

HIE: clinical changes over time

Daphna Yasova Barbeau, MD
Neonatology Fellow, University of Florida



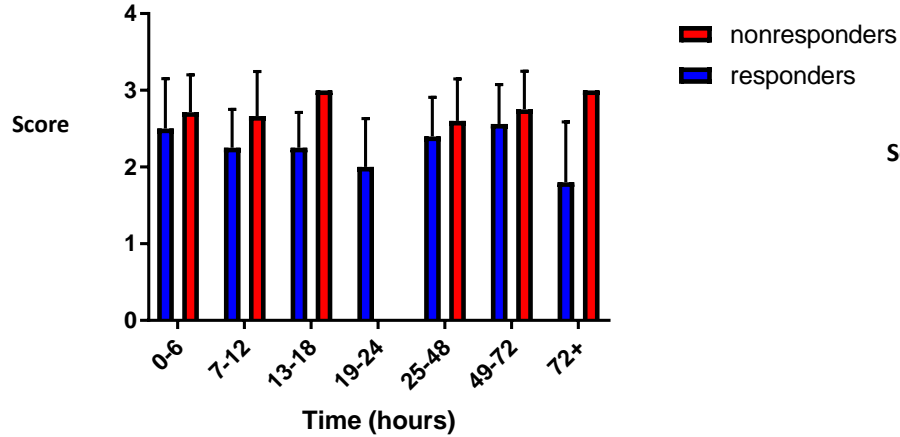
Florida Neonatal Neurologic Network
Connecting Hope with Excellence

The UF Health logo consists of the letters "UF" in a large, bold, orange font, followed by the word "Health" in a blue serif font. A thin orange arc is positioned above the "UF".
shands children's Hospital

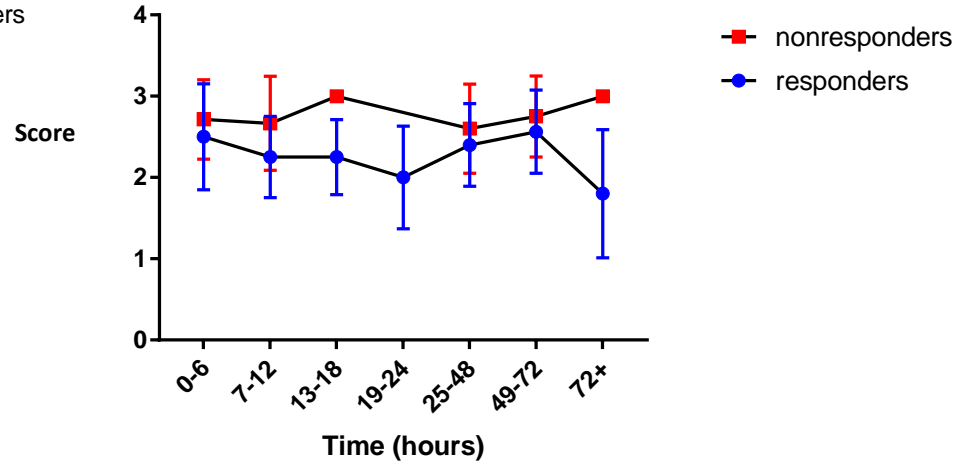
Objectives:

1. Identify normal trends in laboratory values in neonates with HIE.
2. Define neonates who may need further evaluation for end-organ injury.
3. Associate blood gas findings with glucose values to determine etiology of hypoglycemia and hypocarbia.

