% AUC abacavir. No effect on [] alcohol. No dosing adjustment required. Amprenavir: \uparrow 29% AUC amprenavir. No dosing adjustment required.	It is mandatory to provide patients with initial and repeat prescription of abacavir with counselling document and warning card describing signs and symptoms of hypersensitivity reactions. Advise patients to always carry the warning card on them. Patient must never rechallenge treatment with abacavir if a hypersensitivity shall occur since life-threatening hypotension reaction can develop within hours after rechallenge and can lead to death. Patients suspecting hypersensitivity reaction must stop abacavir and contact their doctor immediately.

AUC: Area under the curve
 [] : Serum concentration

HIV INFECTION				
Non-nucleoside reverse transcriptase inhibitors (NNRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
Delavirdine (DLV) <i>Rescriptor</i> [®]	Treatment : 400 mg (4 tablets of 100 mg) 3 times daily or 600 mg (6 tablets of 100 mg) twice daily	<p>Rash (generally 1 to 3 weeks after initiation of treatment and resolve within 2 weeks). Majority of rash is mild and can be managed with the use of topical or oral antihistamines or steroids.</p> <p>If the reaction is severe (fever, swelling, blisters, aphthous ulcers, eye redness, general malaise, muscle and joint aches), advise to stop delavirdine and contact immediately your doctor.</p> <p>Headache, elevation of liver enzymes, fatigue, gastrointestinal adverse effects (nausea, diarrhea).</p>	<p>Antacids: <input type="checkbox"/> 40%AUC DLV. Administer DLV at least 1 hour before antacids.</p> <p>Medications <input type="checkbox"/> gastric pH such as cimetidine, famotidine, lansoprazole, nizatidine, omeprazole, pantoprazole, and ranitidine: Possible <input type="checkbox"/> absorption of DLV. Avoid prolonged use of these drugs or use only if absolutely needed; mix with acidic beverage or take acidic beverage 15 minutes before DLV (lemon, orange, cranberry juices, cola) to enhance absorption.</p> <p>Anticonvulsants (carbamazepine, phenobarbital, phenytoin): ↓ <input type="checkbox"/> DLV Alternatives (if adequate): gabapentin, vigabatrin, lamotrigine, and valproic acid or monitor closely clinical response.</p> <p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible <input type="checkbox"/> of antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternative (with caution): atorvastatin, cerivastatin, and fluvastatin. Pravastatin would be the safest choices.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam, triazolam: <input type="checkbox"/> benzodiazepines. Risk of excessive sedation and respiratory depression. Alternatives: lorazepam, oxazepam, and temazepam.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil: <input type="checkbox"/> calcium channel blockers. Might need to reduce the dose of calcium channel blockers.</p> <p>Cisapride: <input type="checkbox"/> cisapride and risk of cardiotoxicity. Alternative: metoclopramide, domperidone.</p>	<p>If patient complains of difficulty swallowing, it is suggested to dissolve the tablets in approximately 90mL (3 ounces) of water. Delavirdine dissolved as above or taken with an acidic beverage (orange juice, tomato juice, cranberry juice, lemonade, cola, etc) 15 minutes prior, can improve its absorption and efficacy.</p> <p>Teach patient to consult rapidly if a severe rash associated with constitutional symptoms should occur.</p>

HIV INFECTION				
Non-nucleoside reverse transcriptase inhibitors (NNRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
<p>Delavirdine (DLV) <i>Rescriptor</i>[®]</p> <p>Continued...</p>			<p>Clarithromycin: _ 44% AUC DLV, _ 100% AUC clarithromycin and _ 75% AUC 14-hydroxy-clarithromycin metabolite. Significant _ activity against <i>H. Influenza</i>. To avoid or to monitor closely signs et symptoms of DLV toxicity. Consider alternatives for the treatment of <i>H. Influenza</i> infection.</p> <p>Didanosine (ddI): _ _ 20% AUC DLV and _ _ 20% AUC ddI. Administer DLV at least 1 hour before ddI.</p> <p>Ergotamine, dihydroergotamine: _ [] of these drugs and _ risk for ergotism. Alternative: sumatriptan, rizatriptan and zolmitriptan. Use cautiously naratriptan.</p> <p>Fluoxetine: _ 50% AUC DLV. Clinical significance unknown.</p> <p>Indinavir: _ 40% AUC indinavir. ↑ 2-5 times C_{min} of indinavir. C_{min} believed to be responsible of clinical efficacy. Could _ dose of indinavir to 600 mg every 8 hours. Others suggest to maintain indinavir 800 mg every 8 hours or 1200 mg every 12 hours, when given concomitantly with DLV 600 mg BID.</p> <p>Ketoconazole: _ 50% AUC DLV. Clinical significance unknown.</p> <p>Methadone: Possible _ methadone []. To monitor.</p>	

HIV INFECTION				
Non-nucleoside reverse transcriptase inhibitors (NNRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
<p>Delavirdine (DLV) <i>Rescriptor</i>[®]</p> <p>Continued...</p>			<p>Nelfinavir: _ 92% AUC nelfinavir (2 times), _ 58% AUC DLV. _ 40-50 % active metabolite of nelfinavir. Monitor signs and symptoms of neutropenia (_ incidence by 20% with that combination).</p> <p>Rifabutin: _ > 200% AUC rifabutin. _ 80% AUC DLV. Contraindicated / Alternative: MAC Prophylaxis : azithromycin, clarithromycin MAC treatment: clarithromycin, azithromycin or ethambutol.</p> <p>Rifampin: _ 96 % AUC DLV. Contraindicated.</p> <p>Ritonavir: _ 60 % AUC ritonavir. No dose adjustment is recommended.</p> <p>Saquinavir: _ 420% (5 times) AUC SQV. No dose adjustment is usually recommended. ↑ liver enzymes noted in 13% of patients.</p> <p>Sildenafil: Possible _ sildenafil []. Start with initial dose of 25 mg and titrate up until clinical response or onset of side effects.</p> <p>Warfarin: Possible _ warfarin []. To monitor prothrombin time.</p>	

HIV INFECTION				
Nucleoside reverse transcriptase inhibitors (NRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
<p>Didanosine (ddI) <i>Videx</i>[®]</p>	<p>Treatment : Adult, according to weight :</p> <p><60 kg : 125 mg (1 tablet of 25mg + 1 tablet of 100mg) twice daily on an empty stomach</p> <p>or 300 mg (2 tablets of 150 mg) once daily on an empty stomach or 250 mg (2 tablets of 100 mg + 1 tablet of 50mg) once daily on an empty stomach</p> <p>>60 kg : 200 mg (2 tablets of 100 mg) twice daily on an empty stomach</p> <p>or 400 mg (2 tablets of 150mg + 1 tablet of 100 mg) once daily on an empty stomach</p>	<p>Diarrhea, abdominal pain, nausea, vomiting, pancreatitis, peripheral neuropathy.</p> <p>Lactic acidosis and hepatic steatosis (not common but potentially life-threatening).</p>	<p>Didanosine (ddI): _ ciprofloxacin, ofloxacin, tetracycline, doxycycline, ketoconazole, itraconazole and indinavir absorption.</p> <p>Administer ciprofloxacin, ofloxacin, tetracycline, doxycycline, ketoconazole and itraconazole 2 hours before or 6 hours after ddI. Administer indinavir at least 1 hour before ddI</p> <p>To enhance the itraconazole or ketoconazole absorption: suggest to take it with food or drink an acidic beverage (Orange juice, lemonade, cranberry juice or cola) 15 minutes before itraconazole or ketoconazole.</p> <p>Delavirdine : see delavirdine</p> <p>Ganciclovir: _ 50-70% [] ddI. Monitor new onset of ddI side effects.</p> <p>Isoniazid: Possible _ [] isoniazid. Administer isoniazid 2 hours before or 6 hours after ddI.</p> <p>Metronidazole, ddC, d4T, isoniazid, phenytoin, ethambutol and other drugs with a risk of peripheral neurotoxicity: _ risk of peripheral neuropathy.</p> <p>Methadone: _ 41% AUC ddI. No significant effect on AUC methadone. Monitor clinical efficacy of ddI. Increase of ddI dose might be needed.</p> <p>Pentamidine, corticosteroids and other drugs that can induce pancreatitis: _ risk of pancreatitis.</p>	<p>ddI must be administered on an empty stomach (1 hour before and or 2 hours after a meal).</p> <p>Advice patients to avoid taking ddI with an acidic beverage such orange juice, grapefruit juice, tomato juice, cranberry juice, lemonade, cola, etc. Acidic beverage can decrease ddI absorption.</p> <p>Tablets must be chewed, crushed or dispersed in 30 mL (1 ounce or 2 tablespoons) of water or apple juice (to improve the taste) before swallow them. Dissolved tablets are stable 1 hour at room temperature.</p> <p>Tablets must not be swallowed in a whole.</p> <p>Regardless of the dose, a minimum of 2 tablets (except for children) must be taken to ensure a sufficient amount of antacid for maximal absorption of ddI.</p> <p>Counsel patient to avoid excessive amount or chronic use of alcohol because of the risk for pancreatitis.</p>

HIV INFECTION				
Non-nucleoside reverse transcriptase inhibitors (NNRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
<p>Efavirenz (EFV) Sustiva®</p>	<p>Treatment : 600 mg (3 capsules of 200 mg) once daily, preferentially at bedtime.</p> <p>If the patient have drunkenness feeling, the following morning, suggest to take EFV at dinner.</p>	<p>Rash (usually within the first 2 weeks after initiation of treatment and resolve within another 2 weeks). Majority of rash is mild and can be managed with the use of topical or oral antihistamines or steroids.</p> <p>Dizziness, insomnia, drowsiness, difficulty to concentrate, vivid dreams. These effects on the central nervous system occur generally within the first two days of treatment and resolve after 2 to 4 weeks. Bedtime administration could decrease the duration and possibly could improve the tolerance to these symptoms. If the patient have drunkenness feeling, the following morning, suggest to take EFV at dinner</p> <p>Elevation of liver enzymes.</p> <p>Rarely, gastrointestinal symptoms (nausea, vomiting, diarrhea and flatulence), hypertriglyceridemia and hypercholesterolemia, fatigue.</p>	<p>Anticonvulsants: carbamazepine, phenobarbital, phenytoin: Possible _ [] EFV. To avoid. Alternative (if appropriated): gabapentin, vigabatrin, lamotrigine, valproic acid or monitor closely clinical efficacy of EFV.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, lorazepam, diazepam, estazolam, flurazepam, midazolam triazolam: Possible _ [] benzodiazepines. Alternative: lorazepam, oxazepam, and temazepam.</p> <p>Cisapride: possible _ [] cisapride and _ risk of cardiac toxicity. Alternative: metoclopramide, and domperidone</p> <p>Clarithromycin: _ 39% AUC clarithromycin. Alternative: azithromycin for MAC prophylaxis or treatment.</p> <p>Oral contraceptives (ethinylestradiol) : _ 37% AUC ethinylestradiol. The efficacy of oral contraceptives with ethinylestradiol is not believed to be compromised by efavirenz.</p> <p>Indinavir: _ 31% AUC indinavir. Suggest to _ dose of indinavir from 800 to 1000 mg every 8 hours.</p> <p>Methadone: _ up to 60% AUC methadone. Monitor signs or symptoms of withdrawal, especially 1 week after the initiation of efavirenz. Dose adjustment of methadone might be warranted.</p> <p>Nelfinavir: _ 15-20% AUC nelfinavir. _ 37% AUC active metabolite of nelfinavir. Clinical significance unknown. No dose adjustment is recommended.</p>	<p>Teach patient to consult rapidly if a severe rash associated with constitutional symptoms should occur.</p> <p>Advice patient not to give up treatment before the first 2 to 4 weeks of initiation.</p> <p>Efavirenz can be taken with or without food. It is suggested to take it preferentially at bedtime to decrease CNS side effects.</p> <p>However, if the patient complains of hangover the following morning, take EFV at dinner.</p> <p>It is suggested to avoid taking EFV with a high fat meal, which may result in an increased bioavailability by 50% and therefore potentially increase side effects.</p> <p>Efavirenz can interfere with cannabinoid assay resulting in false positive reading.</p>

