



## Study: Four Predictors Indicate Mortality Risk in Elderly Patients



Four risk factors comprise an easy-to-remember, objective, and practical Risk Scale that has been developed by a group of Canadian researchers to predict mortality risk at time of ICU admission in patients aged over 80. The researchers hope that following validation the Risk Scale can be used to inform decision-making in these patients, and thus close the gap between the wishes of the public and actual clinical practice when it comes to end-of-life care.

Ian M. Ball, MD, Western University, London, Ontario, and colleagues used data from 1033 medical patients across 22 Canadian ICUs to develop predictors with prognostic power in a secondary analysis of the [Realities, Expectations and Attitudes to Life Support Technologies in Intensive Care for Octogenarians \(REALISTIC-80\) Study, clinicaltrials.gov NCT01293708](#). This was the largest prospective data set to date in this elderly population.

See Also: [Study: Identifying At-Risk Patients with Elder Risk Assessment](#)

The Risk Scale comprises age, serum creatinine, Glasgow Coma Scale (GCS) and serum pH. The researchers found that important predictors of hospital mortality at the time of ICU admission include:

### **age**

85-90 years of age (Odds Ratio [OR] hospital mortality of 1.63  
>90 years of age OR 2.64

### **serum creatinine**

(120-300) OR 1.57  
>300 OR 5.29

### **Glasgow Coma Scale**

13-14 OR 2.09  
8-12 OR 2.31  
4-7 OR 5.75  
3 OR 8.97

**serum pH** (<7.15) OR 2.44

The researchers found that that the risk of hospital mortality ranged from 18.5% for a score of 0 to 96.8% for a

total score of 12 on the preliminary Risk Scale. While the scale is very good at predicting death or survival at the high and low scores, the researchers note that at the mid-level scores of 4 to 7, the Risk Scale predicts mortalities of 53.7% to 79.8% with (72%-99.1% specificity). Ball et al. write: "Our sense as clinicians is that a mid-rangemortality prediction by the Risk Scale is unlikely to significantly influence the clinical goals of care in the majority of cases. This is by no means a failure of the Risk Scale, which will have complimented clinician judgment and informed the goals of care discussion with substitute decision makers."

The researchers note the study limitations - data was collected on the first day of ICU admission, and there were missing data. Some patients transferred to other hospitals were lost to follow up. Also, the study only enrolled patients who were transferred to hospital and subsequently referred to and accepted by an ICU. However, they found that of the survivors, less than half (45%) were able to return home. Nearly a quarter (22.5%) of survivors required transfer to long-term care facilities.

## **Next Steps**

The Risk Scale will be validated in other settings and the researchers hope to evaluate its impact on clinical decision making and the financial implications of implementing the rule."

Image credit: Pixabay

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