Sarnat Scores over time

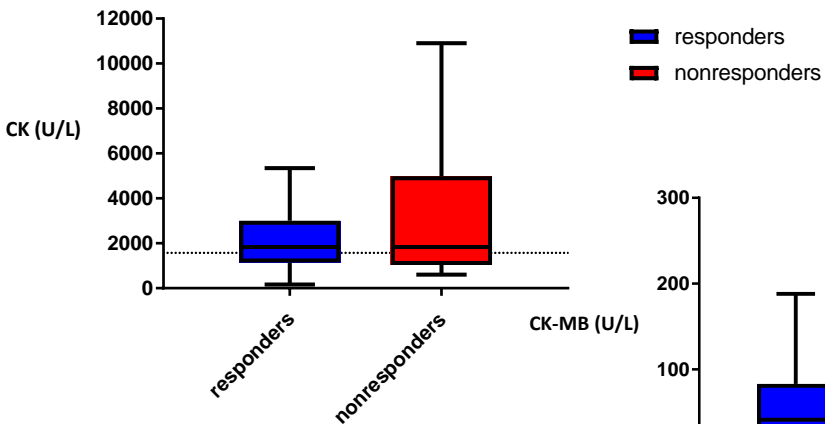


Sarnat Scores over time

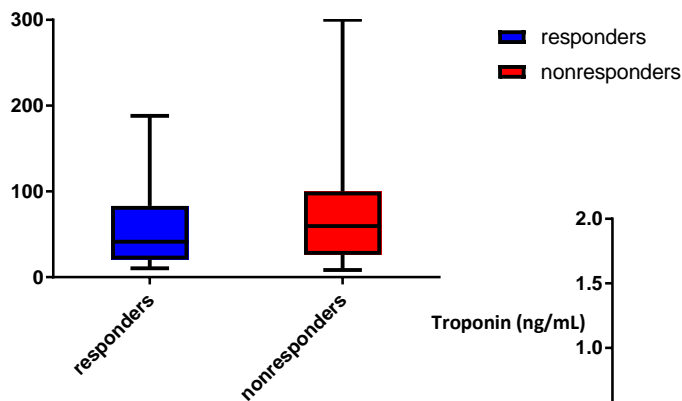


Severity	Stage 1 (Mild)	Stage 2 (Moderate)	Stage 3 (Severe)
Level of consciousness	Hyperalert	Lethargic or Obtunded	Stupor or coma
Activity	Normal	Decreased	Absent
Neuromuscular Control			
Muscle Tone	Normal	Mild hypotonia	Flaccid
Posture	Mild distal flexion	Strong distal flexion	Intermittent decerebration
Stretch Reflexes	Overactive	Overactive	Decreased or absent
Complex or primitive reflexes			
Suck	Weak	Weak or absent	Absent
Moro (Startle)	Strong	Weak	Absent
Tonic neck	Slight	Strong	Absent
Autonomic Function			
Pupils	Mydriasis	Miosis	Variable
Heart Rate	Tachycardia	Bradycardia	Variable
Seizures	None	Common	Uncommon

