

# Pediatric and Rural Considerations

## ACEP Advanced EMS Practitioner Course

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# Rural Considerations:

- Describe issues related to transport considerations (ground vs. air and mutual aid) for patients in rural to frontier settings.
- List issues pertaining to maintenance of competency in low-volume practice environments



# Staffing / System structure

- Recruitment and retention
  - Freeman VA, Slifkin RT, Patterson PD. Recruitment and retention in rural and urban EMS: results from a national survey of local EMS directors. J Public Health Manag Pract. 2009 May-Jun;15(3):246-52.
- ALS Intercepts :ALS interventions
  - Myers LA, Russi CS, Schultz JL. Paramedic intercepts with basic life support ambulances in rural Minnesota. Prehosp Disaster Med. 2010 Mar-Apr;25(2):159-63.
- Air medical utilization
  - Mechanism
  - Patient factors
    - Cudnik MT, Werman HA, White LJ, Opalek JM. Prehospital Factors Associated with Mortality in Injured Air Medical Patients. Prehosp Emerg Care. 2011 Sep 29. [Epub ahead of print]
    - Stewart KE, Cowan LD, Thompson DM, Sacra JC. Factors at the scene of injury associated with air versus ground transport to definitive care in a state with a large rural population. Prehosp Emerg Care. 2011 Apr-Jun;15(2):193-202. Epub 2011 Jan 5.



# Trauma

- What is important in your rural system?
  - IV insertion in trauma
    - Gonzalez RP, Cummings GR, Rodning CB. **Rural EMS en route IV insertion improves IV insertion success rates and EMS scene time.** Am J Surg. 2011 Mar;201(3):344-7; discussion 347.
  - Scene time in trauma
    - Gonzalez RP, Cummings GR, Phelan HA, Mulekar MS, Rodning CB. Does increased emergency medical services **prehospital time affect mortality in rural motor vehicle crashes?** A statewide analysis. Am J Surg. 2009 Jan;197(1):30-4. Epub 2008 Jun 16.
  - Mortality of MVC
    - Simons R, Brasher P, Taulu T, Lakha N, Molnar N, Caron N, Schuurman N, Evans D, Hameed M. A population-based analysis of **injury-related deaths and access to trauma care in rural-remote Northwest British Columbia.** J Trauma. 2010 Jul;69(1):11-9.



# Cognitive and psychomotor competency maintenance

- *Competency*: the ability to operate to an adequate and safe standard.
  - Strategies:
    - Credentialing
      - [Jonathan R. Studnek, PhD, NREMT-P](#), [Antonio R. Fernandez, MS, NREMT-P](#) and Gregg S. Margolis, PhD, NREMT-P Assessing Continued Cognitive Competence among Rural Emergency Medical Technicians. 2009, PEC Vol. 13, No. 3 , Pages 357-363
    - NREMT ongoing competency schema
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# Rural EMS: A different lens

- Limited resource and depth of EMS resource

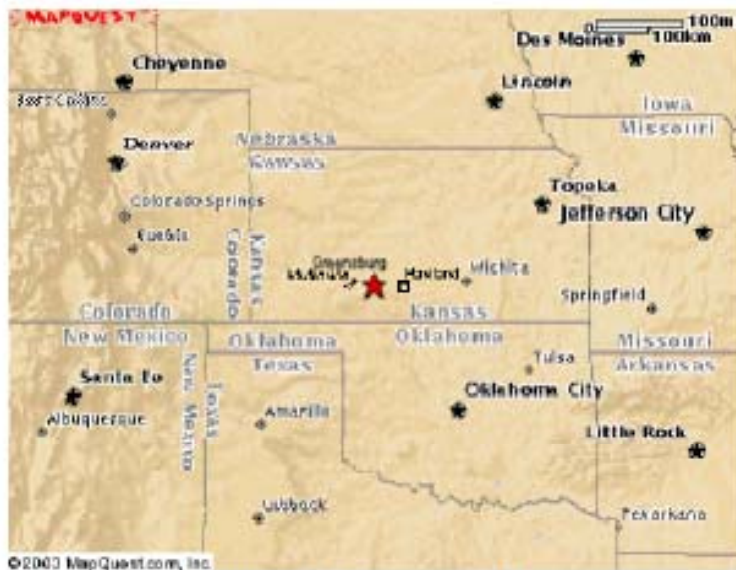


Figure 2 – Location of Greensburg, Kansas. Image by MapQuest



**THE FEDERAL EMERGENCY MANAGEMENT AGENCY RESPONSE TO THE GREENSBURG, KANSAS, MAY 4, 2007, TORNADO AFTER-ACTION REPORT 12 December 2008**

# Pediatric Considerations:

- Discuss reasons to emphasize provider competency validation in pediatrics
  - Three things you should consider for your pediatric patients
    - Pain Management
      - [Bendall JC, Simpson PM, Middleton PM. Effectiveness of prehospital morphine, fentanyl, and methoxyflurane in pediatric patients. Prehosp Emerg Care. 2011 Apr-Jun;15\(2\):158-65. Epub 2011 Feb 4.](#)
    - BIAD (King, LMA)
    - Decision support (drug dosing, Broselow)
- 



# Education

- PALS training
  - [Baker TW, King W, Soto W, Asher C, Stolfi A, Rowin ME. The efficacy of pediatric advanced life support training in emergency medical service providers. Pediatr Emerg Care. 2009 Aug;25\(8\):508-12.](#)
- Simulation for high criticality low frequency skills
  - [Lammers RL, Byrwa MJ, Fales WD, Hale RA. Simulation-based assessment of paramedic pediatric resuscitation skills. Prehosp Emerg Care. 2009 Jul-Sep;13\(3\):345-56.](#)
- Evaluate needs: Cardiac arrest management
  - Moler FW, Donaldson AE, Meert K, Brill R, Nadkarni V, Shaffner DH, Schleien CL, Clark RS, Dalton HJ, Statler K, Tieves KS, Hackbarth R, Pretzlaff R, van der Jagt EW, Pineda J, Hernan L, Dean JM; **Pediatric Emergency Care Applied Research Network.** Multicenter cohort study of out-of-hospital pediatric cardiac arrest. Crit Care Med. 2011 Jan;39(1):141-9.



# Airway

- LMA vs. ETI
  - [Chen L, Hsiao AL. Randomized trial of endotracheal tube versus laryngeal mask airway in simulated prehospital pediatric arrest. Pediatrics. 2008 Aug;122\(2\):e294-7. Epub 2008 Jul 21.](#)
- King LT-D
  - [Ritter SC, Guyette FX. Prehospital pediatric King LT-D use: a pilot study. Prehosp Emerg Care. 2011 Jul-Sep;15\(3\):401-4. Epub 2011 Apr 11.](#)

The LMA ProSeal™ is available in a full range of paediatric and adult sizes



LMA ProSeal™ Quick Reference			
Mask Type	Patient Size	Maximum Cuff Volume (Air)	Largest Size OG Tube/Salem Sump
1	Neonates/Infants up to 5kg	Up to 4ml	10Fr / 8Fr
1½	Infants 5-10kg	Up to 7ml	10Fr / 8Fr
2	Infants/Children 10-20kg	Up to 10ml	10Fr / 8Fr
2½	Children 20-30kg	Up to 14ml	14Fr / 12Fr
3	Children 30-50kg	Up to 20ml	16Fr / 14Fr
4	Adults 50-70kg	Up to 30ml	18Fr / 14Fr

