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Indiana Emergency Medical Services Needs Assessment: Workforce and Training Issues

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Indiana Emergency Medical Services
Needs Assessment

Workforce and Training Issues
Survey Report

September, 2007

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Attachment: Chartbook

Executive Summary

A mail survey was conducted to assess issues related to the EMS workforce and EMS workforce training in Indiana. Responses were received from approximately 45% of individuals and EMS organization contacted.

Major findings are:

- Evidence exists of a shortage of EMS personnel in Indiana due to high vacancy rates. This is particularly acute in volunteer organizations, which report the greatest difficulty in recruiting EMS personnel.
- Paid EMS personnel work on average significantly more than a standard 40 hour week, and high percentages of EMS personnel add a second job. Because excessive working hours have been linked to low quality healthcare, this may indicate potential problems with the quality of EMS care.
- Differences in training needs and training received in areas related to cardiac care indicate potential disparities in the quality of care for heart attacks between rural and urban areas.
- Contrary to the Indiana requirements for recertification, it appears that a significant proportion of Indiana EMS personnel and organizations are not using audits as a tool for ensuring quality and developing skills.
- A wide variety of training needs have been identified. While some clinical skill areas (basic and advanced life support) are needed, many of these areas are in important non-clinical areas, such as automobile extrication, foreign languages, safety, and incident management.
- The training environment, both in terms of initial and continuing training, is so varied that it cannot realistically be considered a “system.”
- In the abstract, EMS personnel prefer “hands-on” type training, but when presented with specific scenarios they indicate a greater affinity for locally-delivered mechanisms such as classroom courses at a local school or computer-based training. This probably reflects the tradeoff between time and utility, and is consistent with findings that time is the largest barrier to continuing education and the high percentage EMS personnel who hold second jobs.
- Self-assessment of preparedness levels by EMS personnel reveals that the EMS system in rural areas is likely to be less prepared and capable than in urban areas. Volunteer organizations rate themselves as less capable than paid organizations, although this is largely not reflected in self-assessments by volunteer EMS personnel.

Background

Emergency medical services (EMS) are a vital component to the nation's healthcare system. Each year, more than 16 million individuals are transported by EMS to a receiving medical facility. These services are composed of a wide variety of components, including personnel, vehicles, and equipment. EMS personnel are specifically trained to provide prehospital care, ranging from treating a minor fall, to stabilizing and transporting a motor vehicle accident trauma victim. Therefore, it is essential that these individuals receive adequate training and have access to high quality medical equipment. (1)

Emergency Medical Services, as currently modeled, were first introduced into the United States in the 1950s, and progressed dramatically until the 1980s when federal funding was significantly decreased. Lack of funding led to poor leadership and oversight of many EMS programs. The nation's rural areas were particularly affected, because many of these areas lack the necessary funds to properly run and maintain an EMS system. Lack of oversight led to inconsistencies in the services available to the American people. Nearly half of the EMS organizations that exist today are staffed by the local fire department. The remaining 50% are operated by county governments, local hospitals, or private organizations. It is important to identify the source of funding for the EMS agency, because this gives much information as to the education and training level of providers. For example, fire departments are most likely to staff their EMS agency with first responders, otherwise known as basic emergency medical technicians (EMS). These individuals can only provide basic care to individuals.(1)

Unfortunately, the requirements for EMS provider training varies greatly from state to state. The requirements for state of Indiana are mandated by the Indiana Department of Homeland Security (Table 1).

