

The Critical Child in the Community ED



- **Life outside the ivory towers.**



31 Million Plus Pediatric ED Visits Annually

- **Most will be in an ED like yours**

Institutional Differences



| | Tertiary Center ED | Community Hospital ED |
|---------------|------------------------------------|---------------------------|
| Accessibility | Geographically Isolated | Locally Based |
| Support | Redundant Clinicians & Consultants | EP Only Capable Clinician |

No expected difference in patient outcome

Pediatric Transfer Outcomes



| Origin | Mortality O.R. | PICU LOS |
|-----------------|----------------|----------|
| Study ED / OR | 1.00 | 0 |
| Study Ward | 1.65* | 4 |
| Outside ED/Ward | 0.8 | 2 |
| Outside PICU | 1.43 | 6 |

Ordetola, Ped Crit Care, 2008

Transfer Severity of Illness



| Variable / Site | Pediatric Hospital | Transferring ED / Ward |
|------------------------|--------------------|------------------------|
| Pressors | 5.2% | 7.3% |
| Mechanical Ventilation | 23.6% | 33.4% |
| Length of Stay | 6.7 | 8.0 |

Gregory: Pediatrics, 2008

Equivalent Outcomes



ED Capabilities = f (1/Hospital's)

ED Capabilities



- **Joint Policy Statement:**
 - Guidelines for Care of Children in the Emergency Department
 - Equipment
 - Policies
 - Personnel
- **WWW.ACEP.org**

1/Hospital Capabilities



- **Personnel**
 - EP Credentialing
 - ✦ May need greater pediatric credentials than for adults
- **Equipment**
 - Vein illuminator
 - Pressure Cycle Ventilators

1/ Hospital Capabilities



- **Formulary**
 - Prostaglandin E
 - Ketamine
- **Diagnostics**
 - Micro sampling
 - Radiographic studies

Diagnostic Studies



- **The disease exists, prove it doesn't**
 - Never rationalize away a diagnosis.
 - Diagnostic transfers

Clinical Skills



Pediatric Skills = f (Ongoing encounters +
Cumulative encounters) + PODL

Clinical Skill Sets



- **Individual practitioners**
 - Assessment
 - Procedures
 - Management
 - Communication

Assessment Skills



- **Extremis**
 - Obvious
- **Clinically Ill Child**
 - Blink
- **Occult illness**
 - Reverse Blink

Procedures



- **They are just small adults**
- Vascular Access
- Airway
- Lumbar Puncture
- Miscellaneous

Critical Care Experience



- **ED children are not as sick as adults:**
Green J Emerg Med, 2007
- **Endotracheal intubation: 2.63**
- **Central line placement: 4.39**
- **Critical Care: 2.92**
- **CPR: 4.59**

Vascular Access



- **Good judgment**
- **Patience**
- **Positioning**
- **Transilluminator**

Transilluminator



Vascular Access



Vascular Access



- **Ultrasound guided**
 - Femoral
 - ✦ 3-5 Fr Wire guided

- **Intraosseous**
 - EZ-IO



Airway



- Use adult experience
- Lay of land look
- Bag Valve Mask
 - Reassurance
 - Oxygenation
 - ✦ Cricoid pressure
 - ✦ Capnometry

Airway



- Meticulous technique
- Visualize landmarks on entry
- Cricoid pressure
- Pharmacologic assistance



Airway



- Continuous quantitative capnometry



ETI Alternatives

- No one gets every tube
 - Laryngeal Mask Airway
 - ✦ Box set \$100
 - Glide Scope
 - Fiber optic
 - Retrograde
 - Jet Ventilators



Policy Development



- **Diplomacy Meets Stupidity**

Clinical Challenges in the Community ED



Unique



- **Single physician**
- **Multitasking**
 - Within single patient
 - Between alternative patients

Unique



- **Limited ancillary support**
- **Limited ability to hand off**
 - Procedures
 - Assessment
 - Monitoring

