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Using Electrolyte Repletion Guidelines to Improve the Rate of Oral Potassium and Magnesium Delivery

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Introduction: Evidence-based guidelines for electrolyte replacement that safely encourage oral (PO) and/or intravenous (IV) dosing more successfully attain goal levels than standard care. However, the Thomas Jefferson University Hospital (TJUH) electrolyte replacement guidelines (JG 11-1296), approved in 2002 and last updated in 2008, provide guidance for IV repletion not PO. Between 5/2017-11/2017, TJUH dosed potassium and magnesium in a 2.30 and 4.24 IV:PO ratio, respectively. If 50% of doses were given PO, we anticipate ~\$800,000 annual TJUH savings.

Methods: We created a multidisciplinary team and completed a literature review to inform the creation of updated TJUH guidelines for potassium and magnesium repletion. We attained updated guideline approval from the TJUH Pharmacy & Therapeutics Committee followed by the Medical Executive Board. We are working on an Epic order-set to ease clinician use of guideline-based therapy; an institutional Epic build “Freeze” is delaying progress. We will study the impact of updated guidelines with a pre-post design; using a two-tailed Welch’s t-test to test for significance.

Results: We hypothesize that the updated guidelines will reduce the ratio of IV:PO doses, increase the percent of patients within normal limits after repletion, decrease time to repletion, and reduce the average hospital cost for electrolyte repletion per patient/day. We additionally anticipate improved patient comfort and convenience of repletion though we will not study for significance.

Conclusion: We anticipate that the creation of an easily-accessible evidence-based TJUH electrolyte repletion guideline will improve quality of repletion and patient comfort while decreasing TJUH electrolyte repletion cost.