Table 1.0 : Certification Requirements of EMS Providers in Indiana

Certification	Skills Included	Hours of Training	Certification Requirements	Recertification
EMT-Basic	National Standard Curriculum DOT EMT-Based program, 1994 edition, plus state-approved IV maintenance, aspirin, geriatric, SIDS, WMD, and Hazmat modules	144.5 minimum - includes 8 hours of ED observation & 8 hours ambulance	Successful completion of Commission-approved Basic EMT training course, plus state practical skills and written examinations for initial certification	Semi-annual participation in and reporting of 40 hours of continuing education (34 hours lecture didactic and s kills evaluation) plus 6 hours audit.
EMT Basic-Advanced	Basic EMT skills plus state-developed modules: IV initiation and automatic or manual defibrillation	85 hours	EMT certification plus successful completion of state-approved training curriculum and state practical skills and written examinations.	Semi-annual accumulation of 10 hours of continuing education in ALS and 12 hours of medical director approved audit and review, plus basic requirements
EMT-Intermediate	Those in the DOT's EMT-Intermediate 1999 National Standard Curriculum.	350-400 hours	Pass 1999 EMT-Intermediate National Registry exam	Recertify every 24 months; 72 hours continuing education credits, including skills and audit and review
EMT-Paramedic	Basic EMT skills plus DOT EMT-Paramedic training program.	980-1500 hours	Current EMT certification plus successful completion of commission-approved paramedic training program and National Registry Paramedic examination for initial certification.	Recertify every 24 months; 72 hours continuing education credits, including skills and audit and review

Areas that are rural, such as much of Indiana, have special considerations in terms of EMS care. A wide disparity in the delivery of EMS care between rural and urban areas does exist. (2-5) One major contributing factor is the high number of volunteers that are used to operate and maintain these systems of care. In fact, in many rural communities, the emergency care role is a second job for the majority of EMS providers. (6) Due to the large volume of volunteers that provide EMS care in the state of Indiana, it is vital that researchers examine the difference, if any, in the level of care provided between volunteers and paid EMS personnel.

Methodology

Contact information for EMTs was randomly selected from lists of Indiana certified EMS personnel holding at least an EMT-Basic certificate. The sample frame consisted of 800 each of EMT-Basic (out of 11184), EMT-Basic/Advanced (out of 1125), and Paramedics (out of 2651) and all 115 holding an EMT-Intermediate certificate. Likewise, a sampling frame of all 750 EMS organizations listed with the Indiana Department of Homeland Security was selected.

These sampling frames were then used to conduct a four contact mail survey, designed with reference to Dillman's methods.(7) In the case of organizations, survey mailings were addressed to the organizational training officer. Each list member received a prenotification letter describing the survey instrument and purpose, inviting the member to participate. This was followed by a package containing a cover letter, survey questionnaire, and an addressed, postage-paid return envelope. A reminder postcard was sent two weeks later to list members, followed by a second survey package to non-respondents. No incentive payments were offered to list members for participation. The procedure was approved by the Purdue University Institutional Review Board as exempt under the requirements for human subject protection.

Responses were received from 1054 individuals and 324 organizations. After deducting for mailings returned due to incorrect addressed, the sample frame totaled 2360 EMS personnel and 716 organizations, giving total response rates of 44.7% and 45.3%, respectively.

The survey was modeled on a number of previously used instruments, including tools developed by the Nebraska Center for Rural Health Research(8), the North Dakota State Office of Rural Health(9), the Arizona Rural Health Office(10), and the Idaho Office of Rural health and Primary Care.(11)

Data was double entered into Microsoft Excel spreadsheets and compared to identify errors, which were corrected by reference to the original response sheet. Spreadsheets were then merged into a Microsoft Access database containing county-level demographic data obtained from the 2000 US Census Summary File 3, along with county-level data on the presence of any hospital or a critical access hospital. This database was queried to construct analytical files in SPSS for Windows version 12. Descriptive data statistics were collated on the sample, and bivariate analysis were conducted using independent samples t-tests, one-way analysis of variance (ANOVA), and cross-tabulations with the chi-square statistic. Organizational data was stratified by use of volunteer staff, public health district, presence of a hospital, percentage of urban population, and presence of a critical access hospital. Individual data was stratified by certificate type, work status (volunteer, full-time, part-time), public health district, presence of a hospital, percentage of urban population, and presence of a critical access hospital. Respondents indicating that they were retired or otherwise not working in EMS were excluded from the work status analysis. Where multiple counties of service were indicated, the first listed was used as the "primary county of service." Results are tabulated in the accompanying chartbook.

Results

Rural and Urban Workforce

Organizations

In the organizational sample, 41.9% of EMS organizations reported that they used only volunteer personnel. Over two thirds of organizations were fire departments, with another 18.6% hospital based. Three quarters reported receiving at least some funding from government appropriations, 48.5% receive some funding from insurance reimbursements, and 28.4% have obtained funding from grants. One third of the organizations reported using fundraising drives to supplement their budget, which may be indicative of a general lack of resources for EMS in Indiana.

