Anticoagulants dosing and renal failure

LMWHs (enoxaparin, dalteparin)

- Consider alternate treatment options
- Consider dosage reduction when creatinine clearance is less than 30 mL/minute
- Monitor clinical condition and antifactor Xa levels

Fondaparinux

- Contraindicated when creatinine clearance is less than 30 mL/minute.
- Should be used with caution when creatinine clearance is 30 to 50 mL/minute.
- Monitor patient carefully due to the increased bleeding risk

Unfractionated heparin or warfarin

- Dose modification not required in renal failure.

Danaparoid or Lepirudin

- Commonly used to treat HIT.
- In renal failure dose modification should be considered. Seek specialist advice.

Cockroft-Gault equation for calculating creatinine clearance

$$Creatinine\ \ clearance\ \ (mL\ /\ \min) = \frac{(140\ -\ age\ \ (years\ )) \times body\ \ weight\ \ (kg\ )}{0.81 \times serum\ \ creatinine\ \ (\mu omol\ /\ L)} (\times\ 0.85\ \ for\ \ females\ )$$

Use ideal body weight for people who are overweight or obese
Ideal body weight = (50 kg for male or 45.5 kg for female) + 0.9 kg/each cm over 152 cm

Calculator for creatinine clearance and ideal body weight available with the online Therapeutic Guidelines

Creatinine level equating to creatinine clearance (CrCl) =30 mL/min

For any given age and weight a creatinine (micromol/L) greater than that shown indicates a CrCl <30 mL/min.

MALE

Age \ Weight	40	45	50	55	60	65	70	75	80	85	90	95	100
40	164	184	205	225	246								
45	156	175	195	214	233	If Cr ≥ 250 micromol/L							
50	147	166	184	203	221	240	Seek senior advice						
55	139	157	174	191	209	226	244						
60	131	147	164	180	197	213	229	246					
65	123	138	154	169	184	200	215	230	246				
70	115	129	143	158	172	186	201	215	229	244			
75	106	120	133	146	160	173	186	200	213	226	240		
80	98	111	123	135	147	160	172	184	197	209	221	233	246
85	90	101	113	124	135	146	158	169	180	191	203	214	225
90	82	92	102	113	123	133	143	154	164	174	184	195	205

FEMALE

Age \ Weight	40	45	50	55	60	65	70	75	80	85	90	95	100
40	139	157	174	191	209	226	244						
45	132	149	165	182	198	215	231	248	If Cr ≥ 250 micromol/L				
50	125	141	157	172	188	204	219	235	Seek senior advice				
55	118	133	148	163	178	192	207	222	237				
60	111	125	139	153	167	181	195	209	223	237			
65	104	117	131	144	157	170	183	196	209	222	235	248	
70	97	110	122	134	146	158	171	183	195	207	219	231	244
75	90	102	113	124	136	147	158	170	181	192	204	215	226
80	84	94	104	115	125	136	146	157	167	178	188	198	209
85	77	86	96	105	115	124	134	144	153	163	172	182	191
90	70	78	87	96	104	113	122	131	139	148	157	165	174