Understanding EMS Economics

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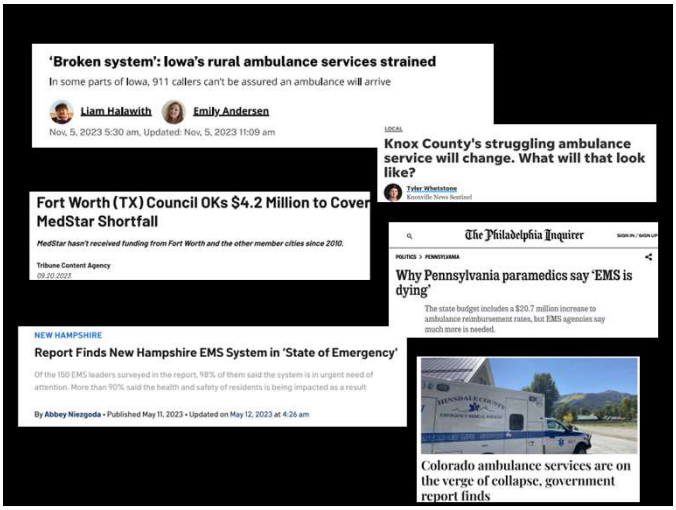

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The Old Axiom

"Nothing in life is free!"

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The Past

What is a life worth?

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The Present!!!

"Is this the best we can do with the financial resources available?"

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EMS Finance Misconceptions

- Price (Rates) = Costs
- Component Costs = System Costs
- More Local Tax Support = Better Service
- Volunteers = Free Service

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Total Cost of Providing Service

Emergency Medical Services Costs –
Definitions

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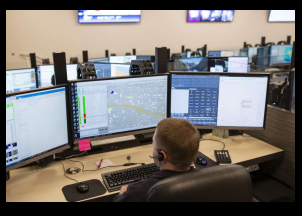
Cost Definitions

- Direct Costs
- Indirect Costs
- Fixed Costs
- Marginal Costs



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Cost Definitions

- *Direct Costs* – A cost that can be traced specifically to a particular service of product
  - Paramedic Labor
  - Fuel
  - Medical Supplies

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Cost Definitions

- *Indirect Costs* – A cost that cannot be traced to a particular service
  - Administrative Overhead
  - Information Technology
  - Marketing
  - Billing Service
  - Legal and Accounting
  - Insurance

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Cost Definitions

- *Fixed Cost* – A cost that does not change in total for a given time or activity
  - Vehicles
  - Communication Infrastructure

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Cost Definitions

- *Marginal Cost* – A cost that fluctuates in direct proportion to changes in activity
  - The addition of additional staffing (Unit Hours) to a schedule

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Total Cost of Providing Service

Emergency Medical Services Costs –
General Principles

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General Principles

- *Cost of Readiness*
- *Productivity*

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General Principles

- Before Proceeding
  - All Cost Centers Identified
  - All Costs Accurately Reported

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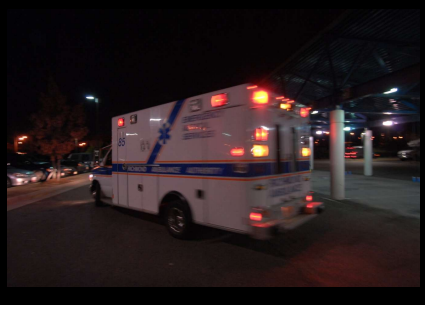
General Principles

- *Cost of Readiness*



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Cost of Readiness

- Strategically Deployed Distribution Network
- Production Capacity Must Exceed Supply and Demand
- Time Dependent Service Delivery

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Cost of Readiness

- Fixed Costs
- NOT Volume Driven Unless Excess Capacity Exceeded
- Length of Trip has Little Effect

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General Principles

- *Productivity*

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Cost Data Source Academy of Mobile Healthcare Integration

- High Performance
- Sole Provider
- Flexible Deployment
- Dynamic Resource Management

AIMHI
ACADEMY OF INTERNATIONAL MOBILE HEALTHCARE INTEGRATION

2024 High-Performance EMS Benchmarking Study
Part 2: Financial & Productivity, Medical Direction, HR,

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Cost Data Source
Academy of Mobile Healthcare Integration

Agency Name	Organizational Structure
Harris County (TX) ESD-11	Public Utility Model: Self Operated
Mecklenburg EMS Agency (Charlotte, NC)	Public Utility Model: Self-Operated
Medic EMS of Scott County (Davenport, IA)	County-Based
MedStar Mobile Healthcare (Fort Worth, TX)	Public Utility Model: Self-Operated
Metropolitan EMS (Little Rock, AR)	Public Utility Model: Self-Operated
Northwell Center for EMS	Hospital-Based
Pinellas County EMS Authority - Sunstar (Pinellas County, FL)	Public Utility Model: Contracted
Pro EMS (Cambridge, MA)	Private
Regional Emergency Medical Services (Reno, NV)	Public Utility Model: Self-Operated
Richmond Ambulance Authority (Richmond, VA)	Public Utility Model: Self-Operated
Three Rivers Ambulance Authority (Fort Wayne, IN)	Public Utility Model: Self-Operated

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Productivity
Key Concepts

- *Total System Cost per Capita*
- Cost per Unit Hour
- Unit Hour Utilization Ratio
- Cost per Transport

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Total System Cost per Capita

$$\frac{\text{Total System Cost}}{\text{Population Served}} = \text{Cost per Capita}$$

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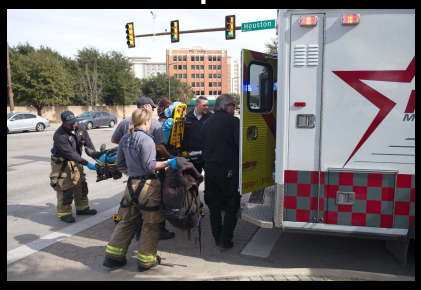
Total System Cost per Capita



2024 - $68.90

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Productivity

- Total System Cost per
- *Cost per Unit Hour*
- Unit Hour Utilization Ratio
- Cost per Transport

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Cost per Unit Hour

Basic Terminology

Unit Hour - A fully equipped and staffed ambulance on a response or waiting for a response for one hour.

