

Flow chart for the Management of Adult Patients with Suspected Neutropenic Sepsis

(for details refer to Trust policy for the Management of Adult Patients with Neutropenic Sepsis)

Assess urgently if at risk of severe neutropenia and with **fever $\geq 38^{\circ}\text{C}$ OR has symptoms or signs attributable to infection**

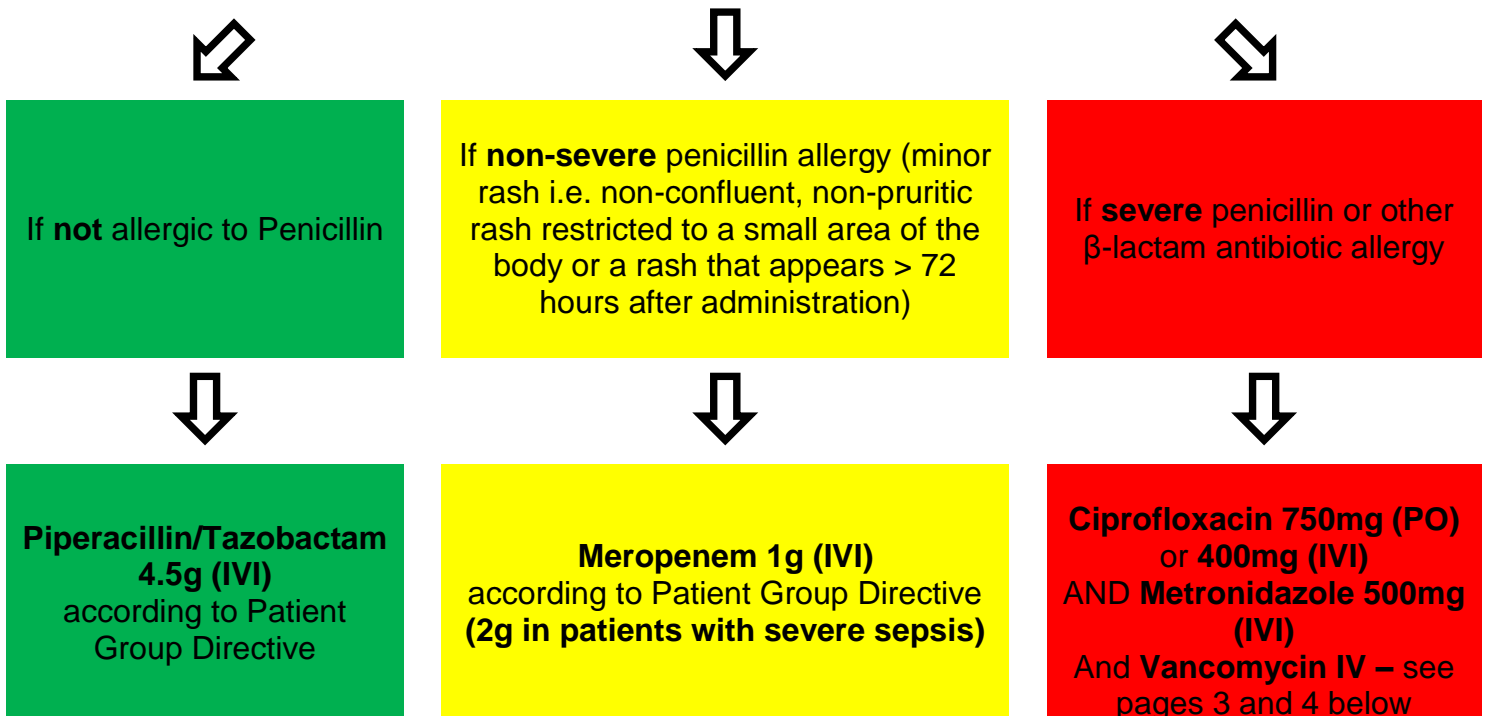
Under 20 minutes

Blood tests: FBC, U&Es, LFTs, CRP, Coag screen, Group and Save

Blood cultures: peripheral vein x2 and central line (no discard).

