

Spreading Knowledge – Improving Outcomes

Prognostication of Critical Illness



Decision Making Process

How well the patient and/or family comprehend the prognosis?

- Neurological condition
- Initial SOFA score
- Δ SOFA during firs 48 hours
- Known comorbidity associated with survival < 12 months
- Age!
- Clinical judgment

Formulate the Prognosis

Informing the Patient and/or family

- Patient vs family
- Disclosing the formulated prognosis to patient or family
- Interpretation of the communicated prognosis accurately

- Role of the physician in making the decision
- Taking into consideration the patient's values, goals, and preferences
- Autonomy and distributive justice
- Establishing realistic goals of care

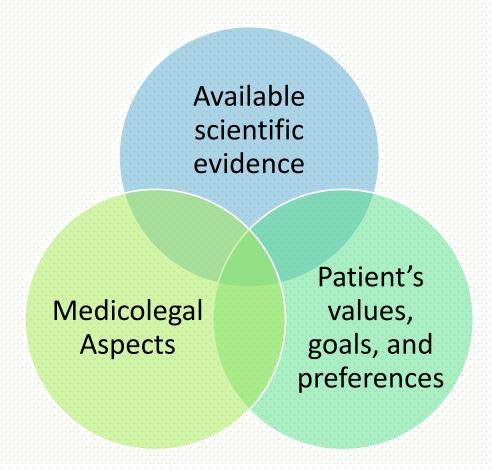
Making the Decision

What is the likelihood to achieve a particular outcome during a specific time?

What is the level of care that is most appropriate based on prognosis, patient's values, and medicolegal aspects?



Shared Decision-making





القيم الأساسية في القضايا الأخلاقية الطبية

للمريض الحق في اختيار • أو رفض طريقة معالجته

> الاستقلال الذاتي Autonomy

قد تكون بقصد أو بغير قصد، • جسمية أو نفسية أو عاطفية، بإدخال عنصر مؤذ أو منع عنصر مفيد

عدم الإيذاء Nonmaleficenc e

الإحسان Beneficence

م أفضل اهتمام بالمريض • واحرص على إسعاده، أي قدم الأفضل للمريض بصدق

و أمانة

Justice العدالة

الإنصاف في توزيع الموارد وتقرير من الذي يستحق أخذ علاج ما

Formulation of the prognosis

(Clinician estimates the likelihood of a particular outcome over a specific time period)



Communication of the prognosis

(Clinician discloses the formulated prognosis to the patient and/or family)



Interpretation of the prognosis

(Patient and/or surrogate interprets the communicated prognosis)