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Unit Hour Costs

EMS does not manufacture accidents and illness.

EMS only manufactures Unit Hours and . . .

then waits.

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Unit Hour Costs

- Ranges from *Approximately* $150-$300 per Unit Hour
- Direct Labor Costs Comprise Over 75% - 80% of the Total Average Unit Hour
- Marginal Unit Hour Costs are 60 - 75% of total Unit Hour Costs

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Cost per Unit Hour

$$\frac{\text{Total Costs}}{\text{Total Number of Unit Hours}} = \text{Total Unit Hour Costs}$$

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Cost per Unit Hour

2024 - $180

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Unit Hour Costs

- Unit Hour Costs are Powerfully Affected by Economies of Scale
- Far Less Money is Wasted in the Production of Unit Hours than is Wasted from Squandered Unit Hours

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Unit Hour Costs

- Unit Hour Cost is:
  - A Poor Predictor of Cost per Transport
  - A Poor Predictor of Clinical Quality

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Productivity

- Total System Cost per Capita
- Cost per Unit Hour
- *Unit Hour Utilization Ratio*
- Cost per Transport

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Unit Hour Utilization

Basic Terminology

Utilization - How frequently the unit hour is used

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Unit Hour Utilization

- Measurements
  - Responses
  - *Transports*
  - Patients Treated (Treat and Release)
  - Work Load
    - Post to Post Moves
    - Equalization

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Unit Hour Utilization Ratio

Basic Terminology

Unit Hour Utilization - A measurement of the productivity of the system calculated by dividing the number of *transports* by the number of unit hours produced for a given period.

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Unit Hour Utilization Ratio

The U/UH Ratio

U (Utilization)
UH (Unit Hours)

Patients Transported During Period
Unit Hours Produced During Same Period

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Unit Hour Utilization Ratio

$$\frac{4 \text{ Transports}}{12 \text{ Unit Hours}} = .33 \text{ U/UH}$$

$$\frac{600 \text{ Transports}}{1800 \text{ Unit Hours}} = .33 \text{ U/UH}$$

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Unit Hour Utilization Ratio

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Productivity

- Total System Cost per Capita
- Cost per Unit Hour
- Unit Hour Utilization
- *Cost per Transport*

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Cost per Transport

$$\frac{\text{Cost per Unit Hour}}{\text{Productivity (U/UH)}} = \text{Cost per Transport}$$

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Cost per Transport

Example:

$$\frac{\text{8,000 Patients}}{\text{16,000 Unit Hours}} = .50$$

$$\frac{\$200}{.50} = \$400 \text{ per Transport}$$

$$\frac{\$200}{.51} = \$392 \text{ per Transport}$$

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Cost per Transport

$ 8 X 10,000 Patients/Year = $80,000/Year

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Combining Principles

- *Cost of Readiness*
- *Productivity*

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Impact

Productivity is a far more powerful cost driver than cost per unit hour.

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Cost per Transport

Example:

$\frac{\$200}{.33}$ = $606 per Transport

$\frac{\$200}{.25}$ = $800 per Transport

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Cost per Transport

$194 X 10,000 Patients/Year = $1,940,000/Year

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Special Considerations

- Urban
- Suburban
- Rural

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Rural Costs Structures

- Fewer Transports to Spread Fixed Costs
- Greater Geographic Coverage
- "Centralized" Transports

Table 3: Relative Cost Per Trip for Full Cost Ambulance Providers, 1998

Providers' average number of total trips per day (range)	Cost per trip relative to the average for providers with 9 to 12 trips per day
3 or fewer	1.94
4 to 8	1.30
9 to 12	1.00

Source: Project HOPE.

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Variables Affecting Productivity

- Population Density
- Road Systems and Barriers
- Location of Health Care Facilities
- Hospital Diversions
- Seasons

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Cost per Transport

2024 - $498

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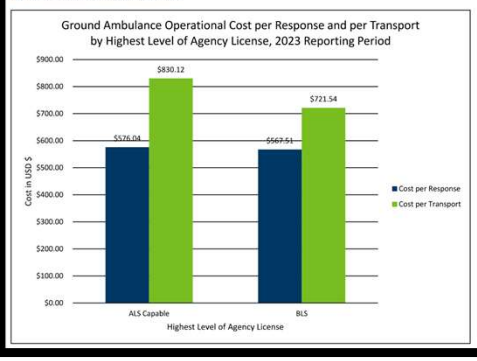
MINNESOTA
EMERGENCY MEDICAL SERVICES
REGULATORY BOARD

Figure 4. Ground ambulance operational cost per response and per transport by highest level of agency license, 2023 reporting period.



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Cost per Transport
The "Real World"

	Exclusive	Non-Exclusive (Subsidy Constant)	Non-Exclusive (Total Bill Constant)
Unit Hour Cost	$99.75	$99.75	$99.75
Unit Hour Utilization	0.47	0.42	0.42
Transport Frequency (hour)	2.13	2.37	2.37
Cost Per Patient Transport	$212.23	$237.50	$237.50
Less: Subsidy Per Transport	$58.14	$58.14	**$83.41**
Sub-Total	$154.09	$179.36	$154.09
Collection Percentage	40%	40%	40%
Total Bill	$385.24	**$448.40**	$385.23

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