An evolution of trauma care evaluation: A thesis on trauma registry and outcome prediction models
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The authors provide the reader with data from an urban Japanese trauma center. The article is of particular interest because it is claimed by the authors to be the first to present an M value from a Japanese trauma center in the international literature. The aim of the study was "to determine whether the database of this institution is well-matched to the Major Trauma Outcome Study (MTOS), and if the original Trauma and Injury Severity (TRISS) coefficients are accurate predictors of the patient outcome in Japan". It is arguable whether data from a single-center study are representative for Japan in total, the 10th largest population in the world.

The main data focus on the outcome comparison between the Trauma and Critical Care Center in Teikyo University Hospital and the MTOS. Unfortunately, the M statistic is wrongly explained in the text as being used to compare patient outcome between the study database and the MTOS. The M statistic is a tool to examine the similarity in the mix of injury severity in the observed data, compared with the reference data, i.e., the MTOS. Values for M range from 0 to 1, and the closer the value is to 1, the better the match in injury severity. Other parameters, like the Z statistic are used to quantify the difference between the observed and predicted number of survivors. Besides this technical remark are the techniques used appropriate for the aim the study.

Patients in the observed data set were more severely injured. The overall mortality was slightly higher. There were approximately 2.5 times as many people older than 55 years. These are only a few of the findings that are of interest for those working in the field of outcome prediction and trauma registries. Disappointingly, the authors do not comment on these findings in the discussion. Besides patient characteristics, case mix of injury severity, and mechanism of injury, other factors also influence patient outcome and thus outcome prediction. For example, what is the incidence of (isolated) traumatic brain injury in this population? As we know, traumatic brain injury negatively influences the performance of TRISS. The level of care in Japan will likely be comparable with other developed nations. Does this also account for the level of pre-hospital care? From that perspective, how can the authors explain the high percentage of patients (> 10%) arriving in a cardiac arrest in the emergency room in a densely populated area? One-third of the population is older than 55 years, and co-morbidity might play an important role in this older population. These questions reflect the well-known shortcomings of TRISS analyses. Until a worldwide excepted alternative is available, we should keep these issues in mind when interpreting the results of a TRISS outcome analysis.

The discussion section elaborates on the efforts of the Japanese Emergency Medicine Study Group for Quality (EMSQ) (but fails to mention their publication in 1998) and the Japan Trauma Data Bank. Both initiatives follow a global trend towards a local (and more recent) standard for reference, as is seen in Germany and the United Kingdom. The
recommendation for development of contemporary Japan TRISS coefficients as suggested by the authors is absolutely justified. One of the lessons learned from the National Surgical Quality Improvement Program is that we should correct for differences in case-mix when comparing individual institutions to one and another. When we are comparing the outcome of an individual institution to the norm (such as TRISS analysis with benchmarking to the MTOS) comparable problems with differences in case-mix play a role. National Surgical Quality Improvement Program also shows us which parameters mostly influence ranking after adjustment for case-mix, thus offering an opportunity to improve outcome prediction in new or revised models.

REFERENCES