Sympo 10 years PICE

emma kinderziekenhuis AMC

VU medisch centrum

Universitair Medisch Centrum Utrecht

International perspective

LUMC Leids Universitair Medisch Centrum

Erasmus MC Universitair Medisch Centrum Rotterdam

UMC St Radboud

academisch ziekenhuis Maastricht azM

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Idse Visser namens de PICE werkgroep

International perspective PICE registry

- International PICU datasets
- comparing Dutch PICUs with other countries
  - PICU registraties vergelijken
  - Vergelijking Nederland – UK/Aus/USA

PICE internationaal perspectief

Examples PICU registraties

USA – VPS, NQF NACH (PICU focusgroup)
Aus/NZ – ANZPIC
UK – PICANet
Portugal – REUNIR
NL – PICE

PICE internationaal perspectief

Enkele kenmerken registraties

USA – gesloten, beperkt

Aus/NZ – openbaar, volledig

UK – openbaar, beperkt

Portugal – gesloten, volledig

PICE internationaal perspectief

PICE registratie

- Uniform, standardized, continues registration
- complete coverage national PICU population
- Registered by PICU staff
- Centrally led trainings, definitions
- Explanations/Help texts in software
- Between PICU's reports openly discussed
- Externally reports are anonymized

PICE internationaal perspectief

Conditions before comparing with other countries

- Population selection
- Quality data explained
- Dataset definitions
- Models and data case-mix

PICE	(ICNARC)	DoCDat
A. 4	(3)	3
B. 4	(4)	3
C. 2~3	(3)	3
D. ~4	(3)	2
E. 4	(4)	4
F. 4	(4)	2
G. 4	(4)	2,5
H.1~	(2)	1
I. 4	(4)	4
J. 4	(3)	3

Rregistry Quality DoCDat criteria (**Critical Care** April 2004 Vol 8 No 2 Harrison *et al.*)

	Level 1	Level 2	Level 3	Level 4
A. **Extent to which the eligible population is representative of the country**	No evidence **or** unlikely to be representative	Some evidence eligible population is representative	Good evidence eligible population is representative	Total population of country included
B. **Completeness of recruitment of eligible population**	Few (< 80%) **or** unknown	Many (80 – 89%)	Most (90 – 97%)	All or almost all (> 97%)
C. **Variables included in the database**	• identifier • admin info • condition **or** intervention	• identifier • admin info • condition **or** intervention • short-term outcome **or** long-term outcome	• identifier • admin info • condition • intervention • short-term outcome **or** long-term outcome • major known confounders	• identifier • admin info • condition • intervention • short-term outcome • major known confounders • long-term outcome
D. **Completeness of data** (percentage of variables at least 95% complete)	Few (< 50%) **or** unknown	Some (50 – 79%)	Most (80 – 97%)	All or almost all (> 97%)
E. **Form in which continuous data (excluding dates) are collected** (percentage collected as raw data)	Few (< 70%) **or** unknown	Some (70 – 89%)	Most (90 – 97%)	All or almost all (> 97%) **or** no continuous data collected
F. **Use of explicit definitions for variables**	None	Some (< 50%)	Most (50 – 97%)	All or almost all (> 97%)
G. **Use of explicit rules for deciding how variables are recorded**	None	Some (< 50%)	Most (50 – 97%)	All or almost all (> 97%)
H. **Reliability of coding of conditions and interventions**	Not tested	Poor	Fair	Good
I. **Independence of observations of primary outcome**	Outcome not included **or** independence unknown	Observer neither independent nor blinded to intervention	Independent observer not blinded to intervention	Independent observer blinded to intervention **or** not necessary as objective outcome (e.g. death or lab test)
J. **Extent to which data are validated**	No validation	Range **or** consistency checks	Range **and** consistency checks	Range and consistency checks plus external validation using alternative source

PICE internationaal perspectief

comparing with other countries

- indirect / directly

Indirect: models derived from other populations

PRISM:USA en PIM:Australië/NZ(UK)

Direct: reports

public reports: PICANet ANZPIC

PICE internationaal perspectief

Indirectly comparing with PICUs abroad

Models mortality prediction PICU

PRISM:	USA	ca.1985
PRISM3:		ca.1994
PIM1:	Australië/NZ(UK1)	ca.1995
PIM2:	Australië/NZ(UK4)	ca.1999
-ANZ06	Australië/NZ	2006
-ANZ08	Australië/NZ	2008

PICE internationaal perspectief

Validityt models?

