

## Development and Validation of a Prediction Model for Mortality and Adverse Outcomes Among Patients With Peripheral Eosinopenia on Admission for *Clostridium difficile* Infection.

By Kulaylat et al., JAMA Surgery 2018

In the current study, the authors set out to test whether blood eosinophil depletion (eosinopenia) can be used as a marker of severity for *C. difficile* illness (CDI). This hypothesis is based on animal model observations that mice with hypervirulent *C. difficile* strains have an altered immune response with absence of eosinophil recruitment. Using retrospective data from two tertiary centers (one used as a training cohort, the other as a validation cohort), the authors test the capacity of eosinopenia at admission as a predictive marker of negative outcome in patients with CDI. For a negative outcome, the authors chose inpatient mortality as primary endpoint and ICU admission, pressor requirement and Colectomy as secondary endpoints. In the training cohort, eosinopenia was shown to correlate with increased mortality but less so than traditional markers of severe disease such as leucocytosis above 15G/l. Eosinopenia also correlated with secondary endpoints. In the validation cohort, eosinopenia also correlated with increased mortality (approx. similar odds ratio), whereby leukocytosis did not meet statistically significant correlation. However, secondary endpoints are not mentioned. The quality of the study is limited by its retrospective character and the incomplete presentation of methods and data (notably, no description of secondary endpoints in the validation cohort). Moreover, when continuous analysis is favored to binary analysis, no significant association between eosinophil count and mortality challenging the conclusion of this paper. In summary, the quality of the current study is insufficient to alter current practice.