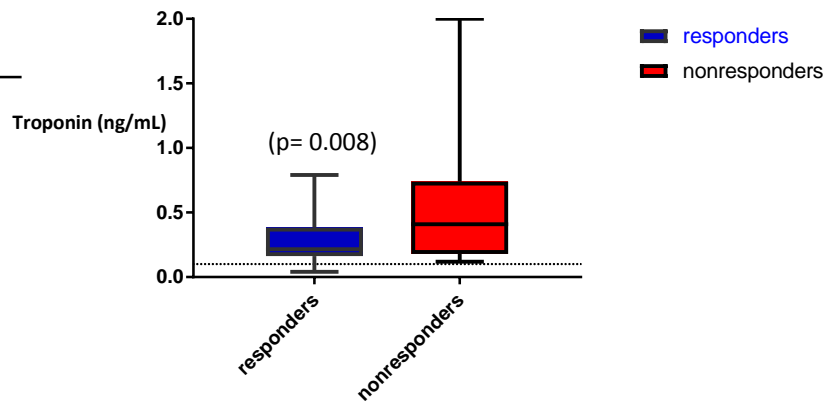
Creatinine Kinase total



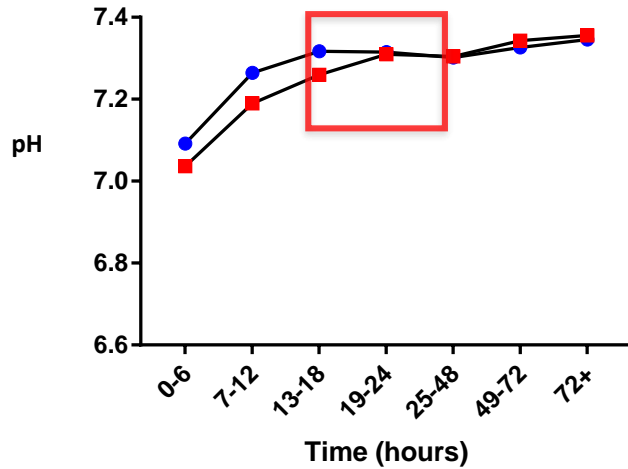
CK-MB



Troponin I

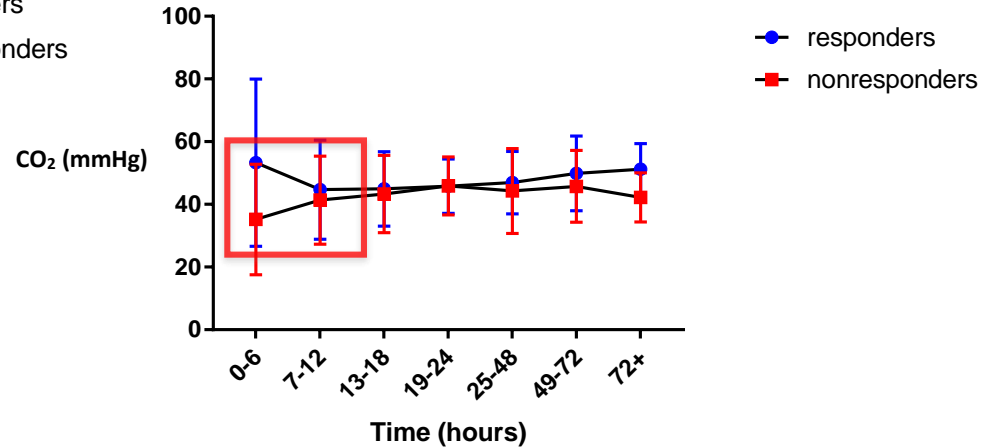


pH over time



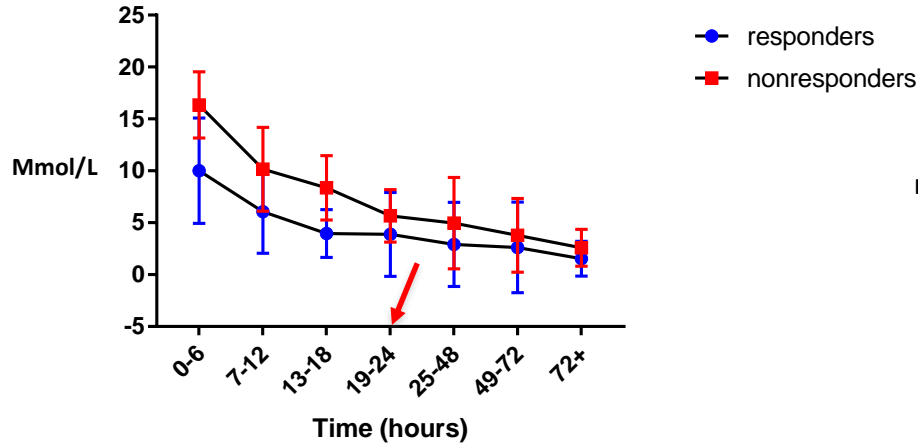