Request appropriate further investigations; e.g. CXR, MSU.

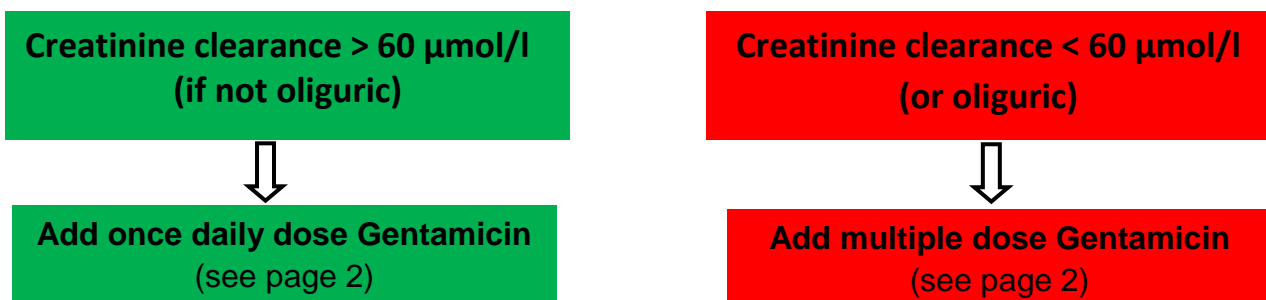
Under 60 minutes- irrespective of the availability of blood tests



Within 6 hours

Reassess as soon as U&Es become available

Calculate Creatinine clearance using Cockcroft-Gault formula (see Appendix 1 on page 2)



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Appendix 1. The Cockcroft-Gault equation to calculate estimated creatinine clearance

Estimated creatinine clearance (mL/minute):-

Male:
$$\frac{1.23 \times (140 - \text{age}) \times \text{Body Weight}^* \text{ in kg}}{\text{Serum creatinine (micromol/l)}}$$

Female:
$$\frac{1.04 \times (140 - \text{age}) \times \text{Body Weight}^* \text{ in kg}}{\text{Serum creatinine (micromol/l)}}$$

* use either the lower value of the actual or ideal body weight (IBW) for calculating the estimated creatinine clearance for gentamicin dosing

Gentamicin dosing (**Only use a Trust approved pre-printed Gentamicin chart**) :

1. **If creatinine clearance > 60ml/min** use high dose Gentamicin, based dose on ideal body weight – see Appendix 2 below (**dose should never exceed 560 mg**). Levels must be obtained 6-14 hours post-dose to guide subsequent dosing intervals (either 24, 36 or 48 hourly as per the Hartford Aminoglycoside Protocol - see [Antibiotic Formulary](#)).
2. **If creatinine clearance < 60ml/min** use conventional (multiple daily dosing) schedule for renal impairment as below (measure peak & trough levels with multiple daily dosing and adjust dosing if necessary):

Cr Cl ≥ 30 < 60ml/min 80mg IV 12 hourly (60mg if body weight <60kg)

Cr Cl ≥ 10 < 30ml/min 80mg IV once daily (60mg if body weight <60kg)

Cr Cl < 10 ml/min - discuss with consultant on call

3. In patients with established oliguria, in view of potential for ATN, use lower dose of gentamicin (**80mg IV 12 hourly**) even if creatinine clearance appears normal.

Appendix 2. Ideal body weight chart

ADULT MALES (>16 yrs)			
Height	IBW (kg)	Gentamicin Tobramycin dose (mg)	ABW (use if less than IBW) (kg)
6'1" or over (1.85m or over)	Over 79.9	560	78 - 82
5'10" - 6' (1.77 - 1.82m)	73 - 77.6	520	72 - 77
5'7" - 5'9" (1.7 - 1.75m)	66.1 - 70.7	480	66 - 71
5'5" - 5'6" (1.65 - 1.68m)	61.5 - 63.8	440	60 - 65
5'2" - 5'4" (1.57 - 1.63m)	54.6 - 59.2	400	55 - 59
5'1" or under (1.55m or under)	Under 52.3	360	49 - 54

