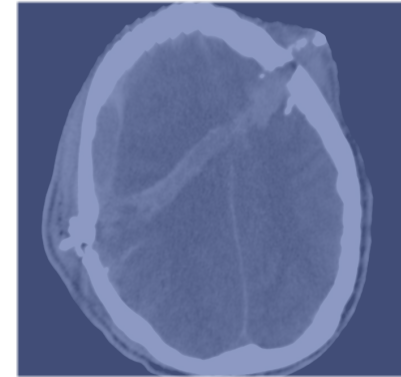
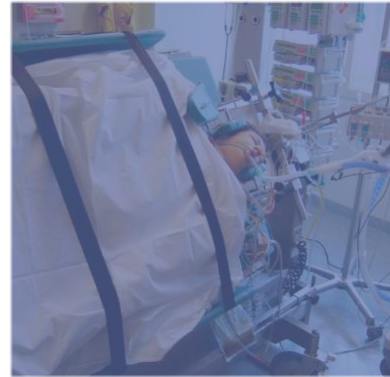


To ventilate or not to ventilate, that's the question

Prof Jan Bakker

Afdelingshoofd Intensive Care
Volwassenen

jan.bakker@erasmusmc.nl





VRAAG

**Opname op
Intensive Care?**

JA

**Kan ik nog
niet zeggen**

**Doet opname op de
IC de kans op
overleven van deze
patient toenemen?**

JA

NEE



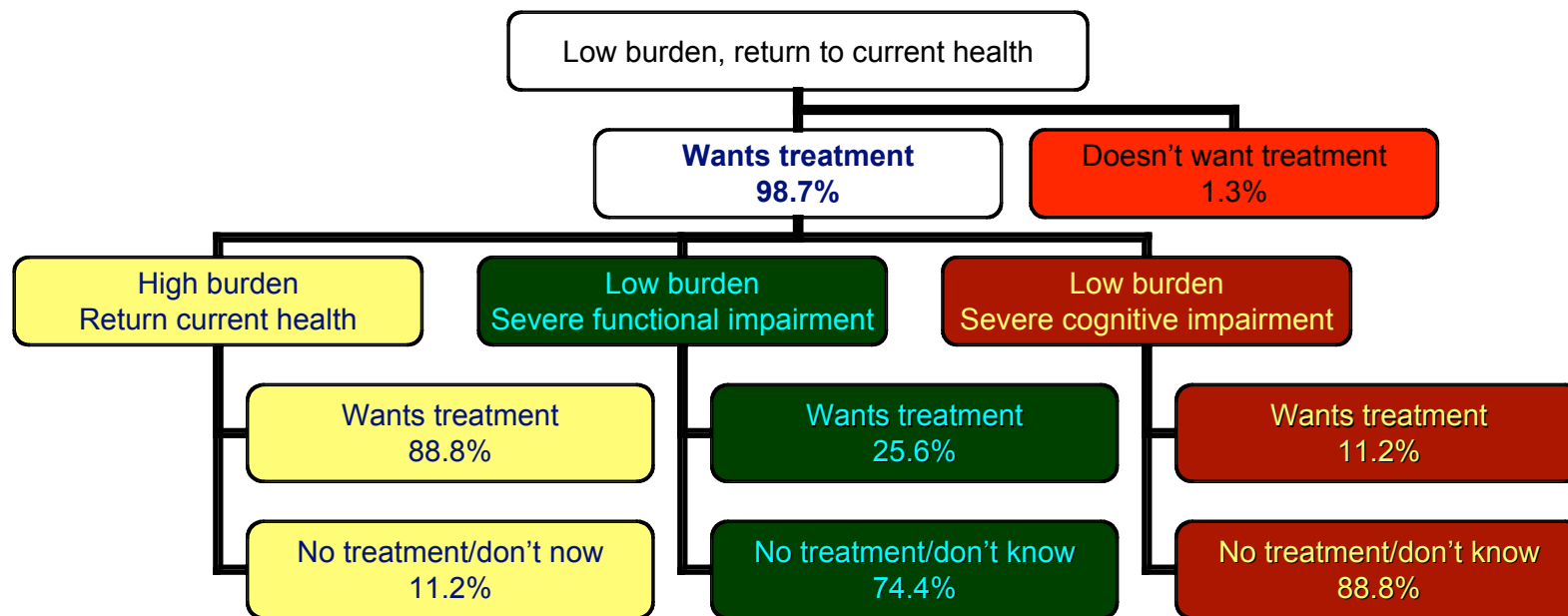
Criteria voor opname en ontslag van Intensive Care afdelingen in Nederland

Patients that may benefit from the use of Intensive Care resources should be admitted to Intensive Care