HIV INFECTION				
Non-nucleoside reverse transcriptase inhibitors (NNRTI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
<p>Efavirenz (EFV) <i>Sustiva</i>[®]</p> <p>Continued...</p>			<p>Rifabutin: _ 38% AUC rifabutin. Suggest to _ rifabutin dose by 50% to 450-600 mg daily or 600mg 2-3 times weekly. Alternative: MAC prophylaxis: azithromycin; MAC treatment: azithromycin, ethambutol. Avoid clarithromycin with efavirenz.</p> <p>Rifampin: _ 26% AUC EFV. Clinical significance unknown. Some authors suggest to increase EFV to 800mg daily. The use of rifampin 600 mg once daily or 600 mg 2-3 times weekly with efavirenz is an option. However, this combination has not been extensively used clinically.</p> <p>Ritonavir: _ 18% AUC ritonavir and _ 21 % AUC EFV. No dose adjustment is recommended. If side effects due to ritonavir are suspected, consider reducing the dose of ritonavir to 500 mg BID.</p> <p>Saquinavir: _ 60% AUC saquinavir (Invirase or Fortovase). Contraindicated. Efavirenz may be used with saquinavir if in combination with ritonavir.</p> <p>Warfarin: Possible _ or ↓ warfarin [] . To monitor prothrombin time.</p>	

MAC: Mycobacterium avium complex

HIV INFECTION				
Ribonucleotide reductase inhibitor				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
Hydroxyurea (HU) <i>Hydrea</i> [®]	Treatment : Usual dose : 500 mg twice daily Under investigation : 1000 mg twice daily or 1000 mg daily	Neutropenia, anemia, erythrocytes abnormalities, nausea, vomiting, diarrhea, constipation, anorexia, stomatitis, maculopapular rash, facial erythema, peripheral erythema, skin ulcers, alopecia (rare), somnolence, headaches (rare), dizziness, confusion, hallucinations, convulsions, increase of serum uric acid and creatinine.	Bone marrow suppressant drugs (amphotericin B, cotrimoxazole, sulfadiazine, pyrimethamine, primaquine): _ risk of hematological toxicity. Monitor closely CBC. Uricosuric drugs: Possible _ of serum uric acid. Adjust the dose of uricosuric drugs.	Capsules may be opened and dissolved extemporaneously in water in case of difficulty swallowing.

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Indinavir (IDV) <i>Crixivan</i> [®]	<p>Treatment : 800 mg (2 capsules of 400 mg) every 8 hours, on an empty stomach or with a light snack.</p> <p><i>With ritonavir :</i> Indinavir: 400 mg (1 capsule of 400 mg) BID with or without food</p> <p>+ Ritonavir: 400 mg (4 capsules of 100 mg or 5 mL of oral solution) BID</p> <p>or</p> <p>Indinavir: 800 mg (2 capsules of 400 mg) BID with or without food</p> <p>+ Ritonavir: 100-200 mg (1-2 capsule(s) of 100 mg or 1,25-2,5 mL of oral solution) twice daily</p> <p><i>With nelfinavir:</i> Indinavir: 1200 mg (3 capsules of 400 mg) BID on an empty stomach or with a light snack</p> <p>+ Nelfinavir: 1250 mg (5 capsules of 250 mg) BID with food.</p>	<p>Nephrolithiasis, nausea, abdominal cramps, vomiting, diarrhea, flatulence, taste alteration, headache, fatigue, insomnia, increase liver transaminases, hyperbilirubinemia (asymptomatic and of no importance), rash.</p> <p>Lipodystrophy syndrome, hyperglycemia, hypertriglyceridemia, hypercholesterolemia.</p>	<p>Anticonvulsants: carbamazepine, phenobarbital, phenytoin: Possible _ [] IDV. To avoid / Alternative (if appropriated) : gabapentin, vigabatrin, lamotrigine, valproic acid or monitor closely clinical efficacy of IDV.</p> <p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] of antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternative (with caution): atorvastatin, and cerivastatin. Pravastatin and fluvastatin would be the safest ones to use concomitantly with indinavir.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam triazolam: _ [] benzodiazepines. To avoid / Alternative: lorazepam, oxazepam, and temazepam. Midazolam and triazolam are contraindicated.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil: _ [] calcium channel blockers. Might need to reduce the dose of calcium channel blockers.</p> <p>Cisapride: _ [] cisapride and _ risk of cardiotoxicity. Alternative: metoclopramide, and domperidone.</p> <p>Clarithromycin: _ AUC clarithromycin by 53%. Adjust dose of clarithromycin in situation of renal dysfunction (<60 mL /min).</p> <p>Delavirdine: see delavirdine.</p> <p>Didanosine (ddI): see didanosine.</p>	<p>Indinavir (not in association with ritonavir) must be taken on an empty stomach (1 hour before or 2 hours after a meal). The absorption of indinavir is reduced by 78% when the drug is taken with a meal high in fat, calories or proteins.</p> <p>If patient complains of gastrointestinal side effects, it is allowed to take indinavir with a light snack low in fat (maximum 2g), low in proteins (maximum 6 g) and intermediate in calories (maximum 310 Kcal).</p> <p>Advise patient to maintain a good hydration with a minimum of 1,5 liter (48 ounces) (8 to 10 glasses) of water or other type of fluid per day to prevent nephrolithiasis. Increase hydration during hot summertime, period of exercise or if fever.</p> <p>It is recommended to drink specifically 2 hours after a dose and at bedtime.</p> <p>Recommend to avoid chronic or excessive intake of alcohol. Alcohol can increase risk of hepatotoxicity.</p> <p>When indinavir is used as the single protease inhibitor within a drug regimen, it is important to respect a strict 8-hour interval.</p>

HIV INFECTION Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Indinavir (IDV) <i>Crixivan</i> [®] Continued...	With rifabutin: Indinavir: 1000-1200 mg every 8 hours on an empty stomach or with a light snack + Rifabutin: 150 mg (1 capsule of 150 mg) once daily With nevirapine or efavirenz: Indinavir: 1000 mg (2 capsules of 400 mg + 1 capsule of 200 mg) every 8 hours on an empty stomach or with a light snack		Dihydroergotamine, ergotamine: Possible <input type="checkbox"/> of these agents and <input type="checkbox"/> risk of ergotism. To avoid. Alternative: sumatriptan, and rizatriptan. Use with caution naratriptan. Efavirenz: see efavirenz. Ketoconazole: <input type="checkbox"/> 68% AUC indinavir. <input type="checkbox"/> dose of indinavir to 600 mg every 8 hours. Nelfinavir : <input type="checkbox"/> 83% AUC nelfinavir and <input type="checkbox"/> 51% AUC IDV IDV 1200 mg BID with nelfinavir 1250 mg BID = IDV 800 mg every 8 hours. Combination actually on study. Methadone: Possible <input type="checkbox"/> <input type="checkbox"/> methadone. To monitor. Nevirapine: <input type="checkbox"/> 28% AUC IDV. <input type="checkbox"/> dose of IDV to 1000 mg every 8 hours. Rifabutin: <input type="checkbox"/> 204% AUC rifabutin. <input type="checkbox"/> 32% AUC IDV. ↓ dose of rifabutin by 50% (150 mg daily or 300mg 2-3 times weekly) and <input type="checkbox"/> dose of IDV to 1000-1200 mg every 8 hours . Alternative: MAC prophylaxis azithromycin, and clarithromycin; MAC treatment clarithromycin, azithromycin, and ethambutol. Rifampin: <input type="checkbox"/> 92% AUC IDV. Contraindicated. Alternative: rifabutin 150 mg daily or 300mg 2-3 times weekly with IDV 1000-1200 mg every 8 hours. Ritonavir: <input type="checkbox"/> IDV AUC by 2-5 times (<input type="checkbox"/> efficacy and possibly ↓ side effects). Combination may be taken twice daily with or without food.	Keep indinavir capsules within the original container in a dry, cool and shade area. (15-30 C). It is recommended not to place indinavir capsules more than 24 hours ahead of time in a pillbox.

HIV INFECTION Protease inhibitors (PI)				

HIV INFECTION				
Protease inhibitors (PI)				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
Indinavir (IDV) <i>Crixivan</i> [®] Continued...			Saquinavir: _ AUC saquinavir (Invirase [®]) by 4 to 7 times _ AUC saquinavir (Fortovase [®]) by 7 times. Combination not recommended for now. Sildenafil: _ AUC sildenafil by 4 times with one single dose of 25 mg. Start with initial dose of 12.5 mg and titrate up until response or onset of side effects. Do not take more than one or twice weekly. Warfarin: Possible _ []warfarin. Monitor closely prothrombin time.	

HIV INFECTION				
Nucleoside reverse transcriptase inhibitors (NRTI)				
Lamivudine (3TC)	Treatment : > 50 kg : 150 mg twice daily < 50 kg : 2 mg/kg twice daily	3TC is generally well tolerated. Fatigue, headache, nasal symptoms, cough, muscle aches, insomnia, arthralgia, fever and chills, nausea, vomiting, diarrhea, anorexia, abdominal cramp and pain, neutropenia, anemia, pancreas toxicity (rare), peripheral neuropathy. Lactic acidosis and hepatic steatosis (rare but life threatening).	Not significant.	

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
<p>Nelfinavir (NFV) <i>Viracept®</i></p>	<p>Treatment : 750 mg (3 tablets of 250 mg) PO TID, with a meal or a light snack</p> <p>or 1250 mg (5 tablets of 250 mg) PO BID. Do not space the two doses less than 9 hours or more than 14 hours apart.</p> <p><i>With Indinavir :</i> Nelfinavir : 1250 mg (5 tablets of 250 mg) PO BID on an empty stomach or with a light snack</p> <p>+ indinavir: 1200 mg (3 capsules of 400 mg) PO BID.</p> <p><i>With Rifabutin:</i> Nelfinavir: 1000 mg (4 tablets of 250 mg) PO TID</p> <p>Or 1250 mg (5 tablets of 250 mg) PO BID</p> <p>+ rifabutin: 150 mg (1 capsule of 150 mg) PO once daily.</p>	<p>Diarrhea (generally light or moderate), nausea, gas, fatigue, neutropenia, elevation of hepatic transaminases, skin rash.</p> <p>Fat redistribution syndrome, metabolic abnormalities such as hyperglycemia, hypertriglyceridemia and hypercholesterolemia.</p> <p>Patients may have the impression that the tablets stick in the throat. Recommend to dissolve nelfinavir (see recommendations).</p>	<p>Anticonvulsants: carbamazepine, phenytoin, phenobarbital : Possible _ [] nelfinavir. Avoid. Alternatives (when appropriate) : gabapentin, vigabatrin, lamotrigine, valproic acid or monitor closely clinical efficacy of nelfinavir.</p> <p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternatives (with caution): atorvastatin, cerivastatin. Pravastatin and fluvastatin would be the safest agents.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam, triazolam): Avoid. Midazolam and triazolam are contraindicated. Alternatives: lorazepam, temazepam, and oxazepam.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil): _ [] calcium channel blockers. May require _ dose of calcium channel blockers.</p> <p>Cisapride: Possible _ [] cisapride and _ risk of cardiotoxicity. Contraindicated. Alternatives: metoclopramide or domperidone.</p> <p>Delavirdine: see delavirdine.</p> <p>Dihydroergotamine, ergotamine: Possible _ [] of these agents and _ risk of ergotism. Avoid. Alternatives: sumatriptan, rizatriptan. Use with caution naratriptan.</p> <p>Efavirenz: see efavirenz</p> <p>Indinavir: see indinavir.</p>	<p>Nelfinavir should not be dissolved or taken with orange juice, apple juice, applesauce or other acidic foods, as this may result in a bitter taste.</p> <p>Nelfinavir tablets may be dissolved in water and then further mixed in milk, chocolate milk, pudding or ice cream.</p> <p>If the patient takes nelfinavir twice daily : suggest that doses should not be spaced more than 14 hours or less than 9 hours apart.</p> <p>Suggest to avoid regular or excessive intake of alcohol as this can increase the risk of hepatotoxicity.</p> <p>Store nelfinavir in the original container between 15-30C.</p>