Discrimination

PRISM > PIM

(AUC)

Prism3: 0,90

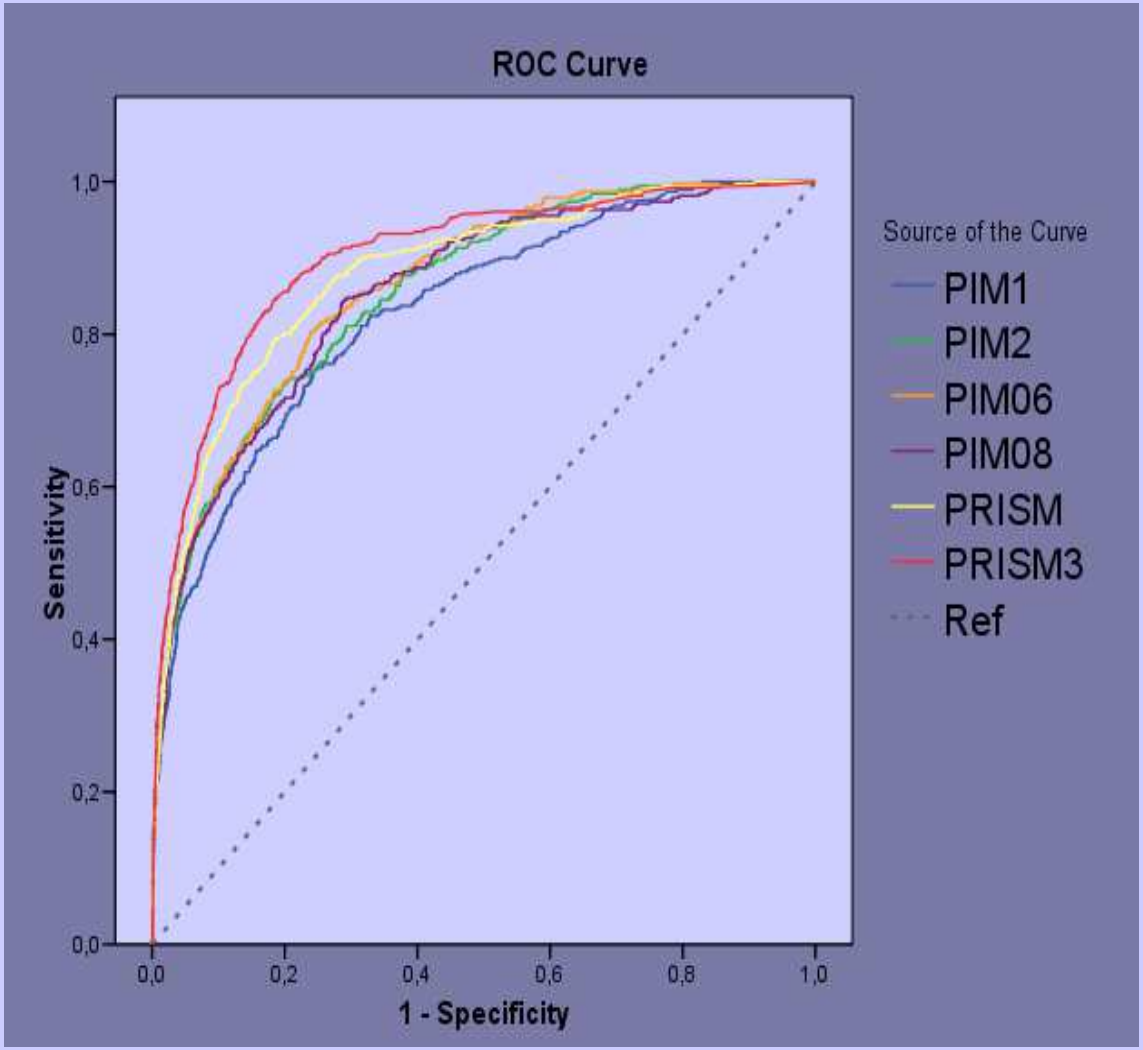
Prism: 0,88

Pim06: 0,86

Pim2: 0,85

Pim08: 0,85

Pim1: 0,83



PICE internationaal perspectief

Wich model to use?

most recent?

