

PERFORMANCE OF FOUR ALGORITHMS FOR PROBABILITY OF DEATH IN PORTUGUESE PICU'S

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*** Development and assessment of optimal risk scores for outcomes in paediatric intensive care (<http://daipcip.med.up.pt>)**

INTRODUCTION

- **PICU quality of care evaluation**
- **Algorithms of probability of death (POD)**
 - **PRISM / PRISM-III**
 - VS**
 - **PIM / PIM2**

OBJECTIVES

- ↘ **Evaluate performance of POD algorithms**
- ↘ **3 Portuguese PICUs**
 - ◆ **H. Pediátrico Coimbra (Coimbra)**
 - ◆ **H. D. Estefânia (Lisbon)**
 - ◆ **H. S. João (Oporto)**

METHODS - I

- **Prospective data collection**
- **01/May/2002 – 30/Apr/2004 (2 years)**
 - PRISM**
 - PRISM-III (12h) – PICUEs v 3.2.3 (1999 revision)**
 - PIM**
- **01/May/2003 – 30/Apr/2004 (1 year)**
 - PIM2**

METHODS - II

- **Discrimination**
 - ◆ **area under the ROC curve**

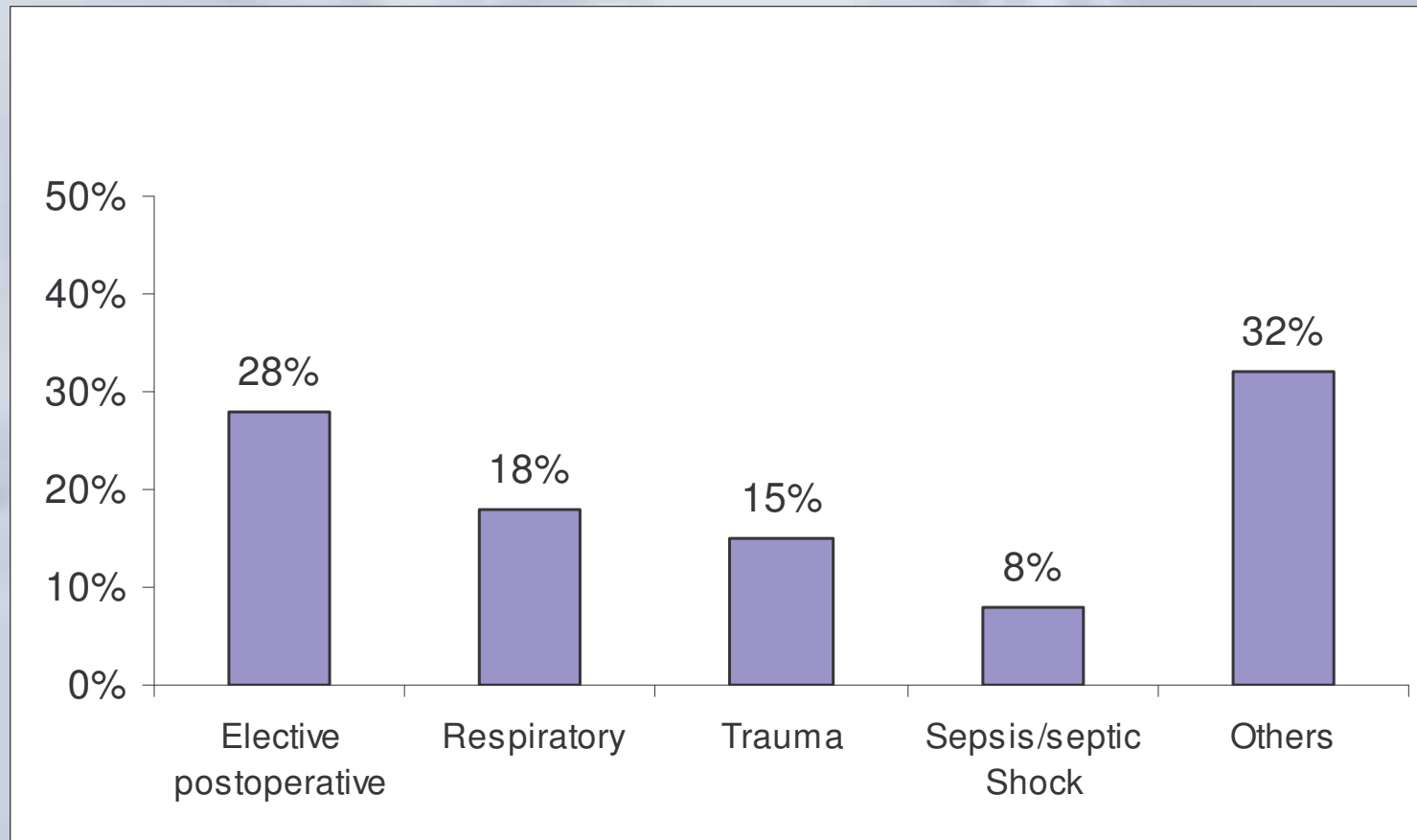
- **Calibration**
 - ◆ **Hosmer-Lemeshow statistics**
 - ◆ **Standardised mortality ratio (SMR)**