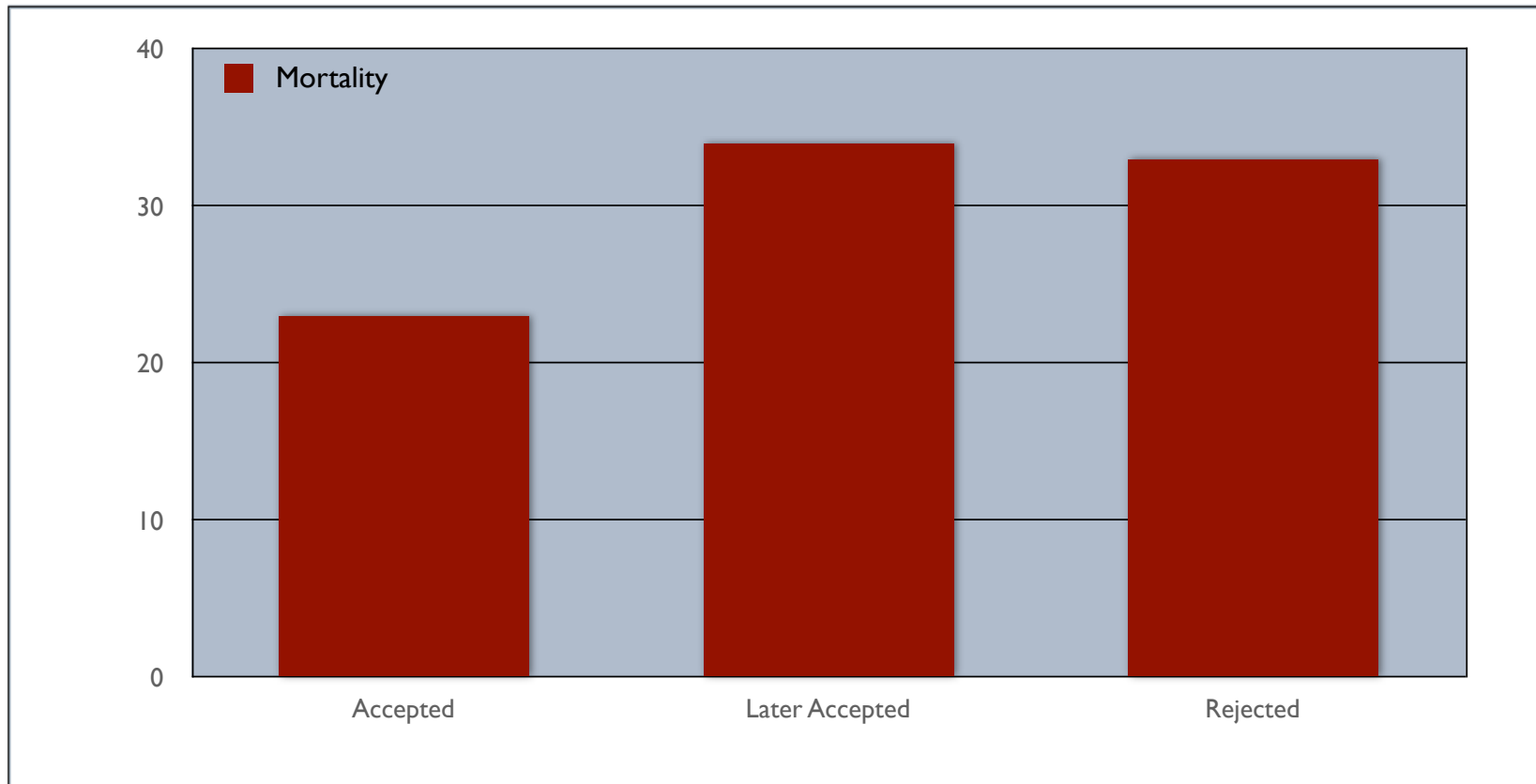
Patient preferences



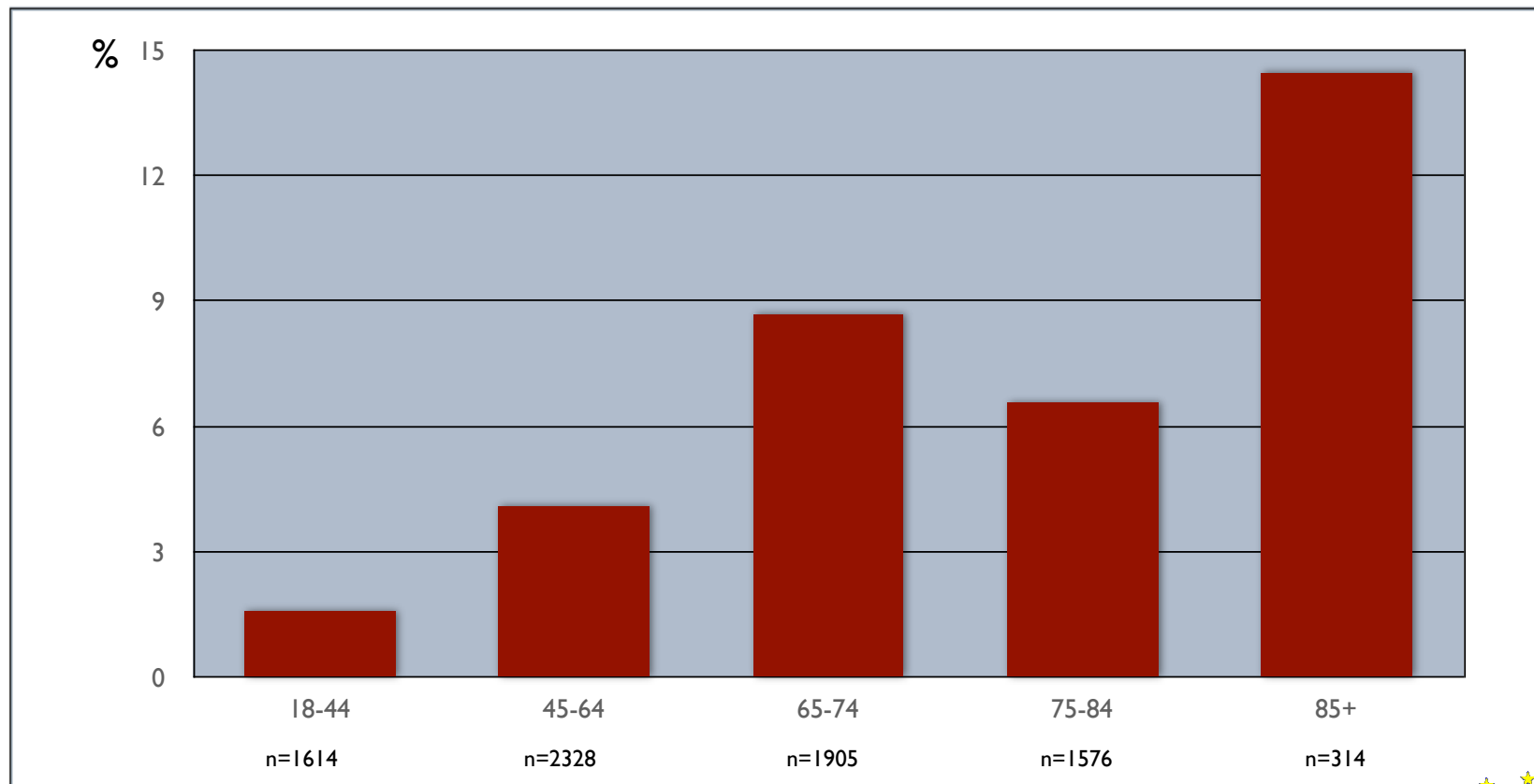
226 patients > 60 yrs (73±7) with limited life expectancy