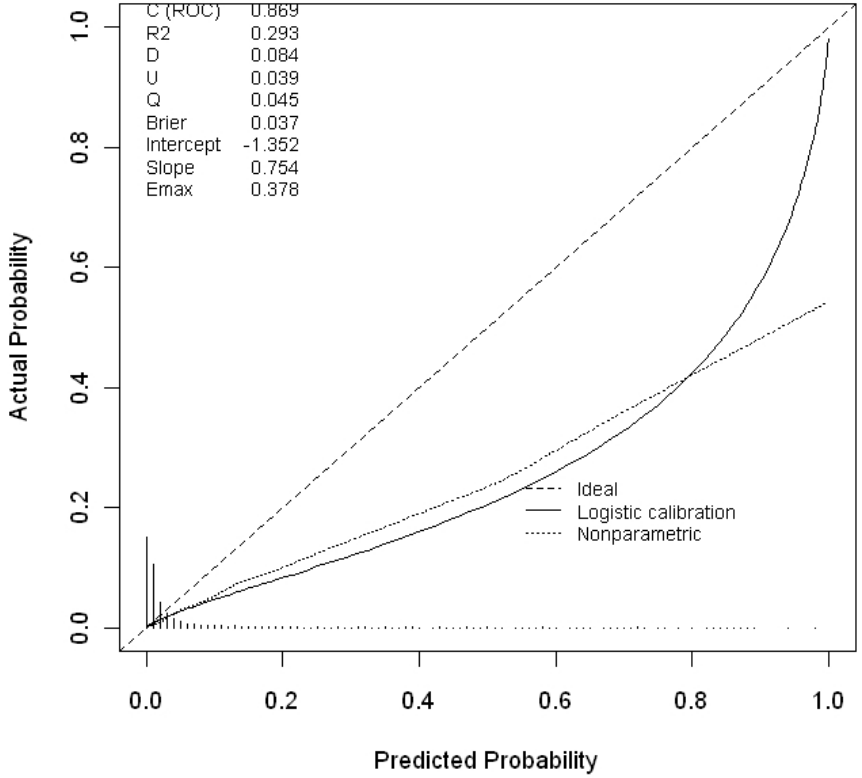
- update your dataset to the new models?

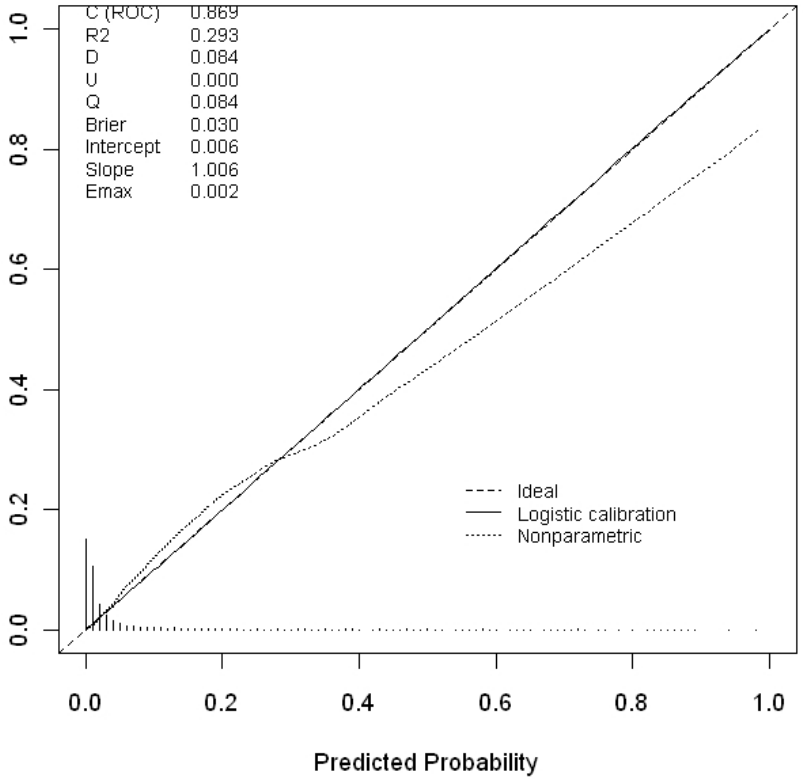
or use the best discriminating model

- even if its rather old and out of calibration?