Prognostication Components

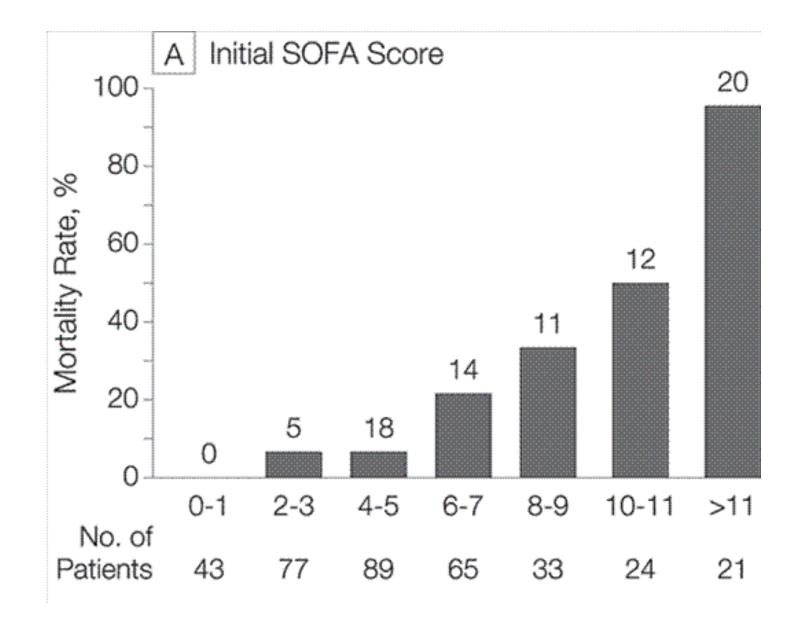


SOFA

System	Score							
	0	1	2	3	4			
Respiration								
PaO ₂ /FIO ₂ , mm Hg (kPa)	≥400 (53.3)	<400 (53.3)	<300 (40)	<200 (26.7) with respiratory support	<100 (13.3) with respiratory support			
Coagulation								
Platelets, ×10³/μL	≥150	<150	<100	<50	<20			
Liver								
Bilirubin, mg/dL (μmol/L)	<1.2 (20)	1.2-1.9 (20-32)	2.0-5.9 (33-101)	6.0-11.9 (102-204)	>12.0 (204)			
Cardiovascular	MAP ≥70 mm Hg	MAP <70 mm Hg	Dopamine <5 or dobutamine (any dose) ^b	Dopamine 5.1-15 or epinephrine ≤0.1 or norepinephrine ≤0.1 ^b	Dopamine >15 or epinephrine >0.1 or norepinephrine >0.1 ^b			
Central nervous system								
Glasgow Coma Scale score ^c	15	13-14	10-12	6-9	<6			
Renal								
Creatinine, mg/dL (µmol/L)	<1.2 (110)	1.2-1.9 (110-170)	2.0-3.4 (171-299)	3.5-4.9 (300-440)	>5.0 (440)			
Urine output, mL/d				<500	<200			
Abbreviations: FIO ₂ , fracti	on of inspired oxygen; M	AP, mean arterial pressure;	^b Catecholamine doses a	are given as µg/kg/min for at	t least 1 hour.			
Pao ₂ , partial pressure of oxygen.			^c Glasgow Coma Scale scores range from 3-15; higher score indicates better					

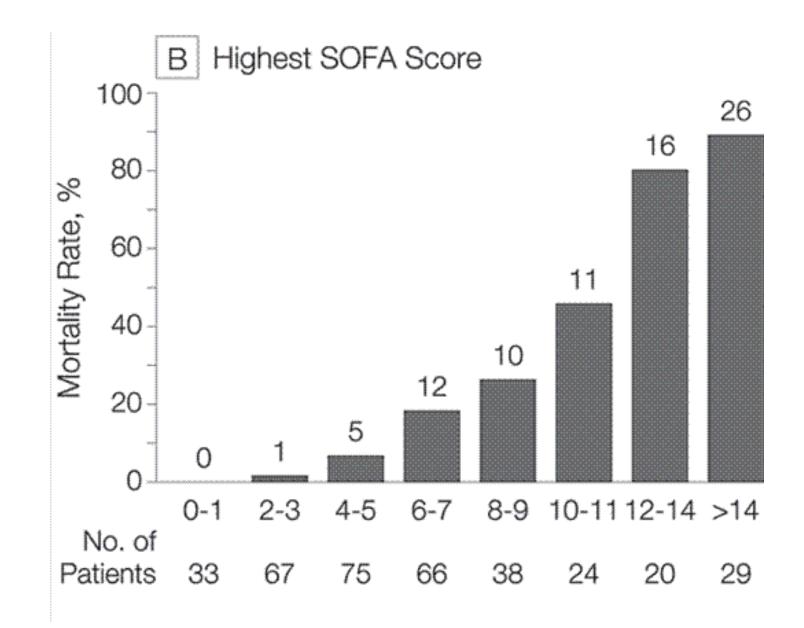
Mortality based on Initial SOFA Score

Ferreira FL, Bota DP, Bross A, Mélot C, Vincent J. Serial Evaluation of the SOFA Score to Predict Outcome in Critically III Patients. *JAMA*. 2001;286(14):175 4–1758