Does Intensive Care admission change outcome?



Effect of ICU admission on mortality in elderly



VRAAG

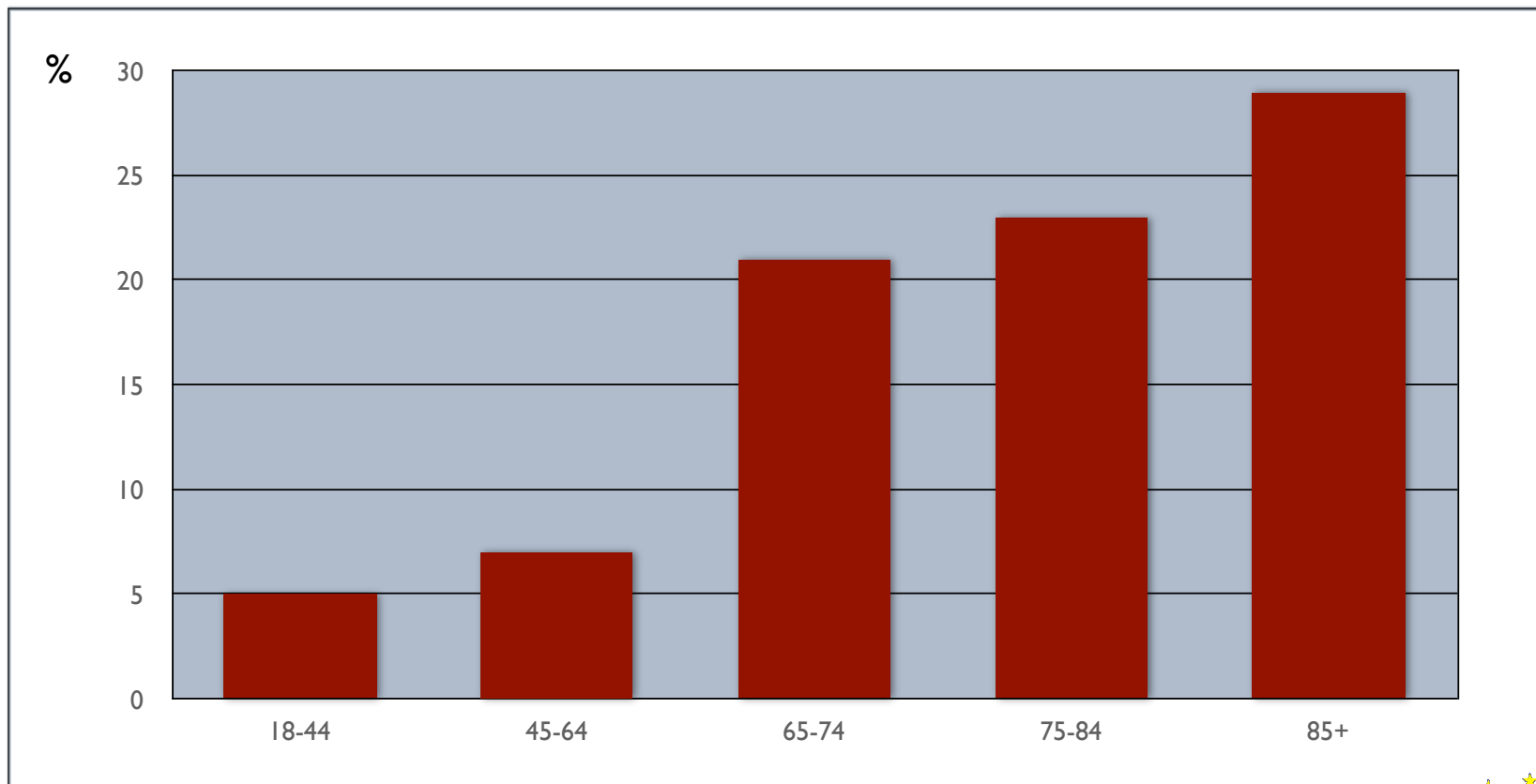
**Opname op
Intensive Care?**

JA

**Hangt af van het
overlijdensrisico**



Mortality in patients too well to be admitted to ICU



VRAAG

**We denken dat de
patient een kans
heeft van meer dan
85% om te
overlijden**

> 80%

< 80%

Wat is de uiteindelijk sterfte in deze groep patienten?