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
<p>Nelfinavir (NFV) Viracept®</p> <p>Continued...</p>	<p><i>With saquinavir</i> <i>(Invirase® / Fortovase®)</i> Nelfinavir : 1250 mg (5 tablets of 250 mg) PO BID</p> <p>+ Saquinavir (Invirase®) 1000 mg (5 capsules of 200 mg) PO BID</p> <p>Saquinavir (Fortovase®) 1200 mg (6 capsules of 200 mg) PO BID</p> <p>or nelfinavir : 750 mg (3 tablets of 250 mg) PO TID</p> <p>+ saquinavir (Invirase®) 600 mg (3 capsules of 200 mg) PO TID</p> <p>saquinavir (Fortovase®) 800 mg (4 capsules of 200 mg) PO TID</p> <p><i>With ritonavir</i> Nelfinavir : 500-750 mg (2-3 tablets of 250 mg) PO BID</p>		<p>Ketoconazole: _ 35% AUC NFV. No dosage adjustment necessary.</p> <p>Methadone: ↓ 47% AUC levo-methadone. ↓ 39% AUC dextro-methadone. No clinical effect noted so far. Monitor signs and symptoms of withdrawal and adjust the dose accordingly.</p> <p>Nevirapine: _ 8% AUC NFV. No specific action required.</p> <p>Oral contraceptives: _ 47% AUC ethinylestradiol and _ 18% AUC norethindrone. Use a backup method of contraception such as latex condoms or alternatives: progesterone-based contraceptives (Depoprovera® or Norplant®).</p> <p>Rifabutin: _ 207% (_ 3 times) AUC rifabutin and _ 32% AUC NFV. ↓ dose rifabutin 50% (150 mg once daily or 300mg 2-3 times weekly) and _ dose NFV to 1000 mg TID or 1250 mg BID Alternatives : MAC prophylaxis: azithromycin, clarithromycin. MAC treatment: clarithromycin, azithromycin, ethambutol</p> <p>Rifampin: _ 82% AUC NFV. Contraindicated. Alternatives: rifabutin.</p> <p>Ritonavir: _ 152% AUC NFV. Combination under investigation.</p> <p>Saquinavir (Fortovase®/Invirase®) : ↑ _ 5 times AUC saquinavir (Fortovase®/Invirase®). Combination under investigation.</p> <p>Sildenafil: Possible _ [] sildenafil. Initial dose of 25 mg and adjust dose according to clinical response and appearance of side effects.</p>	

HIV INFECTION				
Protease Inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Nelfinavir (NFV) <i>Viracept</i> [®] Continued...	+ ritonavir 400 mg (4 capsules of 100 mg or 5 mL oral solution 80 mg/mL) PO BID		Warfarin: Possible \downarrow [] warfarin. Monitor prothrombin time. Zidovudine: \downarrow 35% AUC zidovudine. Clinical significance unknown.	

HIV INFECTION				
Non-nucleotide reverse transcriptase inhibitors (NNRTI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
<p>Nevirapine (NVP) <i>Viramune</i>[®]</p>	<p>Treatment : 200 mg PO once daily (first 14 days), followed by 200 mg PO BID.</p> <p>or 400 mg (2 tablets of 200 mg) PO once daily.</p>	<p>Skin rash (usually light or moderate) usually occurs within first 6 weeks of treatment. <i>Do not increase the dose of nevirapine if rash occurs during initial 14 days of treatment. Continue dose of 200mg per day until the reaction disappears.</i> Nevirapine should be stopped and the physician contacted immediately if a severe rash occurs or if the rash is accompanied by general symptoms such as fever, formation of pustules, buccal lesions, conjunctivitis, swelling and muscular or joint pain. Nausea, headache, neutropenia and elevation of hepatic transaminases and hepatitis.</p>	<p>Amoxicillin or ticarcillin with K⁺ clavulanate, cotrimoxazole: _ risk of skin rash. Avoid.</p> <p>Anticonvulsants: carbamazepine, phenytoin, phenobarbital: Possible _ [] nevirapine. Avoid. Alternatives (when appropriate) : gabapentin, vigabatrin, lamotrigine, valproic acid or monitor closely clinical efficacy of nevirapine.</p> <p>Beta-blockers: Possible _ [] of these agents. Clinical significance unknown.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil: _ [] calcium channel blockers. Monitor signs and symptoms of withdrawal from beta-blocker or calcium channel blocker therapy.</p> <p>Clarithromycin: _ 26% AUC nevirapine. _ 30% AUC clarithromycin. _ 58% AUC 14-OH-clarithromycin. Clinical efficacy in the treatment of MAC may be decreased. Risk of hepatotoxicity increased. To monitor.</p> <p>Ketoconazole: _ 63% AUC ketoconazole. Contraindicated.</p> <p>Indinavir: see indinavir.</p> <p>Methadone: _ up to 60% AUC methadone. Monitor signs or symptoms of withdrawal, especially 1 week after the initiation of nevirapine. Dose adjustment of methadone might be warranted.</p> <p>Nelfinavir: see nelfinavir.</p> <p>Oral contraceptives: _ 29% AUC ethinylestradiol, ↓ 18% AUC norethindrone. _ efficacy of oral contraceptives (containing either ethinylestradiol or norethindrone). Use a backup method of contraception such as latex condoms.</p>	<p>Warn patients that the dose of nevirapine should not be increased if a rash occurs during the initial 2 weeks of treatment. Patients should continue on initial dosage until the rash disappears.</p> <p>Advise patient to contact physician immediately if a severe skin rash occurs or if rash is accompanied by general symptoms.</p>

HIV INFECTION				
Non-nucleoside reverse transcriptase inhibitors (NNRTI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Nevirapine (NVP) <i>Viramune</i> [®] Continued ...			Rifabutin: _ 16% [] NVP. The use of rifabutin 300 mg once daily or 300 mg 2-3 times weekly with nevirapine is an option. However, this combination has not been extensively used clinically. Rifampin: _ 37% AUC NVP. To avoid. Use this combination only if absolutely necessary. Monitor clinical efficacy closely. Ritonavir: _ 11% AUC RTV. No dosage adjustment required. Saquinavir (Invirase [®]): _ 24% AUC SQV (Invirase [®]). Avoid. Clinical significance unknown. Combination not recommended.	

HIV INFECTION Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
<p>Ritonavir (RTV) <i>Norvir SEC[®]</i></p>	<p>Treatment: 600 mg (6 capsules of 100 mg or 7.5 mL of oral solution of 80 mg/mL) PO BID</p> <p><i>With Indinavir :</i> Indinavir 400 mg (2 capsules of 200 mg or 1 capsule of 400 mg) PO BID with or without food</p> <p>+ ritonavir 400 mg (4 capsules of 100 mg or 5 mL of 80 mg/mL) PO BID</p> <p>or Indinavir 800 mg (2 capsules of 400 mg) PO BID with or without food</p> <p>+ ritonavir 100-200 mg (1-2 capsules of 100 mg or 1.25-2.5 mL of 80 mg/mL) PO BID</p> <p><i>With Invirase[®] or Fortovase[®]</i> Ritonavir 400 mg (4 capsules of 100 mg or 5 mL of 80 mg/mL) PO BID</p> <p>+ saquinavir (Invirase[®]/Fortovase[®]) 400 mg (2 capsules of 200 mg) BID</p>	<p>Nausea, vomiting, diarrhea, abdominal pain, throat irritation, anorexia, taste alteration, gas, cramps/constipation, fatigue, asthenia, headache, dizziness, drowsiness, myalgia, insomnia, sweating, fever, peripheral neuropathy, perioral paresthesia, elevation of hepatic enzymes, fat redistribution syndrome, hyperglycemia, elevation of triglycerides and cholesterol.</p>	<p>Antiarrhythmic agents (amiodarone, flecainide, propafenone, quinidine, disopyramide, lidocaine, mexiletine) : _ [] antiarrhythmic agents and _ risk of arrhythmia. Contraindicated or use extreme caution.</p> <p>Anticonvulsants: carbamazepine, phenytoin, phenobarbital: Possible _ [] ritonavir. Avoid. Alternatives (when appropriate): gabapentin, vigabatrin, lamotrigine, valproic acid or monitor closely clinical efficacy of ritonavir.</p> <p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternatives (with caution): atorvastatin, cerivastatin and fluvastatin. Pravastatin would be the safest agent.</p> <p>Antipsychotics: (Ex.: haloperidol, chlorpromazine, risperidone) : Possible _ [] antipsychotics. Avoid or monitor closely.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, lorazepam, diazepam, estazolam, flurazepam, midazolam, triazolam) : Possible _ [] benzodiazepines and ↑ risk of excessive sedation or respiratory depression. Avoid. Midazolam and triazolam are contraindicated. Alternatives: lorazepam, temazepam, oxazepam. A pharmacokinetic study demonstrated that alprazolam could be used safely with ritonavir.</p> <p>Beta-blockers: Possible _ [] beta-blockers. Avoid or monitor closely.</p> <p>Bupropion: Possible _ [] bupropion. Avoid.</p>	<p>Preferable to take ritonavir with food to reduce the gastrointestinal side effects.</p> <p>Suggest to avoid regular or excessive intake of alcohol as this can increase the risk of hepatotoxicity.</p> <p>The oral solution should be shaken well before taking the recommended dose and to improve the taste, the dose can be mixed in chocolate milk, Ensure[™] or Advera[™]. The solution must be taken within one hour of mixing. Also, to improve the taste, a spoonful of peanut butter can be taken before the dose of ritonavir.</p> <p>The AIDS Clinical Trials Group has prepared a list of ways of taking ritonavir to improve the taste of the solution.</p> <ol style="list-style-type: none"> 1. Concentrated fruit juice 2. Licorice 3. Chocolate syrup 4. Eat crackers with peanut butter 5. Suck on a hard candy after the dose 6. Popsicles before and after the dose 7. Coffee 8. Honey, etc... <p>Ritonavir capsules should be stored in the refrigerator (2-8C). The capsules may be stored at room temperature (less than 25C) and used within 30 days.</p> <p>The oral solution should be stored at room temperature (15-25C).</p>

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
<p>Ritonavir <i>Norvir SEC[®]</i></p> <p>Continued...</p>	<p><i>With Nelfinavir :</i> Nelfinavir: 500-750 mg (2-3 tablets of 250 mg) PO BID</p> <p>+ ritonavir 400 mg (4 capsules of 100 mg or 5 mL oral solution 80 mg/mL)</p>		<p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil): _ [] calcium channel blockers. May require _ dose of calcium channel blockers.</p> <p>Cisapride: Possible _ [] cisapride and _ risk of cardiotoxicity. Contraindicated. Alternatives: metoclopramide, domperidone.</p> <p>Corticosteroids (dexamethasone): Possible _ [] RTV. Avoid.</p> <p>Clarithromycin: _ 77% AUC clarithromycin. Dosage adjustment is not required in patients with normal renal function (> 60mL/min.). ↓ 100% AUC 14-OH-clarithromycin (active metabolite) significantly reduces the efficacy of clarithromycin against <i>H. influenzae</i>.</p> <p>Delavirdine: see delavirdine.</p> <p>Dihydroergotamine, ergotamine: Possible _ [] of these agents and _ risk of ergotism. Contraindicated. Alternatives: sumatriptan, rizatriptan. Use naratriptan with caution.</p> <p>Ecstasy: ↑ possible [] ecstasy. Association contraindicated/death reported</p> <p>Efavirenz: see efavirenz.</p> <p>Indinavir: see indinavir</p> <p>Ketoconazole: _ 3 times AUC ketoconazole. _ dose of ketoconazole.</p>	

