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Table 13. Antiretroviral Dosing Recommendations for Patients with Renal or Hepatic Dysfunction

Generic (Trade) Names	Daily Dose	Dosing in Renal Insufficiency	Dosing in Hepatic Impairment
Nucleoside Reverse Transcriptase Inhibitors			
Abacavir* (Ziagen [®])	300 mg PO BID	No need for dosage adjustment	No dosage recommendation
Didanosine (Videx [®])	<p>> 60 kg 400 mg PO qd</p> <p>< 60 kg 250mg qd</p>	<p><u>Dose/day</u></p> <p>CrCl (mL/min) >60 kg <60 kg</p> <p>30-59 200 mg 125mg</p> <p>10-29 125 mg 100mg</p> <p>< 10 125 mg 75mg</p> <p>CAPD or hemodialysis patients: use same dose as CrCl < 10 mL/min</p>	No dosage recommendation
Emtricitabine (Emtriva [®])	200 mg PO qd	<p>CrCl (mL/min) Dose</p> <p>30-49 200mg q48h</p> <p>15-29 200mg q72h</p> <p><15 200mg q96h</p> <p>Hemodialysis patients: 200 mg q96h (dose after dialysis if dose is due on dialysis day)</p>	No dosage recommendation
Lamivudine* (Epivir [®])	300 mg PO qd or 150mg PO BID	<p>CrCl (mL/min) Dose</p> <p>30-49 150mg qd</p> <p>15-29 150mg qd, then 100mg qd</p> <p>5-14 150mg qd, then 50mg qd</p> <p><5 50mg qd, then 25mg qd</p> <p>No data on hemodialysis</p>	No dosage recommendation
Stavudine (Zerit [®])	<p>> 60 kg 40 mg PO BID</p> <p>< 60 kg 30 mg PO BID</p>	<p><u>Dose</u></p> <p>CrCl (mL/min) >60 kg <60 kg</p> <p>26-50 20mg q12h 15mg q12h</p> <p>10-25 20mg q24h 15mg q24h</p> <p>Hemodialysis – same dose as CrCl 10-25 mL/min, dose after dialysis on day of dialysis</p>	No dosage recommendation
Tenofovir (Viread [®])	300 mg PO qd	<p>CrCl (mL/min) Dose</p> <p>> 50 300mg qd</p> <p>30-49 300mg q48h</p> <p>10-29 300mg biw</p> <p>ESRD 300mg q wk</p>	No dosage recommendation
Zalcitabine (Hivid [®])	0.75 mg PO TID	<p>CrCl (mL/min) Dose</p> <p>10-40 0.75 mg BID</p> <p>< 10 0.75 mg qd</p> <p>No data on hemodialysis</p>	No dosage recommendation
Zidovudine* (Retrovir [®])	300 mg PO BID	“Severe” renal impairment or hemodialysis – 100mg TID	No dosage recommendation
Non- Nucleoside Reverse Transcriptase Inhibitors			
Delavirdine (Rescriptor [®])	400 mg PO TID	No dosage adjustment necessary	No recommendation; use with caution in patients with hepatic impairment
Efavirenz (Sustiva [®])	600 mg PO qd	No dosage adjustment necessary	No recommendation; use with caution in patients with hepatic impairment
Nevirapine (Viramune [®])	200 mg PO BID	No dosage adjustment necessary	No data available; avoid use in patients with moderate to severe hepatic impairment

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Table 13. Antiretroviral Dosing Recommendations for Patients with Renal or Hepatic Dysfunction

