



Prognostic Scores and Risk-Adjusted Mortality: What You Should Know



Mark T. Keegan and Marcio Soares outline “What every intensivist should know about prognostic scoring systems and risk-adjusted mortality” in a recent article in *Revista Brasileira de Terapia Intensiva*. Scoring systems used in the ICU can be generic or disease-specific, with many uses. The two categories are organ failure scores and the severity-of-illness prognostic model.

See Also: [The Future of ICU Prediction Scores in the Era of 'Big Data'](#)

Keegan and Soares explain the background to APACHE, the Simplified Acute Physiology Score (SAPS) and the Mortality Probability Model (MPM). They explain the methodology for the development of prognostic scoring systems and how to assess the model performance by evaluating discrimination and calibration, as well as when it may be appropriate to customise a model. Standardised ratios are outlined as are the potential uses of prognostic scoring systems.

Barriers to Use

There are limitations when using prognostic models for decision support, they write, that include cost of IT infrastructure needed for data acquisition, clinician resistance and “the focus on prediction of mortality rather than functional outcome, such as quality of life years.”

Big Data?

Updates of existing prognostic systems are useful, write Keegan and Soares. However, they anticipate new models derived from Big Data, using machine learning algorithms and dynamic reassessment of outcome predictions. “We may be close to a scenario wherein clinicians will trust such predictions and accept computer-generated risk mitigation or “course correction” strategies,” they conclude.

Updated versions of the major prognostic systems are expected and will be welcome. Of potentially more use, however, will be innovative models arising from advances made possible by the era of “big data”, including “machine learning” algorithms and dynamic reassessments of outcome predictions. (29,30) Widespread implementation of electronic medical records, coupled with techniques of big data analytics pioneered in the

retail and banking industries, may ultimately allow reliable, well-presented, patient-level prediction of functional outcomes. Furthermore,

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