SECTION 3

Defining the Cost of Medical Transportation Services

Patient charges for ambulance services are determined in a number of ways. Many of the decisions are not made through logical business rationale, but are determined, limited or impacted by local political decisions. Many ambulance services base their charges on the amount that they expect to be reimbursed by Medicare, and others have simply followed the price structure of other services within the community.

However, while all of these factors may affect the ultimate charge structure, the first step in establishing a rate schedule is to clearly establish the *cost* of providing the service. Any business offering a product or service to consumers will base its prices on the cost of delivering those goods or services, and EMS should be no different. Only after the actual costs have been established should the positive impact of subsidization on charges be determined.

The different types of EMS delivery systems make cost determination and revenue recovery complex. Some of the complicating factors include:

- Intermingling costs and revenue with parent organizations such as fire departments and hospitals;
- Sharing the overhead of communications and dispatch systems;
- Services, subsidies or equipment are provided by local government entities;
- The difficulty in separating EMS coverage from non-emergency ambulance and medical transportation services;
- Quality assurance, medical control and monitoring functions are provided by a number of agencies and organizations;
- Supplies and medications are exchanged with hospitals;
- Lack of uniform and comparable accounting processes, coupled with unsophisticated and inadequate fiscal systems;
- No uniform methodologies for defining bad debt and contractual allowances, and extreme variations in collection methodologies, performance and rate structures;
- A combination of EMS delivery system types, including tiered systems, ALS and BLS dual response, and emergency and non-emergency providers;
- Varying levels of clinical care and other performance standards; and
- Numerous other factors.

Given the multitude of complicating factors, it is imperative that an EMS service develop a comprehensive definition of expense components. Only then can attempts be made to determine the appropriate costs and methods for optimum revenue recovery.

System Characteristics That Impact Cost

The fiscal stability of a medical transportation service is largely determined by the system structure in which it functions, its design and its characteristics. Certain key areas must be examined fully if managers are to evaluate the financial aspects of their systems.

The unique characteristics of a system include its call volume, geography, population, demographics and density. A large population generating a high volume of patient transports allows the fixed costs of providing the services to be distributed over a larger patient base. Similarly, a given population in a small geographic area (higher density) requires fewer medical transportation resources than an equal population dispersed over a large geographic area. In addition to impacting service usage, population demographics affect the ability of the service to recover revenue.

For example, revenue for a service with a high percentage of consumers more than 65 years old will be significantly impacted by the local Medicare reimbursement policies. Additionally, lower income areas historically have a higher utilization rate for EMS than more affluent areas, while revenue from these lower income areas is significantly impaired. This directly affects utilization as well as revenue-recovery potential.

Economies of Scale

As mentioned, it is more economical on a per-transport basis to serve a larger populace. This is because systems that capture a larger number of patient transports within a single providing entity are able to distribute their costs over a larger transport base.

Many systems differentiate between various types of transportation services (emergency response, non-emergency medical response, scheduled and interfacility transfers, medical standbys, and stretcher and wheelchair transport services). This prevents the distribution of fixed system costs over the entire patient base. As it provides the opportunity for patients, physicians and health care facilities to determine patient-transport requirements based on many factors other than medical necessity—such as price or contractual agreements—it also presents difficulties in determining the most appropriate means of transportation. Incorporating as many of the medical transportation needs into the system as possible, however, reduces the number of fixed cost and overhead factors. And it makes the system respond more appropriately to the unique medical needs of each patient.

Positive economics garnered through system integration are directly attributed to economies of scale. The more complicated the system configurations (see Chapter 1) and operational policies, the more difficult it is to realize the benefits of these economies of scale. For instance, tiered and dual-response systems inherently require duplicating resources to respond to emergency events. An ALS nontransporting first-response system that simultaneously dispatches the BLS transport services to emergency assignments requires significantly more response resources than a provider that responds with one ALS transporting unit. Similarly, dual-response systems that respond with an ALS and BLS transporting unit to emergency assignments, and decide on the type of transport unit necessary subsequent to arrival at the scene, duplicate response-resource requirements.

Finally, call rotation, in which assignments are rotated among different provider agencies, causes inefficient additions to resource requirements, especially in regard to emergency responses. Duplication of resources by a number of jurisdictions within a single medical service area compounds the expense of the EMS system to the public. These various economically inefficient systems are prevalent in many major metropolitan areas of the United States.

Performance Requirements

Two medical transportation systems with similar designs can have significantly different costs based on their operational performance requirements. For example, a system that requires its provider agencies to respond to life-threatening emergencies within eight minutes 90 percent of the time will cost considerably more than a system that does not have response-time performance requirements. Some systems average all response times to determine compliance, while others favor percentage-compliance methodologies. It is impossible to equitably compare the two.

