Antibiotic Dosage in Adult Patients with Impaired Renal Function

<table>
<tr><th>Antibiotic</th><th>Usual dose</th><th>Dosage adjustment in renal impairment</th></tr>
<tr><td>IV Amikacin
(Multiple daily doses)</td><td>7.5 mg/kg BD</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Dosage adjustment</th></tr>
<tr><td>>50-90</td><td>7.5mg/kg q12h</td></tr>
<tr><td>30-50</td><td>7.5mg/kg q24h</td></tr>
<tr><td>10-30</td><td>7.5mg/kg q48h</td></tr>
<tr><td><10</td><td>7.5mg/kg q72h</td></tr>
</table>
</td></tr>
<tr><td>IV Amikacin
(Once daily dose)</td><td>15mg/kg OD</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Dosage adjustment</th></tr>
<tr><td>>80</td><td>15mg/kg q24h</td></tr>
<tr><td>60-80</td><td>12mg/kg q24h</td></tr>
<tr><td>40-60</td><td>7.5mg/kg q24h</td></tr>
<tr><td>30-40</td><td>4mg/kg q24h</td></tr>
<tr><td>20-30</td><td>7.5mg/kg q48h</td></tr>
<tr><td>10-20</td><td>4mg/kg q48h</td></tr>
<tr><td><10</td><td>3mg/kg q72h</td></tr>
</table>
*Administer post HD on HD day
(Source: The Sanford Guide to Antimicrobial Therapy 2013)
</td></tr>
<tr><td>IV Ampicillin</td><td>500mg-2g every 6 hours</td><td>CrCl > 50ml/min: Administer every 6 hours
CrCl 10-50ml/min: Administer 6-12 hours
CrCl < 10ml/min: Administer every 12-24 hours
*Administer post HD on HD day.
(Source: National Antibiotic Guideline 2014/Sanford)</td></tr>
<tr><td>IV Augmentin
(Amoxycillin 1g/Clavulanate 200mg)</td><td>1.2g TDS</td><td>CrCl 10-50 ml/min: 1.2g BD
CrCl <10 ml/min: 1.2g OD
(Source: Guide to Antimicrobial Therapy in the Adult ICU 2012)</td></tr>
<tr><td>IV Azithromycin</td><td>500mg OD</td><td>No dosage adjustment is recommended
Use with caution if GFR <10 ml/min
(Source: Product Leaflet (Azee Inj®) & Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV Bactrim
(Sulphamethoxazole 400mg/Trimethoprim 80mg)</td><td>Trimethoprim component 8-20 mg/kg/day in divided doses every 6, 8 or 12 hours (BD/TDS/QID)</td><td>CrCl: >30ml/min: No dosage adjustment
CrCl 15-30 ml/min: Administer ½ of recommended dose
*For PCP infection, administer in 2 divided doses
CrCl <15 ml/min: Not recommended. If used, 5-10mg/kg OD, administer after HD
(Source: Drug Info 22nd Ed & Sanford Guide to Antimicrobial Therapy 2013)</td></tr>
<tr><td>IV Cefazolin</td><td>1-2g TDS</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Dose</th><th>Frequency</th></tr>
<tr><td>35-54</td><td>Full dose</td><td>TDS</td></tr>
<tr><td>11-34</td><td>½ usual dose</td><td>BD</td></tr>
<tr><td><10</td><td>½ usual dose</td><td>OD</td></tr>
</table>
*Administer post HD on HD day
(Source: Drug Info Handbook 22nd Ed)
</td></tr>
</table>

