



# ORGAN DYSFUNCTION AS A PREDICTOR OF DEATH IN BLOOD CULTURE-PROVEN NEONATAL SEPSIS

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# The definition of sepsis

## Adults

- Sepsis-3: Life-threatening organ dysfunction (OD) caused by dysregulated host response to infection
- Sequential Organ Failure Assessment (SOFA) score:  
Respiratory - Cardiovascular - Hepatic  
Coagulation - Renal - Neurological



Predictor of Mortality

## Newborns

No clear definition

# Sepsis definition and OD scores used in Paediatrics

- 2005 international paediatric sepsis consensus
  - Systemic inflammatory Response (SIRS)
  - Suspected or proven infection
- Paediatric Logistic Organ Dysfunction (PELOD-2)
  - Age
  - Cardiovascular
  - Hematologic
  - Respiratory
  - Renal
  - Neurological
- pSOFA

# Aim

Assess the suitability of pediatric definitions & scores to identify newborns who died  $\leq 30$  days after sepsis onset.

# Sepsis episodes

**444** Patients with blood culture-proven sepsis

Early-onset sepsis (EOS)  
<3 days after birth

**20% (87)**

Late-onset sepsis (LOS)  
≥ 3 days after birth

Community  
Acquired (CA)

**18% (80)**

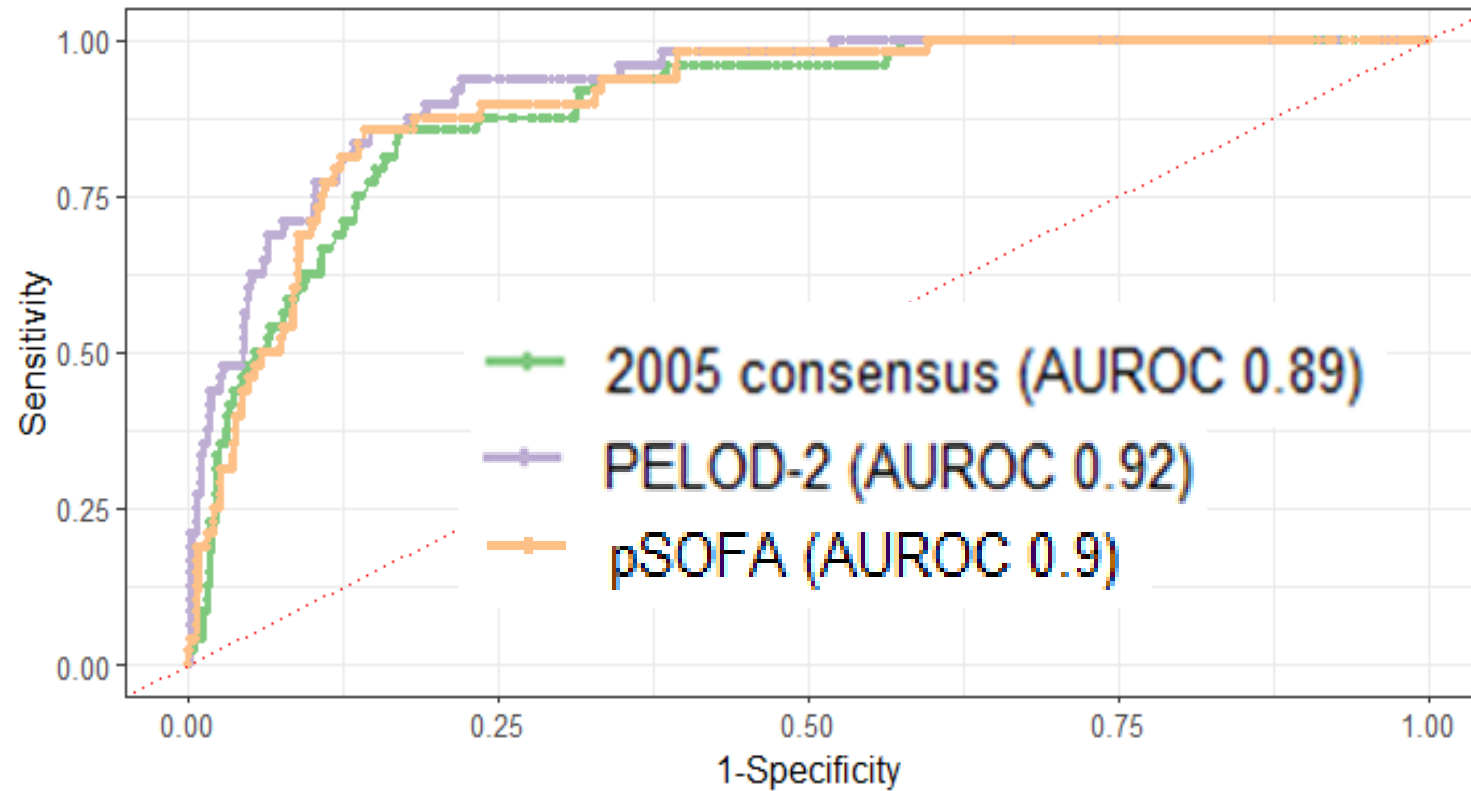
Hospital  
Acquired (HA)

**62% (277)**

# Outcome of sepsis

		Organ Dysfunction	Case fatality ratio
EOS		83% (72/87)	18% (16/87)
LOS	CA-LOS	28% (22/80)	0% (0/80)
	HA-LOS	83% (230/277)	12% (32/277)
Patients with blood culture proven sepsis		74% (324/444)	11% (48/444)

# Adjusted AUROC curves for prediction of mortality by pediatric OD scores



# Conclusion

- OD is a frequent complication of neonatal sepsis.
- Paediatric OD scores can identify patients at higher risk of mortality.
- Supports the translation of Sepsis-3 into a neonatal-specific definition of sepsis.
- Highlights the importance of characterizing OD in newborns evaluated for sepsis