HIV INFECTION Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Ritonavir <i>Norvir SEC</i> ® Continued...			<p>Levothyroxine: _ [] levothyroxine. Monitor.</p> <p>Methadone: _ 36% AUC methadone. May require _ dose of methadone.</p> <p>Meperidine: _ 67% AUC meperidine. _ 47% AUC normeperidine (principal metabolite of meperidine). Avoid.</p> <p>Metronidazole, disulfiram: As ritonavir contains alcohol, there is a risk of undesirable reactions (disulfiram effect). Avoid.</p> <p>Nelfinavir: see nelfinavir.</p> <p>Nevirapine: see nevirapine.</p> <p>Oral contraceptives: _ 40% ethinylestradiol. Use a backup method of contraception such as latex condoms or Alternatives: progesterone-based contraceptives (Depoprovera® or Norplant®).</p> <p>Rifabutin: _ 293% (_ 4 times) AUC rifabutin. Contraindicated. Some experts recommend _ dose of rifabutin to 150 mg every 2 to 3 days. Alternatives : MAC prophylaxis : azithromycin, clarithromycin MAC treatment: clarithromycin, azithromycin, ethambutol.</p> <p>Rifampin: _ 35% AUC RTV. The use of rifampin 600 mg once daily or 600 mg 2-3 times weekly with ritonavir is an option. However, this combination has not been extensively used clinically.</p> <p>Saquinavir (Invirase® or Fortovase®): ↑ _ 20 times AUC saquinavir (Invirase®/Fortovase®). Beneficial combination which allows reduced doses of both ritonavir and saquinavir.</p>	

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Ritonavir (RTV) <i>Norvir SEC</i> [®] Continued...			Sildenafil: <input type="checkbox"/> 1000% (11 times) AUC sildenafil. Avoid. Recommend maximum dose of 25 mg every 48 hours according to response and side effects. Theophylline: <input type="checkbox"/> 43% AUC theophylline. May require <input type="checkbox"/> dose of theophylline. Tricyclic antidepressants (Ex.: amitriptyline, desipramine) and non tricyclics (Ex.: paroxetine): Possible <input type="checkbox"/> [] of these medications and associated toxicity. Avoid or monitor closely. May be necessary to <input type="checkbox"/> dose of these agents. <input type="checkbox"/> 145% AUC desipramine: <input type="checkbox"/> dose of desipramine. Warfarin: Possible <input type="checkbox"/> [] warfarin. Monitor closely prothrombin time. Zidovudine: <input type="checkbox"/> 25% AUC ZDV. Dosage adjustment not usually required.	

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Saquinavir (SQV) Invirase® Fortovase®	<p>Treatment : Invirase® : 600 mg (3 capsules of 200 mg) PO every 8 hours Not recommended to use Invirase® as a sole protease inhibitor</p> <p>Fortovase® : 1200 mg (6 capsules of 200 mg) PO TID Or 1600 mg (8 capsules of 200 mg) PO BID</p> <p><i>With Ritonavir :</i> Invirase®/ Fortovase® : 400 mg (2 capsules of 200 mg) PO BID + ritonavir : 400 mg (4 capsules of 100 mg or 5 mL or oral solution of 80 mg/mL) PO BID</p>	Fatigue, myalgia, asthenia, headache, buccal ulcerations, diarrhea, nausea, gastrointestinal upset, taste alteration, peripheral neuropathy, musculoskeletal pain, fat redistribution syndrome, hyperglycemia, elevation of triglycerides and cholesterol.	<p>Anticonvulsants: carbamazepine, phenytoin, phenobarbital : Possible _ [] saquinavir. To avoid. Alternatives (when appropriate) : gabapentin, vigabatrin, lamotrigine, valproic acid or monitor closely clinical efficacy of saquinavir.</p> <p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternatives (with caution): atorvastatin, cerivastatin. Pravastatin and fluvastatin are the safest alternatives.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam, triazolam): Avoid. Midazolam and triazolam are contraindicated. Alternatives: lorazepam, temazepam, and oxazepam.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil): _ [] calcium channel blockers. May require _ dose of calcium channel blockers.</p> <p>Cisapride: _ [] cisapride and _ risk of cardiotoxicity. Contraindicated / Alternatives: metoclopramide and domperidone.</p> <p>Clarithromycin: _ 177% AUC Fortovase®. _ 45% AUC clarithromycin. _ 24% 14-OH-clarithromycin. Clinical significance unknown.</p> <p>Delavirdine: see delavirdine.</p> <p>Dihydroergotamine, ergotamine: Possible _ [] of these agents and _ risk of ergotism. To avoid. Alternatives: sumatriptan, rizatriptan, zolmitriptan. Use naratriptan with caution.</p>	<p>The bioavailability of SQV (Invirase®) is very weak, approximately 4% since SQV is not well absorbed and it undergoes significant first pass metabolism in the liver.</p> <p>Therefore, it is recommended to take SQV with a meal or a substantial snack (high in fat and in calories) to improve the absorption of saquinavir. Taking SQV with food can increase the AUC of SQV by 7 times.</p> <p>When ritonavir (Norvir®) is combined with SQV, it is no longer necessary to take SQV with meals or a substantial snack or grapefruit juice, as ritonavir causes a significant increase of the plasma concentration of SQV.</p> <p>Suggest to avoid regular or excessive intake of alcohol as this can increase the risk of hepatotoxicity.</p> <p>Fortovase® should be stored in the refrigerator (2-8C) in the original container. It may be stored at room temperature (15-30C) for up to 3 months in a dry location.</p>

HIV INFECTION				
Protease inhibitors (PI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Saquinavir Invirase® Fortovase® continued...	<i>With Nelfinavir :</i> Invirase® : 600 mg (3 capsules of 200 mg) PO TID Fortovase® : 800 mg (4 capsules of 200 mg) PO TID Or Invirase® : 1000 mg (5 capsules of 200 mg) PO BID Fortovase® : 1200 mg (6 capsules of 200 mg) PO BID + Nelfinavir : 1250 mg (5 tablets of 250 mg) PO BID or Nelfinavir: 750 mg (3 tablets of 250 mg) PO TID Invirase® : 600 mg (3 capsules of 200 mg) PO TID Fortovase® : 800 mg (4 capsules of 200 mg) PO TID		Efavirenz: see efavirenz. Indinavir: see indinavir. Grapefruit juice: _ 50-150% AUC SQV (with 150 mL grapefruit juice) If the juice is very concentrated (1 bottle water + 1 bottle concentrated juice) _ 220% AUC SQV Possible to suggest to take grapefruit juice (150 mL) with each dose. However, when SQV is administered in combination with ritonavir, the bioavailability of saquinavir is sufficient and it is not necessary to suggest to patients to take grapefruit juice. Methadone: Possible _ [] methadone. Monitor. Nelfinavir: see nelfinavir. Nevirapine: see nevirapine. Rifabutin: 40-45% AUC Invirase®. ↓ 47% AUC Fortovase®. ↑ 44 AUC rifabutin. The use of rifabutin 300 mg once daily or 300 mg 2-3 times weekly is an option. However, this combination has not been extensively used clinically. Alternatives : MAC prophylaxis : azithromycin, clarithromycin MAC treatment : azithromycin, clarithromycin or ethambutol Rifampin: 80% AUC Invirase®. Contraindicated. _ 70% Fortovase®. Avoid. Rifampin can be used with SQV when in combination with RTV. Ritonavir: see ritonavir. Sildenafil: _ 210% (3 times) AUC sildenafil with Fortovase. Use initial dose of 25 mg and adjust the dose according to response and side effects. Warfarin: Possible _ [] warfarin. Monitor prothrombin time.	

HIV INFECTION				
Nucleoside reverse transcriptase inhibitors (NRTI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Stavudine (d4T) <i>Zerit</i> [®]	Treatment : >60 kg 40 mg PO BID < 60 kg 30 mg PO BID	Peripheral neuropathy, _ hepatic transaminases, fever, nausea and vomiting, diarrhea, headache, abdominal pain, myalgia, insomnia, neutropenia, pancreatitis. Lactic acidosis and hepatic steatosis (rare but potentially life-threatening).	Zidovudine (ZDV): antagonistic effect. Contraindicated. Didanosine (ddI), zalcitabine (ddC), metronidazole, dapsone, phenytoin, ethambutol, isoniazid, ritonavir, thalidomide and other medications with risk of neuropathy: _ risk of peripheral neuropathy.	For patients with difficulty swallowing d4T, the capsules can be opened and the contents mixed with food.
Zalcitabine (ddC) <i>Hivid</i> [®]	Treatment : 0.750 mg PO TID	Peripheral neuropathy, _ hepatic transaminases, leucopenia, neutropenia, anemia, pancreatitis, aphthous ulcers. Lactic acidosis and hepatic steatosis (rare but potentially life-threatening).	Didanosine (ddI), zalcitabine (ddC), metronidazole, dapsone, isoniazid, phenytoin, ethambutol and other medications with risk of neuropathy : _ risk of peripheral neuropathy. Pentamidine, corticosteroids and other medications which predispose to pancreatitis: _ risk of pancreatitis.	Suggest to avoid regular or excessive intake of alcohol as this can increase the risk of pancreatitis.

HIV INFECTION				
Nucleoside reverse transcriptase inhibitors (NRTI)				
Generic and Trade Name	Adult Dose	Side Effects	Drug Interactions	Recommendations
Zidovudine (ZDV, AZT) <i>Retrovir</i> [®]	<p>Treatment :</p> <p>500 to 600 mg/day PO (5-6 capsules divided in 2 or 3 doses per day) or 1 tablet of 300 mg BID</p> <p>300 mg is the minimal effective dose, however most recommend to maintain a dosage of 500 to 600 mg/day.</p>	<p>At start of treatment: nausea, headache, myalgia, insomnia, fatigue and weakness, anorexia, vomiting.</p> <p>Long term: neutropenia, anemia, thrombocytopenia, myopathy, nail pigmentation.</p> <p>Lactic acidosis and hepatic steatosis (rare but potentially life-threatening).</p>	<p>Amphotericin B, dapsone, pyrimethamine, cotrimoxazole, sulfadiazine, ganciclovir, primaquine, pentamidine, hydroxyurea, myelosuppressive chemotherapy: _ risk of hematological toxicity.</p> <p>Atovaquone: _ 33% AUC ZDV. Clinical significance unknown.</p> <p>Fluconazole: _ 40-47% AUC ZDV most likely when dose of fluconazole >400 mg per day. _ risk of hematological toxicity. Monitor.</p> <p>Methadone: _ 43% AUC ZDV. Monitor.</p> <p>Ribavirin: possible antagonistic effect. Avoid.</p> <p>Rifabutin, rifampin : _ 50-80% AUC ZDV with rifampin _ 40% [] ZDV with rifabutin. Clinical significance unknown. May require _ dose of ZDV.</p> <p>Ritonavir: see ritonavir.</p> <p>Stavudine: see stavudine.</p>	<p>Encourage patient to persist with treatment if side effects occur at the beginning of treatment. These side effects usually occur in the first two weeks (4-6 weeks in some people) and subside with time.</p> <p>Suggest analgesics (Ex. : acetaminophen) and antiemetics (Ex. : dimenhydrinate) to relieve symptoms.</p> <p>Recommend to take ZDV with a large glass of water in an upright position to reduce the risk of esophageal irritation.</p> <p>Store ZDV away from direct sunlight in a dry location.</p>
Zidovudine (ZDV, AZT) + lamivudine (3TC) <i>Combivir</i> [®]	See zidovudine and lamivudine	See zidovudine and lamivudine	See zidovudine and lamivudine	See zidovudine and lamivudine