● responders
■ nonresponders

CO₂ over time

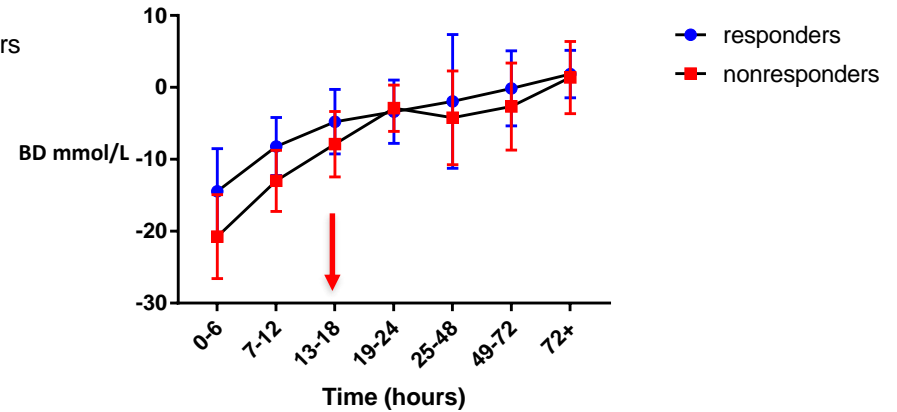


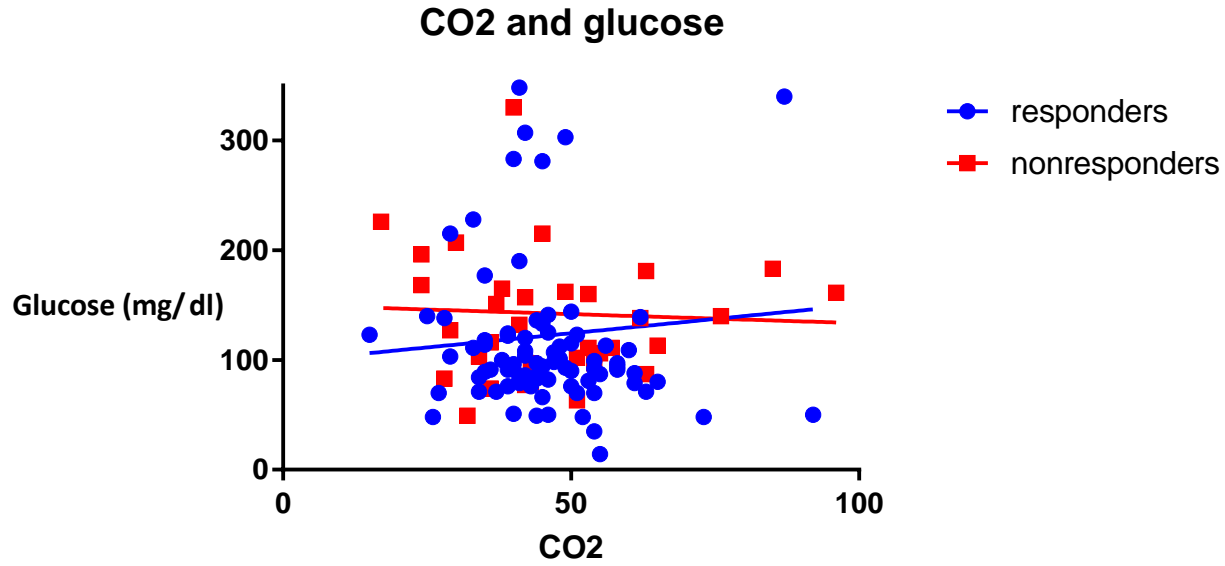
● responders
■ nonresponders

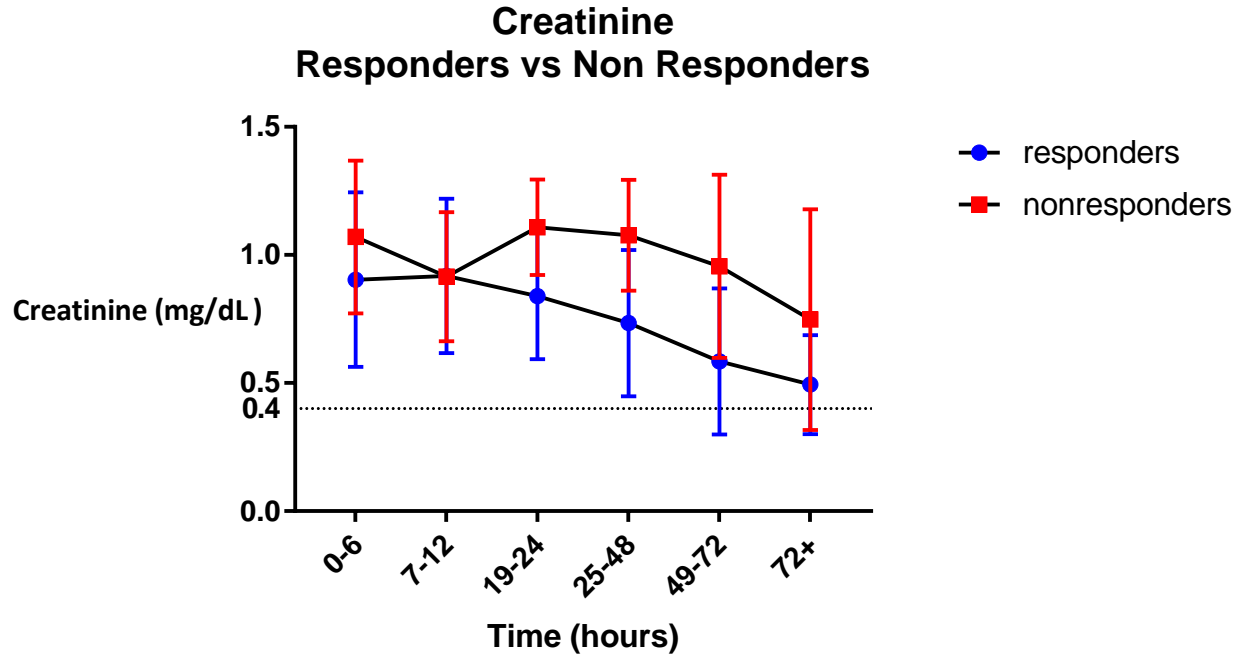
