The Public Utility Model

Part I: Measuring Your System

The "Public Utility Model" is an EMS system concept which merits serious consideration for its comprehensive perspective of prehospital care. The Model was conceived four years ago by a team of economists and behavioral scientists at the University of Oklahoma who undertook a theoretical analysis of the prehospital care "industry." Known as the Health Policy Research Team, this group was funded by the Kerr Foundation and headed by Jack Stout, then a research fellow at the University. The theory of EMS as a public utility was then applied in Tulsa and Kansas City, through the consulting firm known as "The Fourth Party," headed by Stout and Alan Jameson. Author Stout will present, in this three-part series: 1) the factors studied to create and judge the Model; 2) the structuring of the Model itself; and 3) precautions for avoiding possible pitfalls in the real-world application of the concept. Here in Part I he discusses the variables applicable to measuring any EMS system as they apply to the Model.

The concept of the "Public Utility Model" — a comprehensive prehospital care system operating as a public utility — is now four years old. That theoretical first Model concept has since been further developed and refined as problems and abuses have been discovered in putting the Model into practice. As a result of these new "design constraints," the Public Utility Model can now be described as an internally coherent — though very complex — systems design and management strategy. When properly applied, this strategy appears to be capable of producing stable, clinically sound, advanced life support prehospital care at a level of economic efficiency that can compete well with the best in the industry — and may even embarrass the rest of the industry.

But this praise must be tempered with caution. The Public Utility Model employs an extremely powerful network of financial incentives and corresponding constraints as its means of achieving superior performance at lower costs. This "incentive network" is so powerful — and the EMS industry so complex — that the opportunities for striking bad deals, getting ripped off financially and clinically, and creating expensive and unproductive conflicts are abundant. In short, precisely because of its power and complexity, the Public Utility Model offers more opportunity for serious error than any other EMS management strategy on the scene today. Once a mistake has been made in system implementation, chances are corrective action will be expensive, time-consuming, and probably much more difficult than instituting corrective action of a similar nature under another management structure. The Model acts something like a very high performance sports car. It has great potential, but is very unforgiving of "driver error."

by Jack Stout

Having developed our theoretical framework of the Public Utility Model, colleague Alan Jameson and I got our chance to "put our money where our mouth was" in the form of a contract to our consulting firm to design and fully implement the first nearly "pure" application of the Model in Tulsa, Oklahoma. That was nearly two years ago and, as of this writing, the Tulsa system's real successes — as well as some rumored successes — have attracted widespread attention, have significantly influenced local policy in several instances we are aware of, and are already generating a fresh flow of "experts."

The purpose of this month's article, then, is to present a common perspective from which we can judge the performance of *any* prehospital care service system, regardless of its organization — a perspective from which we view the entire EMS industry.

How to Spot a Good Deal

At the heart of the Public Utility Model is a sequenced decision-making process for locally elected officials. We assume that it is the proper role of state government to impose minimum mandatory standards for prehospital care as part of the state's overall consumer protection responsibilities. But, if any unit of local government desires a level of prehospital service in excess of that required by state law, then it must be the responsibility of locally elected officials to decide (with the advice of the local medical community) just how much better than "minimum standard" these services are to be, and how this superior service will be financed.

We ask our clients to view system performance in terms of four "bottom-line" variables — four performance measures which can be applied equally well to any prehospital EMS system, public or private, advanced or basic, subsidized or unsubsidized. (See Figure 1.)

Setting aside for a moment problems of measuring these variables, let us consider what the variables are and how they relate to one another. For example, assume that in any given system a faster response time, however measured, is more expensive than a slower response time. If locally elected officials desire an improvement in the response time performance of their EMS system, then they must be willing to sustain:

- **a.** an increase in local per capita annual subsidy, however collected and reimbursed; or
- **b.** an increase in the consumer rate of structure; or
- **c.** a reduction in the level of clinical sophistication; or
- **d.** some combination of these

Similarly, if local officials desire an upgrading in clinical sophistication toward higher levels of advanced life support capability, they must be willing to sustain:

- **a.** an increase in per capita subsidy; or
- **b.** an increase in the consumer rate structure; or
- **c.** slower response time performance; or
- **d.** some combination of these

Similar examples could be offered concerning manipulation of the consumer rate structure of a system or the per capita annual subsidy variables. But the important point here is that, regardless of system type, striking a balance among these four "bottom-line" interactive variables is the responsibility of locally elected officials, with the advice of their local medical community.