RESULTS - I

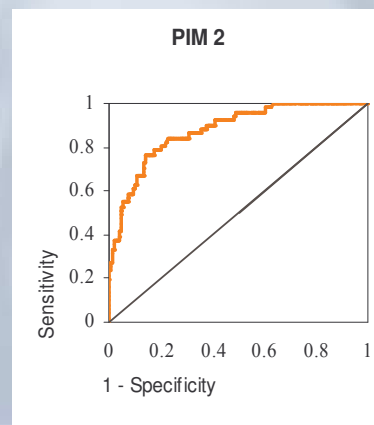
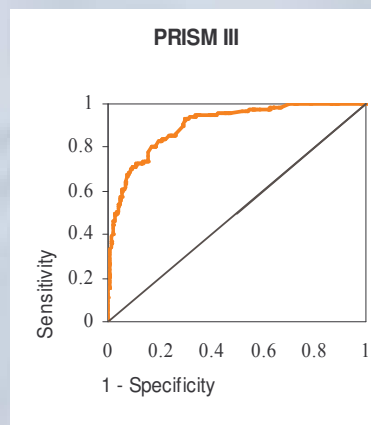
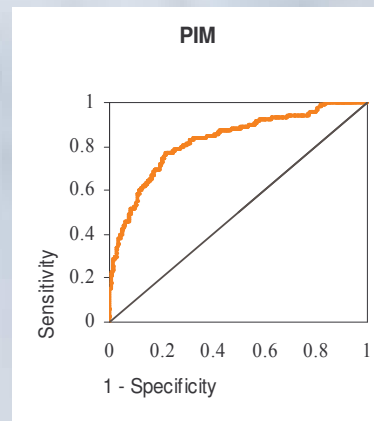
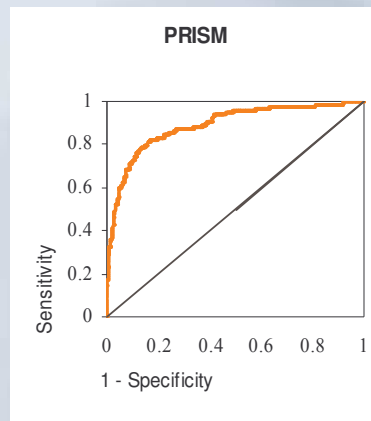
↘ Population characteristics

- ◆ Total number admissions: 1153 (396, 345, 412)
- ◆ Male: 46%
- ◆ Median age: 41 months
- ◆ Crude mortality rate: 9,6%