lactate over time



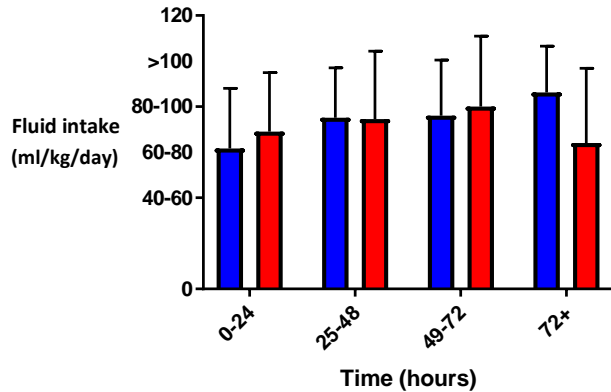
Base deficit over time



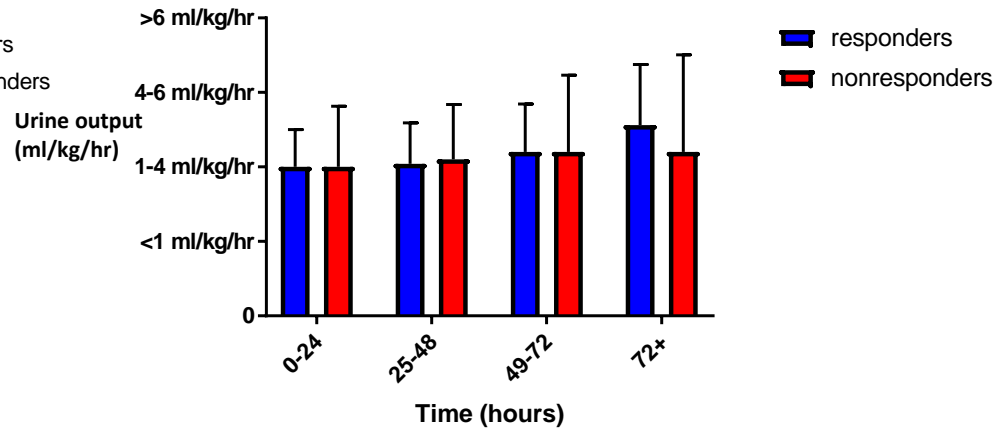




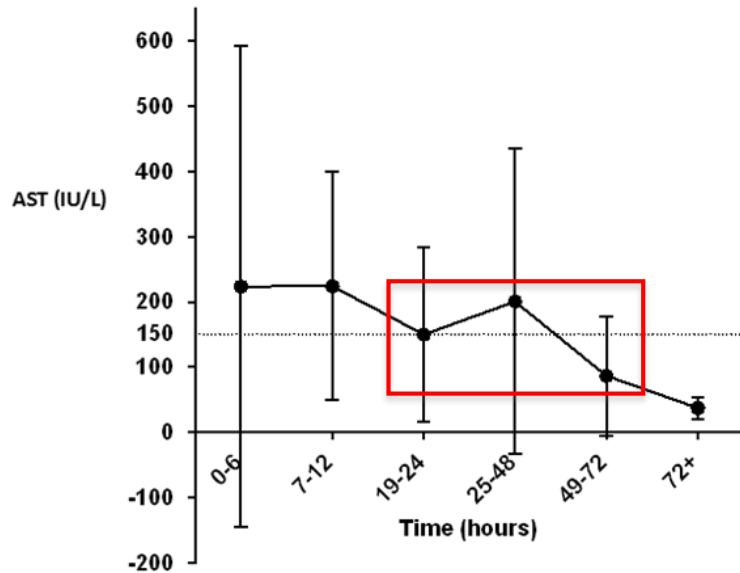
**Fluid intake
Responders vs. Non Responders**