Generic (Trade) Names	Daily Dose	Dosing in Renal Insufficiency	Dosing in Hepatic Impairment						
Protease Inhibitors									
Amprenavir (Agenerase [®])	1,200 mg PO BID	No dosage adjustment necessary	<table border="1"> <thead> <tr> <th>Child-Pugh Score</th> <th>Dose</th> </tr> </thead> <tbody> <tr> <td>5-8</td> <td>450mg BID</td> </tr> <tr> <td>9-12</td> <td>300mg BID</td> </tr> </tbody> </table>	Child-Pugh Score	Dose	5-8	450mg BID	9-12	300mg BID
Child-Pugh Score	Dose								
5-8	450mg BID								
9-12	300mg BID								
Atazanavir (Reyataz [®])	400 mg PO qd	No dosage adjustment necessary	<table border="1"> <thead> <tr> <th>Child-Pugh Class</th> <th>Dose</th> </tr> </thead> <tbody> <tr> <td>Class B</td> <td>300mg qd</td> </tr> <tr> <td>Class C</td> <td>not recommended</td> </tr> </tbody> </table>	Child-Pugh Class	Dose	Class B	300mg qd	Class C	not recommended
Child-Pugh Class	Dose								
Class B	300mg qd								
Class C	not recommended								
Fosamprenavir (Lexiva [®])	1,400 mg PO BID	No dosage adjustment necessary	<table border="1"> <thead> <tr> <th>Child-Pugh Score</th> <th>Dose</th> </tr> </thead> <tbody> <tr> <td>5-8</td> <td>700 mg BID</td> </tr> <tr> <td>9-12</td> <td>not recommended</td> </tr> </tbody> </table> Ritonavir boosting should not be used in patients with hepatic impairment	Child-Pugh Score	Dose	5-8	700 mg BID	9-12	not recommended
Child-Pugh Score	Dose								
5-8	700 mg BID								
9-12	not recommended								
Indinavir (Crixivan [®])	800 mg PO q8h	No dosage adjustment necessary	Mild to moderate hepatic insufficiency due to cirrhosis: 600mg q8h						
Lopinavir/ritonavir (Kaletra [®])	400mg/100mg PO BID	No dosage adjustment necessary	No dosage recommendation; use with caution in patients with hepatic impairment						
Nelfinavir (Viracept [®])	1,250 mg PO BID	No dosage adjustment necessary	No dosage recommendation; use with caution in patients with hepatic impairment						
Ritonavir (Norvir [®])	600 mg PO BID	No dosage adjustment necessary	No dosage adjustment in mild hepatic impairment; no data for moderate to severe impairment, use with caution						
Saquinavir soft gel cap (Fortovase [®])	1,200 mg TID	No dosage adjustment necessary	No dosage recommendation; use with caution in patients with hepatic impairment						
Fusion Inhibitors									
Enfuvirtide (Fuzeon [®])	90 mg SQ q12h	No dosage adjustment necessary	No dosage recommendation						

- Combination products of Combivir and Trizivir should not be used in patients with renal insufficiency

Creatinine Clearance calculation: Male: $\frac{(140 - \text{age in yr}) \times \text{weight (kg)}}{72 \times \text{S.Cr.}}$ Female: $\frac{(140 - \text{age in yr}) \times \text{weight (kg)} \times 0.85}{72 \times \text{S.Cr.}}$

Child-Pugh Score

Component	Score Given		
	1	2	3
Encephalopathy*	None	Grade 1-2	Grade 3-4
Ascites	None	Mild or controlled by diuretics	Moderate or refractory despite diuretics
Albumin	> 3.5 g/dL	2.8 to 3.5 g/dL	< 2.8 g/dL
Total Bilirubin or Modified Total Bilirubin**	< 2 mg/dL (< 34 μ mol/L) < 4 mg/dL	2 to 3 mg/dL (34 μ mol/L to 50 μ mol/L) 4-7 mg/dL	> 3 mg/dL (> 50 μ mol/L) > 7 mg/dL
Prothrombin time (sec prolonged) or INR	< 4 < 1.7	4-6 1.7-2.3	> 6 > 2.3

* NB: Encephalopathy Grades

Grade 1: Mild confusion, anxiety, restlessness, fine tremor, slowed coordination

Grade 2: Drowsiness, disorientation, asterixis

Grade 3: Somnolent but rousable, marked confusion, incomprehensible speech, incontinent, hyperventilation

Grade 4: Coma, decerebrate posturing, flaccidity

** Modified Total Bilirubin used to score patients who have Gilbert's Syndrome or who are taking indinavir

Child-Pugh Classification

Child-Pugh Class A = score 5-6; Class B = score 7-9; Class C = score > 9