Many other operational performance factors are associated with the variety of system costs. For instance, the amount of medical and communication equipment required and stipulations on the type, age and number of vehicles all directly contribute to system costs. The practice of dedicating units to a particular community or type of response also will add to system expense, as well as limiting the use of excess capacity.

Level of Clinical Care

The level of clinical care provided is measured by the training and equipment available to transport patients. Two major levels are associated with most systems: ALS and BLS. Also, numerous variations exist in the classification of personnel. Many states have intermediate levels between the paramedic and basic EMT classifications, and some states recognize lower levels of certification for ambulance licensing. Finally, educational requirements for paramedics may range from 500 hours of training to more than 2,400 hours, depending on the state (see Chapter 5).

Some systems send ALS units to certain types of calls (for example, emergencies) and BLS or less medically capable units to other calls. In many medical service areas, the level of clinical care received is determined by the resources available at the time of the event.

A system's cost, then, is dependent on the selected level of clinical care for each type of call and staffing requirements for each ambulance.

Provider Efficiency

Provider operations and procedures are as varied as the communities they serve. Many systems have evolved that, in effect, limit the providers' ability to become more efficient or have not provided the necessary incentives to promote efficiency.

The most obvious discrepancies between efficient and inefficient systems can be seen in the distribution of ambulance resources. These range from systems that use multiple fixed locations geographically distributed throughout the service area, each staffed with an ambulance 24 hours per day, to those that have all ambulances posted and originating from a single location. Even more efficiency is gained when geographic-area coverage is complemented by matching resources with demand. In other words, an area is covered at all times, but more ambulances are available during the busiest period of the day than during the slow periods.

Although significant innovations to improve deployment efficiency have been developed, both procedurally and technologically, many systems are precluded from incorporating these operational systems because of provider type, political decisions or a lack of understanding regarding the potential benefit.

Personnel Cost

The costs of attracting and retaining personnel vary significantly by region and community. Many factors are involved, including the unemployment rate, competition for service-sector employees, variations in training and certification requirements, and the limited recognition of one jurisdiction's certification by others.

Patient Mix and Reimbursement Performance

Potential reimbursement for service is largely dependent on patient mix, which is generally defined as either presenting condition/diagnosis or payment source. While there seems to be some correlation between the injury or illness and the potential reimbursement levels, the most significant patient mix is one based

on payment source. Categories of payment source include private pay, commercial insurance, Medicare, Medicaid, contracted agencies and indigent.

The mix, or percentage of patient transports by payment source, can dramatically affect revenue recovery, since each service's ability to generate revenue from fees for service will be determined by the predominant types of payers as well as by the reimbursement policies of these major payer groups. In the United States, Medicare is the single largest payment source for ambulance transportation. Its reimbursement rates vary considerably across the country, and the combination of the percentage of Medicare beneficiaries transported and the service's reimbursement from Medicare will largely determine the financial performance of the provider. Uncompensated care is an issue within the ambulance industry as well as in other health care areas that cannot discriminate according to a patient's predetermined ability to pay.

Income Sources

Other income sources must also be considered when evaluating a medical transportation service's finances. Many systems provide funding for their ambulance service through taxes and fees collected according to political jurisdiction. This is evident in publicly controlled EMS systems operated through health, fire or police departments, as well as in those operated by districts, counties and separately operated third services. Some systems are subsidized through direct government funding or by hospitals that fund deficits. And many ambulance services are operated by volunteer systems that receive funding through taxes and fund-raising efforts.

These external funding sources, while enabling some services to remain viable, have shielded from public view the true cost of providing medical transportation service. In fact, many services with external funding sources charge considerably less than the actual cost of providing the service. This has created unwarranted expectations throughout these communities for low charges. And, while it is a community decision to subsidize the cost of this essential service with tax dollars, the impact on other providers is rarely considered.

Services without public tax support must recover their operational costs through fees for service. If their rates then are compared to the rates of a provider that receives a substantial amount of income from public funds, charges of gouging and excess profit-taking are typically heard. In actuality, their costs per transport may be lower than those of the tax-supported service.

Even more important than the comparison of subsidized and non-subsidized services is the method by which Medicare, the ambulance industry's major payer, determines its reimbursement rates. Medicare establishes its reimbursement levels according to prevailing rates within a defined locality. As is often the case, this

locality may be an urban area that funds the majority of its ambulance system with tax dollars. When charges from the area's primary ambulance service are combined with those from non-subsidized services to determine the prevailing rates, the reimbursement amount that will be paid to subsidized services may be artificially lowered. This reimbursement determination is made more inequitable when nominal charges for patient transports from volunteer services also are considered as part of the prevailing rate for Medicare reimbursement.

