



<b>Title</b>	<b>Predicting intensive care outcome: comparing three outcome prediction models, APACHE II, SAPS II, and MPM II</b>
<b>Author(s)</b>	<b>Lam, WK; Chan, JCK; Chan, SM; Chan, WM; Nelson, P; Young, K</b>
<b>Citation</b>	<b>The 5th Medical Research Conference, Hong Kong, China, January 2000, v. 22 n. Supp 2, p. 16</b>
<b>Issued Date</b>	<b>2000</b>
<b>URL</b>	<b><a href="http://hdl.handle.net/10722/46804">http://hdl.handle.net/10722/46804</a></b>
<b>Rights</b>	<b>Creative Commons: Attribution 3.0 Hong Kong License</b>

## G-N-5

### Sensory Conduction Parameters in Assessing the Severity of Carpal Tunnel Syndrome

Mak W, Chan KH, Fong GCY, Cheung RTF, Ho SL. Division of Neurology, University Department of Medicine, Queen Mary Hospital.

**Background:** Carpal tunnel syndrome (CTS) is diagnosed with sensory conduction abnormalities but its severity is conventionally graded by motor conduction abnormalities. Surgical decompression is generally recommended for moderate and severe cases and conservative treatment for mild cases. **Objective:** To study the role of sensory conduction parameters in assessing the severity of CTS. **Method:** Consecutive patients with symptomatic CTS over one year were studied. The median nerve finger to wrist orthodromic sensory action potential (SAP) and sensory conduction velocity (SVC) were recorded, as well as the standard motor parameters. AAEM criteria were applied to grade CTS into mild, moderate, or severe. Unpaired t-test was used for statistical analysis.

**Results:** One hundred and twenty three hands in 78 patients were studied. The mean SAP for mild (n=67), moderate (n=34), and severe (n=22) CTS were 18.3, 5.0, and 1.1  $\mu$ V, respectively (SD 9.3, 5.8, and 2.4), and the mean SCV for the three groups were 45.7, 30.2, and 23.2 m/sec, respectively (SD 5.3, 8.0, and 6.5). Sensory parameters were significantly different between mild and moderate CTS ( $p < 0.0001$  for both SAP and SCV), mild and severe CTS ( $p < 0.0001$  for both SAP and SCV), and moderate and severe CTS ( $p = 0.004$  for SAP and 0.0014 for SCV). If one standard deviation from mean SAP or SCV is set as the cutoff to distinguish mild from moderate or severe CTS, the sensitivity and specificity for SAP reduction are 89% and 93%, and for SCV slowing are 95% and 87%, respectively. **Conclusion:** From our results, sensory conduction abnormalities are both sensitive and specific in assessing the severity of CTS in order to guide treatment decisions. Motor conduction studies may not be required for this purpose, so that examination time and patient discomfort can be minimized. We recommend grading CTS as more than mild if SAP is less than 9  $\mu$ V or SCV is less than 40 m/sec.

## G-RC-1

### PREDICTING INTENSIVE CARE OUTCOME : COMPARING THREE OUTCOME PREDICTION MODELS, APACHE II, SAPS II, AND MPM II

WK Lam, Jane CK Chan, SM Chan, WM Chan, P Nelson, K Young, University Department of Medicine and Intensive Care Unit, Queen Mary Hospital, Hong Kong.

#### Objectives:

- To compare and evaluate three outcome prediction models APACHE II, SAPS, and MPM in predicting the outcome of Adult Intensive Care Unit (AICU) patients at Queen Mary Hospital (QMH).
- To examine the standard mortality ratios (SMR) of the QMH AICU over a period of two years based on the 3 prediction models.

**Patients & Methods :** 903 patients, first entry to AICU QMH were enrolled in 2 six-month periods between 1997-1999. All APACHE II, SAPS II and MPM II data were collected and analysed for probability of survival. Predictive accuracy is assessed with respect to calibration and discrimination. Calibration is measured using Lemeshow-Horsmer chi-square analysis, while discrimination is measured using the area under the ROC curve and the overall correct classification (OCC) rate.

**Results :** Of the 903 patients (average age 60.4 yr), major diagnosis (%) were shock (23.7), and respiratory disorder (22.9). Average hospital mortality rate was 37.2%.

	APACHE II	MPM II <sub>0</sub>	MPM II <sub>24</sub>	SAPS II
Chi-square	20.04	232.43	39.13	93.2
AUC	0.847	0.732	0.804	0.839
OCC rate	0.78	0.69	0.73	0.76
SMR	1.05	1.65	1.14	0.94

#### Conclusions :

- APACHE II and SAPS II methods are almost equally accurate, and both offer better calibration and discrimination power than MPM II in predicting intensive care outcome.
- In view of the complexity with APACHE II, SAPS II is recommended as the prediction method of choice for AICU.
- Our AICU performance is comparable to international standards.

Supported by Research Grant Council of Hong Kong