BACTERIAL AND PARASITIC INFECTIONS				
Primary and Secondary Prophylaxis , and Treatment of <i>Pneumocystis carinii</i> Pneumonia				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
Trimethoprim-sulfamethoxazole (TMP-SMX) or Cotrimoxazole <i>Bactrim[®] DS or SS</i> <i>Septtra[®] DS or SS</i>	Prophylaxis : 1 tablet PO DS or SS once daily Treatment : 2 tablets DS PO q6h (total of 15-20 mg/kg/day of TMP)	Nausea, vomiting, fever, rash, pruritus, phototoxicity, neutropenia, thrombocytopenia, anemia, hyperkalemia (when high dose of cotrimoxazole is used), transient increase of hepatic transaminases, crystalluria and renal dysfunction.	Oral hypoglycemic agents (sulfonylurea): _ effect of oral hypoglycemic agents. Monitor blood glucose. Pyrimethamine, phenytoin, trimethoprim (high doses), methotrexate: _ folic acid deficiency and risk of hematological toxicity (anemia, neutropenia and thrombocytopenia). Phenytoin: _ [] phenytoin. Monitor serum phenytoin level and signs & symptoms of phenytoin toxicity. Rifabutin: _ 15-20% AUC cotrimoxazole. Clinical significance unknown. Rifampin: Possible _ AUC cotrimoxazole. Clinical significance unknown. Warfarin: _ effect of warfarin. Monitor prothrombin time. Zidovudine and other medications causing hematological toxicity: _ risk of hematological toxicity.	Suggest to avoid unprotected sun exposure to reduce risk of sunburn or use sunscreen with minimum protection factor of 15 (SPF15). Recommend good hydration with at least 1.5 litres of fluid per day (8 to 10 glasses). This will help the kidneys eliminate the medication. Benadryl [®] or Atarax [®] can relieve pruritus if an allergic reaction such as a rash should occur. As effectiveness of oral contraceptive use may be reduced, suggest to use a backup method of contraception.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and Secondary Prophylaxis , and Treatment of <i>Pneumocystis carinii</i> Pneumonia				
Generic and trade names	Adult dose	Side effects	Drug interactions	Specific recommendations
Pentamidine isethionate	<p>Prophylaxis : 300 mg/month by nebulization via Respiriguard II</p> <p>Treatment : Pentamidine IV 4 mg/kg once daily</p>	<p><i>By nebulization :</i> Irritation, burning sensation in the back of the throat, alteration of the taste, cough, bronchospasm. Rarely, systemic effects such as pancreatitis, hypoglycemia etc.</p> <p><i>Intravenous :</i> Nausea, vomiting, renal toxicity, hypo-hyperglycemia, bone marrow toxicity, hyperkalemia, hypotension, rash, pancreatitis.</p>	<p>Ganciclovir, didanosine, zalcitabine, conjugated estrogens, cotrimoxazole and other drugs known toxic to pancreas: _ risk of pancreatitis.</p> <p>Aminoglycosides, foscarnet, amphotericin B, vancomycin and other nephrotoxic drugs: _ risk of renal toxicity.</p> <p>Foscarnet: _ risk of hypocalcemia.</p>	<p>To avoid bronchospasm, administer bronchodilation agent (such as salbutamol) before treatment.</p> <p>Sucking candies or chewing sugarless gum can be helpful for the alteration of the taste. Drinking water and fruit juices can help to minimize throat irritation.</p> <p>There is a potential risk to contaminate room air and therefore the staff with the nebulization. Make sure the patient is not carrier of <i>Mycobacterium tuberculosis</i>. (tuberculosis). The room in which the nebulization takes place must have an adequate negative pressure ventilation.</p> <p>During administration of inhaled pentamidine, it is preferable for the patient to lie flat on his back (or turn from side to side) rather than sit up. Thus, the pentamidine can be more evenly distributed throughout the lungs.</p> <p>Monitor blood glucose, serum creatinine, electrolytes and blood pressure with IV administration of pentamidine.</p> <p>Hypotension is related to the rate of administration. IV pentamidine should be infused over at least one hour (usually two to four hours). To preserve renal function, it is recommended to administer 250 mL of NaCl 0.9% before and after pentamidine.</p>

SPF : Sun protection factor

DS : Double Strength SS : Single Strength

AUC: Area under the curve [] : plasma concentration

BACTERIAL AND PARASITIC INFECTIONS				
Primary and Secondary Prophylaxis , and Treatment of <i>Pneumocystis carinii</i> Pneumonia				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Pentamidine isethionate Continued...				Inform patients of signs and symptoms of hypoglycemia. If signs of hypoglycemia occur, the patient should eat food containing sugar or drink fruit juices and contact the physician immediately.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and Secondary Prophylaxis , and Treatment of <i>Pneumocystis carinii</i> Pneumonia				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Atovaquone <i>Mepron</i> [®]	Prophylaxis : 1500 mg PO daily Treatment : 750 mg PO BID	Rash with or without pruritus or fever, nausea, diarrhea, vomiting, abdominal pain, headache, insomnia, dizziness, anemia, neutropenia, elevation of liver transaminases..	Rifabutin: Possible _ [] atovaquone. Avoid combination or may need to _ dose of atovaquone. Rifampin: _ 52% [] atovaquone and _ 37% [] rifampin. Avoid combination or may need to _ dose of atovaquone. Zidovudine (AZT): _ 33%. AUC AZT. Clinical significance unknown. _ risk of bone marrow toxicity. May need to _ dose of AZT.	Take atovaquone with meals. Food, especially those high in fat, increase the absorption and therefore the efficacy of atovaquone. Atovaquone should not be given to patients with diarrhea or malabsorption disorders because it decreases considerably the effectiveness of atovaquone. Shake gently the suspension before administration. Atovaquone suspension can leave yellow stain on clothes. Advise patients to be cautious with activity requiring concentration when initiating treatment (e.g.: driving) Store atovaquone at room temperature (15-25C) in an opaque, airtight container. Do not refrigerate.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and Secondary Prophylaxis , and Treatment of <i>Pneumocystis carinii</i> Pneumonia				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
<p>Dapsone <i>Avlosulfon</i>[®]</p> <p>+/- Pyrimethamine <i>Daraprim</i>[®]</p> <p>+ Folinic acid <i>Leucovorin</i>[®]</p>	<p>Prophylaxis : 100 mg PO daily or 50 mg PO BID</p> <p>50mg PO daily or 100mg once weekly in combination with pyrimethamine.</p> <p>Treatment : 100 mg PO daily</p> <p>Prophylaxis : 50-75 mg PO once weekly</p> <p>Prophylaxis : 25 mg PO once weekly</p>	<p>Anorexia, abdominal pain, nausea, diarrhea, vomiting, hemolytic anemia and methemoglobinemia (more likely if patient has G6PD deficiency), peripheral neuropathy, rash +/- fever (10- 30% of cross allergenicity with cotrimoxazole), insomnia, anxiety, headache, vertigo.</p> <p>Anorexia, nausea, vomiting, diarrhea, abdominal pain, anemia, thrombocytopenia or neutropenia (associated with folinic acid deficiency).</p>	<p>Didanosine: see didanosine.</p> <p>Primaquine, sulfadiazine, zidovudine, amphotericin B, sulfamethoxazole, cotrimoxazole, ganciclovir, hydroxyurea, chemotherapy with bone marrow suppression properties: _ risk of bone marrow suppression.</p> <p>Primaquine and chloroquine: _ risk of hemolytic anemia and methemoglobinemia with dapsone.</p> <p>Trimethoprim: _ 40% [] dapsone and _ 48% [] trimethoprim. Beneficial combination. Monitor risk of bone marrow suppression.</p> <p>Methotrexate, trimetrexate, trimethoprim (high doses), phenytoin: _ risk of bone marrow suppression with the use of pyrimethamine.</p> <p>Rifabutin: Possible _ [] dapsone. To monitor.</p> <p>Rifampin: _ 35-70% [] dapsone. Potential failure of PCP prophylaxis and _ risk of methemoglobinemia. Avoid combination or monitor closely efficacy of dapsone as well as the signs and symptoms of methemoglobinemia.</p> <p>Zalcitabine, stavudine, metronidazole, isoniazid, phenytoin, ethambutol and other neurotoxic drugs : _ risk of peripheral neuropathy with dapsone. To monitor.</p>	<p>Suggest to take dapsone with food to reduce gastrointestinal side effects. Do not use dapsone for patients with history of severe allergic reactions to sulfa drugs.</p> <p>Advise patients to be cautious with activity requiring concentration when initiating treatment (e.g.: driving)</p> <p>Inform patients of signs and symptoms of methemoglobinemia and anemia.</p> <p>Methemoglobinemia and hemolytic anemia are more frequent in patients with G6PD deficiency (people with dark skin, Mediterraneans (Italians, Greeks, Arabs) Indians (India), people from Southeast Asia, family history of G6PD deficiency). Measure the G6PD level in patients at risk before instituting dapsone therapy.</p> <p>It is mandatory to use folinic acid with pyrimethamine to prevent anemia , neutropenia and thrombocytopenia.</p>
<p>Clindamycin <i>Dalacin</i>[®]</p>	<p>Treatment : 600-900mg IV q8h 300 to 450 mg PO q6h to q8h</p>	<p>Abdominal cramps and pain, nausea, vomiting, diarrhea, risk of <i>C. difficile</i> colitis, rash.</p>	<p>Kaolin or attapulgit _ the absorption of clindamycin. Take 2 hours before or 3 to 4 hours after clindamycin.</p>	<p>Take clindamycin with food to decrease gastrointestinal symptoms.</p>

G6PD: Glucose 6-Phosphate Dehydrogenase

BACTERIAL AND PARASITIC INFECTIONS				
Primary and Secondary Prophylaxis , and Treatment of <i>Pneumocystis carinii</i> Pneumonia				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Primaquine	Treatment : 15-30 mg PO daily	Nausea, abdominal cramps and pain, diarrhea, hemolytic anemia and methemoglobinemia (more frequent in patients with G6PD deficiency).	Dapsone, sulfadiazine, cotrimoxazole, zidovudine, ganciclovir, amphotericin B : _ risk of bone marrow toxicity. Dapsone and chloroquine: _ risk of hemolytic anemia and methemoglobinemia with primaquine.	Take primaquine with food or with an antacid (eg. Maalox [®] , Diovol [®]) to decrease gastrointestinal side effects. Inform patients of signs and symptoms of methemoglobinemia and anemia. Methemoglobinemia and hemolytic anemia are more frequent in patients with G6PD deficiency (people with dark skin, Mediterraneans(Italians, Greeks, Arabs) Indians (from India), people from Southeast Asia or their descendents. Measure the G6PD level in patients at risk before instituting primaquine therapy.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and secondary prophylaxis, and Treatment of <i>Mycobacterium avium complex</i> (MAC)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Azithromycin <i>Zithromax</i> [®]	Primary prophylaxis 1 200 mg PO once weekly Treatment and secondary prophylaxis: 500mg PO daily	Gastrointestinal side effects such as diarrhea, abdominal pain, nausea and vomiting. Reported ototoxicity, rarely allergic reaction.	Antacids containing aluminum and magnesium: _ [] azithromycin. Administer azithromycin 1 hour before or 2 hours after antacids containing aluminum or magnesium. Possible elevation [] digoxin, ergot derivatives, triazolam. Avoid or monitor closely. To avoid or monitor closely.	Azithromycin tablets may be taken with or without food.
Clarithromycin <i>Biaxin</i> [®]	Primary, secondary prophylaxis and treatment : 500 mg PO BID	Gastrointestinal side effects such as nausea, vomiting, diarrhea, stomach or abdominal pain, taste alteration, headache. Rare allergic reactions.	Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternatives (with caution) : atorvastatin, cerivastatin, fluvastatin. Pravastatin and fluvastatin would be the safest choices. Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, lorazepam, diazepam, estazolam, flurazepam, midazolam triazolam): Possible _ [] benzodiazepines. Avoid. Alternatives: lorazepam, oxazepam, and temazepam. Carbamazepine: _ 60%. [] carbamazepine. Monitor carbamazepine serum levels and adjust dose as needed. Cisapride: Possible _ [] cisapride and _ risk of cardiotoxicity. Contraindicated. Alternatives: metoclopramide, domperidone. Delavirdine: see delavirdine. Digoxin: Possible _ [] digoxin. Monitor digoxin serum level and signs and symptoms of toxicity. Efavirenz: see efavirenz.	If taste alteration occurs, suck candies or chew sugarless gum. Usually, clarithromycin should be avoided in pregnancy. Clarithromycin oral suspension (once reconstituted) is stable for 14 days when stored at room temperature (15-30C). Do not refrigerate. The suspension should be shaken well before taking the prescribed dose.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and secondary prophylaxis, and Treatment of Mycobacterium avium complex (MAC)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Clarithromycin <i>Biaxin</i> [®] Continued...			Ergotamine, dihydroergotamine: _ [] of these drugs. Alternatives: zolmitriptan, sumatriptan, rizatriptan, Naratriptan would also be metabolized by CYP450 3A4 and should be avoided. Indinavir: see indinavir. Itraconazole: _ 90% AUC itraconazole. Nevirapine: see nevirapine. Rifabutin: _ 78% AUC 25-desacetyl-rifabutin (rifabutin metabolite). Possible _ 50% [] clarithromycin. Clinical significance unknown. Rifampin: _ 120%. [] clarithromycin. May need to _ dose of clarithromycin. Ritonavir: see ritonavir. Saquinavir: see saquinavir. Sildenafil: _ possible [] sildenafil. To monitor. Theophylline: _ 120% AUC theophylline. To monitor. Warfarin: Possible _ [] warfarin. Monitor prothrombin time. Zidovudine: see zidovudine (AZT)	

