INTRODUCTION
Obesity is characterized by a chronic low grade inflammatory state which reflects cardiometabolic health and may increase perioperative morbidity and mortality. This is particularly pertinent given that the Canadian incidence of obesity continues to grow and is expected to reach 55% by 2019. Although several inflammatory cytokines have been implicated, their routine measurement remains costly, cumbersome and impractical. In contrast the neutrophil-lymphocyte ratio (NLR) might be a viable alternative since it is easily calculated by dividing absolute neutrophil (ANC) by lymphocytes (ALC) counts that are readily available on routine complete blood counts (CBC). We hypothesized that bariatric patients with an elevated preoperative NLR would have an increased perioperative inflammatory response leading to a prolonged stay and increased rate of critical events.

METHODS
We conducted a retrospective observational study of all patients undergoing laparoscopic bariatric surgery between April and September 2015. After obtaining approval from the Local Research Ethic Board we used Research Electronic Data Capture (REDCap) to develop a database of all 257 patients who underwent bariatric surgery and included comorbidities, laboratory values, length of stay and perioperative complications. The baseline NLR was calculated using ANC and ALC values obtained during the preanesthetic visit, and patients were divided into either a low or high group based on the median. Subsequent values were obtained for greater than 6 months preoperatively during patient’s initial bariatric assessment, as well as 24h and 48h postoperatively.

RESULTS
Baseline NLR was calculated and the high group had an NLR greater than the median value of 2.625. In the low group there was an increased proportion of patients with chronic pain (24.4% vs 13.5%, p < 0.0257) and GERD (53.4% vs 33.3%, p < 0.005), whereas the incidence of all other comorbidities remained non-significant between groups. As expected, NLR was significantly elevated in the high group at baseline (1.997±0.405 vs. 3.813± p < 0.0001), 6 months preoperatively (1.893±0.738 vs 2.99±1.19, p < 0.0001), 24h (7.709±3.621 vs 10.7±4.6, p < 0.0001) and 48h (4.06±2.427 vs 5.279±2.989, p < 0.0005) postoperatively. Unexpectedly, patients with a high preoperative NLR had a 10% reduction in their length of stay (2.29 vs 2.527 days, p < 0.001), but tended to experience a greater number of critical events (23 vs
17, p=0.24).

**DISCUSSION**

In summary, an elevated preoperative NLR is associated with a more pronounced post-operative inflammatory response in bariatric patients. Although there was a non-significant increase in the number of critical events this likely reflects the study being underpowered and warrants further investigation. This also raises several important questions including whether these observations can be replicated using other inflammatory markers, are these trends unique to obese patients undergoing bariatric surgery, and whether any perioperative interventions that can modify these responses and outcomes.

**References:**

N/A