Main Diagnostic Groups



DISCRIMINATION - ROC curves



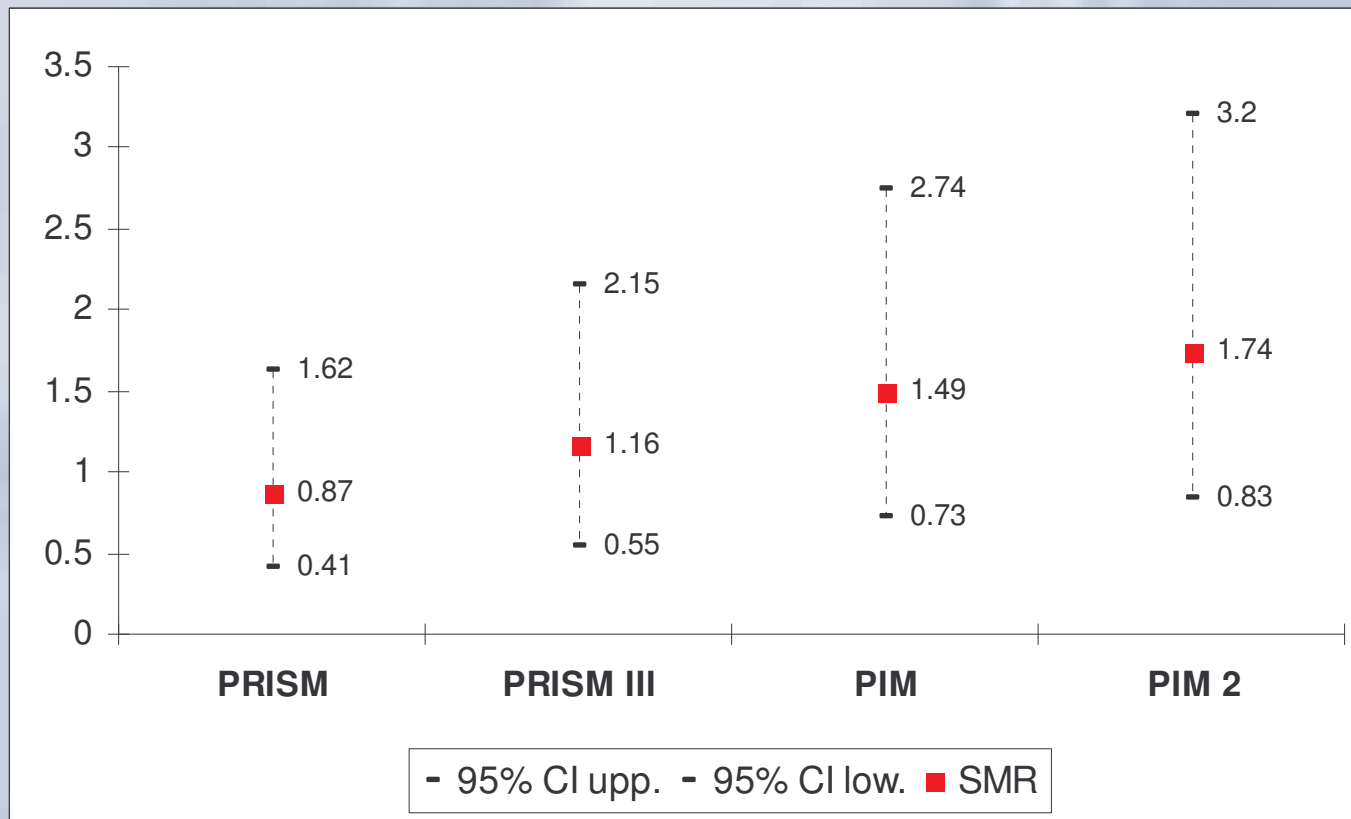
	Area Under Curve	(95% CI)
PRISM	0.89	(0.85-0.92)
PRISM-III	0.90	(0.87-0.93)
PIM	0.83	(0.79-0.89)
PIM-2	0.89	(0.84-0.93)

CALIBRATION

Hosmer-Lemeshow statistics

	χ^2 (8df)	p
PRISM	25.5	0.001
PRISM-III	40.1	<0.001
PIM	35.5	<0.001
PIM-2	25.3	0.001

Standardised Mortality Ratios



CONCLUSIONS

- ✚ **Discrimination: good for all; best PRISM/PRISM-III**
- ✚ **Calibration poor for all; best PRISM and PIM2**
- ✚ **SMR: PRISM (0,89) vs PIM2 (1,74)**
- ✚ **Difficult to choose “the best POD algorithms”**
- ✚ **Case-mix may be important to interpret differences**
- ✚ **POD algorithms are valuable to monitor quality of care within PICU**