BACTERIAL AND PARASITIC INFECTIONS				
Primary and secondary prophylaxis, and Treatment of Mycobacterium avium complex (MAC)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Ethambutol <i>Myambutol</i> [®] <i>Etibi</i> [®]	Treatment and secondary prophylaxis : 15 mg/kg PO daily	Nausea, vomiting, anorexia, abdominal pain, headache, confusion, dizziness, arthralgia. Alteration of vision or decreased visual acuity (optic neuritis) MEDICAL URGENCY , peripheral neuropathy, hyperuricemia.	Metronidazole, ddI, ddC, d4T, isoniazid, phenytoin and other drugs that can cause peripheral neuropathy: _ risk of peripheral neuropathy.	May be taken with or without food. If patient has gastrointestinal problems: administer ethambutol with food. Daily dose may be divided into two doses per day. Advise patients to be cautious with activity requiring concentration when initiating treatment (e.g.: driving) It is recommended to have a baseline ophthalmologic exam before treatment and regular follow-up while on treatment. Advise patient of symptoms of optic neuritis: blurred or decreased vision, ocular pain, loss of green and red perception and presence of black spots in the visual field.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and secondary prophylaxis, and Treatment of Mycobacterium avium complex (MAC)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Rifabutin <i>Mycobutin</i> [®]	Treatment and primary and secondary prophylaxis : 300 mg PO daily 150 mg at breakfast and at dinner if gastrointestinal side effects Rifabutin dose may be ↓ when given concomitantly with antiretrovirals	Nausea, vomiting, diarrhea, abdominal pain, polyarthralgia, hematological effects (anemia, neutropenia, thrombocytopenia), rash, uveitis, orange-brown discoloration of body fluids (saliva, tears, sweat, etc.), elevation of hepatic transaminases, hepatitis, headache, drowsiness, dizziness, fatigue.	Atovaquone: see atovaquone. Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam, triazolam: ↓ [] benzodiazepines. Beta-blockers (metoprolol, propranolol): Possible _ [] Beta-blockers. Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil: ↓ [] calcium channel blockers. Clarithromycin: see clarithromycin. Corticosteroids: Possible _ [] corticosteroids. Cotrimoxazole: _ 15-20% AUC. Clinical significance unknown. Dapsone: see dapsone. Digoxin: Possible _ [] digoxin. Delavirdine: see delavirdine. Efavirenz: see efavirenz. Fluconazole: _ 80% [] rifabutin. _ risk of uveitis and other side effects related to rifabutin. To monitor. Indinavir: see indinavir. Itraconazole/ ketoconazole: _ 74% [] itraconazole and _ [] ketoconazole. Monitor clinical efficacy. Methadone: Possible _ [] methadone. Monitor signs and symptoms of opioid withdrawal.	Ideally, rifabutin is taken on an empty stomach. If gastrointestinal side effects should occur, suggest to split the daily dose in two different administration times with meals. Inform patient that: - urine, stools, saliva, sputum, sweat, tears can have a brown-orange discoloration. - soft contact lenses can be discoloured irreversibly. Rigid contact lenses are not susceptible to discoloration. Suggest to avoid regular and excessive alcohol intake since it can increase the risk of hepatitis. Counsel patients regarding signs and symptoms of hepatitis (nausea, vomiting, anorexia, unexplained fatigue, jaundice [yellow discoloration of the skin and eyes], darker urine and pale stool.), and to call the doctor immediately if hepatitis is suspected. Advise patients to be cautious with activity requiring concentration when initiating treatment (e.g.: driving). Counsel patients regarding symptoms of uveitis: eye abnormalities, blurred or diminished vision, ocular pain, redness of the eyes, photophobia. The physician should be contacted immediately if these symptoms occur.

BACTERIAL AND PARASITIC INFECTIONS				
Primary and secondary prophylaxis, and Treatment of Mycobacterium avium complex (MAC)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Rifabutin <i>Mycobutin</i> [®] Continued...			Nelfinavir: see nelfinavir. Oral contraceptives: _ efficacy of oral contraceptives. Add another method of contraception such as latex condom. Oral hypoglycemic agents: Possible _ [] hypoglycemic agents. Monitor blood glucose. Phenytoin: Possible _ [] phenytoin. Monitor serum phenytoin level. Ritonavir: see ritonavir. Saquinavir: see saquinavir. Theophylline: Possible _ [] theophylline. Monitor theophylline serum level. Warfarin: _ [] warfarin. Monitor prothrombin time. Zidovudine: see zidovudine. Hepatotoxic medications (isoniazid, PIs, NNRTIs, cotrimoxazole, ketoconazole, itraconazole, pyrazinamide etc.): _ risk of hepatotoxicity.	

BACTERIAL AND PARASITIC INFECTIONS				
Primary prophylaxis of toxoplasmosis (CD4 <100, IgG positive)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
+ Folinic acid <i>Leucovorin</i> [®]	25 mg PO once weekly or 10mg PO daily	See page 5	See page 5	See page 5
Atovaquone <i>Mepron</i> [®]	1 500 mg PO daily	See page 3	See page 3	See page 3
Dapsone <i>Avlosulfon</i> [®]	50 mg PO daily	See page 5	See page 5	See page 5
+ Pyrimethamine <i>Daraprim</i> [®]	50 mg PO once weekly or 25mg PO daily	See page 5	See page 5	See page 5
Cotrimoxazole <i>Bactrim DS</i> [®] <i>Septra DS</i> [®]	1 TAB DS or SS daily or 1 TAB DS	See page 1	See page 1	See page 1

BACTERIAL AND PARASITIC INFECTIONS				
Treatment and secondary prophylaxis of toxoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Folinic acid <i>Leucovorin</i> [®]	Treatment and secondary prophylaxis: 10-25 mg PO daily	See page 5	See page 5	See page 5
+ Pyrimethamine <i>Daraprim</i> [®]	Treatment : 200 mg loading dose then 50-100mg daily Secondary Prophylaxis : 25-75 mg PO daily	See page 5	See page 5	See page 5
+ Sulfadiazine	Secondary Prophylaxis : 0.5-1 g PO QID or 1g PO BID Treatment : 1-1.5 g PO QID	Nausea, vomiting, rash with or without pruritus and fever, phototoxicity, bone marrow toxicity	Hypoglycemic agents (sulfonylureas): _ possible [] of hypoglycemic agent. Monitor blood glucose and hypoglycemic symptoms. Phenytoin: Possible _ [] phenytoin. Monitor serum phenytoin levels and toxic signs and symptoms of phenytoin. Warfarin: Can increase anticoagulant effect Monitor prothrombin time. Zidovudine and other bone marrow toxic drugs: _ risk of bone marrow toxicity.	Suggest to avoid unprotected sun exposure to reduce risk of sunburn or use sunscreen with minimum protection factor of 15 (SPF15). Recommend good hydration with at least 1.5 litres of fluid per day (8 to 10 glasses). Benadryl [®] or Atarax [®] can relieve itchiness if a rash or pruritus occurs. As effectiveness of oral contraceptive use may be reduced, suggest to use a backup method of contraception.

SPF : Sun protection factor

BACTERIAL AND PARASITIC INFECTIONS				
Treatment and secondary prophylaxis of toxoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
or Clindamycin <i>Dalacin</i> [®]	Treatment : 300-600 mg PO or 600-1200mg IV q6h Secondary Prophylaxis : 350-400 mg PO q6-8h	See page 5	See page 5	See page 5
Atovaquone <i>Mepron</i> [®]	Treatment : 750 mg PO QID or 1500mg PO BID Secondary Prophylaxis: 750mg PO q6-12h	See page 3	See page 3	See page 3

BACTERIAL AND PARASITIC INFECTIONS				
Primary prophylaxis and treatment of tuberculosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Isoniazid (INH) <i>Isotamine</i> [®] + Pyridoxine <i>Vitamin B6</i>	Prophylaxis and Treatment : 5 mg/kg PO daily (maximum : 300 mg daily) Prophylaxis and Treatment : 50mg PO daily	Nausea, vomiting, stomach upset, diarrhea, elevation of liver enzymes, hepatitis, peripheral neuropathy related to vitamin B6 deficiency, optic neuritis.	Antacids containing aluminum: _ absorption of isoniazid. Take isoniazid 2 hours before or 2 hours after aluminum. Carbamazepine: Possible _ [] carbamazepine. Monitor serum concentration of carbamazepine and toxic signs and symptoms. Didanosine (ddI) : Possible _ [] isoniazid. Administer isoniazid 2 hours before or 6 hours after didanosine. Ketoconazole / Itraconazole: Possible _ effect of these drugs. To monitor. Phenytoin: Possible _ [] phenytoin. Sulfonylureas: Possible _ sulfonylurea effect. To monitor. Theophylline: Possible _ [] theophylline. Monitor theophylline serum levels. Warfarin: Possible _ effect of warfarin. Monitor prothrombin time. Metronidazole, ddI, ddC, d4T, phenytoin, ethambutol and other medications with risk of peripheral neuropathy: _ risk of peripheral neuropathy. Hepatotoxic medications (rifabutin, rifampin, PIs, NNRTIs, cotrimoxazole, ketoconazole, itraconazole, pyrazinamide etc.): _ risk of hepatotoxicity.	Ideally, take isoniazid on an empty stomach (1 hour before eating or 2 hours after). Inform patient of use of vitamin B6 in combination with isoniazid. Advise patients to limit alcohol intake during isoniazid treatment. Regular alcohol intake might decrease the efficacy of isoniazid and increase the risk of hepatotoxicity. Counsel patients regarding signs and symptoms of hepatitis (nausea, vomiting, anorexia, unexplained fatigue , jaundice [yellow discolouration of the skin and eyes], darker urine and pale stool.), and to call the doctor immediately if hepatitis is suspected. It is recommended to have a baseline ophthalmologic exam before treatment and regular follow-up while on treatment. Advise patients of symptoms of optic neuritis : blurred or decreased vision, ocular pain, loss of green and red perception and presence of black spots in the visual field. The physician should be contacted immediately if these symptoms occur. During the treatment, suggest to patients to avoid food that is high in tyramine or vasopressive amino acids. Four types of food must be excluded from the diet: marinated or smoked fish, yeast, and extracted concentrate yeast, fava bean,

BACTERIAL AND PARASITIC INFECTIONS				
Primary prophylaxis and treatment of tuberculosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Isoniazid (INH) <i>Isotamine</i> [®] Continued...				cheese and food that contain it, (pizza, lasagna, etc.). These types of food can cause adverse reactions such as rash, pruritus, cardiac palpitations, headache, etc. Only cottage, cream and ricotta cheeses are allowed, as well as sour cream yogourt. Yeast incorporated in bakery products is tolerated. It is also recommended to avoid beer, red wine (especially Chianti), aged or gamy meats, liver (except if fresh), fruits or vegetables if overripe or rotten. Fresh fruits are safe. Some components of chocolate, coffee, tea, cocoa and colas can interact with isoniazid and are therefore limited to individual tolerance.