Calculating Costs

Even though equitable comparison of one system to another is difficult, each system does have similar associated costs that can be determined. This section discusses how to determine these costs and presents a methodology for calculating the retail transport price for each service. The retail transport price eliminates the effect of external funding sources and undercharging for services, and it allows decisions to be made that may lower charges to the patient while allowing a full understanding of the consequences of such actions.

The costs of the EMS system are summarized as operating, capital, bad debt and reserve costs. Since labor costs in a fully staffed system are the largest single component, these costs are discussed separately under operating costs.

Operating costs

Operating costs include all the expenses incurred during a year for non-capital items. These include expenses for items such as personnel, vehicles, communication, office, maintenance, medical supplies, and so on.

- ***Personnel***: Costs included in this section are for all labor, including caregivers, dispatchers, clerical personnel and administrators. They also include fringe benefits, which are an important element of payroll that must be included in the budget.
- ***Non-personnel***: These are all expenses other than personnel. Vehicle operating expenses include fuel, normal servicing (oil, lubrication, filter, tires), insurance, maintenance and repairs. Communication operating expenses can be handled through service contracts for equipment or included in the cost of maintaining and repairing communication equipment and replacing non-capital equipment (for example, antennas). Medical expenses include all expendable and non-capital reusable items needed to provide patient care (this would cover things such as linen service). Office operating expenses include the buildings used to house ambulances, auxiliary equipment and supplies. They also would encompass utilities, office supplies, and so on. It is imperative that all costs are included, even though some may not fall clearly into their categories.

Capital costs

Items that have a useful life of more than a year are typically considered capital items. Generally, a minimum cost is stipulated for these items (for example, $300 or $500); all items that cost less than this minimum are included in the operating costs. Capital items include vehicles, equipment, communications equipment and buildings. Ambulance types are specified by federal GSA (KKK-A-1822) standards and can be Type I, II or III. Some services have other transport vehicles such as helicopters or transfer units, all of which need to be included in the budget. The communication system covers the base and vehicle radios and all other hardware necessary for the dispatch system. Medical equipment, depending on the level of service, may include such items as a cardiac monitor and defibrillator. Buildings may involve the administration offices, as well as facilities for vehicles. It is important to include all potential capital items in the budget.

The next important consideration is an estimate of annual depreciation for the capital equipment. This depreciation, which is considered a sinking fund, is often left off annual budgets, but it must be included if there are to be sufficient funds to replace equipment as needed. To determine depreciation, the life of an item must first be decided. Vehicle life is determined by usage and miles, while communication equipment generally has a specified lifetime (for example, 10 years). Likewise, the useful life of a building must be estimated.

Funding depreciation provides cash for the purchase of capital items when their useful life expectancy is over. An amount equivalent to the monthly depreciation of the items to be replaced is deposited in a separate account. As the capital item is depreciated, this fund grows. When the capital item needs to be retired, there should be enough money in the fund to purchase a new one. This procedure benefits the organization in three ways: money is available when equipment needs to be replaced, the organization saves interest expenses because it does not have to borrow money to purchase capital items, and additional revenue is generated through interest earned on the depreciation account.

Bad debt

Another cost that must be considered is bad debt (including contractual allowances). These costs must be added to annual operating and capital (or depreciation) expenses to estimate the total costs of providing the service. Medical transportation systems never collect 100 percent of their patient charges, either because a patient cannot—or will not—pay, or because of contractual allowances. Contractual allowances are the amounts written off by the service because they cannot be collected due to the acceptance of Medicaid and Medicare assignment.

By accepting assignment, an organization agrees to take what Medicaid pays and what Medicare determines is allowable as payment in full for the services rendered. (Medicare and Medicaid reimbursement amounts depend on the profile established by the Medicare carrier for a particular organization and the unique policies of the state Medicaid program.)

For example, if patient charges are $200 and Medicaid pays $75, then the organization is precluded from billing the patient for the balance, or even from sending the Medicaid beneficiary an invoice. Medicare pays approximately 80 percent of what is determined as the allowable charge for specific procedures. If the organization takes assignment on these charges, and the allowable charge is $150 (on the same $200 bill), Medicare will pay $120 (80 percent of $150). The service must invoice the patient for the co-insurance amount, $30 ($150 - $120), but cannot bill the patient for the remaining $50.

