Linezolid is an oxazolidinone anti-infective used increasingly in hospitals for gram-positive bacterial infections, especially Vancomycin-Resistant Enterococcus (VRE) and methicillin-resistant Staphylococcus aureus (MRSA) infections. It is a subdominant inhibitor which blocks the fusion of 50S and 30S ribosomal subunits, preventing protein synthesis in bacteria as well as in human mitochondria. With prolonged use, this can elicit a mitochondrial respiratory dysfunction, leading to lactate accumulation. We report a case of chronic linezolid use for VRE infection causing myelodysplasia, subclinical lactacidosis in a 78-year-old female post colectomy, resulting in metabolic acidosis following a 2nd abdominal surgery. The severe acidosis was successfully temporized by CRRT (continuous renal replacement therapy), although lactate levels improving nine days after withdrawal.

Anion Gap (AG) calculation
As this patient experienced a prolonged illness and was hypoalbuminemic before and during linezolid use, we calculated a corrected anion gap adjusting for hypoalbuminemia.1 This equates to adding 2.5 to the observed anion gap for every gram the albumin is below 4.

Case
A 78-year-old female underwent colon resection, ostomy creation, and abscess drainage after sigmoid diverticulitis rupture. Tissue cultures grew VRE. Vancomycin Resistant Enterococci (VRE) and methicillin-resistant Staphylococcus aureus (MRSA) infections are commonly seen in hospitals for gram positive bacterial infections, especially in patients with prior antibiotic exposure. The patient was admitted for a 2nd abdominal surgery. The severe acidosis was successfully temporized by CRRT (continuous renal replacement therapy), although lactate levels improving nine days after withdrawal.

Anion Gap Through Admission

Discussion
Prolonged linezolid use created a metabolic acidosis pre-operatively which predisposed to a severe drop in lactic acid post-operatively. The mitochondrial dysfunction known to occur may develop several days prior to 28 days of use (a dateline cited in the literature as when lactic acidosis risk increases) and may not be clinically apparent at first, only rapidly being demonstrated when a patient experiences physiological stress.

References