When we are asked to compare the performance of one EMS system with that of another, we again refer to these four bottom-line variables. For example, take two EMS systems of different types operating with approximately the same response time performance, the same levels of clinical sophistication, and similar rate structures, but with one system's per capita annual subsidy considerably higher than that of the other system. We must assume that either one system is less efficient than the other, or there must be geographic or demographic factors which make it more expensive to render equal services in one community than in the other. Such factors might include inferior traffic control systems, chronically difficult weather conditions, or collection problems (*not* the result of inferior accounts-receivable management).

"Measuring" Performance

Is it possible to measure an EMS system's performance on these four "bottom-line" variables with sufficient precision and objectivity to justify public policy decision-making? A definite "yes". Perhaps more importantly, however, public policy decision regarding EMS, based on anything *other* than assessments of these variables, must be largely irrelevant.

What other measures could there be? Patient outcome? Not unless one is willing to spend more money *measuring* than *operating* the system. Even then the task will remain impossible for many clinical conditions.

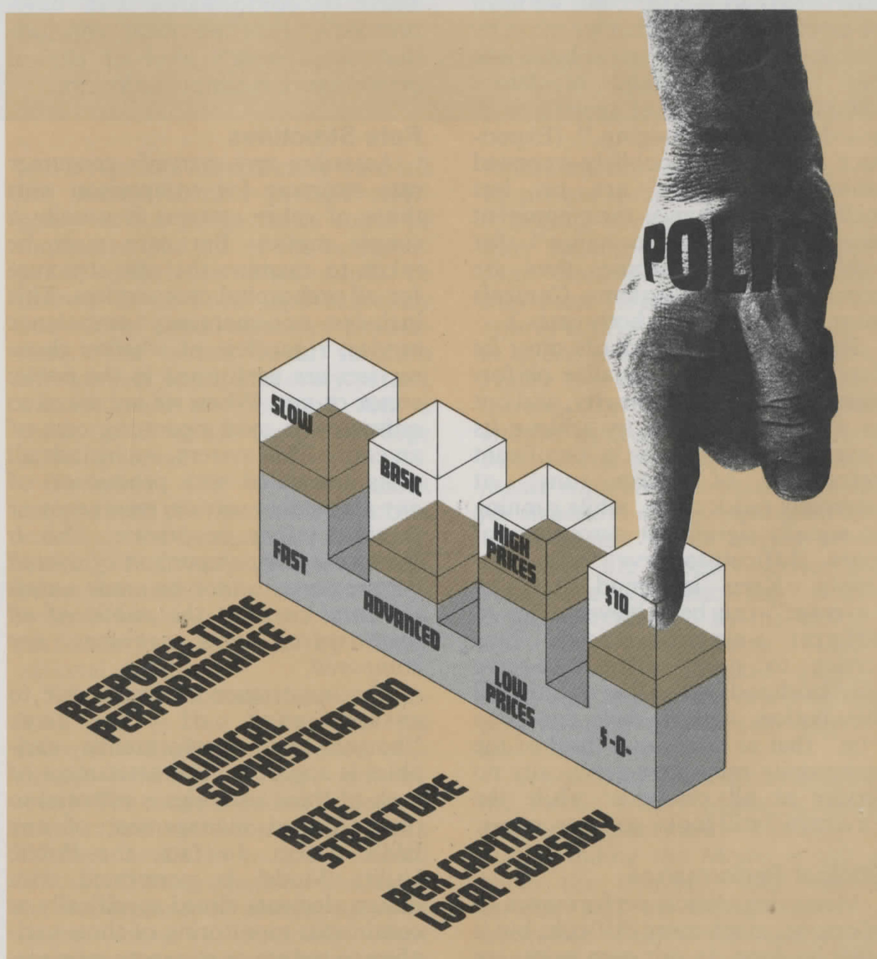

Figure 1: "Bottom-Line" Variables

Shall we look at consumer satisfaction? This industry deals with nothing but problems and we must meet these problems on their own turf. Any EMS system, good or bad, will attract justified and unjustified praise and criticism in approximately equal quantities, at a rate more influenced by press exposure than anything else.