PICE internationaal perspectief

PRISM(2): original and recalibrated in PICE2006/07





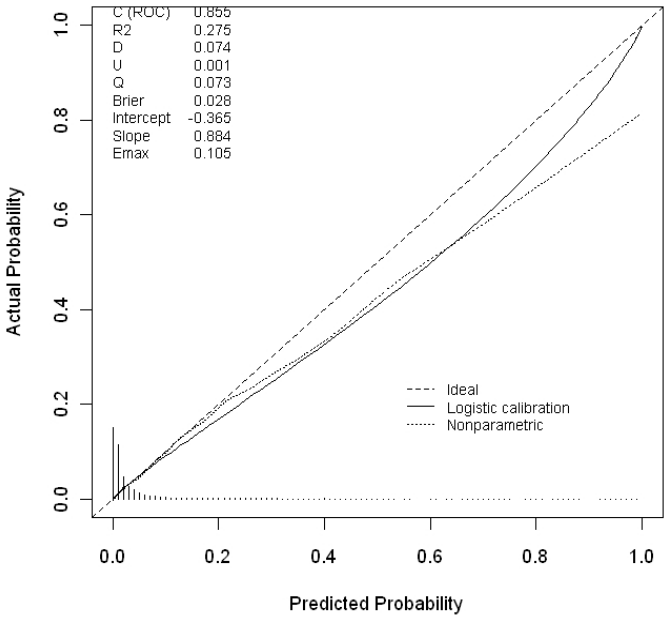
PRISM origineel

gerecalibreerd in PICE2006/07

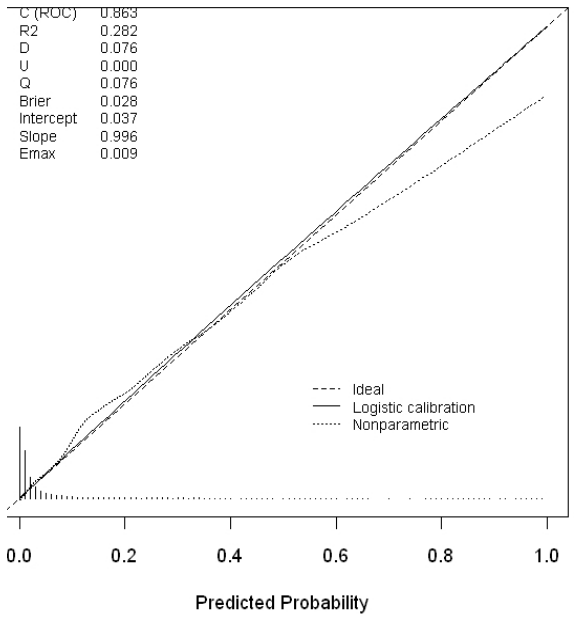
PICE internationaal perspectief

PIM2 en recalibrations 2006 & 2008 (by ANZPIC)

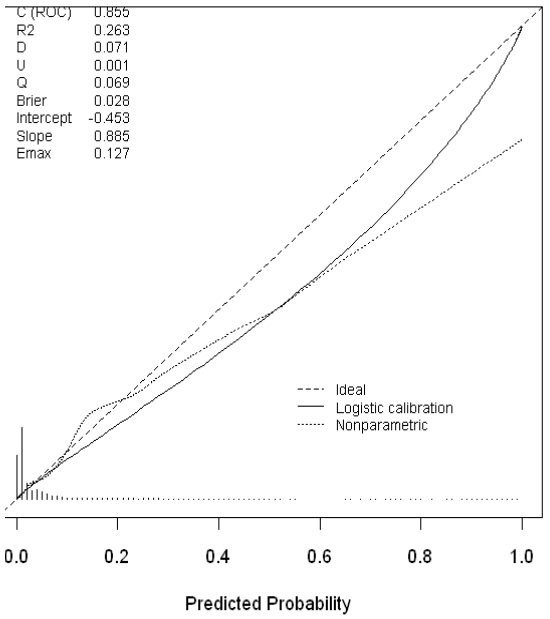
PIM2 origineel



recalibratie 2006



recalibratie 2008



PICE internationaal perspectief

Indirectly International comparison

standardized Mortality Ratio (SMR)
werkelijke sterfte op de PICU/verwachting model

