ICNARC
Napier House
24 High Holborn
London WC1V 6AZ
tel +44 (0)20 7269 9288
fax +44 (0)20 7831 6879
email cmp@icnarc.org

The ICNARC model

The ICNARC model was originally published in 2007 (Harrison et al, 2007). It was the culmination of many years of work to establish the best risk prediction model for use in the Case Mix Programme. We regularly recalibrate the model using Case Mix Programme data to ensure that each critical care unit is being compared with current data. Coefficients from the most recent recalibration are used in the eDAR. We continue to seek improvements to this model to ensure that the risk predictions in your eDAR are as accurate as possible.

Risk predictions in the ICNARC model are based on:

- The ICNARC Physiology Score – a score from 0 to 100 based on weightings for deviations from normal in the following twelve physiological parameters during the first 24 hours in the unit
    - heart rate
    - systolic blood pressure
    - temperature
    - respiratory rate
    - PaO_2/FiO_2 ratio (weighted differently depending on whether the patient was ventilated at any time during the first 24 hours in the unit, or for the entire stay if less than 24 hours)
    - arterial pH
    - serum urea
    - serum creatinine
    - serum sodium
    - urine output
    - white blood cell count
    - Glasgow Coma Score (plus additional weightings for patients sedated or paralysed and sedated for the whole of the first 24 hours in the unit, or for the entire stay if less than 24 hours)
- Age at admission to your unit in years
- Reason for admission (weightings for specific surgical and non-surgical conditions, plus nine body systems)
- Interactions between Physiology Score and reason for admission (for specific surgical and non-surgical conditions), allowing for a different relationship between physiology score (acute severity) and outcome for certain conditions
- CPR within 24 hours prior to admission
- Source of admission and surgical urgency

Exclusion

Admissions are excluded from the calculation of the ICNARC model predicted risk of death if they are admitted solely for the purposes of organ donation, or if they are dead or have had all active treatment withdrawn on admission to the unit. In rare cases, there may be insufficient data to calculate a risk prediction. Readmissions of the same patient within the same hospital stay and admissions missing ultimate hospital outcome are excluded from comparisons of observed and expected mortality.

Reference

Harrison DA, Parry GJ, Carpenter JR, Short A, Rowan K. A new risk prediction model for critical care: the Intensive Care National Audit & Research Centre (ICNARC) model. *Crit Care Med* 2007; **35**:1091–8.