Eldicus studie

n=8659



Kans op overlijden > 85%

Overleefd

Overleden

Opgenomen op IC

31%

69%

Outcome in “futile” care



survival of patients with >85% likelihood of death at day 28



VRAAG

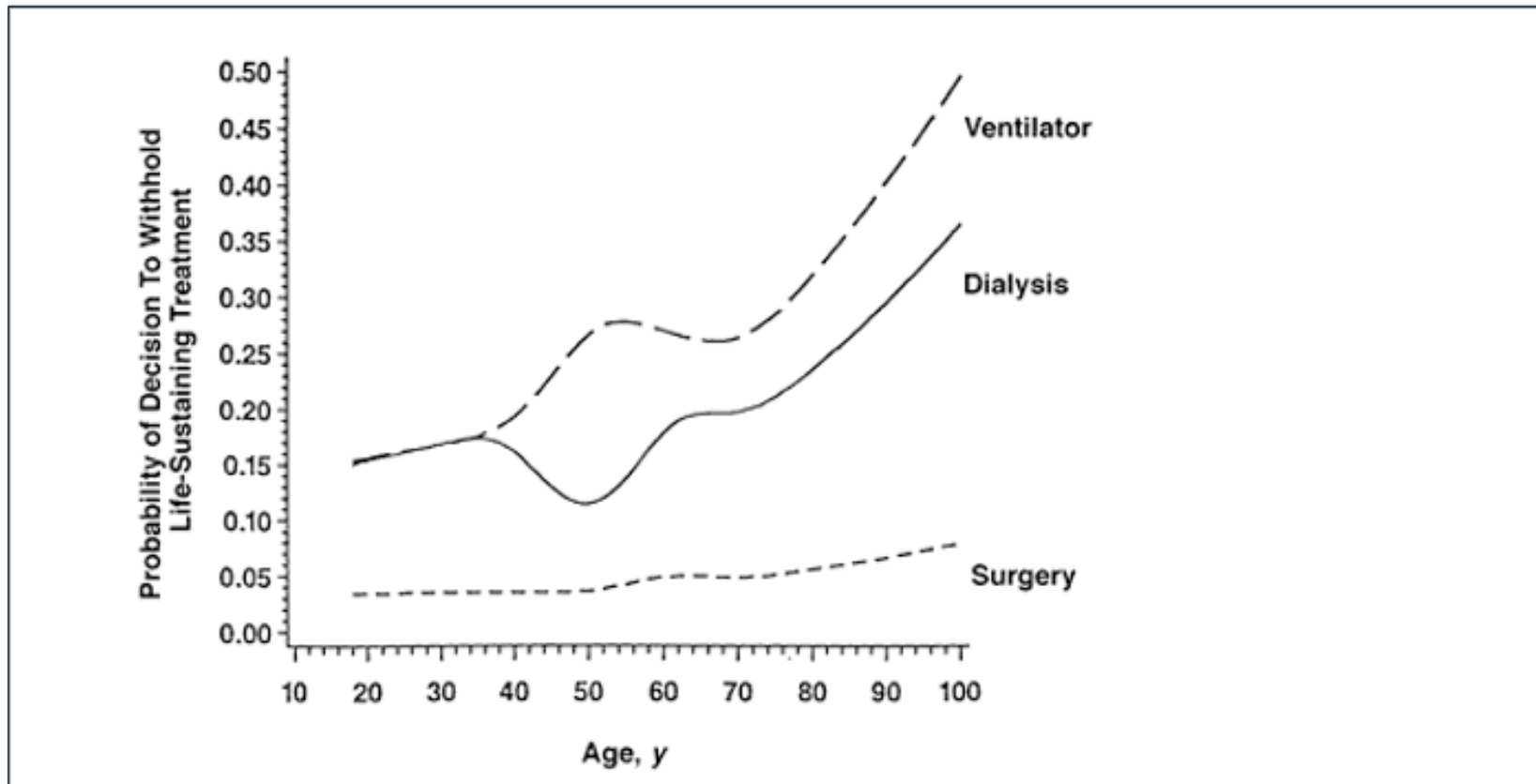
Beademen?

JA

**Ligt eraan
hoelang dit
gaat duren**



Withholding therapy in ICU patients



Hamel et al. Ann Intern Med 1999;130(2):116-125

Prediction prolonged MV in COPD



Gursel et al identified a number of risk factors associated with prolonged mechanical ventilation for a patient with chronic obstructive pulmonary disease (COPD) in the intensive care unit (ICU). These can help identify a patient who may require closer monitoring and more aggressive management. The author is from Gazi University School of Medicine in Ankara, Turkey.

General risk factors for prolonged mechanical ventilation:

- (1) age \geq 69 years of age
- (2) admission APACHE II \geq 19 (measure of disease severity on admission)
- (3) serum albumin on admission \leq 3.0 g/dL
- (4) development of ventilator-associated pneumonia (VAP)
- (5) development of sepsis

Risk factors for mechanical ventilation > 7 days:

