

Poster Title: Prophylactic Antibiotic Dosing in Maternal Care: Implementation of a Weight-Based Gentamicin Nomogram for Labor and Delivery

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Purpose:

The American College of Obstetricians and Gynecologists (ACOG) recommends the inclusion of gentamicin in surgical prophylaxis regimens for patients undergoing obstetric procedures such as caesarean section. The ACOG gentamicin 5 mg per kg dose must be calculated based on a patient's actual body weight (ABW) unless the ABW is 20% greater than ideal body weight (IBW), in which case an adjusted body weight is calculated for dosing. This process to calculate a dosing weight and subsequent gentamicin dose can lead to uncertainty, delays in drug delivery, and potential dosing errors. The purpose of this project was to create an easy-to-use visual nomogram to dose gentamicin in patients undergoing obstetric procedures.

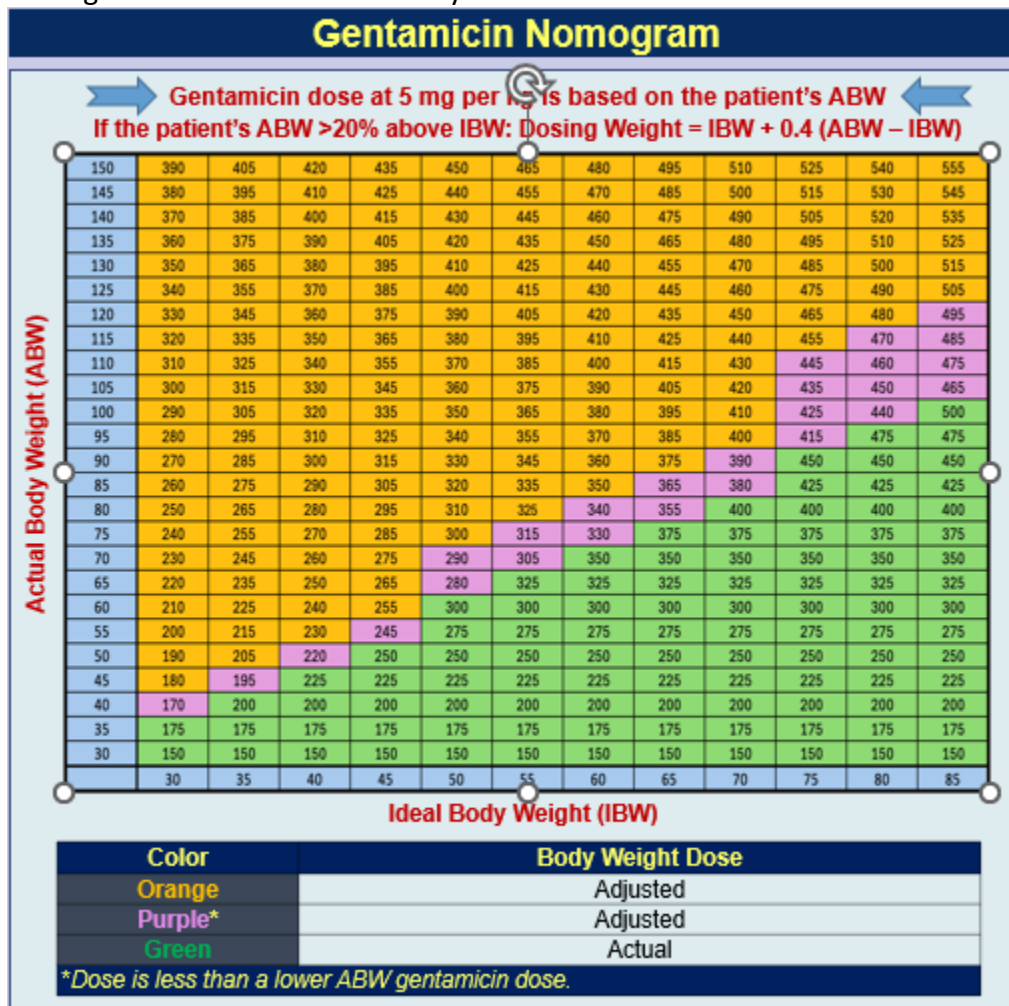
Methods:

Clinical pharmacists at ARMC reviewed the ACOG guidelines and dosing recommendations for prophylactic gentamicin in patients undergoing obstetric procedures associated with labor and delivery. We created and plan to implement an easy-to-use visual nomogram for healthcare professionals to dose gentamicin 5 mg per kg, utilizing only the patient's ABW and IBW, without calculations. When a patient's ABW is more than 20% above IBW, ACOG recommends an adjusted body weight for gentamicin dosing, which is the IBW plus 40% of the difference between ABW and IBW. The visual nomogram will have IBW on the x-axis and ABW on the y-axis, each starting at 30 kilograms (kg) and increasing by 5 kg. With only the ABW and IBW, one can find the nomogram intersection that will yield the appropriate gentamicin dose for each patient. When utilizing this nomogram, calculating an adjusted body weight is unnecessary. Investigators will describe the process of nomogram creation, validation, and institutional approval in this quality improvement project.

Results & Discussion:

The creation and implementation of an easy-to-use visual nomogram for the dosing of gentamicin in patients undergoing obstetric procedures is expected to improve the accuracy and efficiency of prophylactic dosing. With the elimination of the need for manual calculations by providers and pharmacists, the visual nomogram simplifies the process for dose selection which we anticipate will decrease dosing errors while increasing ARMC's ability to adhere to current ACOG guidelines in a timely fashion. During the creation of the visual nomogram, an inherent flaw with the dosing formula was discovered and validated in the gentamicin ordering tool calculator created by the Pharmacy Informatics Team. At specific body weights a patient would

be receiving a lower than desired gentamicin dose. With the discovery of this dosing anomaly, the gentamicin ordering tool calculator will be corrected for providers that wish to utilize this method when ordering gentamicin, and other healthcare professionals can utilize the visual nomogram to confirm the accuracy of the ordered dose.



Conclusions:

With the creation of a straightforward method that utilizes ABW and IBW to determine the appropriate gentamicin dose in patients undergoing obstetric procedures, this easy-to-use visual nomogram can minimize dosing errors and ensure adherence to ACOG guidelines.