

# Critical Care Scores -- The Clinician's Pocket Reference

**19 validated scoring systems for the ICU, the ED and the ward -- variables, cut-offs, pitfalls, and the original source for each**

This reference exists for one reason: you should never have to guess a cut-off at 3 a.m. Each of the 19 sections that follow gives you the exact variables, the scoring, the interpretation bands as published in the derivation or reference literature, the mistakes clinicians actually make with that score, what the score cannot tell you, and the original paper -- with a DOI or PMID you can check yourself. Every score in this book has a free, always-on interactive calculator at [geomedhc.com/calculadoras](http://geomedhc.com/calculadoras) -- the link is at the end of every entry.

## Disclaimer and Intended Use

Educational reference only. This is not medical advice, not a diagnostic device, and not a substitute for clinical judgment or your institution's protocols.

- The variables, scoring systems and interpretation bands in this document are transcribed from the original derivation or validation publications cited in each section. They are reproduced for educational reference; always cross-check against the primary source (DOI/PMID provided) and against the guidelines and protocols currently in force at your institution before applying any score to a real patient.
- Several scores (Child-Pugh, MELD, Wells, CURB-65, BISAP) exist in more than one published variant. Where a variant matters, it is called out explicitly. When in doubt, use the version adopted by your institution's protocol, not the version in this book.
- No score replaces a clinician at the bedside. Every score listed here has known false negatives and false positives; treat every number as one input among several, never as an automatic disposition.
- This document contains no patient data, no institutional protocols, and no claims of diagnostic accuracy beyond what is reported in the cited literature.
- Published by CESCAC Productos y Servicios S.A.S. (Guayaquil, Ecuador) in partnership with GEOMED Health Center, whose free calculators mirror every score in this book at [geomedhc.com/calculadoras](http://geomedhc.com/calculadoras). This PDF is the offline, printable companion to that toolset -- for the shift, the transfer, or the moment your signal drops.

# 1. APACHE II

## Acute Physiology and Chronic Health Evaluation II

What it measures, and who it's for. APACHE II estimates severity of illness and hospital mortality risk at the time of ICU admission, using the worst physiologic derangement in the first 24 hours. It is a research and benchmarking tool (risk-adjustment across ICU populations, trial stratification) as much as a bedside one -- it was never meant to predict an individual patient's outcome with precision.

Variables and scoring. Three components, summed:

- Acute Physiology Score (APS), 0-60 points, from the *worst* value in the first 24h of 12 variables: rectal/core temperature, mean arterial pressure, heart rate, respiratory rate, oxygenation (A-aDO<sub>2</sub> if FiO<sub>2</sub> ≥ 0.5, or PaO<sub>2</sub> if FiO<sub>2</sub> < 0.5), arterial pH (or serum HCO<sub>3</sub> if no ABG), serum sodium, serum potassium, serum creatinine (points doubled if acute renal failure), hematocrit, white blood cell count, and Glasgow Coma Scale (points = 15 minus actual GCS).
- Age points, 0-6, increasing with age brackets (<44 = 0, up to ≥75 = 6).
- Chronic Health points, 2 or 5, added if the patient has documented severe organ system insufficiency or is immunocompromised, weighted differently for elective postoperative admissions (2 points) versus nonoperative or emergency postoperative admissions (5 points).

Interpretation. Total range 0-71. Higher scores track with higher hospital mortality in the derivation cohort; the original paper additionally weights the raw score by principal diagnostic category to produce an individualized mortality probability -- the bare summed score alone is a severity index, not a calibrated probability of death for your specific patient.

Pitfalls and common errors.

- Using an admission-day value instead of the *worst* value in the first 24h -- APACHE II is explicitly a worst-value score, not a snapshot.
- Forgetting the GCS inversion (points = 15 - GCS, not GCS itself) -- a common transcription error that silently deflates the score in sedated or intubated patients.
- Applying APACHE II to non-ICU patients or to post-cardiac-surgery routine admissions, populations it was not derived or validated on.
- Treating the score as a real-time trending tool -- it is calculated once per admission from the worst 24h values, not recalculated hourly like SOFA.
- Comparing raw APACHE II scores across different ICUs without diagnostic-category adjustment, which the original mortality equation requires and a bare score comparison ignores.

What this score does NOT do. It does not diagnose a specific condition, does not replace clinical gestalt for an individual patient's prognosis, and its mortality-prediction accuracy has drifted over decades of practice change since 1985 -- newer cohorts consistently show APACHE II under- or over-predicting mortality relative to contemporary ICU outcomes, which is why APACHE III/IV and other successors exist for research use.

Original source: Knaus WA, Draper EA, Wagner DP, Zimmerman JE. APACHE II: a severity of disease classification system. *Critical Care Medicine*. 1985;13(10):818-829. DOI: 10.1097/00003246-198510000-00009.

Free calculator: [geomedhc.com/calculadoras/apache-ii.html](http://geomedhc.com/calculadoras/apache-ii.html)