- (1) ventilator-associated pneumonia
- (2) sepsis

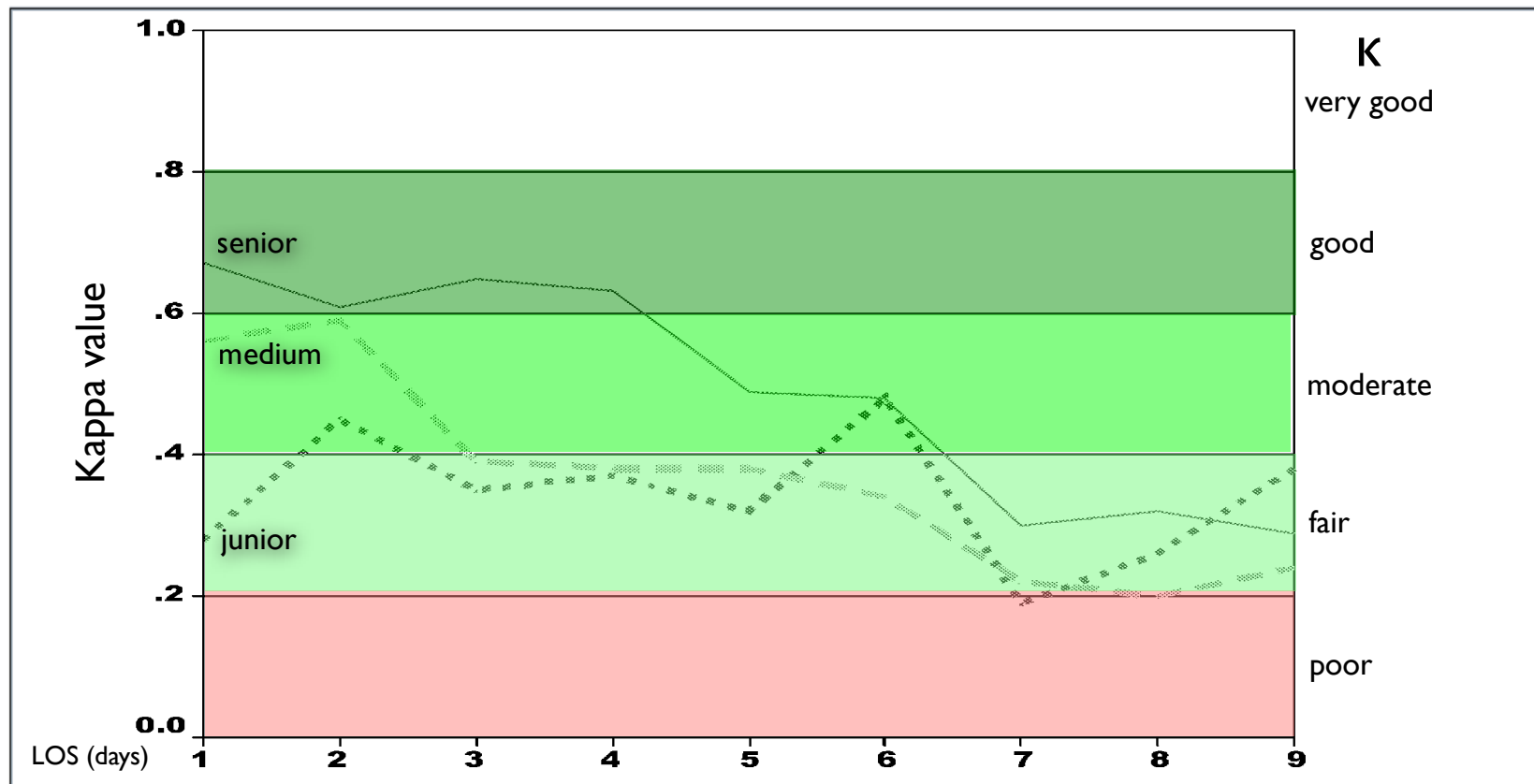
Risk factors for mechanical ventilation > 15 days:

- (1) ventilator-associated pneumonia

Risk factors for mechanical ventilation > 21 days:

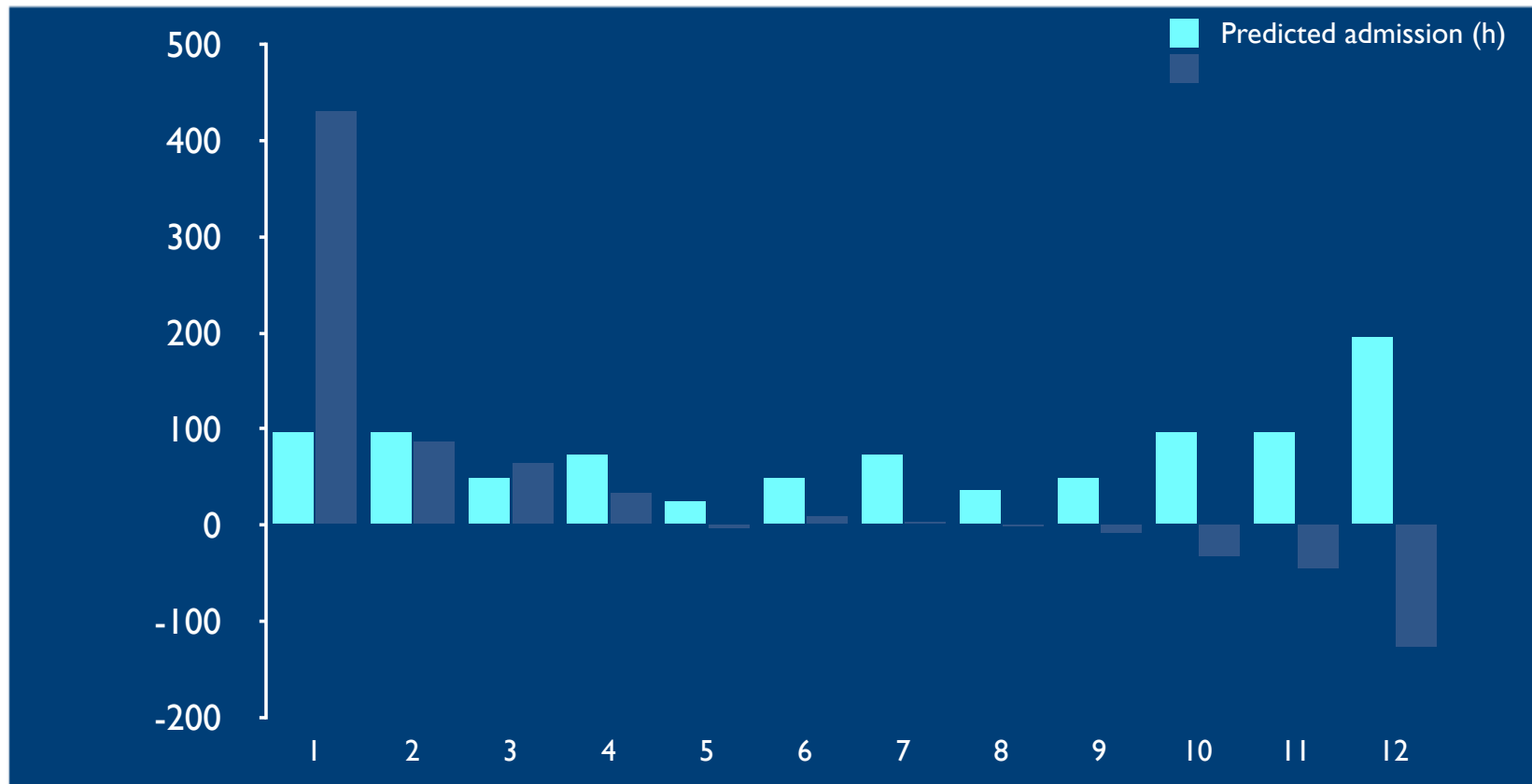
- (1) age
- (2) admission APACHE II score
- (3) hypalbuminemia