BACTERIAL AND PARASITIC INFECTIONS				
Primary prophylaxis and treatment of tuberculosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Rifampin <i>Rofact</i> [®] <i>Rifadin</i> [®] <i>Rimactane</i> [®]	Treatment : 10 mg/kg PO daily (maximum 600 mg per day)	Stomach cramps, diarrhea, orange-brown discolouration of body fluids, elevation of hepatic enzymes, hepatotoxicity, headache, fatigue, drowsiness, dizziness. Rarely, hematological effects (anemia, thrombocytopenia, neutropenia) and skin rash.	Atovaquone: see atovaquone. Beta-blockers (metoprolol, propranolol): _ [] beta-blockers. Benzodiazepines(alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, zolpidem) :_ [] benzodiazepines. Calcium channel blockers (nifedipine, verapamil): _ [] calcium channel blockers. Clarithromycin: see clarithromycin. Corticosteroids: _ significantly [] corticosteroids. May require doubling the dose of the corticosteroid. Delavirdine: see delavirdine. Digoxin: _ [] digoxin. Monitor digoxin level. The effect could persist for a few days after stopping rifampin. Efavirenz: see efavirenz. Fluconazole: _ 23% AUC and _ 47% [] fluconazole. Monitor efficacy of fluconazole. Hypoglycemic agents (sulfonylureas) : _ [] sulfonylureas Indinavir: see indinavir. Itraconazole / ketoconazole: _ 82% [] itraconazole and ketoconazole. Monitor efficacy of these agents. Nelfinavir: see nelfinavir. Nevirapine: see nevirapine. Methadone: Possible _ [] methadone. Oral contraceptives: _ [] oral contraceptives. Utilize a backup method of contraception, such as latex condoms.	Advise patients to take rifampin on an empty stomach, ideally 1 hour before or 2 hours after eating. To reduce gastrointestinal side effects, rifampin may be taken with food. Also, patients can take rifampin in two divided doses with meals (breakfast and supper). For patients with difficulty swallowing, the contents of the capsules may be mixed with applesauce. Warn patients about orange-brown discolouration of body fluids (urine, saliva, sputum, sweat, tears). Soft contact lenses may become irreversibly discoloured. No effect on hard contact lenses. Suggest to patients to limit their intake of alcohol. Regular intake of alcohol can increase the risk of hepatotoxicity. Advise patients of signs of hepatitis : nausea, vomiting, anorexia, unusual fatigue, jaundice (yellowing of skin and eyes, dark urine, pale stools). Physician should be contacted immediately if hepatitis is suspected. As effectiveness of oral contraceptive use may be reduced, suggest to use a backup method of contraception. Warn patients to be aware of effects of rifampin before performing activities requiring concentration (eg. driving).

BACTERIAL AND PARASITIC INFECTIONS				
Primary prophylaxis and treatment of tuberculosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Rifampin <i>Rofact</i> [®] <i>Rifadin</i> [®] <i>Rimactane</i> [®] Continued...			Phenytoin: _ 50% [] phenytoin. Monitor phenytoin level. Ritonavir: see ritonavir. Saquinavir: see saquinavir. Theophylline: _ [] theophylline. Warfarin: Possible _ [] warfarin. Monitor prothrombin time. Zidovudine: see zidovudine. Hepatotoxic medications (isoniazid, PIs, NNRTIs, cotrimoxazole, ketoconazole, itraconazole, pyrazinamide etc.): _ risk of hepatotoxicity.	

BACTERIAL AND PARASITIC INFECTIONS				
Primary prophylaxis and treatment of tuberculosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Rifabutin <i>Mycobutin</i> [®]	Primary prophylaxis or Treatment : 300mg PO daily Dose of rifabutin can be altered when given concomitantly with antiretrovirals.	See page 9	See page 9	See page 9
Ethambutol <i>Myambutol</i> [®]	Treatment : 15-25 mg/kg PO daily (Maximum : 2.5g per day)	See page 9	See page 9	See page 9
Pyrazinamide <i>Tebrazid</i> [®]	Primary prophylaxis or treatment: 15-30 mg/kg PO daily (Maximum : 2g per day)	Nausea, vomiting, anorexia, abdominal pain, hepatotoxicity, hyperuricemia, arthralgia, skin rash.	Hepatotoxic medications (isoniazid, PIs, NNRTIs, cotrimoxazole, ketoconazole, itraconazole, rifabutin, rifampin etc.): _ risk of hepatotoxicity.	If patient is diabetic, warn for possible interference with urine glucose tests. Advise patients of signs of hepatitis : nausea, vomiting, anorexia, unusual fatigue, jaundice (yellowing of skin and eyes, dark urine, pale stools). Physician should be contacted immediately if hepatitis is suspected. Contact physician immediately if presence of joint pain. Suggest to patients to limit their intake of alcohol. Regular intake of alcohol can increase the risk of hepatotoxicity.

FUNGAL INFECTIONS				
Prophylaxis or treatment of oral candidiasis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Clotrimazole (vaginal tablets) <i>Myclo</i> [®] <i>Canesten</i> [®]	1 vaginal tablet (200mg) to dissolve in the mouth 3-5 times/day	Nausea, vomiting, diarrhea, abdominal pain, skin rash, taste alteration.	No significant interactions.	Local effectiveness is reduced if taken with food. Avoid drinking and eating for 30 minutes (ideally 60 minutes) after taking clotrimazole.
Nystatin (suspension) <i>Nilstat</i> [®]	500 000-1 000 000 units to swish and swallow up to QID	Skin reactions, nausea, vomiting, abdominal cramps, diarrhea, taste alteration.	No significant interactions.	Oral suspension should be shaken well before taking recommended dose. Measure the prescribed amount using the measuring device provided. The patient should swish and hold the medication for as long as possible in the mouth, gargle and swallow. The measuring device should be rinsed well and cleaned after use. Local effectiveness is reduced if taken with food. Avoid drinking and eating for 30 minutes (ideally 60 minutes) after taking nystatin. Patients should rinse the mouth with water and brush their teeth and gums 60 minutes after taking nystatin to prevent dental cavities due to sugar content of solution. A sugar-free nystatin oral suspension is available for diabetic patients.

FUNGAL INFECTIONS				
Prophylaxis and treatment of oropharyngeal and esophageal candidiasis				
Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Ketoconazole <i>Nizoral</i> [®]	Treatment : 200 mg-400 mg PO daily	Nausea, vomiting, diarrhea, anorexia, abdominal pain, headache, dizziness, drowsiness, elevation of hepatic enzymes, hepatitis, gynecomastia, decreased libido, impotence, photophobia.	<p>Antacids (e.g. Maalox), didanosine (ddl): _ absorption of ketoconazole and _ significantly [] ketoconazole. Administer ketoconazole at least 2 hours before or 6 hours after taking antacids or didanosine.</p> <p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternatives (with caution) : atorvastatin, cerivastatin, and fluvastatin. Pravastatin would be the safest choice</p> <p>Medications which_ gastric pH such as: cimetidine, famotidine, lansoprazole, nizatidine, omeprazole, pantoprazole, ranitidine: _ significantly the absorption of ketoconazole. Avoid. Alternatives: fluconazole or _ dose of ketoconazole. Suggest to take ketoconazole with food or to drink an acidic beverage 15 minutes before taking ketoconazole.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam, triazolam) : Possible _ [] benzodiazepines. Avoid. Alternatives: glucuronidated benzodiazepines (lorazepam, oxazepam, temazepam) or adjust the dose of benzodiazepines metabolized by CYP 3A4.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil: _ [] calcium channel blockers. Use caution. May necessitate decreasing dose of calcium channel blockers.</p> <p>Carbamazepine: _ possible [] ketoconazole.</p>	<p>Suggest to take ketoconazole with food which enhances the absorption and efficacy of ketoconazole.</p> <p>Absorption is increased when a glass of cola or orange juice is taken 15 minutes before ketoconazole.</p> <p>Advise patients to avoid alcohol consumption during treatment and for 24 to 48 hours after stopping treatment. Alcohol can cause disulfiram-type reactions and increase the risk of hepatotoxicity.</p> <p>Warn patients to be aware of effects of ketoconazole before performing activities requiring concentration (eg. driving) .</p> <p>Ketoconazole is embryotoxic and teratogenic. Avoid in pregnancy. Use an effective method of contraception.</p> <p>For patients who experience photophobia with ketoconazole, recommend tinted glasses.</p>

FUNGAL INFECTIONS Prophylaxis and treatment of oropharyngeal and esophageal candidiasis, Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Ketoconazole <i>Nizoral</i> [®] Continued...			<p>Cisapride: _ possible [] cisapride and _ risk of cardiotoxicity. Contraindicated. Alternatives: metoclopramide or domperidone.</p> <p>Corticosteroids (dexamethasone, prednisone, prednisolone, methylprednisolone): _ [] corticosteroids. Monitor signs and symptoms of toxicity.</p> <p>Delavirdine: see delavirdine.</p> <p>Digoxin: _ up to 50% AUC digoxin. Monitor digoxin level and signs and symptoms of toxicity.</p> <p>Indinavir: see indinavir.</p> <p>Isoniazid: see isoniazid.</p> <p>Nelfinavir: see nelfinavir.</p> <p>Nevirapine: see nevirapine.</p> <p>Phenytoin: _ [] ketoconazole. Monitor efficacy of ketoconazole.</p> <p>Quinidine: _ [] quinidine. Monitor.</p> <p>Rifabutin: _ [] ketoconazole. Monitor efficacy of ketoconazole.</p> <p>Rifampin: _ 82% [] ketoconazole. _ absorption of rifampin. Monitor efficacy of both agents.</p> <p>Ritonavir: see ritonavir.</p> <p>Saquinavir: see saquinavir.</p>	

FUNGAL INFECTIONS				
Prophylaxis and treatment of oropharyngeal and esophageal candidiasis, Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Ketoconazole <i>Nizoral</i> [®] Continued...			<p>Sildenafil : Possible _ [] sildenafil. Use initial dose of 25 mg and adjust dose according to response and side effects.</p> <p>Sulfonylureas (chlorpropamide, glipizide, glyburide, tolbutamide): Possible _ [] sulfonylureas. Monitor blood glucose and adjust dose of these agents.</p> <p>Warfarin: _ [] warfarin. Monitor prothrombin time.</p>	

FUNGAL INFECTIONS				
Prophylaxis and treatment of oropharyngeal and esophageal candidiasis, Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Fluconazole <i>Diflucan</i> [®]	Treatment: 100-400 mg PO or IV daily Higher doses may be required.	Nausea, vomiting, abdominal pain, diarrhea, elevation of hepatic enzymes(rare), hepatitis, alopecia (more likely if dose > 400 mg/day), rash (rare)	<p>Antilipemic agents (atorvastatin, cerivastatin, fluvastatin, lovastatin, simvastatin, pravastatin): Possible _ [] antilipemic agents. Simvastatin and lovastatin are contraindicated. Alternatives (with caution): atorvastatin, cerivastatin, fluvastatin. Pravastatin would be the safest choice.</p> <p>Anticonvulsants (carbamazepine, phenobarbital, phenytoin): Possible _ [] fluconazole. Monitor efficacy of fluconazole.</p> <p>Benzodiazepines (alprazolam, chlordiazepoxide, clonazepam, clorazepate, diazepam, estazolam, flurazepam, midazolam, triazolam): Possible _ [] benzodiazepines. Avoid. Alternatives: glucuronidated benzodiazepines (lorazepam, oxazepam, temazepam) or adjust dose of benzodiazepines metabolized by CYP 3A4.</p> <p>Calcium channel blockers (amlodipine, diltiazem, felodipine, isradipine, nifedipine, nicardipine, nimodipine, nisoldipine, verapamil: _ [] calcium channel blockers. Use caution. May necessitate decreasing dose of calcium channel blockers.</p> <p>Cisapride: Possible _ [] cisapride and _ risk of cardiotoxicity. Contraindicated. Alternatives: metoclopramide or domperidone.</p> <p>Delavirdine: see delavirdine.</p> <p>Efavirenz: see efavirenz.</p> <p>Indinavir: see indinavir.</p> <p>Losartan: _ 69% AUC losartan. Monitor.</p>	<p>Contrary to ketoconazole and itraconazole, the absorption of fluconazole is not affected by gastric acid. Fluconazole can be taken with or without food.</p> <p>Suggest to patients to limit their intake of alcohol. Regular or excessive intake of alcohol can increase the risk of hepatotoxicity.</p>

FUNGAL INFECTIONS Prophylaxis and treatment of oropharyngeal and esophageal candidiasis Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Fluconazole <i>Diflucan</i> [®] Continued...			Methadone: _ 35% [] methadone. Clinical significance unknown. Nelfinavir: see nelfinavir. Phenytoin: _ 33-75% [] phenytoin. Monitor phenytoin level and signs and symptoms of phenytoin toxicity. Rifabutin: _ 80% [] rifabutin. _ risk of uveitis and other side effects of rifabutin. Monitor. Rifampin: _ 23% AUC fluconazole. Monitor efficacy of fluconazole. Ritonavir: see ritonavir. Saquinavir: see saquinavir. Warfarin: _ AUC warfarin. Monitor prothrombin time. Zidovudine (AZT): _ 40-74% [] zidovudine. _ risk of hematological toxicity. Monitor. More likely to occur if dose of fluconazole > 400mg/day.	