In summary, a medical transportation company can collect only a small percentage of actual charges from Medicaid. And if the organization takes assignment on Medicare, a slightly larger percentage of the actual charges will be reimbursed, but it still will not cover the entire charge.

In addition to the uncollectible charges from Medicaid and Medicare beneficiaries, an organization will have a significant number of accounts that will not be paid. These accounts can be classified as bad debt, and represent those accounts for which the responsible party is unable (in the case of the medically indigent) or unwilling to pay.

Calculation of bad debt is determined by deducting a certain percentage from gross charges. This percentage is unique to each organization, service area and payer mix and ranges from 15 percent to 90+ percent. Together, bad debt and contractual allowance percentages range from less than 10 percent to more than 85 percent. For example, if a medical transportation service bills $1,000,000 and collects 60 percent ($600,000), the bad debt would be 40 percent or $400,000.

There are two things to remember when calculating bad debt. First, if an organization raises its rates, the collection percentage will decrease as contractual allowances increase and a larger number of patients are unable to pay the higher charges. Second, if an organization receives subsidies, and the subsidy revenue is decreased and replaced by patient charges, the increase in charges will have to include an allowance for uncollectibles. Thus, if the service has a collection rate of 60 percent, the charges will have to be increased by $1.67 for each dollar of subsidy lost to replace the amount lost (60 percent x $1.67 = $1.00).

Reserve and working capital

The previously described capital and operating budgets estimate an organization's yearly expenses. However, since it is impossible to predict all expenses and occurrences, a reserve fund should be in place as a protective mechanism. The amount in this fund does not have to be excessive, but it should be enough to cover most unexpected emergencies.

Another important component in planning a budget is to allow for sufficient funds to pay bills when due, recognizing that revenue income may be variable, inconsistent and periodic. Sometimes insurance companies and other parties take several weeks to send reimbursements, and many services only receive subsidies once a year. These funds are referred to as working capital and must be sufficient to pay bills, and so on, until collections are received. Careful planning is required to ensure that this money lasts until the following year's revenue has been received.

To illustrate the budget planning concept, consider a hypothetical aggregated budget where total operating costs are $500,000, including funding depreciation. The budget allows for 2,000 transports at $250 each. However, the cost of bad debt and contractual allowances must be calculated to determine the amount patients must be charged if the organization is to break even. If this uncollectible amount equals 40 percent of total charges, the costs per transport or the patient charges must average $417 per transport. This is the retail transport price for service. The formula for calculating this amount is as follows:

Total annual cost of service (including depreciation) ÷
Annual transports = Cost per transport

Example: *$500,000 ÷ 2,000 = $250*

Cost per transport ÷ Collection percentage = Retail transport price

Example: *$250 ÷ 0.60 = $416.67*

Price/Subsidy Trade-Off

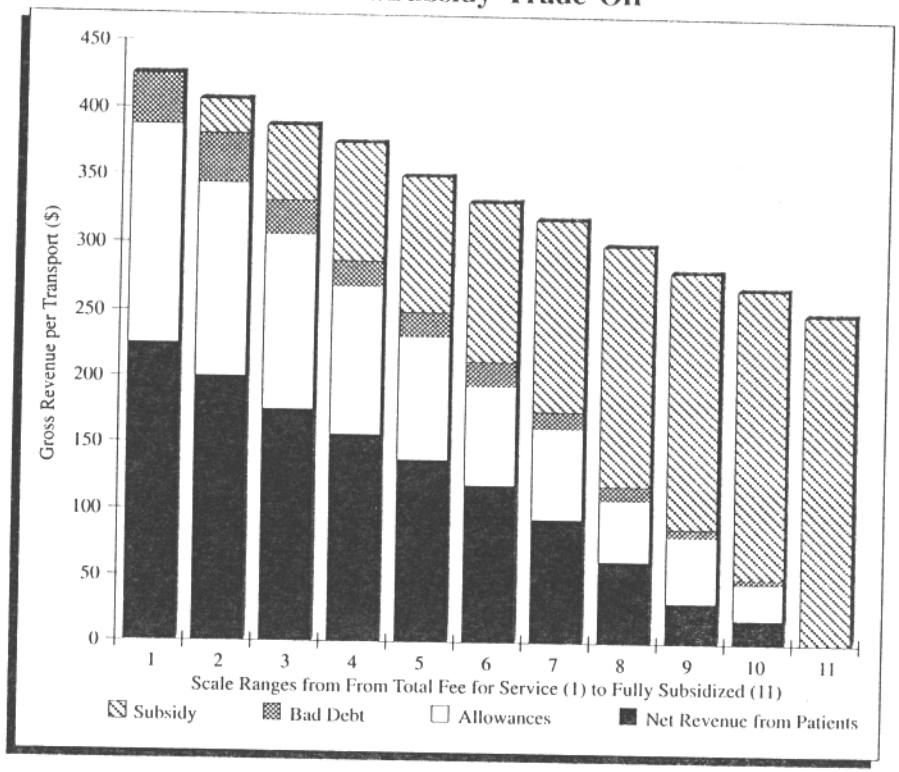
Once the retail transport price is established, the outcome of the next decision, which is made for the most part by public officials, must be examined. This is the price subsidy trade-off (see Figure 6.5).