From data obtained from the organizational survey, it was found that rural EMS organizations are significantly smaller than those in urban areas, a difference primarily related to the number of EMT-Basics and Paramedics employed by the agency, which increase with the percentage of the service county population living in urban areas (Table 2.1.5, Figure 1). Likewise, agencies located in counties with critical access hospitals employ significantly smaller staffs than those without critical access hospitals (Table 2.1.2). Overall, vacancy rates are high. On average, approximately 20% of EMT-Basic, 50% of EMT-Basic/Advanced, 75% of EMT-Intermediate, and 25% of Paramedic positions are unfilled. No significant differences are seen between rural and urban areas in position vacancies except for openings for EMT-Basic/Advanced providers, with more rural areas having more openings both in terms of absolute vacancies and as a percentage of the workforce (Table 2.1.5). Volunteer organizations are smaller than those with paid staffs, and experience very high vacancy rates (Table 2.1.1). These agencies are significantly more likely to report that it is “Very Difficult” to fill vacancies (Table 2.2.1). No other variable appears to be associated with difficulty in attracting EMS staff.

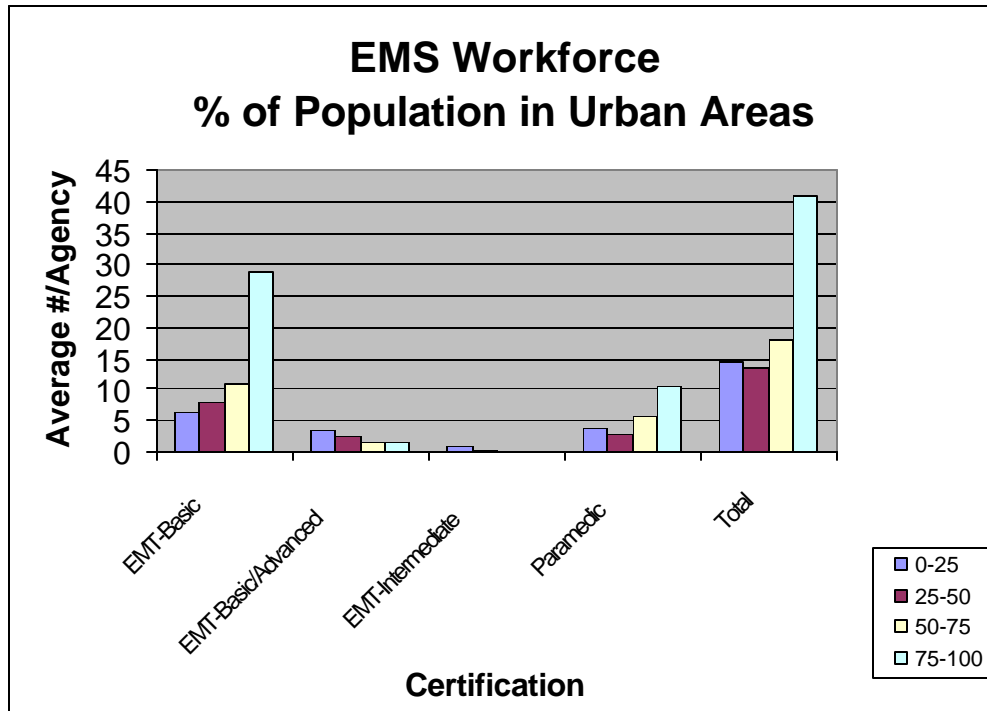
EMS Personnel

The average of a respondent was 40 years old, 72.3% were male, 72.7% were married, and 60.7% had children at home. College degrees are held by 36.5% of the sample, with 14.1% having a bachelor's degree and 4.0% holding a graduate degree. Approximately 4% of the sample members are also registered nurses, including 11% of those working part-time in EMS (Table 3.12.2). CMA, Nursing Assistant, and Licensed Practical Nurse certifications/licenses are each held by >1% of the sample, and are significantly more likely to be held by EMS personnel in counties served by Critical Access Hospitals (Table 3.12.3)

