The ALS in BLS

The Role of Basic Life Support in the Modern Era

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What do we do in EMS?

To provide care for all patients that is
– compassionate,
– competent,
– courteous,
– regardless of circumstances;
– to do no harm, and
– to treat others as we wish to be treated.
When Considering Care…

What do we do CLINICALLY in the field that makes a difference in patient outcomes?
Literature and Research Review
<table>
<thead>
<tr>
<th>Lead Author</th>
<th>Year</th>
<th>Study Type</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacobs LM</td>
<td>1984</td>
<td>Retrospective chart review</td>
<td>ALS improves trauma scores and long-term survival in trauma patients</td>
</tr>
<tr>
<td>Potter D</td>
<td>1988</td>
<td>Retrospective chart review</td>
<td>ALS improves short term, but not long-term survival</td>
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<tr>
<td>Murphy IG</td>
<td>1993</td>
<td>Retrospective chart review</td>
<td>ALS confers better outcomes in victims of blunt trauma, but not</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>penetrating trauma</td>
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<td>Sampalis JS</td>
<td>1993</td>
<td>Prospective cohort</td>
<td>ALS provided no benefit over BLS</td>
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<tr>
<td>Cayten CG</td>
<td>1993</td>
<td>Prospective observational</td>
<td>ALS showed no benefit in trauma patients with transport times &lt;26</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>minutes</td>
</tr>
<tr>
<td>Eckstein M</td>
<td>2000</td>
<td>Retrospective chart review</td>
<td>ALS does not improve survival rates in major trauma victims</td>
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<tr>
<td>Liberman M</td>
<td>2000</td>
<td>Meta-analysis</td>
<td>ALS shows no benefit over BLS in trauma patients</td>
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<tr>
<td>Liberman M</td>
<td>2003</td>
<td>Prospective cohort</td>
<td>ALS shows no benefit in trauma patients in areas with Level-1 trauma</td>
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<tr>
<td>patients</td>
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<td></td>
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<tr>
<td>Verhoef JS</td>
<td>1996</td>
<td>Epidemiological</td>
<td>ALS improves survival among pediatric trauma victims</td>
</tr>
<tr>
<td>Rutledge R</td>
<td>1994</td>
<td>Epidemiological</td>
<td>ALS improves survival for rural trauma victims</td>
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<tr>
<td>Reines HD</td>
<td>1998</td>
<td>Epidemiological</td>
<td>ALS improves survival for rural trauma victims</td>
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<tr>
<td>Messick WJ</td>
<td>1992</td>
<td>Epidemiological</td>
<td>ALS is associated with decreased trauma deaths</td>
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<td>Rutledge R</td>
<td>1992</td>
<td>Epidemiological</td>
<td>ALS is associated with decreased trauma deaths</td>
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<tr>
<td>Alexander RH</td>
<td>1984</td>
<td>Epidemiological</td>
<td>ALS is associated with decreased trauma deaths</td>
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<tr>
<td>Eisen JS</td>
<td>1998</td>
<td>Prospective cohort</td>
<td>ALS provided no benefit over BLS in for all complaints in an urban setting</td>
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<tr>
<td>Rainer TH</td>
<td>1997</td>
<td>Prospective observational</td>
<td>ALS skills provide no advantage over defibrillation</td>
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<tr>
<td>Adams J</td>
<td>1996</td>
<td>Prospective observational</td>
<td>Intubation showed no advantages over bag-valve-mask in cardiac arrest</td>
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<tr>
<td>Pitetti R</td>
<td>1997</td>
<td>Retrospective chart review</td>
<td>ALS provided no benefit over BLS in pediatric cardiac arrest</td>
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<tr>
<td>Nichol G</td>
<td>1999</td>
<td>Meta-analysis</td>
<td>Cardiac arrest survival is improved by bystander CPR, early defibrillation,</td>
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<td></td>
<td></td>
<td></td>
<td>and ALS; cannot differentiate benefits of defibrillation versus ALS</td>
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<tr>
<td>Stiell IG</td>
<td>2004</td>
<td>Multi-center clinical trial</td>
<td>ACLS provides no advantage over rapid defibrillation</td>
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<tr>
<td>Shuster M</td>
<td>1996</td>
<td>Prospective chart review</td>
<td>ALS provides no benefit to cardiac patients in an urban setting</td>
</tr>
<tr>
<td>Adams J</td>
<td>1996</td>
<td>Retrospective chart review</td>
<td>ALS provided no benefit over BLS to patients with altered levels or</td>
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<td></td>
<td></td>
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<td>consciousness except for hypoglycemic patients</td>
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</table>

Table 1—Overview of articles and findings (ACLS = advanced cardiac life support; ALS = advanced life support; BLS = basic life support; CPR = cardiopulmonary resuscitation)
“Conclusions: The benefits of ALS care vary with the illness or injury being treated, as well as some other variables, such as transport time and the severity of the pathology.”

In trauma patients, no evidence that ALS care improves survival in patients with short transport times to Level-I trauma centers as well as for patients with penetrating trauma.

Does Advanced Life Support Provide Benefits to Patients?: A Literature Review
D. Isenberg, R. Bissell. Prehospital and Disaster Medicine, July - August, 2005, pp. 265 - 270.
The OPALS Major Trauma Study showed that systemwide implementation of full advanced life – support programs did not decrease mortality or morbidity for major trauma patients. “We also found that during the advanced life support phase, mortality was greater among patients with Glasgow Coma Scale scores less than 9”.

“We believe that emergency medical services should carefully re-evaluate the indications for and application of prehospital advanced life-support measures for patients who have experienced major trauma.”

