Ambulance Fleet Economics

- Fleet Costs
- Accident Costs
- Driver Training

Factors in Fleet Costs

- Capital Investment
- Maintenance & Repair
- Usable Life

Ambulance Types

- Type 1
- Type 2
- Sprinter
- Type 3
- Medium Duty

Specialty Ambulance

Cost of an Ambulance

- Type I: $98,000-$190,000
- Type II: $55,000-$79,000
- Sprinter: $85,000-$110,000
- Type III: $95,500-$185,000
- Medium Duty: $160,000-$210,000
- Specialty: The sky is the limit!

Vehicle Maintenance

Preventive Maintenance
One way or another – you pay!
Vehicle Maintenance

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of annual operating budget for vehicle maintenance</td>
<td>8%</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

As reported in the benchmark data program of the North Central EMS Institute

Ambulance Maintenance Cost per Mile

- Type I - $0.61
- Type II - $0.78
- Sprinter - Too new for data
- Type III - $0.59
- MD - $1.03

As reported in the benchmark data program of the North Central EMS Institute

Average Life at Retirement

- 2005 – 183,333 miles
- 2006 – 187,237
- 2007 – 202,367
- 2008 – 169,000
- OR
- 6 years

As reported in the benchmark data program of the North Central EMS Institute

Estimated Total Cost for Life

- Type I - $256,850
- Type II - $211,300
- Type III - $249,400
- Med. Duty - $375,550

Based on life expectancy of 185,000 miles average

Ambulance Collision Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008 (Incomplete Data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accident Rate per 1M Miles</td>
<td>22.87</td>
<td>30.19</td>
<td>27.66</td>
<td>18.39</td>
</tr>
</tbody>
</table>

As reported in the benchmark data program of the North Central EMS Institute
Ambulance Damage Costs

- Average Claim = $17,600
- Average Intersection Claim = XXXXXX
- 2007 Pennsylvania Study – Vehicle Damage

<table>
<thead>
<tr>
<th>Damage Cost Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$1000</td>
<td>36%</td>
</tr>
<tr>
<td>$1000-5000</td>
<td>37%</td>
</tr>
<tr>
<td>$5000-10,000</td>
<td>12%</td>
</tr>
<tr>
<td>$10,000-25,000</td>
<td>7%</td>
</tr>
<tr>
<td>&gt;$25,000</td>
<td>8%</td>
</tr>
</tbody>
</table>

PA Ambulance Crash Statistics

- 46% Intersection Crashes
- 60% Daylight
- 52% Clear Weather
- 62% Dry roads
- 37% Non-drivable after crash
- 53% of injured were EMS
- Injuries:
  - Minor = 75%
  - Moderate = 23%
  - Severe = 1%
  - Fatal = 1%

Estimates on Loss

- Est. 5,000 Ambulance accidents annually in USA (Est. 50,000 ambulances in use)
- $17,600 Average Ambulance Claim
- $88,000,000 just in Vehicle Damage

Driver Training

ARC – First Aid Textbook, 1945

Types of Specialized Driver Training

- Emergency Vehicle Operator Course (EVOC)
- Coaching the Emergency Vehicle Operator (CEVO)
- Intersection Accident Prevention Course (Interact)
- In-house Driver Training Programs
- Simulation Training

EVOC

- Based on 1995 National Standard Curriculum (NHTSA)
- 3 Eight-Hour Sections
  - Classroom
  - Low Speed Confidence Course
  - On the Road Field Training
- Primary EMS Insurance carriers include in premium
- Can be downloaded for free from NHTSA
- No guarantee on instructor’s abilities
- Curriculum 14 years old
Topics Covered
- Legal Aspects
- Communication and Reporting
- Ambulance Types and Operation
- Inspection, Maintenance, and Repair
- Navigation and Route Planning
- Basic Maneuvers and Normal Operating
- Emergency Mode and Unusual Situations
- Safety, Special Considerations
- The Run
- Demonstration and Practice
- On the Road Internship

CEVO
- Proprietary Course – 3rd Revision (2008)
- 6 Hours of Classroom (DVD Based)
- Classroom Materials $295 to $402
- Participant Workbook $8.50 to $12.50
- Situational Based Discussions
  No guarantee on instructor’s abilities
- Final Written Test Mailed to Vendor

CEVO Curriculum
- Cushion of safety
- Scanning
- Apparatus Positioning / Parking Procedure
- Blind Spots
- Safe Backing
- Types of Road Surfaces
- Apparatus Inspection
- Apparatus Handling / Design Characteristics
- Driving with and without Sirens

Interact (Intersections)
- Proprietary Course (ESIP)
- Self Taught – About 1 Hour
- Aim is to Reduce Emergency Vehicles Becoming Involved in Intersection Accidents.

In-House Training
- No Set Standards
- No guarantee on instructor’s abilities
- Usually Seasoned Drivers Relying on Their Personal Experience
- Ranges from 100 Hour to “There are the keys, try not to hit anything”

Simulator Units
Simulation Training

- Mostly computer generated
- Units Cost $20,000 to $1,200,000
- Time determined based on performance
- Real costs are high in training & management
- Remain substantive human factors issues with many of the available devices
- Valid outcomes and effectiveness data is not yet available. Anecdotal reports need scientific analysis and validation to be conducted

Considerations of Simulator Training

- Effect on Training Costs +/-
- Most do not require vehicle to be taken Out-of-Service
- Do require personnel to be out of service
- Standardized Training – Scenario Based
- Mistakes Don’t Cost Real Money
- No scientific validation as has been conducted as for real –time driver feedback devices

Summary

- What we know
  - Ambulances are expensive to purchase and maintain
  - Collisions occur at rates exceeding other industries
  - Training, Monitoring and Policy can reduce accidents and reduce morbidity and mortality
  - Training, Monitoring and Policy can reduce financial loss

- What we don’t know
  - What the return on investment is for specific training
  - Is there an optimum fleet makeup for specific EMS applications

Questions??

- Please raise your hand or type in the message box
- Be safe out there and thank you for your participation!