From the individual survey, it is found that significant differences exist in the work experience of EMS staff. The proportion of urban population is related to the workload of EMS personnel, with both hours worked weekly and runs per week increasing significantly with the percentage of the population in urban area. In contrast, the average age of the EMS staff member decreases with the urban proportion, falling from 44.1

years for the most rural counties to 38.7 years for the most urban (Table 3.2.5). A similar pattern is seen for differences between counties with and without Critical Access Hospitals (Table 3.2.3) Counties without a hospital have an older workforce that has more experience in EMS and longer tenure with their current agency, but work fewer runs per week than their counterparts in counties with hospitals (Table 3.2.4).

Figure 1.



Experience differences are also reflected between work status and certification levels. In general, EMT-Intermediate and Paramedic personnel have significantly greater workloads and experience than EMT-Basic and Basic-Advanced personnel (Table 3.2.1). Part-time and volunteer personnel tend to be significantly younger and less experienced than full-time paid personnel (Table 3.2.2).

Both EMT-Basic and Basic/Advanced certifications are associated with a higher probability of holding a second job. If a second job is held, however, EMT-Intermediate and Paramedic personnel are more likely to hold the job in a healthcare field (Table 3.3.1). Personnel in counties with a Critical Access Hospital are more likely to have a second, full-time job than those in counties without such hospitals (Table 3.3.3), and the likelihood of having a second, full-time job decreases as the percentage of urban population increases. Thus, rural EMS personnel are likely to have less flexible schedules than their urban counterparts (Table 3.3.5).

When queried regarding the reasons to enter the EMS workforce, the proportion of respondents indicating that community need for EMS personnel motivated their decision was related to the percentage of county population in urban areas, with a higher proportion in more rural areas (Table 3.4.5). No significant differences were seen between counties with and without Critical Access Hospitals (Table 3.4.3). Higher certification levels and full-time paid employment were associated with the motivation to

ear a living in EMS, while community needs and satisfaction with working with a team were more common among volunteers and lower-level certifications (Tables 3.4.2, 3.4.2).

Full-time paid personnel indicated that they are more likely to continue working in the field than part-time or volunteer EMS personnel (Table 3.5.2) EMS personnel in counties with Critical Access Hospitals were more likely to indicate the intent to leave the field within 5 years than those in counties without these hospitals. Given a higher level of rural EMS vacancies and an older workforce, this may point to future EMS workforce shortages in these counties.

Of those who intend to leave the field, the intent to leave sooner is associated with the time commitment required for the job and other, unspecified reasons. Nearly half of those intending to leave the workforce in the next year listed this as a reason. Over a third of all working respondents to this question indicated their age and inadequate pay as considerations for leaving the workforce, independent of the time frame for doing so. (Table 3.15.1).

In terms of job satisfaction, EMT Intermediates are more likely to report satisfaction with respect received from physicians than other certified personnel. Lower certification levels are associated with greater satisfaction with organizational leadership, quality of care provided, training opportunities, and levels of EMS-related stress. (Table 3.13.1). Full-time employees indicate greater dissatisfaction with job-related stress (Table 3.13.2). No differences are seen between counties with and without Critical Access Hospitals (Table 3.13.3), while personnel in counties without hospitals report slightly lower levels of satisfaction with co-workers than those in counties with hospitals (Table 3.13.4). The most rural counties (<25% Urban population) report the greatest satisfaction with training opportunities, while those in counties with urban populations between 50 and 75% report the lowest levels of satisfaction with organizational leadership (Table 3.13.5)

Implications

Evidence exists of a shortage of EMS personnel in Indiana due to high vacancy rates. This is particularly acute in volunteer organizations, which report the greatest difficulty in recruiting EMS personnel. Both time commitment and inadequate pay are cited as significant reasons for leaving the field. Paid EMS personnel work on average significantly more than a standard 40 hour week, and high percentages of EMS personnel add a second job. Coupled with evidence of widespread use of fundraising drives to supplement formal revenue sources, this indicates that resources available to EMS organizations are inadequate. In addition, excessive working hours have been linked to low quality healthcare(12-14), and these results therefore raise questions about the impact of a stretched workforce on the quality of emergency care.

