Peds/Neonate Transport Safety Awareness

• Need information that is
  – Relevant
  – Accessible
It is a SYSTEM!

- Child in a vehicle with other occupants and equipment
- Vehicle in a Fleet
- Fleet in a region
And it could be...

• Your dedicated vehicle
• Someone else’s specialized vehicle
• Someone else’s general vehicle
Team size drives vehicle size…

• It is ALL part of one system
Yet.. The infant and child is the same size range globally
Australia
Team size drives vehicle size...
Specialized issues

- Nitric oxide
- ECMO
Peds and Neonate Transport

- Special population
- Unique challenges
- Potential pitfalls
- Innovative approaches
  - USA
  - Internationally
We are part of the problem...

Prehospital Emergency Care

Equipment for Ambulances A Joint Statement from the National Association of EMS Physicians, the American College of Emergency Physicians, and the American College of Surgeons Committee on Trauma

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• What other considerations do we need to look at when building around a “traditional” ambulance box design (understanding that it is not ideal, but necessary)
• How do you approach proper ergonomic design in general, or who do you suggest we contact to do proper ergonomic design
Preemie infant characteristics

• Typical age / size of infant when discharged
  – Ideal: Gestational age of 34 weeks
  – Approximately 1800 grams (~3.96 lbs)
  – Many are bigger: 1800 – 2200 grams (~4.85 lbs)
  – Non-survivors are usually very small

• Any specially made car seats for preterm infants?
  – No. Inserts are usually used
Bigger is not necessarily better......

OUCH!
My liver!!

OUCH!
My spleen!!
Bigger may not be better....

- Can you reach all the equipment you need to
- Can you create a skill specific team with the necessary skills
- What skills per patient ratio is key
Innovation from Pittsburgh Children’s Hospital

Transport

Description of Services

Transport responds to all emergency calls from referring physicians or institutions, including calls for transport, referral and consultation. Staffed by trained specialists, the Communications Center refers surgical consultation calls to the senior pediatric surgery fellow and medical emergencies and transport calls to Pediatric Intensive Care or Newborn Medicine.
• Advisory Board and Technical Expert Panel
  – EMS Safety Foundation, Director of Human Factors and Ergonomics
  – Chris Fitzgerald, Injury and Risk Management
Australia, NETS Melbourne

Newborn Emergency Transport Service (Victoria)

Launch of Custom-built Ambulance for the Newborn Emergency Transport Service (NETS), Victoria

Special ambulance to transport...
Melbourne, Australia Neonatal Ambulance – stationary mode
Melbourne, Australia Neonatal Ambulance – in transit mode
Australia - NSW Peds/Neonatal Vehicle - NETS
NSW Australian Peds/Neonatal Vehicle
Foldable Child seats more compact and easier to store
Existing Technical Literature

Existing Technical Literature


Avoid approaches that don’t factor in systems hazards.
Basic science engineering research

- What are the optimal design features for a premature infant ATD
- How to best build a transport system that provides transport safety and pt access and thermoregulation
- A number of initiatives are now underway
Deceleration Sled tests

(upon impact) 24 G, 30mph

Aprica 2.5 infant dummy
Initiative underway for neonate ATD

- An interdiscipliniry, international project to develop a meaningful model to be integral in the design of optimizing the safety of the system
Peds Neonates Summary

- EMS Transport of infants and children
- Interfacility transport of neonates, infants and children
- Team configuration
- Hours of service
- Fleet/vehicle spectrum and technologies
- Vehicle design issues - occupant protection and human factors
- Occupant restraint systems
- Operational Policies