This relationship is more complicated than it may at first appear. For example, there is a perception that a subsidy reduction of $1 is equivalent to a $1 increase in retail transport price. This is a myth. Potential collection rates affect the relationship between the retail transport price and subsidy in the following manner: At a 50-percent unadjusted collection rate, $2 must be generated in additional fee-for-service billings for every $1 dropped in a level of subsidy. In comparison, at an unadjusted collection rate of 70 percent, the required increase in charges is $1.43 for each subsidy dollar lost. The trade-off will be less if the collection rate is better.

There are other factors that will affect the ratio of subsidy to price. These factors must be fully understood before a final decision on the retail transport price is made. A sampling of factors to be examined are: Medicare rates, Medicaid payment levels and eligibility policies, the local economy, and any state collection regulation that would drastically differ from other areas of the country.

Figure 6.5 demonstrates the relationships of the price/subsidy trade-off. The two extremes are represented by a full fee-for-service organization in which the

Figure 6.5: The Relationship Between Revenue Sources and Cost Recovery of Medical Transportation Service—Price/Subsidy Trade Off



patient and third-party payers pay the full cost of the service including bad debt and, at the other end of the spectrum, a system in which the entire cost of the service is paid through subsidy.

In summary, a process needs to be undertaken by an organization to establish the price/subsidy trade-off. First, the process should determine the total costs of the service and then calculate the retail transport price. At that point, the decision-makers can opt to establish a fee-for-service organization, and the medical transportation service would charge the retail transport price to consumers. This creates a fully self-sufficient organization with no external subsidization.

If this option is not acceptable, the previously mentioned factors should be considered when determining subsidy levels, including the long-term ability of the subsidizing entity to continue funding and Medicare rates. The factors may have external impact on other regional services, and subsidies will have the effect of limiting future reimbursement from government programs.

It is important to remember that the level of subsidy has no relationship to the efficiency of the system's operation. It does have a direct relationship to the reduction of the retail transport rate in its unadjusted form, however. It is also important to understand that any reduction in the unadjusted retail transport rate could have a major effect on future reimbursement levels from government-controlled third-party payers and a significant impact on the reimbursement of non-subsidized services in the region. For these reasons, it is important to fully explore the ramifications of such actions before the decision is made to provide external subsidization of the unadjusted retail transport rate.

Many factors impact the fiscal efficiency of a particular service, the most significant of which is economy of scale. Although it is not currently realized by many medical transportation services, distributing costs over a larger number of transports makes it possible to have a lower charge.

In many areas, however, the number of services precludes the region's overall ability to capitalize on economics. To increase economies of scale, communities should consider combining emergency and non-emergency services, reducing the number of providers, expanding the service area and developing multijurisdictional service areas. The result would be a lowered retail transport price.

Improved management and processes to enhance revenue recovery would also reduce an organization's retail transport price. For example, any positive efforts to reduce the bad debt and contractual allowance portion of the cost of a service will reduce the amount of cost shifting to third-party payers and self-pay parties. Efforts then can be focused on the primary government payers that oversee the Medicaid and Medicare programs. This helps the organization collect more money which helps the retail transport price go down.

Movement toward a fee-for-service system will negate many of the inequitable reimbursement policies in existence primarily because of Medicare profile-determination procedures. While it may be appropriate to subsidize agencies in largely rural areas that do not have the call volume to fully support a fee-for-service environment, many subsidized systems have the volume to develop reasonable rates for medical transportation services.

The economic survival of medical transportation services is based on three primary factors: clinical sophistication, in which patients receive the appropriate level and quality of medical care; an environment of political stability, in which the government jurisdictions understand and are committed to the ongoing provision of medical transportation services; and finally, the financial stability to ensure consistent revenue to support this vital service. It is the financial issue that has largely been addressed here, but only in support of ensuring the ongoing provision of high-quality medical transportation services to the community.