

## EMS RRM—2003, Commentary

The newly revised EMS RRM replaces the 1983 RRM. The methodology used in both of these documents calculates EMS personnel needs based on three major identifiable EMS systems operations factors—population served, workload, and geographic area covered. In the new RRM, the total number of EMS personnel needed is derived from the sum of the individual values. However, each of these factors (driving variables) is given a relative FTE value; workload is the most heavily weighted driving variable, followed by population served. EMS workload is synonymous with annual “run volume,” and it makes sense that this is the most significant variable because it is concrete evidence of the volume of work actually performed by the service or purchased from other services. Likewise, it makes sense that population served would be next in importance, presuming that larger populations will have larger burdens of illness and injury, and likely more utilization of EMS services. The RRM also recognizes and accounts for the need for supervision and billing support, as well as ambulance(s).

One might wonder why workload is used as a driving variable, rather than some objective, external standard, to define staffing needs. The reason is that no such staffing standard exists for rural EMS. A lengthy discussion of this issue can be found in the 2001 IHS document entitled *Quantifying the Unmet Need in IHS/Tribal EMS*. Because of this lack of a standard, the *Unmet Need* report calculates and compares I/T EMS staffing with respective state staffing ratios for 41 tribal EMS programs. It demonstrates significant differences—in most categories, I/T staffing ratios are quite a bit lower than corresponding state ratios. The analysis also calculates how many more personnel would be needed for each program to reach parity with its state ratio. Both of these figures could be compared with the staffing needs predicted by the RRM to see if they correlate or not. This report also catalogs annual run volumes for the 41 programs; a mean run volume of 131/1,000 people served is calculated. This value is used as a default value in the EMS RRM if the annual run volume for a service unit or facility is not known.

While the model offers a consistent approach in evaluating the EMS needs for an area served by a facility, it cannot account for nuance or variation in the individual Service Unit driving variables—so it does not always give an accurate determination of need. Without careful scrutiny of these variables for a given service unit and facility, some erroneous numbers might be generated from the model. Therefore, the data generated by the EMS RRM must be interpreted in context. Some of the data generated by testing of the EMS RRM (see Excel Spread sheet 7.1 final, tab “Sample Results”) will be used below to illustrate this point with each of the three driving variables.

## Workload

Workload is defined differently in the current RRM than in the original one. In the first EMS RRM, a surrogate indicator—admission rate, using diagnoses likely to have arrived by ambulance—was used to estimate the workload. This approach was taken because of the lack of actual EMS workload data at the time. In the new RRM, the most recent annual number of runs performed by the I/T service, as well as the number of runs purchased from other EMS programs is entered. So the new RRM is more accurate in that it uses actual current run volumes. The identification and distinction of I/T Runs and Purchased Runs is important, and quantifies the percentage of the total EMS workload performed by the I/T Service. This is important for two reasons: 1) it captures the entire workload (regardless of how it is paid for), and 2) it gives an accurate indicator of the capability, expertise and resources of the I/T service to manage the total workload. Each I/T service has varying manpower resources to do pre-hospital response and inter-facility transport.

## Examples

1. For Navajo EMS, the RRM predicts that all 8 Service Units would require 230 personnel (202 EMTs, and 28 supervisors and clerks) to meet the workload needs, without specifying participation in pre-hospital or inter-facility transport. At the present time, the 638 contract for Navajo EMS limits the Scope of Work to pre-hospital response only, and 120 EMTs do this portion of the workload. So the EMS RRM predicts a need for an additional 82 EMTs. While these additional personnel would augment existing pre-hospital response capability and perform some inter-facility transports, the increase is not sufficient to account for the entire inter-facility need. On the other hand, if one uses the ratio parity model elaborated in the *Unmet Need* report, the predicted need is very large—370 EMTs over and above the existing staffing level. This is excessive, and reveals the limits of the parity ratio analysis. (For a detailed discussion of this, refer to the *Unmet Need* report). The true personnel need for Navajo EMS, assuming that the scope of work is expanded to perform the majority of the inter-facility transports, lies somewhere between the number predicted by the RRM and *Unmet Needs* report.
2. On the other hand, an I/T service might perform the majority of the EMS workload, and do all of the pre-hospital response and most of the interfacility transport. This is true for the Oglala Sioux Ambulance Service in Pine Ridge, which performed over 6,000 runs for a User Population of 22,600 (1998 data). This high number of runs relative to the population served reflects a number of diverse factors—community usage of EMS and phone availability, high rates of unintentional and intentional injury, and performance of a large number of inter-facility transports. The EMS RRM predicts a need for 41

personnel (37 EMTs), but only 21 for a Service Unit (Crownpoint) with a nearly identical User Population, but a much lower run volume (1000).

3. A potentially significant component of the total annual EMS workload is that contributed by IHS staff doing inter-facility transports in GSA ambulances. Such transports may represent a significant percentage of the workload, and might not be accounted for by the new EMS RRM. While the number of such transports is quantifiable and could be entered into the percent purchased category in terms of number of transports, the associated cost in terms of hours worked, equipment used and vehicle mileage and wear and tear are very difficult, if not impossible, to quantify. If such transports occur in a Service Unit (e.g., Kayenta, Navajo Area), it is imperative that the number of these transports be included in the analysis.

### **User Population**

1. A given I/T EMS service might provide pre-hospital response and inter-facility transport to a much larger population than the beneficiary population. There are several highly developed, fire-department based EMS services that fit into this category. Sycuan Fire Department in California Area is an example of this. This Department provides Advanced Life Support Fire and EMS service to almost 50,000 people, even though there are about 100 tribal members. In the *Unmet Need* report, the calculated ratios for EMS personnel far exceed the state ratio, by an order of magnitude. This is explained by use of the User Population denominator (for consistency of methodology), but this denominator is not the true service population. The EMS RRM would calculate personnel needs for the tribal members, it is not really a valid tool to apply to support the actual operation of this large EMS system. This system likely supports itself by local and county tax base for fire suppression, and third party collections for EMS patient care.
2. The Gallup Service Unit is served by a more than a dozen EMS services in McKinley County. Navajo EMS, based in Tohatchi, is one of them. The Gallup Service Unit 1998 User Population was 44,500. Navajo EMS provides significant and extensive EMS coverage for a dangerous highway corridor and its surrounding communities, but not for the entire User Population. So, the predicted number of personnel needed (33 total, 29 EMTs) overshoots that local need. What the RRM alone cannot address is distribution of EMS resources within McKinley County or identification of uncovered areas of the Navajo Nation within the Service Unit.

### **Geographic Area**

The size of the area covered by an EMS service does not independently or accurately predict EMS personnel needs. But EMS needs and resource allocation in a large area are effected by population density, miles of highway involved, motor vehicle crashes on those highways, and tourist destinations. The RRM may not accurately

predict the need relative to the geography covered, since square kilometers covered are weighted least in the RRM.

### Example

1. Crow Creek Ambulance in Aberdeen Area covers 4,314 square kilometers, had a User Population of 3,684, and had 1,229 runs in 1998. The EMS RRM predicts a need for 11 EMTs; this may turn out to be an inadequate staffing calculation if the high run rate (~300/1000) turns out to be related to location and/or relatively large geography covered. Careful analysis of the run volume by location and type would be indicated here.