ADULT FEMALES (> 16 yrs)			
Height	IBW (kg)	Gentamicin Tobramycin dose (mg)	ABW (use if less than IBW) (kg)
6' 3" (1.9m) or over	79.5	560	78 - 82
6' - 6'2" (1.82 - 1.88m)	72.6 - 77.2	520	72 - 77
5'10" - 5'11" (1.77 - 1.8m)	68 - 70.3	480	66 - 71
5'7" - 5'9" (1.7 - 1.75m)	61.1 - 65.7	440	60 - 65
5'4" - 5'6" (1.63 - 1.68m)	54.2 - 58.8	400	55 - 59
5'2" - 5'3" (1.57 - 1.6m)	49.6 - 51.9	360	49 - 54
5'1" or under (1.55m or under)	Under 47.3	320	43 - 48

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Only prescribe Vancomycin on the Trust approved pre-printed Vancomycin chart

Appendix 3. Vancomycin loading dose (based on actual body weight, independent of renal function/age)

Actual body weight	Vancomycin Loading Dose
< 40 kg	750mg in 250ml sodium chloride 0.9% over 1.5 hours
40 - 59 kg	1000mg in 250ml sodium chloride 0.9% over 2 hours
60 - 90 kg	1500mg in 500ml sodium chloride 0.9% over 3 hours
>90 kg	2000mg in 500ml sodium chloride 0.9% over 4 hours

Appendix 4. Initial Vancomycin Maintenance Dose

Calculated Creatinine Clearance # (ml/min) Cockcroft-Gault	Vancomycin Maintenance Dose	Time after Loading to start maintenance dose (hours)	Recommended volume of fluid for each dose	Duration of infusion for each dose	Time of 1 st vancomycin pre-dose level**
> 110ml/min	1.5g BD	12	500ml	2.5 hours	Before 4 th dose
90 - 110 ml/min	1.25g BD	12	250ml	2.5 hours	Before 4 th dose
75 - 89 ml/min	1g BD	12	250ml	2 hours	Before 4 th dose
55 - 74 ml/min	750mg BD	12	250ml	1.5 hours	Before 4 th dose
40 - 54 ml/min	500mg BD	12	100ml	1 hour	Before 4 th dose
30 - 39 ml/min	750mg OD	24	250ml	1.5 hours	Before 4 th dose
20 - 29 ml/min	500mg OD	24	100ml	1 hour	Before 4 th dose
10 - 19 ml/min	500mg every 48 hours	48	100ml	1 hour	Before 2 nd dose
Oliguric, anuric, or <10ml/min	Check levels 48 hours after loading dose. Re-dose with 1g once level <15mg/l	Only re-dose once levels <15mg/l	250ml	2 hours	48 hours after dose

Use actual body weight or maximum body weight - whichever is lower - to calculate CrCl for vancomycin. (Refer to table below for Maximum Body Weight Table.) In patients with a low creatinine (<60 micromol/l), use 60 micromol/l.

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Appendix 5. Maximum Body Weight Table for Vancomycin dosing

This table can be used to determine whether patients are classified as obese (>20% over ideal body weight) and to determine the maximum body weight (MBW) for use in the Cockcroft-Gault equation (Appendix A).

(ft inches)	Height (cm)	Male MBW (kg)	Female MBW (kg)
4' 8"	142	49	43
4' 9"	145	52	47
4' 10"	147	54	49
4' 11"	150	58	52
5' 0"	152	60	55
5' 1"	155	62	58
5' 2"	158	66	60
5' 3"	160	68	62
5' 4"	163	71	66
5' 5"	165	74	68
5' 6"	168	77	71
5' 7"	170	79	74
5' 8"	173	82	77
5' 9"	175	85	79
5' 10"	178	88	82
5' 11"	180	90	85
6' 0"	183	94	88
6' 1"	185	96	90
6' 2"	188	98	94
6' 3"	191	101	97
6' 4"	193	104	99
6' 5"	195	107	101
6' 6"	198	109	105
6' 7"	201	113	108
6' 8"	203	115	110