Training

Training Received and Areas of Need

Over one third of agencies report that their staff requires training at a higher level, with this need relatively invariant across stratifying variables. In terms of specific needs, over one third of agencies report that their staff need additional training in basic trauma life support (55.4%), hazardous materials (44.9%), incident management (43.4%), foreign

languages (42.4%), automobile extrication (42.4%), airway maintenance (38.3%), and bioterrorism response (36.7%)

Volunteer organizations report a significantly greater proportion of the workforce (relative to paid organizations) needing training in basic trauma life support, automatic defibrillation, automobile extrication, hazardous materials, airway maintenance, infection control triage, personal protective equipment, scene safety, communications, and incident management. Over half report a need for basic trauma life support, automobile extrication, hazardous materials, triage, and incident management. Organizations with paid staff are more likely to report a need for advanced life support (trauma, cardiac, and pediatric), and foreign language skills. (Table 2.3.1)

Automobile extrication and scene safety are reported more commonly as training needs for organizations located in highly rural counties. These organizations are less likely than counterparts in more urban areas to have reported a need for advanced life support (trauma, cardiac, and pediatric) (Table 2.3.5). Over 60% of organizations in counties without hospitals report a need for airway maintenance training (Table 2.3.3), while those in counties with Critical Access Hospitals are twice as likely as counterparts to require training in epinephrine use, and half as likely to report a need for cardiac life support training (Table 2.3.2). This list of disparities is striking in that it contains a cluster of skills (cardiac life support, defibrillation, airway maintenance, and epinephrine administration) which are critical in the treatment of myocardial infarctions (MIs), or heart attacks, and are related to care aspects that should be in guideline-consistent protocols for MI care⁽¹⁵⁾. This may be indicative of potential disparities between rural and urban areas in the quality of care for heart attack patients. These rural/urban differences are mirrored in reports of training received by individual EMS personnel (Table 3.7.5)

Individual EMTs and paramedics were asked to report whether they had received training in these areas. Over thirty percent reported lacking training in foreign languages (86.0%), advanced trauma life support (47.9%), flight medical crew skills (76.0%), advanced pediatric life support (39.0%), and bioterrorism response (31%). This conjunction with the organizational results indicates a potential specific need for training and continuing education efforts focused on foreign languages and trauma life support. The deficiency in trauma life support may be a function, however, of the questions. EMT-Basic and EMT-Basic/Advanced respondents were more likely to have reported receiving basic trauma life support training, and less likely to have received advanced trauma life support training, than EMT-Intermediate and Paramedic respondents (Table 3.7.1)

Significant differences in training were observed based on certification level for medical areas, which is to be expected as a function of different training requirements. EMT Intermediates reported receiving incident management training at a significantly lower rate than those holding other certificates, which may point to a deficiency in training curriculum for that certificate. Infection control training rates are reported at a significantly lower level for EMT-Basics, which may be a point of concern (Table 3.7.1). In general, full-time personnel reported higher levels of training than volunteer or part-time EMS workers (Table 3.7.2)

In terms of rural areas, the percentage of urban population is related to a greater likelihood of having received basic trauma life support, advanced cardiac life support, epinephrine administration, automobile extrication, bioterrorism, communications, and

incident management training (Table 3.7.5). Although data does not yet exist to demonstrate an effect, this may potentially indicate a lower quality of emergency care in rural areas. EMTs from counties with critical access hospitals are less likely than counterparts to report bioterrorism, triage, and communications training (Table 3.7.3). Triage and scene safety training are more commonly reported by EMTs working in counties with hospitals than without (Table 3.7.4).

Sources of Training

In terms of the source of their initial training, significant differences are seen between certificate levels. 62% of paramedics report initial training by a hospital. EMT-Intermediates primarily received initial training from hospitals (37%), community colleges (26%), and their EMS agency (26%). EMT-Basics and EMT-Basic/Advanced personnel were likely to have received their training from either a hospital (36.4%/39.7%), or their EMS agency (33.2%/35.2%) (Table 3.6.1) No significant relationship is seen between work status and initial training location (Table 3.6.2). Those in counties with Critical Access hospitals were more likely to have received basic training from a private sector company than those in non-CAH counties, while those in counties with no hospital were more likely than counterparts in counties with hospitals to have been trained by a community college. (Tables 3.6.3-4).