Community Changes

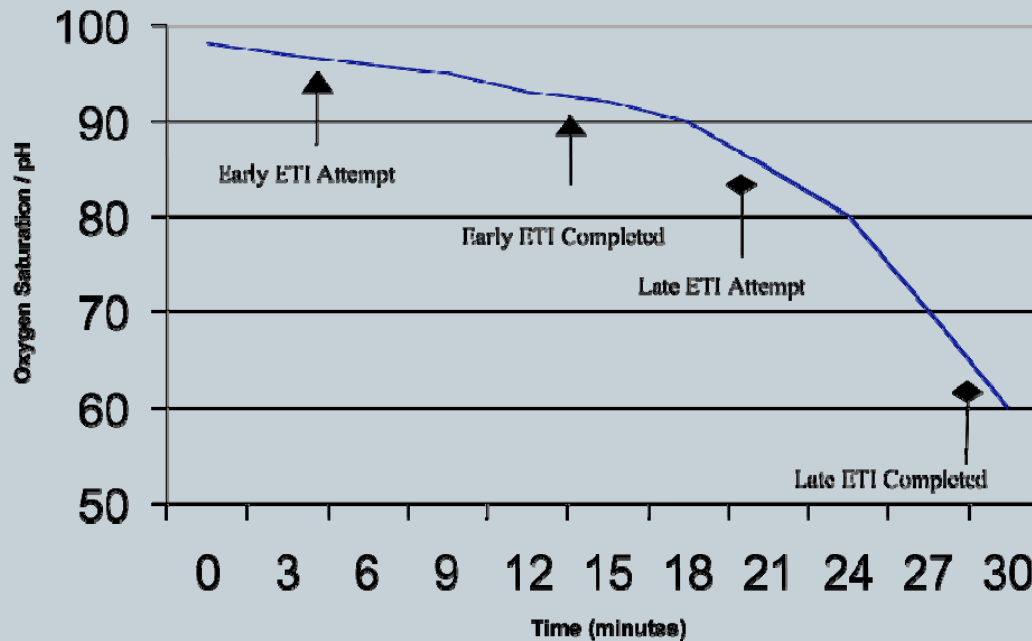


- **More aggressive care!**
- **Transferred Children**
 - Observation is not an option
 - Best guess vs clinical course
 - Anticipate worse case scenario
 - Less confidence in the procedure
 - ✦ Earlier attempt

Aggressive Care



- Earlier procedure attempted
 - Greater margin for error



Aggressive Care



- **ED Capabilities > Transport Vehicle**
 - Greater success rate
- **Failed attempts identify obstacles**
 - Define unsuccessful pathways
- **Shorten onsite time**
 - Transport team more rapid turnaround

Aggressive Care



- **Procedural Multitasking**
- **Management from a distance**
 - Maximize the number of clinicians able to assume care of the child.
 - Care from anywhere.

Procedural Multitasking



- **Efficient procedure management**
 - Change immediate care
 - Convenience of consultants
 - Ideal care

- **Arterial Blood Gases**
 - Pulse Ox
 - Capnometer
 - Venous pH

Timing



- Aggression tempered by scenario
- 6 y.o asthmatic
- RR 40
- Severe retractions
- Maximum therapy
- Early somnolence

Timing



- **In house PICU**
 - Continue to observe
- **Imminent arrival transport team & short transport time**
 - Prepare for ETI / Observe
- **Extended time to arrival tertiary care**
 - Prophylactic ETI