Journal of the Canadian Medical Association
April 22, 2008, Pages 1141-1152
Cardiac Emergencies

What Works?

- Timely defibrillation?
  - Definitely

- Advanced Cardiac Life Support?
  - Very little
Conclusions: The addition of advanced life support interventions did not improve the rate of survival after out-of-hospital cardiac arrest in a previously optimized emergency medical services system of rapid defibrillation.

In order to save lives, health care planners should make cardiopulmonary resuscitation by citizens and rapid-defibrillation responses a priority for the resources of emergency medical services systems.

New England Journal of Medicine
August 12, 2004
Pages 647-656
Respiratory Emergencies?

– Asthma/Allergic Reaction/Heart Failure?
  • Yes: Albuterol, Nitroglycerin, CPAP
  • EMT’s can perform these treatments
So in Respiratory Emergencies?

- Basic Airway management - assuring good oxygenation and ventilation?
  - Yes! This is an EMT Skill
  - Is CPAP an EMT Skill? **Probably YES!!**
“Conclusion: The addition of a specific regimen of out-of-hospital advanced life support interventions to an existing EMS system that provides basic life support was associated with a decrease in the rate of death of 1.9 percentage points among patients with respiratory distress.”

Study of 8138 patients in respiratory distress. Began with BLS only, and then they added drugs and endotracheal intubation. Very little difference found, and almost all ALS improvement was provided by the bronchodilator and nitroglycerin.
“The most substantial change in therapeutic intervention was the marked increase in the use of medications for symptom relief; this intervention is not a component of advanced life support...

Thus, the benefit of the intervention in this trial may have been primarily due not to the availability of advanced-life-support techniques but to the use of nebulized salbutamol and sublingual nitroglycerin.”

New England Journal of Medicine
May 24, 2007
Pages 2156-2164
Fowler’s Law of Improved Work of Breathing

- A patient’s work of breathing will appear to get better for one of two reasons:
  - They’re getting better
  - They’re getting WORSE!!!
Prehospital Intubation?

– The Paramedic/ALS Skill?
  • Not so much

– Lets look at it…
Literature and Research...

- “Prehospital intubation...has not been shown to improve outcomes and may cause significant harm in the hands of inexperienced operators.”

- “Anything which delays transfer to definitive care in severe trauma is inappropriate.”

Academic Emergency Medicine
February 16, 2006
EMS Literature and Research

Concluding Thoughts

• “If at all possible, endotracheal intubation is a procedure to avoid. If BLS adjuncts can maintain an open airway, promote good oxyhemoglobin saturations and adequately protect the patient from aspiration, then they are clearly the preferred choice of care.”

Howard Rodenberg, MD, MPH
Journal of Emergency Medical Services
Status of Current Protocols

– They are already designed for both BLS and ALS care
– EMT - staffed Ambulances are already in policy because medical directors often have already approved their use
Potential Ambulance Designs

- BLS
- ILS
- ALS
- MICU
# EXPLANATION OF THE LEVELS OF CARE

<table>
<thead>
<tr>
<th>Basic Life Support</th>
<th>Intermediate</th>
<th>ALS First Responder</th>
<th>FRO Advanced / Lead Secondary Paramedic</th>
<th>Conditional Primary Paramedic / Primary Paramedic</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. First Responder Agency ECA level employee</td>
<td></td>
<td></td>
<td></td>
<td>c. Conditional Paramedic: MedStar Lead Conditional Primary Paramedic level employee approved by EPAB and assigned to all level Priority calls. They may be on “restricted” status to perform a certain EPAB specialty skill. (i.e. Crash Airway)</td>
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<td>d. Primary Paramedic: MedStar Lead Primary Paramedic level employee approved by EPAB and assigned to all level Priority calls without any restrictions.</td>
</tr>
</tbody>
</table>

## BSP Orders
1. EPAB approved Base Station Physician.
EMT Ambulance

• A “Basic Life Support” Ambulance
  – Staffed with Emergency Medical Technicians (EMTs)
  – Perform According to National Clinical Standards of Care
## National Standard Treatments by EMT’s

<table>
<thead>
<tr>
<th>Airway Adjuncts and Oxygen Delivery</th>
<th>Medication Administration</th>
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<tbody>
<tr>
<td>• Bag-Valve-Mask</td>
<td>• Bronchodilators</td>
</tr>
<tr>
<td>• CPAP</td>
<td>• Epinephrine SQ / IM</td>
</tr>
<tr>
<td>• Bleeding and Shock Management</td>
<td>• Nitroglycerin</td>
</tr>
<tr>
<td>• Cardiac Arrest Management/AED</td>
<td>• Aspirin</td>
</tr>
<tr>
<td>• Bandaging/Splinting</td>
<td>• Glucose</td>
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</tbody>
</table>

- Optional Airway:
  - Dual Lumen Airway Insertion
  - Endotracheal Intubation??
Suggested Policies

Governing
EMS Response / Levels

– We **CANNOT** be in a position of being unable to respond in a timely manner
– Basic EMT Trucks are a safe and timely answer
– We must stop responding to calls that we can prevent
Critical Element

EMT Truck does NOT equal "old Basic Life Support"
From Dr. Ed Racht, 5/27/08
Chairman of the Texas Governor’s EMS and Trauma Advisory Council

“We are stuck using antiquated nomenclature. ‘BLS and ALS’ no longer accurately fit EMS.

It is the clinical results that matter.”
Suggested Policies for Basic EMS Unit Implementation

– We can produce EMT-staffed ambulances more quickly than paramedic ambulances
– Trained by us, QA’d by us
– Be on the street quickly
– A “license to learn”
Questions and Comments