<table>
<tr><th>Antibiotic</th><th>Usual Dosage</th><th>Dosage Adjustment in Renal Impairment</th></tr>
<tr><td>IV Cefepime</td><td>1-2g BD/TDS</td><td>
<table>
<tr><th>CrCl</th><th colspan="4">Recommended maintenance schedule</th></tr>
<tr><td>>60 (Normal dose)</td><td>500mg BD</td><td>1g BD</td><td>2g BD</td><td>2g TDS</td></tr>
<tr><td>30-60</td><td>500mg OD</td><td>1g OD</td><td>2g OD</td><td>2g BD</td></tr>
<tr><td>11-29</td><td>500mg OD</td><td>500mg OD</td><td>1g OD</td><td>2g OD</td></tr>
<tr><td><11</td><td>250mg OD</td><td>250mg OD</td><td>500mg OD</td><td>1g OD</td></tr>
<tr><td>CAPD</td><td>500mg Q48H</td><td>1g Q48H</td><td>2g Q48H</td><td>2g Q48H</td></tr>
<tr><td>HD</td><td colspan="3">1g on D1, then 0.5g OD</td><td>1g OD</td></tr>
</table>
*Administer post HD on HD day
(Source: Product Leaflet (Forpar®)</td></tr>
<tr><td>IV Cefoperazone</td><td>1-2g BD</td><td>CrCl <18ml/min: Maximum dosage 4 g/day
(Source: Product leaflet Bicafar®)</td></tr>
<tr><td>IV Cefotaxime</td><td>1-2g TDS</td><td>GFR 10-50 ml/min: Administer BD/TDS/QID
GFR <10 ml/min: Administer OD or reduce dose by 50% & administer at usual intervals
*Administer post HD on HD day (Usual HD dose: 1-2g OD)
Concurrent Renal (CrCl < 5ml/min) & Hepatic impairment: 500mg BD
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV Ceftazidime</td><td>1-2g BD/TDS</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Dosage Adjustment</th></tr>
<tr><td>31-50</td><td>1g 12 hrly</td></tr>
<tr><td>16-30</td><td>1g 24hrly</td></tr>
<tr><td>6-15</td><td>0.5g 24hrly</td></tr>
<tr><td>≤5</td><td>0.5g 48hrly</td></tr>
</table>
*Administer post HD on HD day
**The unit dose above may be increased by 50% in severe infection.
Usual dose in HD: 1g OD (Administer post HD on HD day)
(Source: Product Leaflet (Fortum®)</td></tr>
<tr><td>IV Ceftriaxone</td><td>1-2g OD</td><td>No dosage adjustment necessary
*Concurrent renal and hepatic dysfunction- Max dose: ≤2g/day
(Source: Product Leaflet (Unocef®) & Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV Cefuroxime</td><td>750mg-1.5g TDS</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Frequency</th></tr>
<tr><td>>50</td><td>TDS</td></tr>
<tr><td>10-50</td><td>BD-TDS</td></tr>
<tr><td><10</td><td>OD</td></tr>
</table>
*Administer post HD on HD day
(The Sanford Guide to Antimicrobial Therapy 2013)</td></tr>
</table>

<table>
<tr><th>Antibiotic</th><th>Usual Dose</th><th>Dosage Adjustment in Renal Impairment</th></tr>
<tr><td>IV Ciprofloxacin</td><td><u>Oral:</u>
250-750mg BD