Regional training patterns are pronounced. Half of the respondents in District 3 (Northwest Indiana) reported basic training in their own agency, a rate twice that of the rest of the state. Community college training was most common in the southwest corner (Districts 7 and 10) and east central Indiana (District 6). Hospital-based primary training was reported at significantly lower rates in the Terre Haute (District 7) and For Wayne (District 3) areas.

In terms of continuing education, the most common sources are the EMT's own agency and hospitals. In terms of certification, however, the use of one's own agency for continuing education is inversely related to certificate level, with EMT-Basics most likely to utilize this source, and Paramedics least likely. In contrast, Paramedics are most likely to receive continuing training from hospitals, with utilization rates declining with certificate level. (Table 3.6.1) Use of hospitals for continuing education is highest among paid, full-time personnel, and lowest among volunteers (Table 3.6.2). Continuing education from private providers is lowest among EMTs working in the most rural counties (Table 3.6.5) Personnel in counties without hospitals are more likely than others to seek continuing education from community colleges (Table 3.6.4), while no relationship between continuing education and the presence of a critical access hospital is observed.

Organizational Support and Barriers to Continuing Education

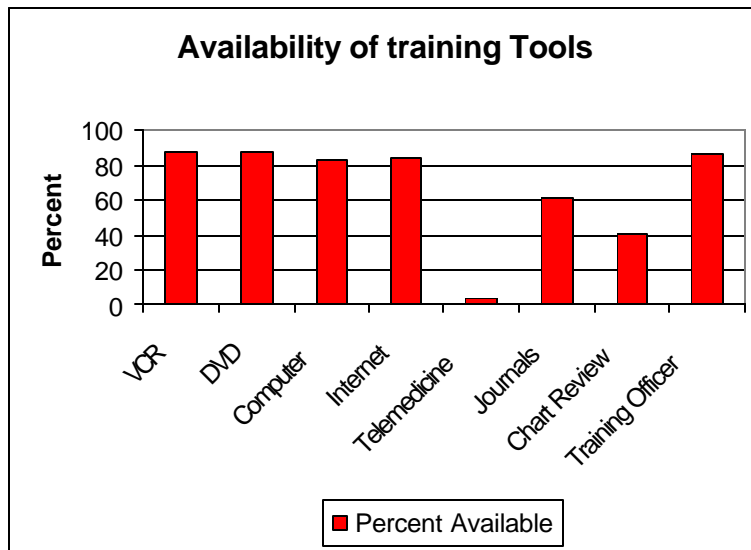
In terms of organizational support for continuing education, roughly two thirds of organizations report that they reimburse for tuition and materials, while less than half compensate for staff time. Volunteer organizations are less likely to provide compensation than paid organizations (Table 2.4.1), as are organizations in counties with Critical Access Hospitals (Table 2.4.2) and those in more rural areas (Table 2.4.5). Cost is cited more often as a barrier by organizations in East Central Indiana (District 6) than elsewhere (Table 2.4.4), and time is perceived by organizations as more of a barrier among volunteers than paid staff (Table 2.4.1).

Ironically, volunteer EMS personnel are more likely than paid staff to report that their organization pays all continuing education and training costs. As the organizational respondents indicated, however, time is a greater for this group, as well as part-time paid personnel, than for those employed full time in EMS (Table 3.8.2). This is likely due to commitments to outside employers. Responses confirm the organizational findings that reimbursement is less likely in counties without hospitals (Table 3.8.4) and those with Critical Access Hospitals (Table 3.8.2). Rural EMS personnel report, in contrast to organizations, that they are more likely to be compensated for continuing education than their urban counterparts (Table 3.8.4)

Resources for Training

In terms of organizational resources for delivering training, volunteer organizations are significantly less likely to report having resources available (Table 2.6.1). One critical area is the use of chart review and run tapes as a means of reviewing performance (Figure 1.1). Less than half of all organizations report the availability of this tool, including only 18% of volunteer organizations, yet audit and review is a requirement for recertification in Indiana. This points out a potentially significant failure of oversight. Likewise, less than half of EMS personnel (Table 3.9.4) report the availability of such audits.