FUNGAL INFECTIONS				
Prophylaxis and treatment of oropharyngeal and esophageal candidiasis				
Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Itraconazole <i>Sporanox</i> [®]	Treatment : 100-200 mg PO daily	Nausea, vomiting, abdominal pain, diarrhea, anorexia, headache, fatigue, dizziness, drowsiness, rash, pruritus, elevation of hepatic enzymes, hepatitis (less frequent compared to ketoconazole).	See interactions with ketoconazole.	<p>Suggest to take itraconazole capsules with food which enhances the absorption and efficacy of itraconazole. Absorption is increased when a glass of cola or orange juice is taken 15 minutes before itraconazole capsules.</p> <p>Itraconazole oral solution should be taken on an empty stomach (1 hour before or 2 hours after food). Food can reduce the absorption and efficacy of itraconazole oral solution.</p> <p>Itraconazole oral solution should not be taken with an acidic beverage as this could reduce the absorption and efficacy of itraconazole.</p> <p>Avoid excessive or chronic intake of alcohol. Alcohol may increase risk of hepatotoxicity.</p> <p>Warn patients to be aware of effects of itraconazole before performing activities requiring concentration (eg. Driving).</p> <p>Itraconazole is embryotoxic and teratogenic. Avoid in pregnancy. Use an effective method of contraception.</p>

FUNGAL INFECTIONS				
Prophylaxis and treatment of oropharyngeal and esophageal candidiasis				
Coccidioidomycosis, Cryptococcosis, Histoplasmosis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Amphotericin B <i>Fungizone</i> [®]	Treatment and secondary prophylaxis: 0.5-1 mg/kg IV daily	Fever, chills, hypotension (during infusion), nephrotoxicity, tachycardia, muscular and joint pain, hypokalemia, headache, anorexia, nausea, vomiting, hematological toxicity (anemia), rash (rare).	Amiodarone, disopyramide, quinidine, sotalol: _ risk of cardiotoxicity (torsade de pointes) following hypokalemia with amphotericin B. Corticosteroids: _ risk of hypokalemia. Digoxin: _ risk of cardiotoxicity following hypokalemia with amphotericin B Foscarnet, aminoglycosides, vancomycin: _ risk of nephrotoxicity. Avoid these agents or monitor closely. Monitor serum creatinine closely. Zidovudine, ganciclovir, myelosuppressive chemotherapy, sulfonamides, dapson, primaquine and other medications which predispose to hematological toxicity: _ risk of hematological toxicity. Avoid these agents or monitor closely. Monitor CBC regularly.	Amphotericin B is generally administered in a large volume and over a long period (4 hours or more). Dilute dose in dextrose 5% (or a solution without electrolytes) to avoid precipitation. Amphotericin B should not be administered with a device containing an in-line filter. Monitor regularly serum creatinine, CBC and electrolytes. Diphenhydramine, non-steroidal antiinflammatory agents, meperidine or corticosteroids may be administered before amphotericin B to reduce the infusion-related side effects (fever, chills, hypotension). Use of premedications may enable increase in rate of infusion.

VIRAL INFECTIONS				
Zona (Herpes zoster)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Acyclovir Zovirax®	Treatment : 800 mg PO 5 times/day 10 mg/kg IV q8h	Generally well tolerated. Gastrointestinal: diarrhea, abdominal pain, nausea, vomiting. Headache, dizziness, fatigue. Allergic reaction (rare). Risk of nephrotoxicity with IV administration.	Amphotericin B, vancomycin, pentamidine, aminoglycosides and other nephrotoxic medications: _ risk of nephrotoxicity.	Unless otherwise advised by physician, suggest patients to take acyclovir with a large glass of water and drink at least 1.5 litres (8-10 glasses) of water or other fluids each day. This will help kidneys to eliminate the medication. The treatment is most effective if started as early as possible once symptoms appear. Remind patient that acyclovir only controls the symptoms; it does not cure or prevent the transmission of disease. Recommend use of condoms during sexual intercourse and to avoid sexual contacts with herpetic lesions. Warn patients to be aware of effects of acyclovir before performing activities requiring concentration (eg. driving).

VIRAL INFECTIONS				
Zona (Herpes zoster)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Famciclovir <i>Famvir®</i>	500mg PO TID	Generally well tolerated. Gastrointestinal: diarrhea, abdominal pain, nausea, vomiting, dyspepsia. Headache, dizziness, fatigue. Allergic reaction (rare).	Amphotericin B, vancomycin, pentamidine, aminoglycosides and other nephrotoxic medications : _ risk of nephrotoxicity	Unless otherwise advised by physician, suggest patients to take famciclovir with a large glass of water and drink at least 1.5 litres (8-10 glasses) of water or other fluids each day. This will help kidneys to eliminate the medication. The treatment is most effective if started as early as possible once symptoms appear. Remind patient that famciclovir only controls the symptoms; it does not cure or prevent the transmission of disease. Recommend use of condoms during sexual intercourse and to avoid sexual contacts with herpetic lesions. Warn patients to be aware of effects of famciclovir before performing activities requiring concentration (eg. driving).

VIRAL INFECTIONS				
Zona (Herpes zoster)				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Valacyclovir <i>Valtrex®</i>	1g PO TID	Generally well tolerated. Gastrointestinal: diarrhea, abdominal pain, nausea, vomiting, dyspepsia. Headache, dizziness, fatigue. Allergic reaction (rare).	Amphotericin B, vancomycin, pentamidine, aminoglycosides and other nephrotoxic medications: _ risk of nephrotoxicity.	Unless otherwise advised by physician, suggest patients to take valacyclovir with a large glass of water and drink at least 1.5 litres (8-10 glasses) of water or other fluids each day. This will help kidneys to eliminate the medication. The treatment is most effective if started as early as possible once symptoms appear. Remind patient that valacyclovir only controls the symptoms; it does not cure or prevent the transmission of disease. Recommend use of condoms during sexual intercourse and to avoid sexual contacts with herpetic lesions. Warn patients to be aware of effects of valacyclovir before performing activities requiring concentration (eg. driving).

VIRAL INFECTIONS				
Herpes simplex : Treatment and secondary prophylaxis				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Acyclovir <i>Zovirax</i> [®]	Treatment: 5mg/kg IV q8h 400mg PO TID Secondary prophylaxis : 400 mg PO BID or 200 mg PO TID	See page 31	See page 31	See page 31
Valacyclovir <i>Valtrex</i> [®]	Treatment: 1000mg PO BID Prophylaxis : 500mg PO BID	See page 32	See page 32	See page 32
Famciclovir <i>Famvir</i> [®]	Treatment: 250mg TID or 500mg PO BID Prophylaxis : 250-500mg PO BID	See page 31	See page 31	See page 31

VIRAL INFECTIONS				
Cytomegalovirus Retinitis (CMV)				
Treatment and secondary prophylaxis of CMV				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Foscarnet sodium <i>Foscavir</i> [®]	Treatment : 60 mg/kg IV q8h Secondary Prophylaxis : 60 mg/kg daily IV or 90-120 mg/kg IV 5 days/week	Nephrotoxicity, headache, fatigue, nausea, fever, hematological toxicity (anemia, neutropenia, thrombocytopenia) although less frequent compared to ganciclovir, genital ulcers, hypocalcemia and other electrolyte disturbances (hypo and hyperphosphatemia, hypomagnesemia, hypokalemia), elevation of hepatic enzymes.	Amphotericin B, vancomycin, pentamidine, aminoglycosides and other nephrotoxic medications: _ risk of nephrotoxicity. Pentamidine IV: _ risk of hypocalcemia.	Increase fluid intake to minimize nephrotoxicity. Monitor serum creatinine. Remind patient that foscarnet only controls the symptoms; it does not cure or prevent the transmission of disease. Use reliable form of contraception. Risk of contact dermatitis and local irritation (70-90% of foscarnet is eliminated unchanged in urine). Rinse genital area thoroughly after urination to prevent ulceration. Monitor electrolytes ideally 2 times per week during induction treatment then weekly thereafter. Recommend supplementation of calcium, magnesium and potassium as required. If symptoms of hypocalcemia occur during administration, stop the infusion immediately. Reduction of infusion rate can reduce the risk of hypocalcemia.

VIRAL INFECTIONS				
Cytomegalovirus Retinitis (CMV)				
Treatment and secondary prophylaxis of CMV				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Ganciclovir <i>Cytovene</i> [®]	Treatment : 5mg/kg IV q12h Secondary Prophylaxis : 6 mg/kg IV daily 5 days per week	Hematological reactions (neutropenia, thrombocytopenia, anemia), nausea, vomiting, diarrhea, abdominal pain, nephrotoxicity (less frequent compared to foscarnet), skin reactions, fever, headache, confusion, azoospermia, retinal detachment, thrombophlebitis.	Zidovudine, amphotericin B, myelosuppressive chemotherapy, dapson, pyrimethamine, cotrimoxazole, primaquine: _ risk of hematological toxicity. Avoid or monitor CBC closely. Didanosine: _ 50-75% __ ddl. Monitor side effects of didanosine.	Inform patient that the treatment is not a cure but a management of symptoms. Monitor CBC regularly, ideally 2 to 3 times per week during the induction treatment then weekly thereafter. Women should use a reliable method of contraception during treatment with ganciclovir and for at least 90 days following treatment due to teratogenic effects of ganciclovir. Intravenous administration requires special protective measures to minimize risk of carcinogenic effects. Gloves should be worn. If ganciclovir comes into direct contact with skin, the exposed area should be washed thoroughly with soap and water.

VIRAL INFECTIONS				
Cytomegalovirus Retinitis (CMV)				
Secondary prophylaxis of CMV				
Generic and Trade Names	Dose	Side Effects	Drug Interactions	Recommendations
Ganciclovir oral <i>Cytovene</i> [®]	Prophylaxis : 1000mg (4 capsules of 250mg) TID	Nausea, vomiting, diarrhea, abdominal pain. Rarely systemic effects (anemia, neutropenia, thrombocytopenia).	Didanosine (ddl): _ 50-75% __ ddl. Monitor side effects of didanosine.	Ganciclovir oral : Poor bioavailability of oral ganciclovir. Advise patients to take ganciclovir with meals. Meals which are high in fat and calories improve the absorption of ganciclovir. Warn patients not to open or crush ganciclovir capsules due to risk of carcinogenicity. Oral ganciclovir is contraindicated in patients with diarrhea or malabsorption disorders.