<u>IV</u>
200-400mg BD</td><td><u>Oral</u>
CrCl 30-50ml/min: 250-500mg BD
CrCl 5-29ml/min: 250-500mg every 18hr (To give OD for ease of administration)
HD: 250-500mg OD *Administer Post HD on HD day
(Source: Drug info Handbook 22nd Ed & Micromedex)
<u>IV</u>
CrCl ≥50ml/min: no dosage adjustment
CrCl 10-50ml/min: 200mg BD
CrCl <10ml/min: 200mg BD
*Administer Post HD on HD day
(Source: Drug info Handbook 22nd Ed)</td></tr>
<tr><td>Oral Clindamycin</td><td>300mg TDS-QID
(Max: 1800mg/day)</td><td>No dosage adjustment required.
Poorly dialyzable.
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV Cloxacillin</td><td>500mg-2g QID</td><td>No dosage adjustment necessary
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV Ertapenem</td><td>1g OD</td><td>CrCl ≤30 ml/min & ESRF (HD): 500mg OD
*Give after HD or at least 6 hrs prior to HD.
*If dose given within 6 hrs prior to HD, a supplementary dose of 150mg is recommended following HD
(Source: Product Leaflet (Invanz ®) & Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>Oral Fusidic acid</td><td>500mg TDS</td><td>No dosage adjustment required
(Source: Drug Info Handbook 18th Ed)</td></tr>
<tr><td>IV Gentamicin
(Multiple daily doses)</td><td>1.7mg/kg TDS</td><td><table><tr><th>CrCl (ml/min)</th><th>Dosage adjustment</th></tr><tr><td>>50-90</td><td>1.7mg/kg TDS</td></tr><tr><td>10-50</td><td>1.7mg/kg q12-48h</td></tr><tr><td><10</td><td>1.7mg/kg q48-72h</td></tr></table>*Administer post HD on HD day</td></tr>
<tr><td>IV Gentamicin
(Single daily dose)</td><td>3-5mg/kg OD</td><td><table><tr><th>CrCl (ml/min)</th><th>Dosage adjustment</th></tr><tr><td>>80</td><td>5mg/kg q24h</td></tr><tr><td>60-80</td><td>4mg/kg q24h</td></tr><tr><td>40-60</td><td>3.5mg/kg q24h</td></tr><tr><td>30-40</td><td>2.5mg/kg q24h</td></tr><tr><td>20-30</td><td>4mg/kg q48h</td></tr><tr><td>10-20</td><td>3mg/kg q48h</td></tr><tr><td><10</td><td>2mg/kg q72h</td></tr></table>*Administer post HD on HD day
(Source: The Sanford Guide to Antimicrobial Therapy 2013)
Further dosage adjustment should be based on TDM result</td></tr>
</table>

Antibiotic	Usual Dose	Dosage Adjustment in Renal Impairment
IV Imipenem	0.5g -1g TDS-QID Max: 4g/day	(Source: Drug Info Handbook 22nd Ed)

CrCl (ml/min/1.73m^2)	Body Weight (Kg)				
	≥70	60	50	40	30
Total daily dose for normal renal function: 1g/day (250mg QID)					
CrCl ≥ 71	250mg q6h	250mg q8h	125mg q6h	125mg q6h	125mg q8h
CrCl 41-70	250mg q8h	125mg q6h	125mg q6h	125mg q8h	125mg q8h
CrCl 21-40	250mg q12h	250mg q12h	125mg q8h	125mg q12h	125mg q12h
CrCl 6-20	250mg q12h	125mg q12h	125mg q12h	125mg q12h	125mg q12h
Total daily dose for normal renal function: 1.5g/day (500mg TDS)					
CrCl ≥ 71	500mg q8h	250mg q6h	250mg q6h	250mg q8h	125mg q6h
CrCl 41-70	250mg q6h	250mg q8h	250mg q8h	125mg q6h	125mg q8h
CrCl 21-40	250mg q8h	250mg q8h	250mg q12h	125mg q8h	125mg q8h
CrCl 6-20	250mg q12h	250mg q12h	250mg q12h	125mg q12h	125mg q12h
Total daily dose for normal renal function: 2g/day (500mg QID)					
CrCl ≥ 71	500mg q6h	500mg q8h	250mg q6h	250mg q6h	250mg q8h
CrCl 41-70	500mg q8h	250mg q6h	250mg q6h	250mg q8h	125mg q6h
CrCl 21-40	250mg q6h	250mg q8h	250mg q8h	250mg q12h	125mg q8h
CrCl 6-20	250mg q12h	250mg q12h	250mg q12h	250mg q12h	125mg q12h
Total daily dose for normal renal function: 3g/day (1g TDS)					
CrCl ≥ 71	1g q8h	750mg q8h	500mg q6h	500mg q8h	250mg q6h
CrCl 41-70	500mg q6h	500mg q8h	500mg q8h	250mg q6h	250mg q8h
CrCl 21-40	500mg q8h	500mg q8h	250mg q6h	250mg q8h	250mg q8h
CrCl 6-20	500mg q12h	500mg q12h	250mg q12h	250mg q12h	250mg q12h
Total daily dose for normal renal function: 4g/day (1g QID)					
CrCl ≥ 71	1g q6h	1g q8h	750mg q8h	500mg q6h	500mg q8h
CrCl 41-70	750mg q8h	750mg q8h	500mg q6h	500mg q8h	250mg q6h
CrCl 21-40	500mg q6h	500mg q8h	500mg q8h	250mg q6h	250mg q8h
CrCl 6-20	500mg q12h	500mg q12h	500mg q12h	250mg q12h	250mg q12h