Predicting duration off stay: Does experience matter?



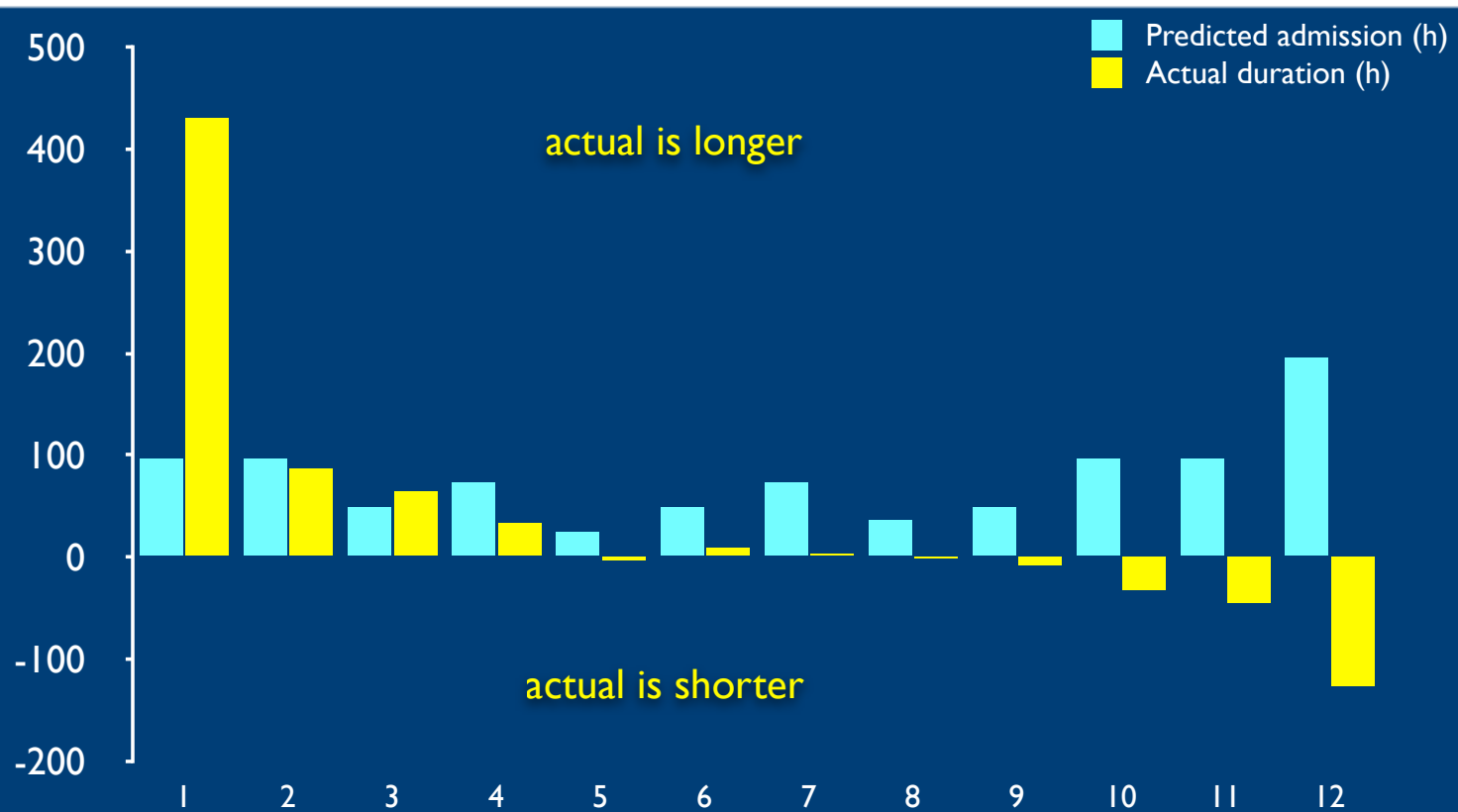
Predicting the duration of Mechanical Ventilation

Small study



Predicting the duration of Mechanical Ventilation

Small study



VRAAG

**Opname op
Intensive Care?**

JA	JA, maar..
geen grenzen	we gaan het voor beperkte tijd proberen!



