

## Joint Trust Guideline for the Management of: Once Daily Gentamicin In Children

### A clinical guideline recommended

<b>For use in:</b>	Buxton ward, Accident and Emergency (A &E), CAU, Theatres
<b>By:</b>	Medical and nursing staff in the above
<b>For:</b>	Any child requiring gentamicin (except for exclusion criteria)
<b>Division responsible for document:</b>	Division 3 – Women and Children
<b>Key words:</b>	Gentamicin, children
<b>Names of document authors:</b>	Caroline Hallam and Caroline Kavanagh
<b>Job titles of document authors:</b>	Specialist Pharmacist, Antimicrobial Therapy and Paediatrician
<b>Names of document authors Line Manager:</b>	Dr Ourania Kakisi
<b>Job titles of document authors Line Managers:</b>	Consultant Microbiologist NNUH
<b>Supported by:</b>	Dr J Chapman, Consultant Paediatrician, JPUH Helen Willimott, Pharmacy Team Leader, Medicine, N&NUH
<b>Assessed and approved by the:</b>	Clinical Guidelines Assessment Panel (CGAP) Chair
<b>Date of approval:</b>	22 April 2021
<b>Ratified by or reported as approved to (if applicable):</b>	Clinical Safety and Effectiveness Sub-board NNUH Clinical Governance Committee JPUH
<b>To be reviewed before:</b>	22 April 2024
<b>To be reviewed by:</b>	Caroline Hallam
<b>Reference and / or Trustdocs ID No:</b>	JCG0333 – ID No: 1236
<b>Version No:</b>	3
<b>Compliance links: (is there any NICE related to guidance)</b>	No
<b>If Yes – does the strategy/policy deviate from the recommendations of NICE? If so, why?</b>	N/A

This guideline has been approved by the Trust's Clinical Guidelines Assessment Panel as an aid to the diagnosis and management of relevant patients and clinical circumstances. Not every patient or situation fits neatly into a standard guideline scenario and the guideline must be interpreted and applied in practice in the light of prevailing clinical circumstances, the diagnostic and treatment options available and the professional judgement, knowledge and expertise of relevant clinicians. It is advised that the rationale for any departure from relevant guidance should be documented in the patient's case notes.

The Trust's guidelines are made publicly available as part of the collective endeavour to continuously improve the quality of healthcare through sharing medical experience and knowledge. The Trust accepts no responsibility for any misunderstanding or misapplication of this document.

# Joint Trust Guideline for the Management of: Once Daily Gentamicin In Children

## Version and Document Control:

Version Number	Date of Update	Change Description	Author
3	22/04/2021	Page 5 updated it referred to a sticker that was put on the drug chart but this is now a note on EPMA	Caroline Hallam and Caroline Kavanagh

## This is a Controlled Document

Printed copies of this document may not be up to date. Please check the hospital intranet for the latest version and destroy all previous versions.

### 1. Objective of Guideline

To ensure the effective and appropriate use of gentamicin in children under 16 years

### 2. Rationale for the recommendations

Prescribing gentamicin as a single daily dose will ensure that target peak concentrations are achieved in all patients. Once daily dosing is at least as effective and less nephrotoxic than multiple daily dosing. The guideline is strongly evidence based –see reference below.

### 3. Broad recommendations

All patients requiring gentamicin will be prescribed once daily gentamicin (except for children in the exclusion criteria) as per protocol below.

### 4. Clinical Audit Standards derived from guideline

All patients (except those in the exclusion criteria) requiring gentamicin should be prescribed once daily gentamicin according to protocol.  
Gentamicin should be monitored according to the protocol below.

### 5. Summary of development and consultation process undertaken before registration and dissemination

This guideline was drafted by Dr Muireann Ni Chroinin, who has now left the Trust and Caroline Hallam on behalf of the guideline development group of the Paediatric Directorate which has agreed the final content. It has been revised by Dr Chris Upton. During its development it has been circulated for comment to colleagues in paediatric nursing. This version has been endorsed by the Antimicrobial Subcommittee of the Drugs and Therapeutics Committee.