<table>
<tr><th>Antibiotic</th><th>Usual Dose</th><th>Dosage Adjustment in Renal Impairment</th></tr>
<tr><td>IV Linezolid</td><td>600mg BD</td><td>No dosage adjustment is required, but should be given after HD
on HD day
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV Meropenem</td><td>500mg-2g TDS</td><td>CrCl 26-50 ml/min: recommended dose BD
CrCl 10-25 ml/min: ½ recommended dose BD
CrCl <10 ml/min: ½ recommended dose OD
*Administer after HD on HD day (Usual HD dose: 500mg OD post HD)
(Source: Product Leaflet (DBL Meropenem for Inj ®) & Drug Info 22nd Ed)</td></tr>
<tr><td>IV Metronidazole (Flagyl®)</td><td>500mg TDS</td><td>No dosage adjustment is necessary
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>Penicillin G (Benzylpenicillin)</td><td>0.5-4 million unit every 4 to 6 hours
(1MU = 600mg)</td><td>CrCl > 50ml/min: No dosage adjustment
CrCl 10-50 ml/min: Administer 75% of normal dose
CrCl < 10ml/min: Administer 25-50% of normal dose
*Administer post HD on HD day
(Source: National Antibiotic Guideline 2014)</td></tr>
<tr><td>IV Polymyxin E (Colistimethate Sodium)

**Treatment of Multidrug Resistant Acinetobacter sp. Please consult Specialist before starting this drug</td><td><u>≤60kg</u>
50000-75000 unit/kg/day in 3 divided doses
Max: 6MU/day

<u>>60kg</u>
1-2MU TDS

Source: KKM Formulary (Blue Book)</td><td>≤ 60kg
<u>Source: Micromedex (in terms of colistin base):</u>
CrCl 50-79 ml/min: 2.5-3.8 mg/kg/day in 2 divided doses
CrCl 30-49 ml/min: 2.5 mg/kg/day OD or in 2 divided doses
CrCl 10-29 ml/min: 1.5 mg/kg/day every 36 hrs
*1mg colistin base = 2.4mg colistimethate sodium = 30000 Unit colistimethate sodium

>60kg
<u>Source: KKM formulary (in terms of MU Colistimethate Sodium):</u>
CrCl 20-50ml/min: 1-2MU TDS
CrCl 10-20ml/min: 1MU q12-18H
CrCl < 10ml/min: 1MU q18-24H

<u>ICU</u>
<u>Source: Guide to Antimicrobial Therapy in the Adult ICU 2012 (In terms of MU Colistimethate Sodium)</u>
<table>
<tr><th rowspan="2">Body Weight (kg)</th><th colspan="4">CrCl (ml/min)</th></tr>
<tr><th>>50</th><th>20-50</th><th><20</th><th>HD</th></tr>
<tr><td>>60</td><td>3MU q8h</td><td>3MU q12h</td><td>3MU q24h</td><td>3MU q24h</td></tr>
<tr><td>50-60</td><td>2MU q8h</td><td>2MU q12h</td><td>2MU q24h</td><td>2MU q24h</td></tr>
<tr><td>40-49</td><td>1.5MU q8h</td><td>1.5MU q12h</td><td>1.5MU q24h</td><td>1.5MU q24h</td></tr>
<tr><td>30-39</td><td>1 MU q8h</td><td>1 MU q12h</td><td>1 MU q24h</td><td>1 MU q24h</td></tr>
</table>
MU: Million Units.
*Administer post HD on HD day</td></tr>
<tr><td>High dose Sulbactam in Unasyn® or Sulperazon®
**(Treatment of Multidrug Resistant Microorganism) Please consult specialist before starting this dosage)</td><td>8g/day Sulbactam in divided doses</td><td>IV Sulperazon®: (Cefoperazone 0.5g/Sulbactam 0.5g)
IV Unasyn®: (Ampicillin 1g/Sulbactam 0.5g)

