Introduction:
CRP (c-reactive protein) has been shown to be a useful biomarker in identifying complications after major abdominal surgery. Gastrectomy is a high-risk surgical procedure that requires post-operative critical care support to monitor for complications which are predominantly infective in nature. The aims of this study were to determine whether there is a relationship between post-operative CRP levels and patients who developed post-operative infective complications.

Methods:
A retrospective analysis was performed on patients undergoing elective gastrectomy for gastric cancer at a single centre between September 2011 and July 2016. Post-operative CRP levels for each day following resection were analysed for all patients. ROC curve analysis was used to determine which post-operative day (POD) gave the optimal cut-off.

Results:
Of 144 patients included, the majority were male (61.8%), mean age was 68.5 years and 53.5% had node-negative disease. A total of 84 patients (58.3%) had an infective complication, which includes those who experienced an anastomotic leak. CRP levels on post-operative day 3 gave the greatest AUC for the gastrectomy group (0.765). CRP cut-off of 220mg/L was significantly associated with infective complications (OR 7.29, 95% CI 3.42-15.58, p<0.001) and gave a sensitivity of 70% and specificity 76% (PPV 67%, NPV 78%). More patients with a CRP >220 on post-operative day 3 experienced an infective complication (67% vs 21%, p <0.001) or a leak in particular (17% vs 6%, p = 0.059).

Conclusion:
A CRP level of less than 220mg/L on POD3 may be useful to predict the development or exclude the likelihood of such infective complications in this group of patients prior to clinical signs (PPV 67%, NPV 78%). This may prompt and facilitate decision-making regarding early investigation and intervention or prevent inappropriate early discharge from critical care, whilst providing more assurance in identifying those who could be stepped down to ward level care.