In 2021 it was reviewed by Caroline Hallam, Roz Howes, Helen Willimott and minor changes were made.

# Joint Trust Guideline for the Management of: Once Daily Gentamicin In Children

## 6. Distribution list / dissemination method

Accident and Emergency  
Buxton  
CAU  
Theatres  
Microbiology Department  
Trust Intranet

## 7. References / source documents

1. Despina G, Contopoulos-Ioannidis DG, Nikos D, Giotis MD, Dimitra V, Baliatsa DV and Ioannidis JPA. Extended Interval Aminoglycoside Administration for Children: A meta-analysis. Pediatrics 2004; 114; e111-118.
2. Medicines for children. 2003. RCPCH. Neonatal and Paediatric Pharmacists Group
3. BNF for Children. 2005

Prescribing gentamicin as a single daily dose will ensure that target peak concentrations are achieved in all patients. Once daily dosing is at least as effective and less nephrotoxic than multiple daily dosing.

## 8. Patient Exclusion

- Infants <1 month and those on neonatal intensive care unit
- History of renal impairment or estimated or actual glomerular filtration rate (GFR) <60mL/min
- Prophylaxis of infections
- Cystic fibrosis patients (please see separate trust guideline)
- Endocarditis (once daily dosing not suitable)
- The following may not necessarily be excluded but need discussion with a consultant microbiologist
  - Osteomyelitis
  - Major burns
  - Ascites/severe liver disease/jaundice (bilirubin >50micromol/L)

## Joint Trust Guideline for the Management of: Once Daily Gentamicin In Children

### 7mg (seven) / kg (maximum 480mg)

- Administer in 100mL (20-50mL for infants and young children) glucose 5% or sodium chloride 0.9%.
- Give over 30-60 minutes by intravenous infusion.
- If patient is obese use lean body weight.