<table>
<tr><th>CrCl (ml/min)</th><th>Sulbactam Dose (g/day)</th></tr>
<tr><td>>50</td><td>8</td></tr>
<tr><td>20-50</td><td>6</td></tr>
<tr><td><20</td><td>4</td></tr>
<tr><td>CRRT/HD</td><td>4</td></tr>
</table>
(Source: Guide to Antimicrobial Therapy in the Adult ICU 2012)</td></tr>
</table>

Antibiotic	Usual Dose	Dosage Adjustment in Renal Impairment
IV Sulperazon® (Cefoperazone 0.5g/Sulbactam 0.5g)	1-2g BD	CrCl 15-30 ml/min: 1g BD (max 2 g/day) CrCl <15 ml/min: 500mg BD (max 1 g/day) *Administer post HD on HD day (Source: Drug Info Handbook 22nd Ed)
IV Tazocin® (Piperacillin 4g/ Tazobactam 0.5g)	4.5g TDS-QID (Max: 18g/day)	CrCl 20-40 ml/min: 2.25g QID CrCl <20 ml/min: 2.25g TDS or 2.25g QID for nosocomial pneumonia *Administer post HD on HD day (Source: Drug Info Handbook 22nd Ed)
IV Unasyn® (Ampicillin 1g/Sulbactam 0.5g)	1.5 - 3g TDS-QID	CrCl 15-29 ml/min: 1.5g-3g BD CrCl 5-14 ml/min: 1.5g-3g OD *Administer post HD on HD day ** Drug dosing should be done using Cockcroft-Gault formula (Source: Product Leaflet (Sulbacin®) & Drug Info Handbook 22nd Ed)
IV Vancomycin	2-3 g/day in 2-4 divided doses Max: 4g/day	CrCl >50 ml/min: 15-20 mg/kg/dose (BD/ TDS) CrCl 20-49 ml/min: 15-20 mg/kg/dose (OD) CrCl <20 ml/min: Interval determined by TDM after stat dose of 1g (Source: Drug Info Handbook 22nd Ed & National Antibiotic Guideline 2014)

Cockcroft-Gault formula for calculation of Creatinine Clearance:

$$\text{Female : CrCl (ml/min)} = \frac{[(140-\text{Age}) \times \text{Weight (kg)} \times 1.04]}{\text{Creatinine } (\mu\text{mol/L})}$$

$$\text{Male : CrCl (ml/min)} = \frac{[(140-\text{Age}) \times \text{Weight (kg)} \times 1.23]}{\text{Creatinine } (\mu\text{mol/L})}$$

Antifungal Dosage in Adult Patients with Impaired Renal Function

<table>
<tr><th>Antifungal</th><th>Usual dose</th><th>Dosage adjustment in renal impairment</th></tr>
<tr><td>IV Amphotericin B</td><td>0.3-1.5mg/kg once daily</td><td>-No dose adjustment needed
-If renal dysfunction is due to Amphotericin B, daily total dose can be decreased by 50% or the dose can be given every other day.
-Poorly dialyzable, No supplemental dose required post HD
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>IV/Oral Fluconazole</td><td><u>IV & Oral</u>
100-800mg OD</td><td>No adjustment in single dose therapy
For patient who receives multiple doses of Fluconazole, an initial loading dose of 50-400mg should be given. After the LD, the daily dose should be based on following table:
Renal function estimated using Cockcroft-Gault formula
<table>
<tr><th>CrCl (ml/min)</th><th>% of Recommended dose</th></tr>
<tr><td>>50</td><td>100%</td></tr>
<tr><td><50 (No dialysis)</td><td>50%</td></tr>
<tr><td>Regular dialysis</td><td>100%, Administer post HD on HD day
On Non HD day, administer 50% of recommended dose</td></tr>
</table>
(Source: Drug Info Handbook 2nd Ed & Product leaflet: Diflucan®)</td></tr>
<tr><td>Oral Itraconazole</td><td>100mg OD or 200mg OD-BD

