Royal Australasian College of Surgeons

# LETTER TO THE EDITOR

## Re: Development and validation of a multivariable prediction model in open abdomen patients for entero-atmospheric fistula

Dear Editor,

We would like to provide an update regarding a retrospective cohort study published in the *ANZ Journal of Surgery* in 2022 describing the development and validation of a multivariable prediction model for entero-atmospheric fistula in patients managed with an open abdomen (OA).[1] A total of 548 patient were managed with an OA in this study with the data set extending over 17 years of OA management and three tertiary hospitals across Queensland.

This study also provided an insightful look into patients being managed with an OA regarding mortality (peri-operative, in-hospital, 90-day, and 5-year), definitive fascial closure, and other complications (anastomotic leak, intra-abdominal abscess, ventral hernia, and ongoing bowel resection). Median age of patients was 58 (IQR: 32–83) years, with 343 (63%) patients identifying as male. Seventy-four (14%) patients identified as Aboriginal and / or Torres Strait Islander. A total of 57 independent potentially predictive variables were used to develop the 10 models.

Five prediction models were externally validated for peri-operative, in-hospital and 90-day mortality (POM, IHM, and NDM, respectively), ventral hernia (VH) and entero-atmospheric fistula (EAF). These included twelve independent predictive variables: Underlying diagnosis leading to an OA – Ischaemic bowel, underlying diagnosis leading to an OA – peritonitis, intra-abdominal hypertension, abdominal compartment syndrome, APACHE III score, evidence of respiratory disease, evidence of cardiac disease, sodium, white blood cell count, number of procedures, age and Aboriginal and/or Torres Strait Islander status. Furthermore, the externally validated prediction models were then included as part of an 'all-in-one' predictive calculator (see Fig. 1). This 'OAM Calculator' can now be used in clinical practice to assess a patient's likelihood of these outcomes in the prospective setting (available at: https://codepen.io/razorcrest/full/dyQobgQ). We have also approached the MDCalc Team for consideration of publication on their website to further accentuate its distribution.

## Reference

1. Cristaudo AT, Hitos K, Gunnarsson R, Decosta A. Development and validation of a multivariable prediction model in open abdomen patients for entero-atmospheric fistula. *ANZ J. Surg.* 2022; **92**: 1079–84.

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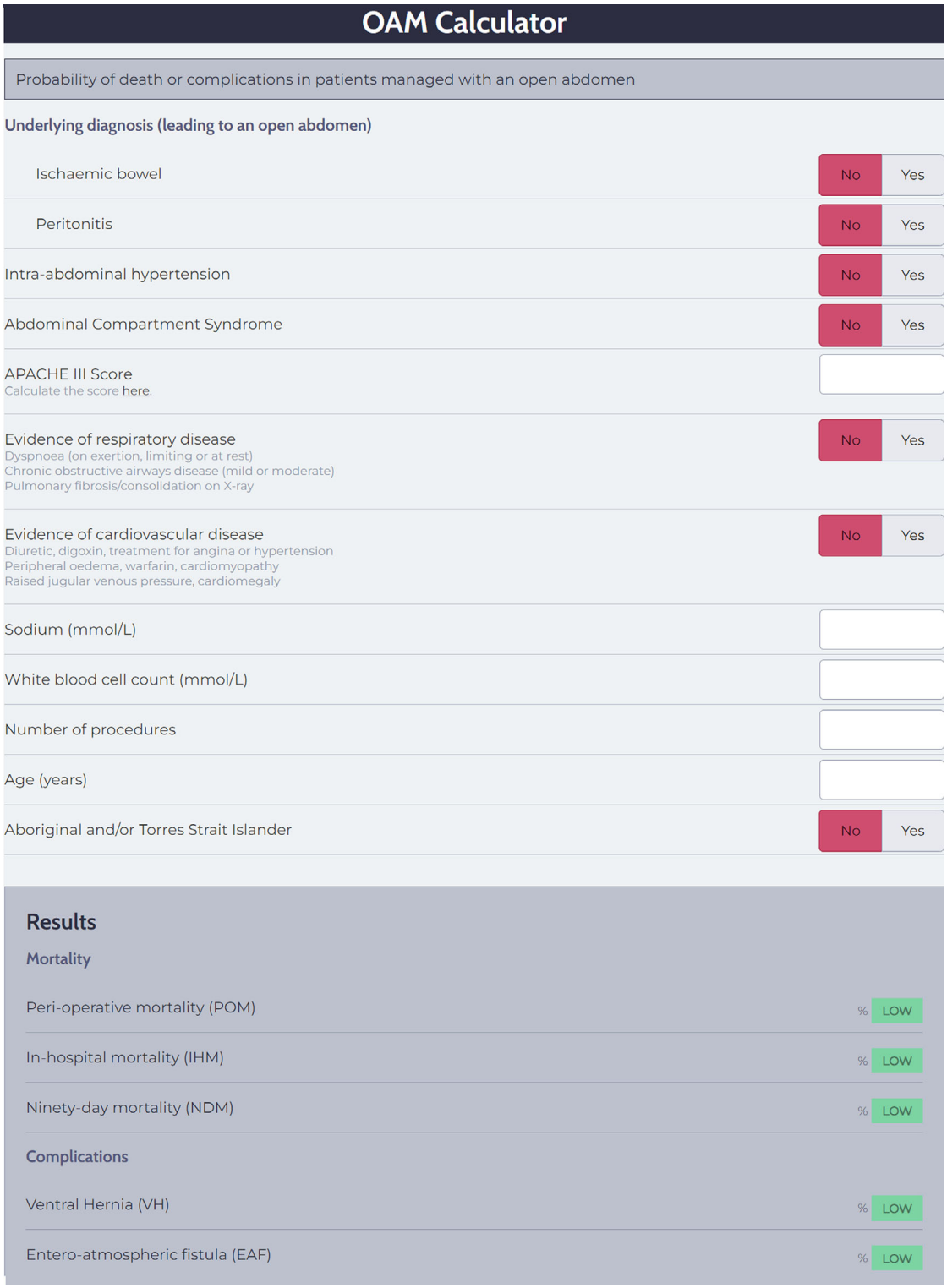


**Fig. 1.** OAM calculator.