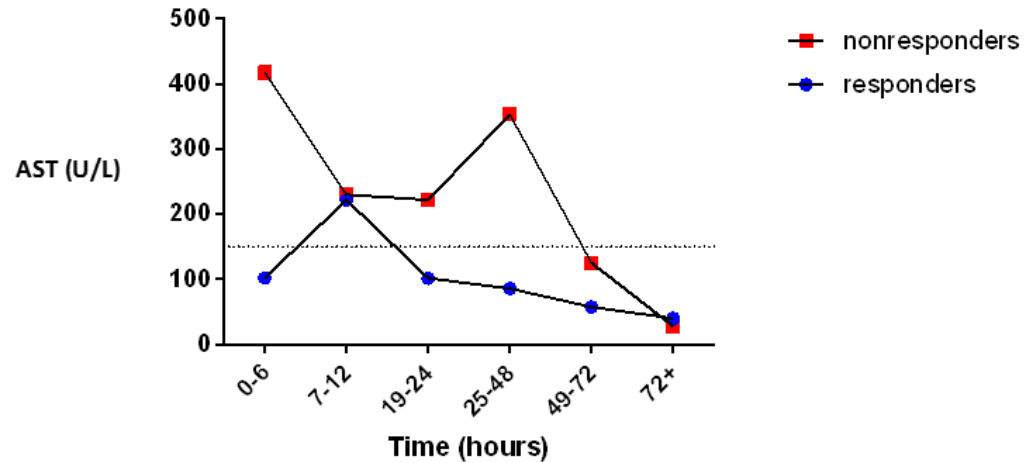
**Urine output
Responders vs Non Responders**



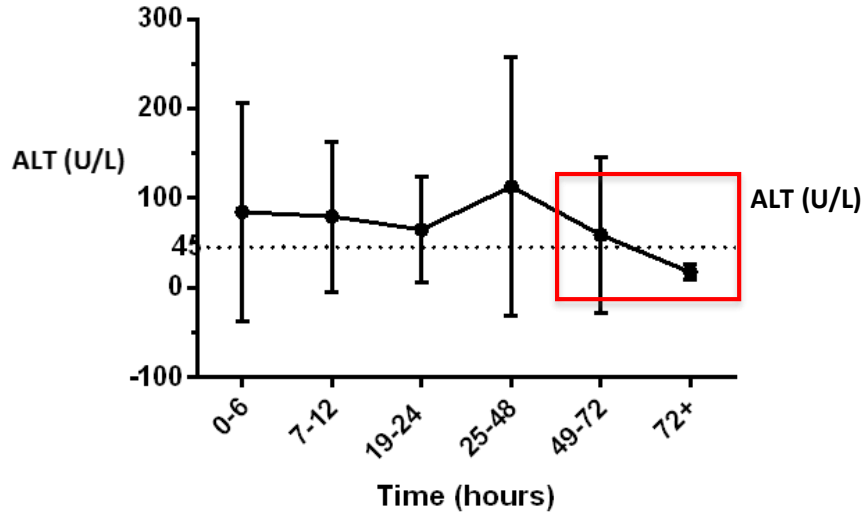
Aspartate Aminotransferase (AST) over time



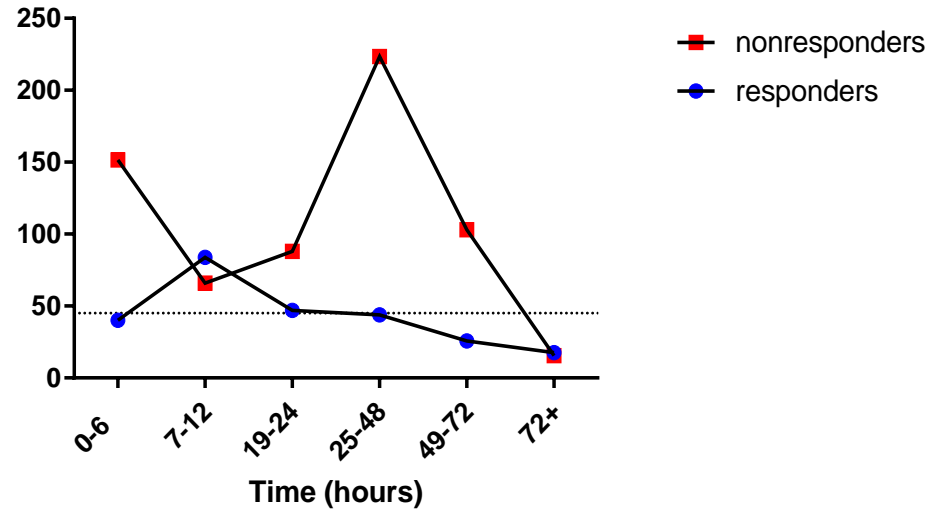
Aspartate Aminotransferase (AST) responders vs nonresponders



Alanine aminotransferase (ALT) over time



Alanine aminotransferase (ALT) responders vs non responders



Summary:

- Currently no reliable marker of response.
- Infants that don't follow the trend require further evaluation.
- Electrolyte derangements worsen outcomes.

Thank you!
Any questions?