SMR=1: sterfte gelijk aan verwachting

SMR>1: meer sterfte dan verwacht

SMR<1: als deze patiënten in de model-populatie PICU's waren behandeld dan meer gestorven
➔ survival now&here better than then&there

PICE internationaal perspectief

Indirectly comparing PICUs/countries

Model	**Populatie & periode**	**SMR-NL2008** [95%BI]
PRISM	USA 1984	0,48 [0,41-0,56]*
PIM2:	Australië/NZ(UK) 1997	0,85 [0,72-1,01]
-ANZ06	Australië/NZ 2006	0,92 [0,77-1,08]
-ANZ08	Australië/NZ 2008	0,78 [0,66-0,92]*

PICE internationaal perspectief

Direct international comparisons

NL - UK(partly) – Aus/NZ

PICE – PICANet – ANZPIC 2008

sources: publical available reports

PICANet: Paediatric Intensive Care Audit Network National Report 2006–2008 (published August 2009):Universities of Leeds and Leicester. ISBN 9780853162834

ANZPIC: Report of the Australian and New Zealand Paediatric Intensive Care Registry 2008 (published March 2010): ISBN 1876980699

PICE internationaal perspectief

similarities PICANet, ANZPIC & PICE

- Quality Control: local, central site visits (audits)
- Explicit dataset, definitions, toelichtingen
- Inclusion: all consecutive admissions PICU
- SMR based upon PIM2 (recalibrated)
- ANZPIC & PICE: diagnostic classification

PICE internationaal perspectief

differences PICANet, ANZPIC & PICE: Reports

- PICE: not explicit missings per variable
- Admissions to PICU
  - PICE report since 2006 selection on discharge
  - PICANet not all picus?
  - PICANet en ANZPIC also presenting <16yrs on adult-IC (apart)
- PICANet continuing 3-year reporting
- PICANet & ANZPIC: publicly reporting individual picu's

PICE internationaal perspectief

Percentage admissions in the three registries in 2008

	PICE	ANZPIC	PICANet
Sexe (male)	*57*	*58*	*58*
Neonates	*12*	*10*	*16*
Urgent/Unplanned	*57*	*58*	2006-08: *59*
LoS >=1week	*19*	*11*	*16*
>4wk (% of all 'beddays')	*3 (33)*	Surv: *1 (20)*	-?-

PICE internationaal perspectief

Percentage admissions according to source of adm in NL&Aus 2008

	PICE	ANZPIC	PICANet
Source			
OT (operation room)	*34*	*48*	
inpatient ward	*24*	*16*	
ED	*11*	*14*	
Directly	*9*	*21*	
other ICU	*6*	*1*	

PICE internationaal perspectief

Percentage Diagnoses in NL&Aus in 2008

	PICE	ANZPIC	PICANet
Diagnostic groups			
Post Procedure (excl. cardio)	*29*	*28*	
Cardiovasculair (incl. surgery)	*21*	*25*	
Respiratoir	*20*	*21*	
Neurological	*8*	*7*	
Trauma	*6*	*6*	

PICE internationaal perspectief

Percentage *admissions NL, Aus, UK* in 2008

	PICE	ANZPIC	PICANet
Mortality in PICU	*3,2*	*3,0*	*4,5*
PIM2 risk-groups			
<0,01	*45*		*16*
0,01-<0,05	*40*		*51*
0,05-<0,15	*10*		*27*
0,15-<0,30	*3*		*5*
>=0,30	*2*		*2*

Samenvatting internationaal perspectief PICE

- Uitkomst vergelijkbaar maar niet gelijk
- Verschillen in wijze van rapporteren
- Opzet registratie grote gelijkenis
- Zorg voor heldere en gelijke definities
- Gebruik Internationale modellen: PIM2
- Populatie overeenkomsten:
  - sexe, urgentie, diagnose, hoog risico
- Overleving op Nederlandse ICK gelijk of groter

Symposium 10 jaar PICE

emma kinderziekenhuis AMC

VU medisch centrum

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Dank aan allen betrokken bij de PICE

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