Prognostic Factors in COPD



Nevins and Epstein identified prognostic factors for a patient with chronic obstructive pulmonary disease (COPD) who requires mechanical ventilation. These can help identify a patient who has a high risk of a poor outcome. The authors are from Tufts University in Boston.

Prognostic factors indicating a worse prognosis that are available shortly after starting mechanical ventilation:

- (1) **presence of active malignancy**
- (2) **presence of an APACHE II comorbidity (congestive heart failure, chronic renal failure, immunosuppression, cirrhosis)**
- (3) **high acute physiology score (APS) from the APACHE II at 6 hours. The APS for survivors was 7 +/- 5. The APS for nonsurvivors was 11 +/- 6.**

Additional poor prognostic factors:

- (4) **mechanical ventilation required for > 72 hours**
- (5) extubation failure

The in-hospital mortality rate for a low risk patient (acute exacerbation without active malignancy or comorbid condition) was around 12%. The length of hospitalization and the mortality rate increase as the number of poor prognostic factors increase.

SOFA-score

JAMA 2001 286:1754-1758



Variables	SOFA Score			
	1	2	3	4
Respiration				
PaO ₂ /FIO ₂	< 400	300	< 200†	< 100†
Coagulation				
Platelets, 10 ³ /μL	< 150	< 100	< 50	< 20
Liver				
Bilirubin				
mg/dL	1.2–1.9	2.0–5.9	6.0–11.9	> 12.0
μmol/L	20–32	33–101	102–204	> 204
Cardiovascular‡				
Hypotension	MAP < 70	Dopamine ≤ 5, or dobutamine any dose	Dopamine > 5, or epinephrine ≤ 0.1, or norepinephrine ≤ 0.1	Dopamine > 15, or epinephrine > 0.1, or norepinephrine > 0.1
CNS				
Glasgow coma scale	13–14	10–12	6–9	< 6
Renal				
Creatinine				
mg/dL	1.2–1.9	2.0–3.4	3.5–4.9	> 5
μmol/L	110–170	171–299	300–440	> 440

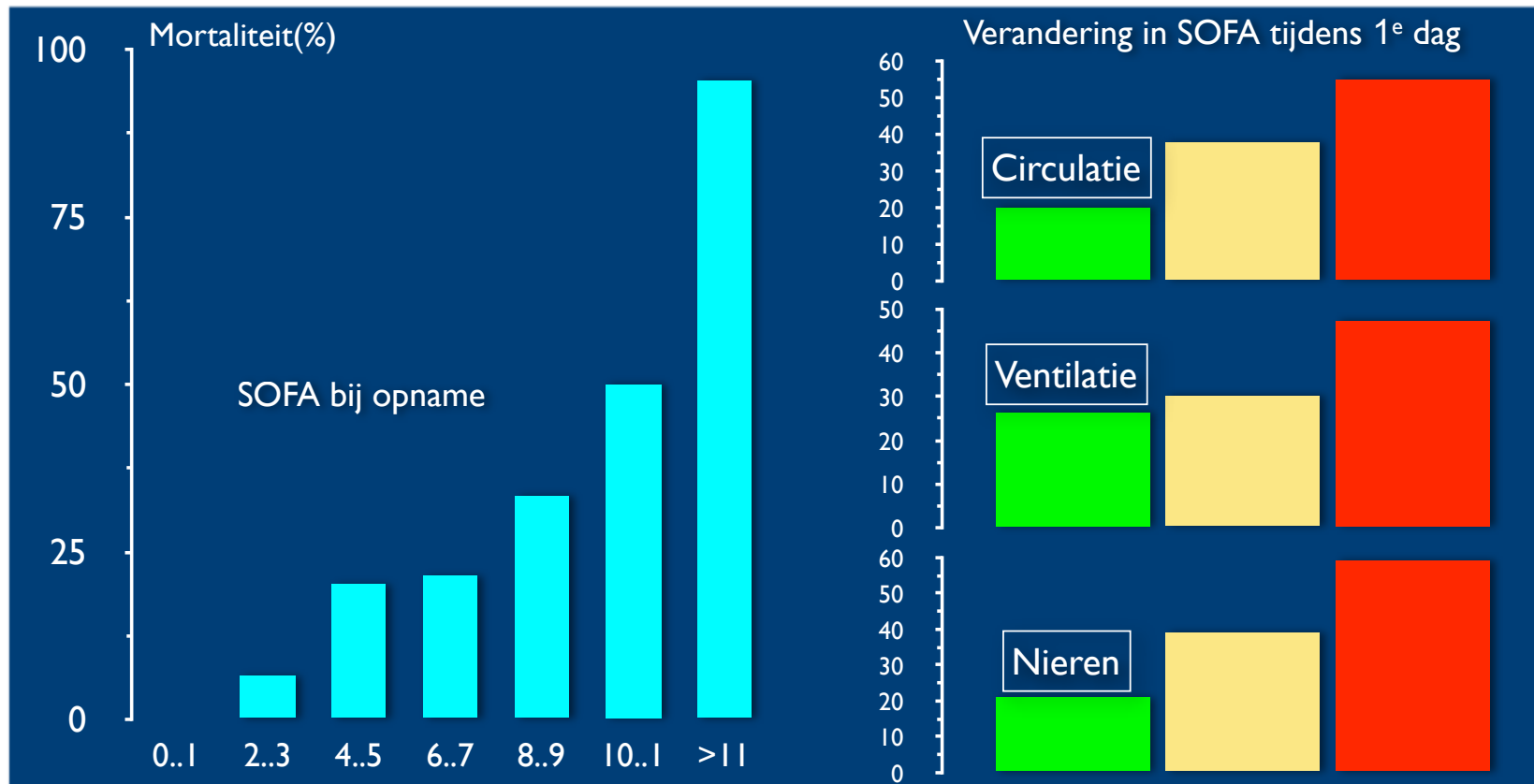
*MAP = mean arterial pressure.