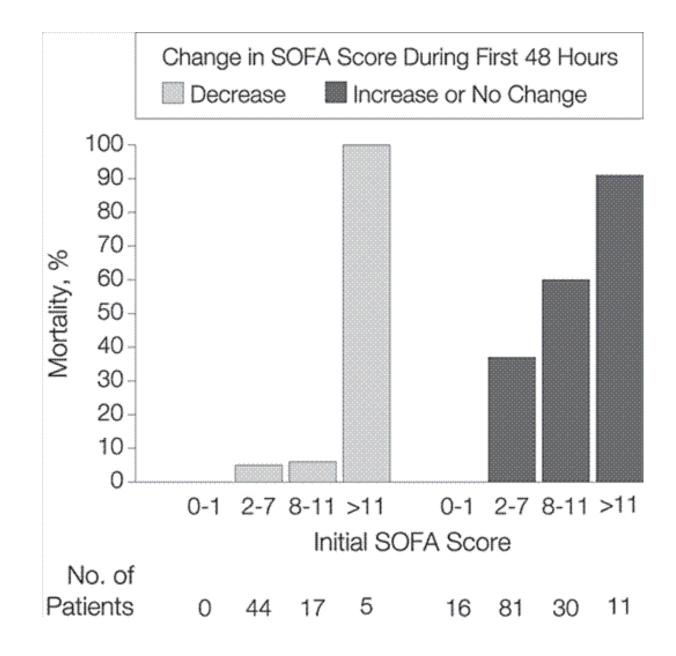
Mortality based on Highest SOFA Score

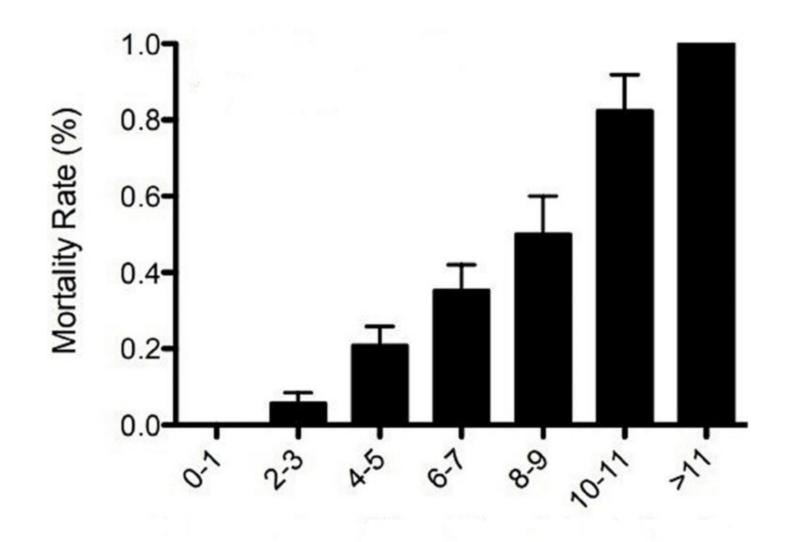
Ferreira FL, Bota DP, Bross A, Mélot C, Vincent J. Serial Evaluation of the SOFA Score to Predict Outcome in Critically III Patients. *JAMA*. 2001;286(14):175 4–1758



Mortality Associated with Change of SOFA Score during the First 48 Hours

Ferreira FL, Bota DP, Bross A, Mélot C, Vincent J. Serial Evaluation of the SOFA Score to Predict Outcome in Critically III Patients. *JAMA*. 2001;286(14):175 4–1758





Grouped SOFA score

Proposed Strategy for Ventilator Allocation of Scarce Mechanical Ventilators



		Point System				
Principle	Specification	1	2	3	4	
Prognosis for short-term survival	Adults (SOFA) or pediatrics (PELOD-2)	SOFA score ≤ 8	SOFA score 9-11	SOFA score 12-14	SOFA score > 14	
		PELOD-2 ≤ 12	PELOD-2 12-13	PELOD-2 14-16	PELOD-2 ≥ 17	
Prognosis for long-term survival	Prognosis for long-term survival (assessment of comorbid conditions)			Severe comorbid conditions; death likely within 1 y		
Secondary consideration						
Lifecycle considerations	Prioritize those who have had the lease chance to live through life's stages (age)	Age 0-49 y	Age 50-69 y	Age 70-84 y	Age ≥ 85 y	

Examples of severe comorbid conditions with associated life expectancy < 1 year are listed:.

- 1. NYHA class IV heart failure.
- 2. Advanced lung disease with FEV1 < 25% predicted, total lung capacity < 60% predicted, or baseline PAO2 < 55 mm Hg.
- 3. Primary pulmonary hypertension with NYHA class III or IV heart failure.
- 4. Chronic liver disease with Child-Pugh score > 7.
- 5. Severe trauma.
- 6. Advanced untreatable neuromuscular disease.
- 7. Metastatic malignant disease or high-grade primary brain tumors.



Decision Making Process

How well the patient and/or family comprehend the prognosis?

- Neurological condition
- Initial SOFA score
- Δ SOFA during firs 48 hours
- Known comorbidity associated with survival < 12 months
- Age!
- Clinical judgment

Formulate the Prognosis

Informing the Patient and/or family

- Patient vs family
- Disclosing the formulated prognosis to patient or family
- Interpretation of the communicated prognosis accurately

- Role of the physician in making the decision
- Taking into consideration the patient's values, goals, and preferences
- Autonomy and distributive justice
- Establishing realistic goals of care

Making the Decision

What is the likelihood to achieve a particular outcome during a specific time?

What is the level of care that is most appropriate based on prognosis, patient's values, and medicolegal aspects?