Doses > 200mg daily should be administered in 2 divided doses</td><td>No dosage adjustment needed. Use with caution in renal impaired patient.
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>Oral Ketoconazole</td><td>200-400mg OD</td><td>No dosage adjustment recommended
(Source: Sanford Guide to Antimicrobial Therapy 2013)</td></tr>
<tr><td>Oral Terbinafine</td><td>250mg OD</td><td>No dosage adjustment recommended.
CrCl < 50ml/min: Clearance decreased by 50%. Use is not recommended
(Source: Drug Info Handbook 22nd Ed)</td></tr>
</table>

Cockcroft-Gault formula for calculation of Creatinine Clearance:

$$\text{Female : CrCl (ml/min)} = \frac{[(140-\text{Age}) \times \text{Weight (kg)} \times 1.04]}{\text{Creatinine } (\mu\text{mol/L})}$$

$$\text{Male : CrCl (ml/min)} = \frac{[(140-\text{Age}) \times \text{Weight (kg)} \times 1.23]}{\text{Creatinine } (\mu\text{mol/L})}$$

Antiviral Dosage in Adult Patients with Impaired Renal Function

<table>
<tr><th>Antiviral</th><th>Usual Dose</th><th>Dose Adjustment in Renal Impairment</th></tr>
<tr><td>IV Acyclovir</td><td><u>IV</u>
5-10mg/kg/dose TDS

(Dose for Obese Patient should be calculated using IBW)</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Dosage adjustment</th></tr>
<tr><td>25-50</td><td>Recommended dose every 12 hrs</td></tr>
<tr><td>10-25</td><td>Recommended dose every 24 hrs</td></tr>
<tr><td><10</td><td>50% of recommended dose every 24 hrs</td></tr>
</table>
*Administer post HD on HD day
Source: Drug Info Handbook 2nd Ed & Product leaflet: Zovirax®
</td></tr>
<tr><td>Oral Acyclovir</td><td><u>Oral</u>
200mg-800mg 4x/day or 5x/day</td><td>
<table>
<tr><th>CrCl (ml/min)</th><th>Dosage adjustment</th></tr>
<tr><td>10-25</td><td>For normal dosing regimen of 800mg 5 times daily: Administer 800mg TDS</td></tr>
<tr><td><10</td><td>For normal dosing regimen of 200mg 5 times daily or 400mg BD: Administer 200mg BD</td></tr>
<tr><td><10</td><td>For normal dosing regimen of 800mg 5 times daily: Administer 800mg BD</td></tr>
</table>
Source: Drug Info Handbook 22nd Ed
</td></tr>
<tr><td>Oral Lamivudine 150mg</td><td><u>HIV</u>
150mg BD or 300mg OD</td><td><u>(HIV) (Pt >16 years old)</u>
CrCl > 50ml/min: No dosage adjustment required
CrCl 30-49ml/min: 150mg OD
CrCl 15-29ml/min: 150mg first dose, then 100mg OD
CrCl 5-14ml/min: 150mg first dose, then 50mg OD
CrCl <5ml/min: 50mg first dose, then 25mg OD</td></tr>
<tr><td>Oral Lamivudine 100mg</td><td><u>Hepatitis B</u>
100mg OD</td><td><u>Hepatitis</u>
CrCl > 50ml/min: No dosage adjustment required
CrCl 30-49ml/min: 100mg first dose, then 50mg OD
CrCl 15-29ml/min: 100mg first dose, then 25mg OD
CrCl 5-14ml/min: 35mg first dose, then 15mg OD
CrCl <5ml/min: 35mg first dose, then 10mg OD

-Dialysis: Negligible amounts are removed during dialysis. Supplemental dosing is not required. However, dosing after HD is recommended.
(Source: Drug Info Handbook 22nd Ed)</td></tr>
<tr><td>Oral Tenofovir</td><td><u>HIV/Hepatitis B</u>
300mg OD</td><td>CrCl ≥ 50ml/min: No adjustment necessary
CrCl 30-49ml/min: 300mg every 48 hrs
CrCl 10-29ml/min: 300mg every 72-96 hrs
CrCl < 10ml/min (Without HD): No recommendation available
CrCl < 10ml/min (HD): 300mg every 7 days, Administer post HD
(Source: Drug Info Handbook 22nd Ed)</td></tr>
</table>

