

Into Clinical Practice:   
Gram-negative Infections

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Royal College of Physicians, London**  
  
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| Structured Abstract (maximum word count 400 including graphs. Please feel free to expand the abstract text box as necessary)  **Validation of 6 to 24 hour extended interval gentamicin nomogram**  **Introduction:** Gentamicin remains an important antibiotic in the treatment of gram-negative infections, but the monitoring of levels for dosing can be challenging. The Hartford nomogram[[1]](#footnote-1) is utilised across West Yorkshire to identify patients who clear gentamicin sufficiently to enable dosing at 24, 36 or 48 hours. Ensuring that a gentamicin serum assay is taken within 6-14 hours and acted upon prior to 24 hours after the initial dose continues to be a challenge for many hospitals.  **Method:** Real world data on 107 patients seen in clinical practice were analysed to determine the impact of using an alternative nomogram based upon the pharmacokinetic calculation of Sawchuk and Zaske[[2]](#footnote-2). This calculation involved determining the limits for a patient clearing gentamicin to 0.5mg/L after a single bolus of 7mg/kg with a Volume of distribution of 0.26L/kg. This alternative nomogram allows for levels to be taken between 6 and 24 hours, thus allowing the daily phlebotomist round in an NHS trust to take gentamicin at the same time as a daily U&Es sample.  Graphic 1: Proposed extended interval nomogram with Hartford nomogram    **Results:** Of the 107 patients, 14 patients moved from 24 hour to 36 hour dosing recommendation, indicating that they would not have cleared gentamicin within 20 hours according to Sawchuk and Zaske calculations. All other dose interval recommendations remained the same.  **Conclusion:** This alternative nomogram provides a potential solution to errors with gentamicin monitoring arising from no phlebotomist being available during the 6-14 hour sampling window. Acceptability measures to prescribers and further validation is required prior to clinical use. |

1. 1. Nicolau DP, Freeman CD et al. Experience with a Once-daily Aminoglycoside Program Administered to 2,184 Adult Patients. Antimicrobial Agents and Chemotherapy 1995; 39: 650-655.

   [↑](#footnote-ref-1)
2. 1. Winter ME. Basic Clinical Pharmacokinetics. 5th ed. Lippincott Williams & Wilkins; 2010.p.137, 144-145.

   [↑](#footnote-ref-2)