†With respiratory support.

‡Adrenergic agents administered for at least 1 h (dosages are in μg/kg/min).

Multiple Organ Failure

- Verbeterd
- Onveranderd
- Verslechtering

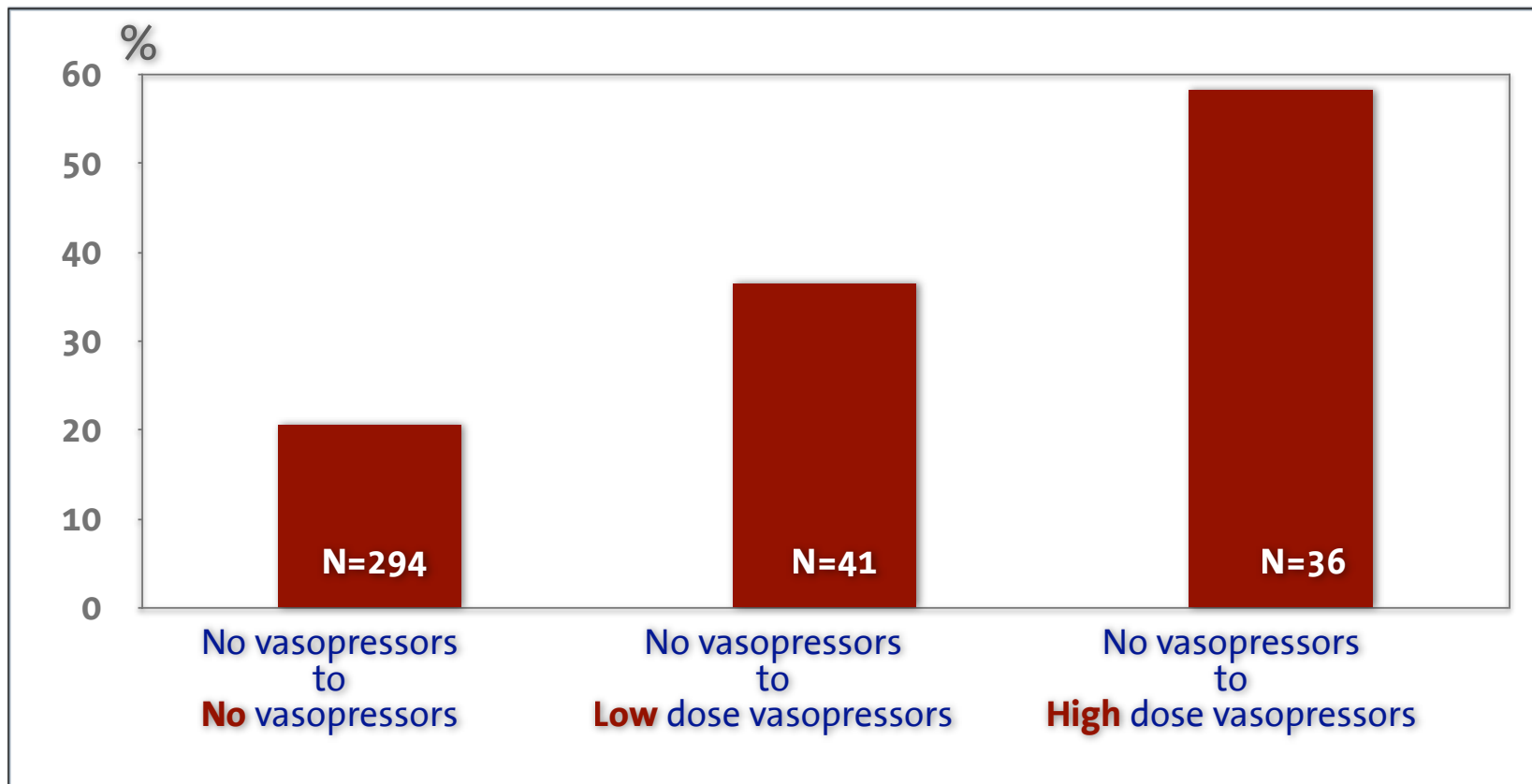


JAMA 2001;286:1754-8

Crit Care Med 2005;33:2194-2201

Trial of Intensive Care

Mortality by change from baseline to day 1



PROWESS study aPC

Ernst van ziekte



	Opname	Dag 3
APACHE II	4	4
SOFA	6	9



VRAAG

**Achteraf gezien:
Opname op IC?**

JA

NEE



Conclusies



- ▶ Voorspellen of een patient wel of geen baat heeft bij intensive care behandeling is extreem moeilijk
- ▶ Voorspellen van de duur van opname of beademing is moeilijk
- ▶ Mate van reversibiliteit en fysiologische reserve voor het overleven van de acute ziekte waarvoor intensive care behandeling noodzakelijk lijkt is erg belangrijk
- ▶ Trial of intensive care is een belangrijk instrument om een goed overwogen besluit te kunnen nemen of het voortzetten van de behandeling zinvol is