Non-CF ADULT PARENTERAL Tobramycin (HARTFORD): PRESCRIBING, ADMINISTRATION & MONITORING CHART

Use for patients prescribed intravenous tobramycin unless aminoglycosides used for prophylactic indication or synergistic doses (usually in endocarditis)

NHS Tavside

Patient name: ……

Date of birth: ……/……/……

CHI no.: …… *Affix patient label*

CHECK EXCLUSION CRITERIA OVERLEAF - **If eGFR <20ml/min contact ID/Micro for advice**

PROMPT ADMINISTRATION

within 1 hour of recognition of sepsis reduces mortality

SIGNS OF TOBRAMYCIN TOXICITY - ASSESS DAILY

RENAL: ↓ urine output/oliguria or ↑ creatinine **OTO/ VESTIBULAR: NEW tinnitus, dizziness, poor balance, hearing loss, oscillating vision**

Toxicities may occur irrespective of tobramycin concentration. Discuss with senior medical staff any new signs/symptoms of toxicity.

Age: …… **Sex: M / F**

Actual body weight: …… kg

Height: …… cm

Creatinine: …… On ……/……/……

Source of first dose

Use online gentamicin calculator to calculate tobramycin dose (preferred method) ❑
(Available on NHST antibiotic website or Antimicrobial Companion App)

Manual calculation ❑
(see overleaf for details)

Weight based, creatinine not known ❑

Document dose calculation here:

Sign: …… Date: ……

ALWAYS CHECK IF PREVIOUS DOSES of AMINOGLYCOSIDES HAVE BEEN ADMINISTERED (e.g. in A&E, surgical prophylaxis-once only section) AND DOCUMENT ON CHART TO ENSURE COMPLETE TREATMENT RECORD

TOXICITY Before prescribing each dose check renal function	Tobramycin Prescription Record				Administration Record			Monitoring Record (samples 6-14 hours after start of infusion)			
	Complete each time a dose is due (ensure tobramycin is prescribed 'as per chart' on the TPAR). Prescribe to nearest 40mg.				Complete each time tobramycin is administered			Record ALL sample dates/times accurately below. See overleaf for monitoring advice.			
	Date to be given	Time to be given 24 h clock	Tobramycin Dose (mg)	Prescriber's signature, PRINTED name and STATUS	*Infuse over 60 mins* Date given	*Infuse over 60 mins* Time started 24 h clock	Given by	Date of sample	Time of sample 24 h clock	Tobra level (mg/L)	Action/ Comments (please initial action to be taken)
Cr = micromol/L											24 hourly ❑ 36 hourly ❑ 48 hourly ❑ Stop ❑ Details/other :
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6-14 hours

If antibiotic therapy is to continue beyond 3 days consider oral switch. Review microbiology results and sensitivities and prescribe targeted therapy where possible
If IV therapy is still indicated discuss with ID/Micro

Discuss with an infection specialist if tobramycin required for more than 72hrs

If the measured concentration is unexpectedly HIGH or LOW

- Were dose and sample times recorded accurately?
- Was the correct dose administered?
- Was the sample taken from the line used to administer the drug?
- Has renal function declined or improved?
- Does the patient have oedema or ascites?

If in doubt, take another sample before re-prescribing and/or contact pharmacy for advice.

TOBRAMYCIN GUIDELINE FOR USE IN ADULTS (HARTFORD Guidance)

- Aminoglycoside antibiotic – bactericidal against many gram-negative and some gram-positive organisms. NO anaerobic activity. See Micro Man.
- Tobramycin is monitored using the Hartford nomogram which relates observed concentration to the time post dose within a given concentration range.
- Follow separate guidance when using tobramycin for Cystic Fibrosis, Renal Unit inpatients or patients on dialysis
- The dose is calculated as detailed below and repeated at 24 hour intervals or longer.

STEP 1: ASSESS PATIENT SUITABILITY

Does the patient have any of the following exclusion criteria?

Children < 16 years old | Ascites > 20% body weight | Major burns > 20% body surface | Decompensated Liver Disease | Myasthenia Gravis | Renal Transplant | Acute Kidney Injury (AKI 3) on dialysis or eGFR <20ml/min | End stage renal failure on dialysis with residual kidney function

Seek Advice
Contact ID/Micro about alternative

YES

NO

Does the patient have?
Chronic Kidney Disease (eGFR 20-29ml/min) **OR** Acute Kidney Injury (AKI 1 or 2) in previous 48 hours (≥50% increase in baseline serum creatinine or oliguria (<0.5ml/kg/hr > 6 hours))

Give first dose then refer to ID or Microbiology for advice on continuing tobramycin

YES

NO

Discuss with ID/Micro if course length is >72hours.
Review IV antibiotics daily. If IV therapy is still indicated after 72 hours seek advice

STEP 2: CALCULATE DOSE – seek advice on calculation for patients at extremes of age/height/weight or if amputee

PREFERRED METHOD: Use online **gentamicin** calculator to calculate **tobramycin** dose (available on NHST antibiotic website or Antimicrobial Companion App) when creatinine is known. In patients with low creatinine (<60 micromol/L) use 60 micromol/L.

