



Designation: F 1493 – 93 (Reapproved 1998)

Standard Guide for Financing and Financial Accountability of Medical Transportation Systems¹

This standard is issued under the fixed designation F 1493; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This document 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:

F 1177 Terminology Relating to Emergency Medical Services²

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:* Description of Terms Specific to This Guide:

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 F 1177 for the definition of this term.)

3.1.3 *medical transportation services*—(see Terminology F 1177 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, etc., 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 (i.e., 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 and participation therein is a cost factor to the system. During

¹ This guide is under the jurisdiction of ASTM Committee F30 on Emergency Medical Services and is the direct responsibility of Subcommittee F30.03 on Organization/Management.

Current edition approved Sept. 15, 1993. Published November 1993.

² *Annual Book of ASTM Standards*, Vol 13.02.

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, etc.

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

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 relationship to the performance factors.

7.2.1 *Operations*—Factors include meeting standards for average response and total times, staffing patterns, etc. 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.

8. System Factors Related to Revenue

8.1 *Revenue Sources*—Different types of revenue sources fund the providers within an EMS system. The different types

 **F 1493 – 93 (1998)**

of revenue, separately or in combination with each other, have different impacts on the operations of the system.

8.1.1 *Subsidies*—Revenue received from direct governmental funding. Subsidies range from total funding to supplemental compensation to affect shortfalls from other revenue sources.

8.1.2 *Subscription Fee*—Pre-paid fee for a family or individual who belong to a membership plan which agrees to provide ambulance service for reasons of medical necessity.

8.1.3 *Contributions/Donations*—Revenue received from individual or general solicitations, fund raising, grants, etc.

8.1.4 *Fee for Service*—Revenue received from charges for specific services performed.

8.2 *Reductions in Revenue*—Revenue may be reduced because of management practices related to third party payor regulations, group purchases of service, or non-payment of fees.

8.2.1 *Non-Allowed Charges*—Third party payors such as Medicare and Medicaid reimburse specific service and supplies utilized at a lower rate than the normal billing rate. The unreimbursed amount is referred to as non-allowed charges. This is applicable only on transports where the provider accepts Medicare or Medicaid assignment.

NOTE 1—It is not mandatory that a provider must accept assignment on Medicare claims. Providers may submit claims as non-assigned and charge patients the full amount for services rendered, thereby avoiding the reduction in revenue for non-allowed charges.

8.2.2 *Contractual Allowances*—Specific group purchasers may be granted pre-determined discounts based upon negotiated agreements (for example, exclusive contract, accelerated payment, and the like).

8.2.3 *Bad Debt*—Although bad debt is a cost of doing business, it bears special mention with relationship to reduction in revenue.

8.2.3.1 An EMS provider will have a significant number of accounts (much higher than most other industries) which will not be paid. These accounts are bad debt, for which the responsible party is unwilling or unable (indigent) to pay.

8.2.3.2 Calculation of projected bad debt is determined by deducting a historical percentage from gross charges. This percentage will vary by provider, its ability to manage its collection policies and a given service area.

8.3 *Revenue Surplus/Profit*—A surplus in revenue occurs when revenue is greater than all expenses (operating, general & administrative, taxes). Profit making organizations define this surplus as profit. To survive, such organizations must generate a revenue surplus to provide for growth and improvements.

9. System Financial Accountability Requirements

9.1 Different types of reports exist to evaluate the financial status of the system.

9.2 *Balance Sheet*—A periodic look at a system's financial standing at a specific point in time shall include;

9.2.1 *Assets*—Tangible or non-tangible items of value to the system.

9.2.1.1 *Current Assets*—Assets whose value will be used or realized within a twelve month (fiscal year) period (for example, cash, accounts receivable, pre-paid expenses, and the like).

9.2.1.2 *Fixed Assets*—Assets which will have value to the system at the end of a twelve month (FY) period.

9.2.1.3 *Other Assets*—Assets whose length of value is indeterminable (for example, goodwill, tax credits, utility deposits, and the like).

9.2.2 *Liabilities*—Obligations owed by the system.

9.2.2.1 *Current Liabilities*—Obligations which will generally be paid within a twelve month (FY) period (for example, accounts payable, accrued payroll expenses, current portion of long-term debt, and the like).

9.2.2.2 *Long-Term Liabilities*—Obligations owed by the system whose payment term extends beyond a twelve month (FY) period (for example, bank notes, bond payments, advances from stockholders, and the like).

9.2.2.3 *Other Liabilities*—Obligations whose payment terms are indeterminable (for example, deferred taxes, and the like).

9.2.3 *Equity*—The value of the difference between total system assets and liabilities which reflect the net value of the system.

9.2.3.1 *Paid in Capital*—Initial or additional investment in the system.

9.2.3.2 *Retained Earnings/Reserves*—The total net income/loss which remains in the system at a specific point in time.

9.3 *Income Statement*—The measure of the financial performance of the system over a period of time.

9.3.1 *Revenue*—Total income from all revenue sources, less revenue reductions.

9.3.2 *Operating Expenses*—Total costs, real or imputed, which relate to producing the service (for example, service related salaries & associated costs, supplies, vehicle maintenance & depreciation, insurance, and the like).

