

Abstract

Background

APACHE II is one of the oldest scoring systems and it is still used globally due to its availability and ease of use. A performance evaluation is necessary when using a critical care scoring system in any particular ICU and patient population.

Objective

The aim of this study was to evaluate the performance of the APACHE II scoring systems in a multidisciplinary ICU at Charlotte Maxeke Johannesburg Academic Hospital (CMJAH).

Methods

A retrospective evaluation of ICU patients' records between February and May 2018 was conducted. Follow-up was until death or hospital discharge.

Results

Of the 256 records included, 44.1% were medical and 55.9% were surgical admissions. The mean (SD) age of the patients was 43.7 (18.3) years and for the APACHE II score was 20.3 (8.4). The mean (SD) predicted mortality rate was 39.2% (23.9%) and the actual mortality rate was 33.0%. The standardised mortality ratio was 0.84 and the correct classification rate was 71%. Discrimination was good (AUROC = 0.8087), as was calibration at 10.55 ($p=0.2284$) for ICU mortality and 9.95 ($p=0.2684$) for mortality at ward discharge. The median (IQR) APACHE II score for the HIV negative and positive groups was 19.0 (13.0 – 25.0) and 23.5 (17.5 – 30.0), respectively. The predicted mortality rate was 36.3% and 49.4% and the actual mortality rate was 32.3% and 40.0% in the HIV negative and positive groups, respectively.

Conclusion

This study found a good discrimination and calibration of the APACHE II score in the multidisciplinary ICU at CMJAH.