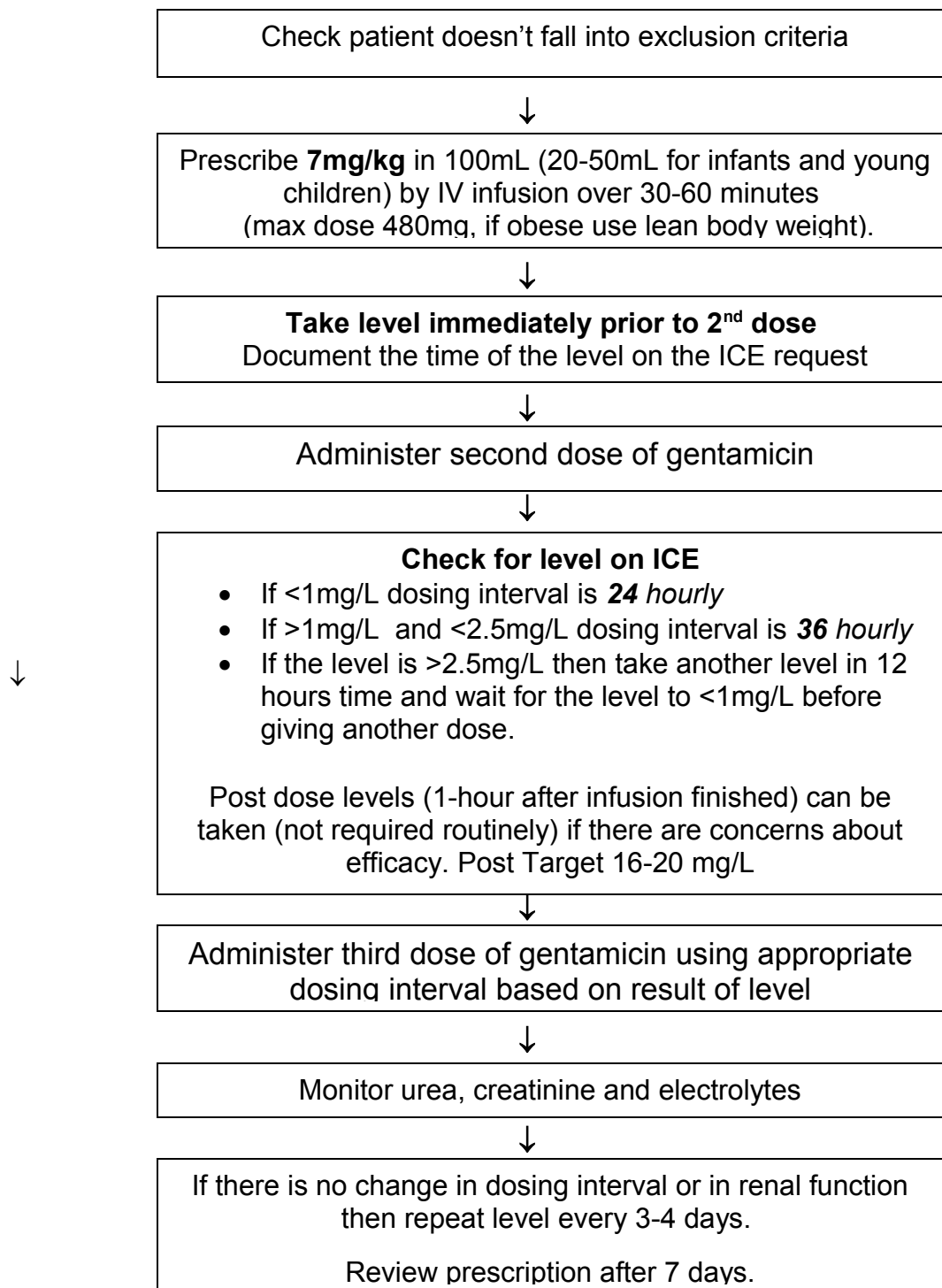
## 9. Administration and Dosing

### Monitoring

- Give the dose between 9am and 3pm if the patient's clinical condition allows (but don't wait to give the dose if the patient is very sick.) This time allows levels always to be taken in working hours.
- The dose remains constant at 7mg/kg (max dose 480mg).
- Take a single blood sample immediately prior to the 2<sup>nd</sup> infusion. Please make sure that the time of assay pre-dose is clearly marked on the ICE request.
- The result of the level should be obtained before giving the third dose. (If the level is not available speak to the paediatric Registrar or microbiology for advice).
- Levels
  - If the level is <1mg/L the dose should be given every 24 hours
  - If the level is >1mg/L and < 2.5mg/L then the dosing interval is normally increased by 12 hours (i.e. 7mg/kg every 36 hours).
  - If the level is >2.5mg/L then take another level in 12 hours time. Wait for the level to <1mg/L before giving another dose.
- Peak levels are not normally indicated. 1-hour (after infusion finished) peak levels can be taken with a target range of 16-20mg/L if there are concerns about therapeutic efficacy.
- If there is no change in the dosage regimen or in renal function repeat levels (as above) every 3-4 days or according to clinical situation. This will depend on duration of antibiotic therapy required i.e. if a 5 day course is required it may not be necessary to repeat levels more than once.
- Urea, creatinine and electrolytes should be monitored, frequency decided by clinical situation.
- If there is a change in the dosing regime, levels should be rechecked before the second dose of the new regime.

# Joint Trust Guideline for the Management of: Once Daily Gentamicin In Children

## Flow chart for Gentamicin Prescribing and Monitoring



## 10. Further Information

Paediatric Pharmacist: Bleep 0825 (NNUH),

Pharmacy medicines information: Extension 3139 (NNUH),

Microbiology: Extension 4587 (NNUH)