



Acknowledgements

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SCHOOL OF REDICINE

Objectives

- Briefly review safe transportation of noncritical children
- Describe our methods of observations and surveys
- · Present results of our observations and surveys
- Discuss issues regarding safe transportation of noncritical children

Introduction

- Annual estimated number of ambulance crashes is approximately 6,500 Zagaroli, 2003
- Patient compartment of an ambulance presents multiple challenges to safe transportation
 - Traditional stretcher restraints not designed for children
 - Under-secured equipment may become projectiles in a crash
 - Emergency Medical Service providers must be able to provide care during transport

Transport Guidelines

- National Highway Traffic Safety Administration
- Centers for Disease Control and Prevention
- Emergency Medical Services for Children
- American Academy of Pediatrics









Methods

- Observational study using a convenience sample of noncritical children (newborns to 15 years) transported to Riley Hospital for Children's (outpatient clinic and Emergency Department)
- · Informed consent obtained from EMS provider
- · Observation of infant or child on ambulance cot
- Survey of EMS provider's knowledge, opinions and use of child restraint devices for transport

Results

- Sample of 63 EMS transporting 40 infants and children
 - Demographics of EMS providers
 - Age-majority (76%) 20-39 years
 - Male-55%
 - Years of experience 0-4 years (63%)
 - Private ambulance company (87%)
 - Provided both urban and rural service (70%)
 - \bullet Duration of transport less than 60 minutes (>50%)
 - Greater than 20 pediatric transports per year (83%)
 - Child demographics
 - \bullet Newborn-3 years—25%, 4 to 6 years—12%, 7 to 15 years—63%
 - + 40lbs or less–26%, 41 to 99lbs–61%, 100lbs & greater–13%

EMS selection of child restraint device and its observed use

Appropriate*	Correct*	Frequency	Percentage
Yes	Yes	12	30
Yes	No	11	27.5
No	Yes	3	7.5
No	No	13	32.5
Unknown		1	2.5
Total		40	100

Appropriate choice and correct use of child restraint device previously defined

ransport Method	Frequency	Percentage
Inrestrained On Mothers Lap	5	38.5%
Dn Cot	4	30.8%
n An Infant Car Seat	3	23.0%
n A Convertible Car Seat	1	7.7%
otal	13	100.0%





EMS provider resources and knowledge

- Majority reported some knowledge of use of car seats
- Greater than 80% knew of their agencies guidelines for transporting children
- Most reported mother's lap is NOT the appropriate for transport



Those who transported children correctly

- Younger, female, and had established pediatric protocols, and frequently transported children
- Knew approximate weight and length for car seats
- Familiar with and approved of the child restraint device provided

Those who transported children incorrectly

- Less likely to have an appropriate CSS on board
- Opined that a mother's lap was an appropriate place to transport child
- CSS took too long to secure to cot
- Were unfamiliar with or did not approve of the CSS provided

Conclusions

- Significant number of non-critically sick or injured children are incorrectly transported by ambulance
- Easier and readily available CSS improve use of these child restraint devices in an ambulance
- Written protocols and training using CRDs improve the safe transportation of children by ambulance