9.3.3 *General and Administrative Expenses*—Total costs, real or imputed, which relate to administration and promotion of the service (for example, administrative/clerical salaries and associated costs, advertising, computer systems, professional fees, and the like).

9.3.4 *Income Taxes*—Federal, state and local income taxes required of providers who are not tax exempt.

9.4 *Reserve and Working Capital*—An annual capital and operating budget is an estimate of yearly expenses. As it is impossible to predict all expenses and occurrences, a reserve fund is an appropriate protective mechanism. This fund should be an amount which can cover most unexpected financial emergencies. Another important component is a planning budget allowance for sufficient funds to pay bills when due, recognizing that revenue income can be variable, inconsistent, and periodic. This is referred to as working capital and must be sufficient to pay bills until collections are received. Insurance companies and other parties often take several weeks to process reimbursements. Some services receive once-a-year subsidies. Careful planning is required to assure that these funds last until the next year's receipt of revenue. For subsidized services a subsidy advance may be necessary to provide working capital.

9.5 *Revenue Accounting*—Precise accounting practices must be established and routinely maintained with respect to specific categories of revenue and reductions thereof. This

information is necessary for system directors, administrators and managers to assess income performance and make decisions when revenue must be increased, or decreased, and which revenue source, or reduction, or combination thereof, must be altered to achieve the desired result.

9.6 *Accounting Methodology*—The accrual method of accounting, as identified in the General Accepted Accounting Principals,³ is the recommended way of determining costs and maintaining financial records.

10. Management Issues Related to Establishing the Patient Transport Price

10.1 *Total Patient Transport Cost*—This is comprised of all operating and administrative costs of the system (including bad debt), direct or indirect, real or imputed, including allowances for reserves/profit.

10.2 *Adjustment for Non-Allowed Charges*—Add to the patient transport cost the total amount of non-allowed charges by Medicare or Medicaid.

10.2.1 Non-allowed charges are amounts which, by law, cannot be billed, as a result of accepting assignment from Medicare or Medicaid. This occurs when a provider accepts assignment, and thereby agrees that what Medicare determines as the allowable payment, and Medicaid pays, is payment in full for services rendered.

10.2.2 A provider who accepts assignment on Medicare claims, will receive only a percentage of the charges billed. The provider's actual charge, minus Medicare's allowed charge, if lower, equals the non-allowed charge. The allowed charge is based upon the profile established by the Medicare carrier, within a given region, for a particular provider, and is reimbursed as 80 %. Medicaid reimbursement depends on the policies of various state programs.

10.2.3 Calculation of projected non-allowed charges is determined by deducting a historical percentage from gross Medicare and Medicaid billings. This percentage will vary by provider, its Medicare profile, its ability to manage billing policies, a given service area and state. This calculation must be made as a factor in determining the patient transport price.

10.3 *Adjustment for Contractual Allowances*—Add to the patient transport cost and non-allowed charges the total amount discounted to specific users.

10.3.1 Calculation of contractual allowances is determined by deducting the negotiated amount/percentage from gross charges to specific users with whom agreements exist. This

amount will vary by provider, its ability to negotiate special agreements and the service area. This calculation is a factor in determining the patient transport price.

10.4 *Adjustment for Subsidy*—Subtract from the total patient transport cost, non-allowed charges and contractual allowances the amount of subsidy.

10.4.1 Many service areas need subsidies to achieve desired levels of availability and performance requirements. They may generate abnormally high patient transport costs, based on geographics, population density, demographics or a combination thereof, desired results. These areas must provide subsidy to offset these unique costs that are results of these factors. However, subsidy should not be used to arbitrarily reduce patient transport price beyond considerations for these factors.

10.4.2 Systems which subsidize patient charges by charging less than cost, by design, limit funds otherwise available from third party payers.

10.4.3 The level of subsidy should have no relationship to system efficiency, but does have a direct effect on the reduction of the unadjusted patient transport price. Reductions in the adjusted patient transport price will affect future reimbursement levels from third party payers.

10.4.4 Once the patient transport cost is established the effect of subsidy must be calculated. The provision of subsidy for ambulance service affects the patient transport price.

10.4.5 A variance in subsidy is not equivalent to a similar change in the patient transport price. Allowances for bad debt must be made (for example, at a collection rate of 50 %: for a \$1.00 reduction in per patient transport subsidy, \$2.00 must be added to fee for service billings; for a \$1.00 increase in per patient transport subsidy, \$2.00 may be eliminated from fee for service billings).

10.5 *Adjustment for Contributions/Donations*—Subtract from the patient transport cost, non-allowed charges and contractual allowances the amount of funding received from general or individual solicitations, divided by the total of all patients transported.

10.6 *Patient Transport Price*—The patient transport price is determined from all costs related to the transport of the patient, to which must be added non-allowed charges and contractual allowances, adjusted for revenue generated by subsidies, contributions/donations and/or subscription fees, as described herein. The resulting amount is divided by the total number of patient transports to determine the patient transport price.

11. Keywords

11.1 costs; finance; reimbursement; revenue

³ As promulgated by the Financial Accounting Standards Board.

ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

**NOTICE: This standard has either been superceded and replaced by a new version or discontinued.
Contact ASTM International (www.astm.org) for the latest information.**



F 1493 – 93 (1998)

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org).