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# Standard Guide for Financing and Financial Accountability of Medical Transportation Systems<sup>1</sup>

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## 1. Scope

1.1 This guide establishes guidelines for understanding the financing of medical transportation systems. It identifies factors affecting financing, system design and performance requirements, revenue sources, financial accountability and management, and requirements for financially efficient systems.

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

F1177 *Terminology Relating to Emergency Medical Services*

## 3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *patient transport price*—determined by summing all costs related to patient transports, to include all non allowed charges and contractual allowance and adjusted by any revenue generated by any subsidies, contributions and subscription fees. The resulting amount is divided by the total number of patient transports to determine the patient transport price.

3.1.2 *medical transportation system*—(see Terminology F1177 for the definition of this term.)

3.1.3 *medical transportation services*—(see Terminology F1177 for the definition of this term.)

## 4. Significance and Use

4.1 *Management*—Sound fiscal management is essential for all medical transportation systems. Without sufficient financial resources, a system will fail to consistently achieve its objectives. Therefore, finance is a primary responsibility in all

systems; be they hospital owned/operated, private, public or volunteer organizations, or any combination thereof.

4.2 *Cost Determination*—This guide is designed to accurately determine actual and imputed costs of providing ambulance service. It provides methodology for understanding the value of services rendered and a basis for realistic industry-wide comparisons.

4.3 *Cost Accounting*—It is recognized that medical transportation services frequently are a part of a larger organization. However, the proper use of this guide mandates that all costs, real and imputed, directly or indirectly related to providing ambulance service, regardless of organizational structure, be totally and accurately accounted for through the use of generally accepted accounting principles.

4.4 *Application*—This guide, as part of the ASTM Standards and Practices, shall apply in its entirety whenever the entire document, or any part thereof, is used by any governmental authority to establish, operate, manage or regulate the delivery or payment for medical transportation services.

## 5. Environmental Factors

5.1 Several significant factors of a given service area affect its system's resources and related costs. They require careful examination and analysis. Understanding these factors will enhance the ability of those who direct, administer, manage and/or regulate medical transportation systems to more accurately determine anticipated needs and evaluate actual costs.

5.2 *Terrain*—Areas with mountains, valleys, waterways and bridges, and so forth, will usually be less accessible and require more resources resulting in reduced efficiency and a higher patient transport price.

5.3 *Roads and Highways*—Outdated and dangerous design of roads create hazards. These hazards create more demand for service and thus require a greater concentration of resources. The extra resources increase system costs.

5.4 *Weather*—Systems subject to extreme weather conditions (that is, cold and snow, heavy rain and rock/mud slides, hurricanes, heat and dry conditions, wild/forest fires, and the like) will need seasonal or periodic plans to meet area needs during such extremes. Maintenance of proper response plans

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

and participation therein is a cost factor to the system. During such times maximum resources are required and system efficiency is reduced resulting in higher overall patient transport costs.

**5.5 Population Density**—Areas of high population density generate higher call volume and allow greater flexibility in utilization of resources resulting in lower overall patient transport costs.

**5.5.1 Demographics**—Areas with population characteristics with high concentrations of the elderly and economically disadvantaged, or both will result in higher call volume and a greater demand on resources to meet the needs of these portions of the total service area.

**5.6 Natural/Man Made Disasters**—Systems subject to unpredictable events of extreme consequences (for example, earthquakes, airplane crashes, structural fires, hazardous material incidents, and the like) will need emergency preparedness planning to meet area needs during disaster events. Maintenance of proper response plans and participation in exercise are cost factor to the system. During disasters maximum resources are required and system efficiency is reduced resulting in higher overall patient transport costs.

## 6. System Design Factors

**6.1 Service Area**—It is generally more economical for a medical transportation system to serve a larger population. Systems which provide a larger volume of transports within a given area will benefit from the inherent economies of scale and generate a lower average cost per transport.

**6.2 Medical Transport Providers**—The number of medical transport providers in a service area directly influences the cost per transport. Duplication of resources by multiple providers within a service area can negatively impact economies of scale.

**6.3 Health Care Facilities**—The number and location of hospitals, nursing homes, and the like, will influence costs. A significant number of transports to hospitals outside the service area can increase costs. A larger ratio of nursing home beds to a given general population can result in higher economies of scale than a smaller ratio and thereby lower costs.

**6.4 Start-Up Costs**—Sufficient funds must be available to ensure the success of initial start-up, or expansion of an existing service. To determine the required level of funding, consideration must be given to the following;

**6.4.1 Office/Service Facility**—Items to be included are building, office equipment, furniture and fixtures, computers, and so forth.

**6.4.2 Equipment**—Items to be included are ambulances, administrative vehicles, communication equipment, medical equipment and supplies, and so forth.

**6.4.3 Inventory**—Items to be included are sufficient levels of supplies for on-going operations of ambulance services and office functions for the period of time it is expected to take to establish cash flow to support on-going operation.

**6.4.4 Personnel**—Items to be included are expenses related to recruiting, hiring, training, salaries and benefits.

**6.4.5 Insurance**—Actual premium paid, or imputed costs for self-funding.

**6.4.6 Working Capital**—Funds adequate to support overall operations until such time as sufficient cash flow is established.

**6.5 Jurisdictional Responsibilities**—Jurisdictions exist at the federal, state, regional, and local level which have an impact on the operation of each EMS provider and the EMS system. They may include the following:

**6.5.1 EMS Regulations/Legislation**—EMS regulations and legislation are usually passed at the state or local units of government. They are usually influenced by EMS guidelines recommended at the federal level.

**6.5.2 Labor**—Federal labor laws cover issues related to Health & Safety, Collective Bargaining, and Wages & Hours.

**6.5.3 Taxes**—Federal, state, and local taxes apply to purchases, property, incorporation, and the like.

**6.5.4 Other Non-EMS Related Costs**—Other restrictions include building and zoning regulations.

## 7. System Factors Related to Expense

**7.1 Exclusionary Policies**—Systems that exclude providers from emergency or non-emergency calls, respectively, by design increase total system cost. Utilization of all resources within the service area is necessary to achieve maximum economy while maintaining performance requirements, thereby resulting in lower overall patient transport price.

**7.2 Performance Factors**—Jurisdictional authorities have a responsibility to establish performance requirements for the provider(s) of service and demand accountability and compliance thereof. In the design of such requirements, cost considerations, allowances for geography, population density, demographics, economies of scale, duplication and/or multiple responders and exclusionary policies, must be addressed. Precise accounting practices for the system must be initially established and routinely maintained so all cost factors within the system design can be identified and reviewed with relation to the performance factors.

**7.2.1 Operations**—Factors include meeting standards for average response and total times, staffing patterns, and so forth. Systems that require shorter response and total time performance will demand greater resources and will cost more than those with less rigid requirements.

**7.2.2 Clinical Capability**—Factors include meeting standards for the license level of the service (Basic to Paramedic), the license level of the personnel, on-line medical control, quality assurance activities, and the like. Systems that require higher levels of clinical care, training and medical supervision will demand greater resources and will cost more than those with lesser requirements.

**7.3 Efficiency**—Efficiency is affected by policies, ordinances, and rules which limit the flexibility of the provider or which do not provide incentives to promote efficiency.

**7.3.1 Efficient systems** deploy ambulance, staffing, and equipment resources to eliminate duplication.

**7.3.2 Efficient systems** promote cooperation between the jurisdictional authorities and the providers to identify and eliminate waste, inefficiencies and restrictive regulations in order to reduce overall system cost while improving system efficiency.