While a book could easily be written concerning the practical measurement of each of the "bottom-line" variables, the fact is we can and must measure (and have measured) each of these variables with accuracy sufficient to the practical management of advanced life support EMS systems.

Response Time

Response time performance is relatively easy to measure, but we must be careful to define what we mean by "response-time". We must build into our management and regulatory structures a variety of specific safeguards against "fudging." (Experience tells us that publicly operated ambulance systems are no less inclined to "enhance their apparent response time performance" for public relations purposes than are privately operated systems. Controls must be instituted in both cases.)

Response time standards must be developed so as to equalize performance in all parts of the city, and not to allow the system to achieve its "average" by running a significant percentage of "easy runs" at extremely quick times, while running an equally significant percentage of more difficult-to-serve calls very slowly. Keep in mind that an "average" can be achieved a lot of different ways. Chronically slow service to poor, difficult-to-serve neighborhoods, as well as a statistical distribution with a bell curve so "fat" that as much as a third of the community may have practically no service at all can exist while the "average" still looks good on paper.

Clinical Performance

Measuring clinical performance is, of course, much more difficult, but it must be done. In our own work, we look at equipment standards, personnel training and testing requirements, and which clinical procedures the system is theoretically capable of performing. But we rely much more heavily upon analysis of the clinical protocols utilized on a day-to-day basis in the system.

Obviously, the fact that a system is capable of performing some advanced life support procedure is of little consequence if such a procedure is never, or rarely, used. How clinically sophisticated a system *should be* is, in our judgment, a question which must be resolved by the local medical community. However, assessing how clinically sophisticated a system *is* can be accomplished by comparing one system's routine protocols for handling given sets of clinical problems with those of other systems. But, if a system has no protocols, or does not routinely assess its conformance with those protocols, then we must conclude that the system's level of clinical performance is simply unknown.

Rate Structures

Assessing any system's consumer rate structure for comparison with those of other systems is usually a simple matter. But care must be taken to examine the rate structure for *all* prehospital care services. This includes nonemergency ambulance service, regardless of whether those services are performed in the public sector or not. When we are asked to estimate the total operating cost of an entire EMS system, we include all costs associated with production of *any* ambulance service, emergency or routine, public or private. *This is because a fair comparison of overall system costs cannot be made unless the total costs to the public of all prehospital care services are compared.*

The importance of being able to assess each of the four "bottom-line" performance variables is apparent. The assessment of each of these variables is essential to the informed management of any EMS system. In fact, the Public Utility Model is permeated with design elements aimed specifically at continuous monitoring of these variables to reduce or eliminate monitoring error or fraud, so as to objectively measure clinical aspects of performance, and to tie the entire network of financial incentives to the results.

How Wide a Gap?

Apart from our experience in the EMS industry, we deal regularly with management issues in other industries, one of which is the construction industry. In any given part of the country, construction costs are reasonably well understood and somewhat predictable. For example, in our own Little Rock area, as of this writing, medium quality residential construction costs per square foot are in the low $40s. Any builder who can produce medium quality homes at about $40 per square foot or less knows he can probably stay in business. If he can't, his days as an independent contractor are numbered.

Our present prehospital EMS industry isn't anything like that. There exist startling gaps among the production efficiencies of our nation's various prehospital care systems. How wide? As high as 600 percent when *total* costs of producing roughly equivalent services are compared.

Let us briefly examine some of the supporting evidence. Figure 2 contains information developed by Kansas City, Missouri, and printed in the *Kansas City Star* newspaper. The figures obviously do not control for quality of care, and response time performance is unverified. Even so, however, the last column — approximate per capita annual subsidies in local tax dollars — tells a surprising story. (These figures are now out of date and, in most cases, current figures are higher.) Compare, for example, the Kansas City situation with that of Austin, Texas. Fee structures in the two cities were roughly equivalent. Kansas City's response time was slower. Both cities enjoyed advanced life support services and, in my opinion, the level of clinical capability in Austin was probably superior to that of Kansas City. But was the level of service in Austin nearly six times better?

Consider what would happen if Austin's per capita annual subsidy were applied to Kansas City. If Kansas City's per capita annual subsidy were the same as Austin's, the city would subsidize ambulance services to the tune of over $3 million

Figure 2: Kansas City Ambulance Study

(In most instances, based on 1978-79 estimates.)