Medical Stabilization

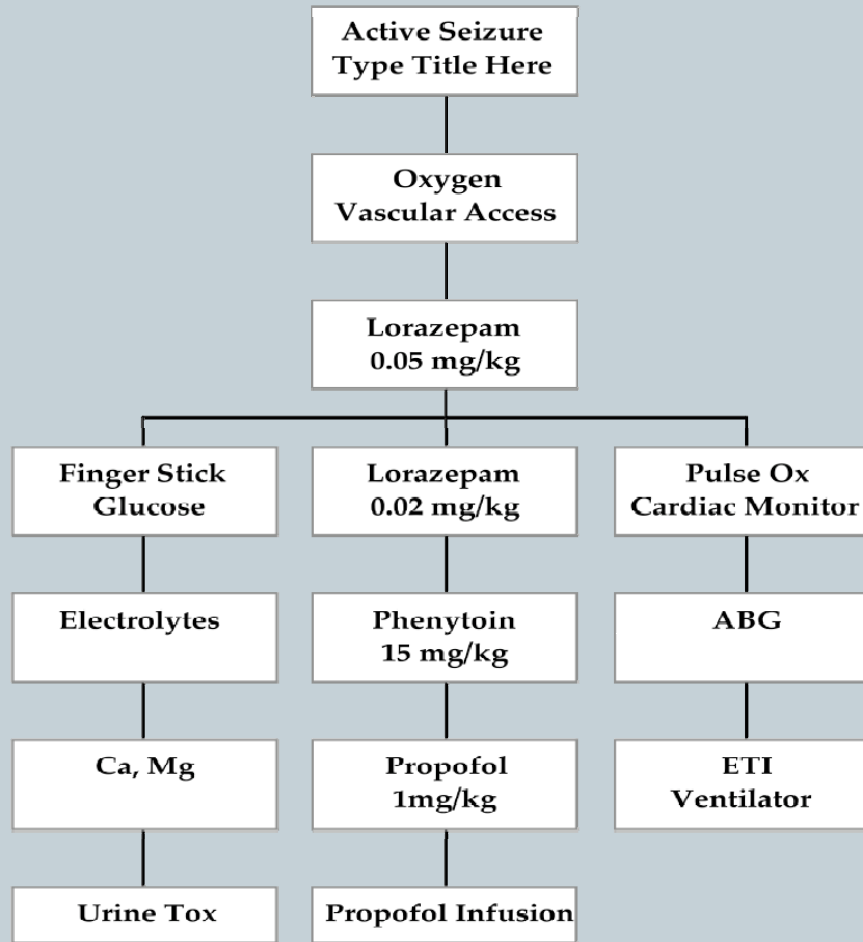


- **Same ground rules as procedures**
 - Aggressive management
- **Identifies failed therapies**
- **Engages consultants further along management course**

Medical Stabilization



Status Epilepticus



Consultations



- **It's still your patient**

Consultant



- **Indications**

- Patient management
- Transfer arrangements
- Follow up

Patient Management



- **Identity crisis**
 - Who you are.
 - ✦ You are everything from a 3rd medical student to a professor emeritus.
 - Who are you?
 - ✦ Transport Center
 - ✦ Transport Resident
 - ✦ Attending

Patient Management



- **Identity crisis**
 - Getting to who you want?
 - Phrase question correctly
 - ✦ Consult
 - ✦ Transport

Patient Management



- **Establish your medical competence**
 - Actions define capabilities
 - Build a relationship
 - ✦ Access existing ones
- **Establish interpersonal competence**
 - Do unto others

Case Presentation



- **Lead with diagnosis**
- **Summarize stabilization maneuvers**
 - Get to current point of care
 - Don't allow re-instruction on completed management

Case Presentation



- **Specify information needed**
 - Avoid open ended questions
 - Knee jerk summary responses
- **Don't be intimidated**
 - Ask for justification questionable advice
 - Ask for attending personnel

Case Presentation



- We have 9 month old male with septic shock, diffuse purpura, intubated, fluid resuscitated with 60 cc/kg of NSS, on a 10 ug/kg dopamine infusion, a blood pressure of 60/20 who has received 200 mg/kg of ceftriaxone. We are preparing to begin a neosynephrine infusion.

Case Presentation



- **It's OK to be lost**
 - If you are, it's likely they are too
 - You may be providing more sophisticated care

Politics



- **Transfer Agreements**
 - Can facilitate paperwork
 - Create interpersonal relationships
- **EMTALA**
 - Moving to higher level of care
 - Transfer forms

Politics



- **Follow up**

- Learning for next time
- HIPPA
- Periodic visits consultants with case reviews

Conclusion



- **Every journey starts somewhere.**