Antiviral	Usual Dosage	Dosage Adjustment in Renal Impairment
Oral Tenofovir 300mg/ Emtricitabine 200mg	1 tab OD	CrCl > 50ml/min: No dosage adjustment required CrCl 30-50ml/min: 1 tab every 48 hr CrCl < 30ml/min: Do not use (Source: Sanford Guide to Antimicrobial Therapy 2013)
Zidovudine	**Oral** 300mg BD	**Oral** ≥15ml/min: No need dose adjustment <15ml/min: 100mg TDS/300mg OD *Administer post HD on HD day (Source: Drug Info Handbook 22nd Ed)
Zidovudine	**IV** 1-2mg/kg every 4 hours	**IV** ≥15ml/min: No dosage adjustment needed <15ml/min: 1mg/kg every 6 to 8 hours *Administer post HD on HD day (Source: Drug Info Handbook 22nd Ed & Product leaflet IV Retrovir®)

List of Antiretrovirals Which Do Not Require Dosage Adjustment In Renal Impairment

- **Abacavir**
- **Efavirenz**
- **Indinavir**
- **Lopinavir**
- **Lopinavir/Ritonavir (Kaletra)**
- **Nevirapine**

Cockcroft-Gault formula for calculation of Creatinine Clearance:

$$\text{Female : CrCl (ml/min)} = \frac{[(140-\text{Age}) \times \text{Weight (kg)} \times 1.04]}{\text{Creatinine (}\mu\text{mol/L)}}$$

$$\text{Male : CrCl (ml/min)} = \frac{[(140-\text{Age}) \times \text{Weight (kg)} \times 1.23]}{\text{Creatinine (}\mu\text{mol/L)}}$$

Table 1: Dosage of Daily Anti-TB Treatment

Body Weight	Daily Isoniazid (5mg/kg)	Daily Rifampicin (10mg/kg)	Daily IM Streptomycin (15mg/kg)	Daily Ethambutol (20mg/kg-25mg/kg)	Daily Pyrazinamide (25mg/kg)
25Kg	150 mg	300 mg	0.4 g	600 mg	750 mg
30Kg	150 mg	300 mg	0.45 g	800 mg	750 mg
35Kg	200 mg	300 mg	0.55 g	800 mg	1000 mg
40Kg	200 mg	450 mg	0.6 g	800 mg	1000 mg
45Kg	250 mg	450 mg	0.7 g	1000 mg	1000 mg
50Kg	250 mg	450 mg	0.75 g	1000 mg	1250 mg
55Kg	300 mg	600 mg	0.85 g	1200 mg	1250 mg
60Kg	300 mg	600 mg	0.9 g	1200 mg	1500 mg
65Kg	300 mg	600 mg	1g	1200 mg	1500 mg
70Kg	300 mg	600 mg	1g	1200 mg	1500 mg
≥75Kg	Max: 300 mg	Max: 600 mg	Max:1g	Max: 1200 mg	Max: 1500 mg

(Source: Respiratory Clinic HRPB, Ipoh)

- IM Streptomycin: Dose is lower at 10mg/kg for elderly aged above 60 years and do not exceed 750mg

Dosage Adjustment for CrCl < 30ml/min:

1. No dosage adjustment for Isoniazid and Rifampicin.
2. For Pyrazinamide and Ethambutol, to administer normal dose according to body weight (Refer Table 1) on **alternate day**.
3. IM Streptomycin is contraindicated in renal failure
4. On the day of hemodialysis, medications should be administered after hemodialysis

Fixed Dose Combination Dosing for Anti TB

Drug	Body Weight	Dose
Akurit-4	30-37kg	2 tablets daily
	38-54kg	3 tablets daily
	55-70kg	4 tablets daily
	>70kg	4 tablets daily

1 tablet Akurit-4 contains:
Rifampicin 150mg/Isoniazid 75mg/Pyrazinamide 400mg/Ethambutol 275mg

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