CITY	LAND AREA (SQ. MI.)	POPULATION 1976	MUNICI-PALLY OWNED & OPERATED	DEDI-CATED*	NO. OF VEHICLES	REPORTED AVERAGE RESPONSE TIME (MIN.)	APPROX. FEE +	APPROXIMATE ANNUAL BUDGET	APPROXIMATE ANNUAL SUBSIDY PER CAPITA
Kansas City	316	458,251	NO	NO	14	7.5	$60	550,000	1.20
Austin	154	313,009	YES	YES	8	4.3	$50	2,106,199	6.72
Chicago	222	3,074,084	YES	YES	36	4.0	NO	6,764,149	2.18
Columbus	170	533,075	YES	YES	15	5.5	NO	3,000,000	5.62
Dallas	254	848,829	YES	YES	18	5.0	$50	3,109,000	3.65
Fort Worth	138	367,909	NO	YES	6	6.0	NO	712,500	1.94
Jacksonville	766	532,346	YES	YES	14	5.0	$35	1,700,000	3.20
Los Angeles	455	2,743,994	YES	YES	40	5.0	$35	10,210,585	3.72
Louisville	59	330,011	YES	YES	8	5.5	$30	1,900,000	5.75
Miami	34	354,993	YES	YES	5	3.5	NO	1,396,822	3.94
Nashville	527	430,941	YES	YES	16	5.0	$40	2,100,000	4.88
Phoenix	187	679,512	YES	YES	8	5.1	NO	UNKNOWN	N/A
Seattle	82	490,586	YES	YES	12	4.0	NO	1,264,257	2.57

***Responds to emergencies only.**
+ Minimum Charges

Source: Verlyn J. Leiker, Budget Officer, Kansas City, Missouri

per year. At present, the *entire* cost of producing all ambulance services, serving the Veterans Hospital, and even including coroners' calls and body-hauls for funeral homes, totals less than $3 million per year. In other words, if Kansas City subsidized per capita the same as Austin, there would be no fees for emergency or nonemergency service, and the $250,000 a year VA business could be provided free of charge as well.

Perhaps a better comparison would be Tulsa, Oklahoma. The Tulsa system provides a level of clinical sophistication that is at least as good as Austin's. Current response time performance in Tulsa is rougly equivalent to that of Austin, especially considering that Tulsa imposes standards for each neighborhood as well as for the city as a whole. Tulsa's system serves nearly 500,000 people, compared with Austin's less than 400,000 area. Furthermore, the Tulsa system provides all the emergency *and* all the nonemergency service for the entire community from the same budget.

Tulsa's entire system operates on less than $1.5 million per year. That's everything. In round numbers it means that, if the Tulsa system were transplanted to Austin, and if Austin's local subsidy were left the same, Austin's present emergency service performance could be duplicated and all of the nonemergency ambulance work could be thrown in to-boot (approximately one-half of total volume of production). The system could function with no fees at all, and every patient treated could be presented with a check for about $50 for the privilege of being served.

Obviously, this is a ridiculous comparison, but the relative numbers involved are essentially accurate. Austin, Texas enjoys one of the better advanced life support EMS systems in America, and it is not particularly inefficient by many national standards.

This kind of comparison is beneficial only in that it illustrates the enormous range of production efficiency inherent in our industry today. The range is bound to narrow as more and more comparative data becomes available to local elected officials. The comparison illustrates the importance of comparing *total* system costs — especially when assessing the true costs to the public of so-called "split systems" (systems wherein emergency services are provided by a public agency while nonemergency services are provided by private companies).

Locally elected officials must consider striking a balance among the four "bottom-line" variables. Also, they must consider whether another type of EMS system might be able to, in effect, lower the level of fluid (see Figure 1) in the entire hydraulic illustration. In other words, could another approach achieve improved clinical and response time performance while simultaneously reducing fee structures and/or per capita local tax subsidies? (Even among private advanced life support service providers, the "efficiency gap" is quite large, as evidenced by the fact that our own competitive bidding processes have attracted qualified high bids priced as much as 100 percent higher than equally qualified low bids.)

At a general level, the structure of the Public Utility Model is simple and straightforward. The key to understanding the Model is not so much the structure itself as the careful, and we would add rigid, separation of authorities and responsibilities. Next month these will be laid out in Part II as I examine the principal elements of the Public Utility Model. □