ALTERNATIVE METHOD: If creatinine is **NOT** known **OR** online calculator not available, calculate dose based on equations below:

- Determine ideal body weight of patient using table on NHST antibiotic website.
- Is actual weight >20% above their ideal body weight (IBW)?

- If **NO** → eGFR ≥ 20ml/min Dose = Actual Body Weight x 7mg (**Maximum 600mg** – Round to nearest 40mg)
  ID/Micro approved in eGFR <20ml/min Dose = Actual Body Weight x 2.5mg (**Maximum dose: 180mg-** Round to nearest 10mg)

- If **YES** → calculate dosing weight (DW) and dose from equations below:
  DW = IBW + 0.4 (ABW – IBW)
  eGFR ≥ 20ml/min Dose = 7mg x DW **(Maximum 600mg** – Round to nearest 40mg)
  ID/Micro approved in eGFR <20ml/min Dose = DW x 2.5mg (**Maximum dose: 180mg-** Round to nearest 10mg)

- Document dose calculation on the tobramycin prescription chart and tick which source of first dose was used.
- Prescribe initial dose on the tobramycin chart specifying the date and time the dose should be given.
- Attach tobramycin chart to the TPAR.
- Prescribe tobramycin 'as per chart' on the regular section of the TPAR.

STEP 3: MONITOR RENAL FUNCTION, TOBRAMYCIN LEVELS AND DETERMINE DOSING INTERVAL

Administer in 100ml sodium chloride 0.9% or glucose 5% over 60 minutes.

eGFR <20ml/min

Ensure start time of infusion and dose is documented on tobramycin chart and ICE request. Take blood sample prior to printing off label at 24 hours from the **BEGINNING** of the IV infusion.

Do **NOT** use nomogram if eGFR <20ml/min. If therapy is to continue give a further dose once tobramycin level is <1mg/L.

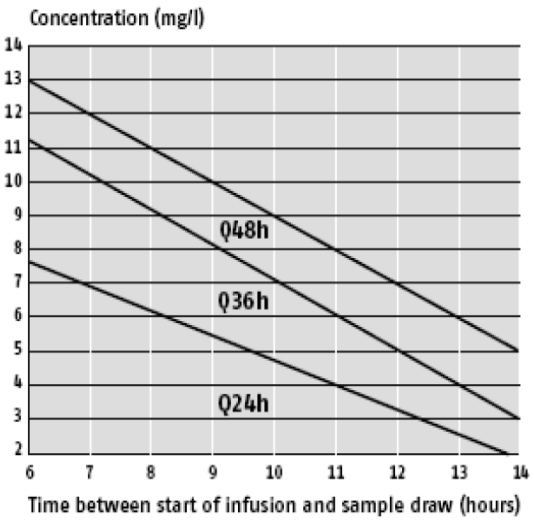
Record **ALL** sample dates/times accurately overleaf and prescribe subsequent doses.

eGFR ≥20ml/min

Ensure start time of infusion and dose is documented on tobramycin chart and ICE request. Take blood sample prior to printing off label 6-14 hours from the **BEGINNING** of the IV infusion.

Evaluate on the nomogram. If the level falls in the area designated 24 hourly, 36 hourly or 48 hourly the dosing interval should be every 24, 36, 48 hours respectively. If the point is on the line, choose the longer interval.
Record **ALL** sample dates/times accurately overleaf and prescribe subsequent doses.

If a 6-14 hour blood sample is not taken or if the blood level falls above the maximum dosing line on the nomogram: take blood sample minimum 24 hours post dose and wait for level. Only give dose if <1mg/L. If ≥1mg/L withhold dose and recheck in 12-24 hrs.



Assess daily the ongoing need for tobramycin and monitor for renal/oto toxicity. If renal function stable – further tobramycin levels not required for doses within 72hr duration. Seek advice if renal function unstable, deteriorates or in extended courses.

If patient receiving ID/Micro approved prolonged therapy (i.e. >72 hours) seek advice on monitoring from clinical pharmacist or antimicrobial pharmacist - Bleep 4732. If >7days consider referral to audiology.

Antimicrobial Management Team: February 2021
Review: February 2024

ADULT PARENTERAL TOBRAMYCIN (HARTFORD): *Prescribing, monitoring, interpreting and re-prescribing advice*