Figure 1.1



Design of Training Programs.

When EMS personnel were asked to evaluate the effectiveness of various modes of delivery for continuing education, two modes clearly stood out. Approximately two thirds of respondents indicated a preference for hands-on/laboratory courses, and nearly half indicated a preference for exercises and simulations. No significant differences were seen for these two mechanisms. (Tables 3.10.1-3.10.6)

When given specific training course designs and asked to rate them based on convenience and utility, computer-based training courses received the highest ratings. Volunteer personnel rated both classroom courses offered at a local high school and the use of video courses delivered at a county extension office higher than their paid counterparts. This may reflect the time issue previously noted (Table 3.11.2). EMT-Basic/Advanced personnel gave lower scores to courses involving the use patient simulators at university sites than their counterparts, while paramedics rated 1-2 day courses at central locations higher than other personnel (Table 3.11.1). Personnel in rural counties, those without hospitals, and those with critical access hospitals all rated the use of local classroom delivery of training higher than counterparts (Tables 3.11.3-5). No geographic differences were observed (Table 3.11.6)

Implications

Contrary to the Indiana requirements for recertification, it appears that a significant proportion of Indiana EMS personnel and organizations are not using audits as a tool for ensuring quality and developing skills.

A wide variety of training needs have been identified. While some clinical skill areas (basic and advanced life support) are needed, many of these areas are in important non-clinical areas, such as automobile extrication, foreign languages, safety, and incident management.

Differences in training needs and training received in areas related to cardiac care indicate potential disparities in the quality of care for heart attacks between rural and urban areas.

The training environment, both in terms of initial and continuing training, is so varied that it cannot realistically be considered a “system.”

In the abstract, EMS personnel prefer “hands-on” type training, but when presented with specific scenarios they indicate a greater affinity for locally-delivered mechanisms such as classroom courses at a local school or computer-based training. This probably reflects the tradeoff between time and utility, and is consistent with findings that time is the largest barrier to continuing education and the high percentage EMS personnel who hold second jobs.

Preparedness

Both organizations and personnel were asked to assess their preparedness to deal with certain emergency scenarios. Both groups rated their preparedness to deal with a heart attack very highly (although EMT-Basics rated readiness for this scenario lower than other personnel (Table 3.14.1)), and expressed considerable confidence in their readiness to manage an automobile accident with multiple injuries. Preparedness to deal with an influenza epidemic was rated much lower, although individuals rated preparedness higher than organizations. As expected, volunteer departments ranked themselves significantly less prepared than did paid departments for nearly every measure (Table 2.8.1). This is reflected in only one scenario – a factory explosion with multiple casualties – by volunteer EMS personnel (Table 3.14.2).

Organizations in more rural counties ranked their preparedness to manage automobile accidents with multiple injuries lower than urban counterparts (Table 2.8.5), as did organizations in counties with Critical Access Hospitals, who also felt less able to manage the consequences of a tornado (Table 2.8.2) Individual EMS personnel in rural or Critical Access Hospital counties did not report lower readiness to manage an auto accident than counterparts, but were more likely to report lower readiness levels for other scenarios, including a tornado, chemical spill, factory explosion, and in the case of rural counties, influenza epidemics (Tables 3.14.3 and 3.14.5).

Implications

Self-assessment of preparedness levels by EMS personnel reveals that the EMS system in rural areas is likely to be less prepared and capable than in urban areas. Volunteer organizations rate themselves as less capable than paid organizations, although this is largely not reflected in self-assessments by volunteer EMS personnel.

The high levels of self confidence in the ability of volunteer and rural EMS providers to provide care for heart attacks may be misplaced, given the previously noted needs for training in skill areas related to care for this condition. Further work on the quality of care is needed to examine whether this self assurance reflects quality care or reflects overconfidence.

References

1. Committee on the Future of Emergency Care in the United States Health System. Future of Emergency Care: Emergency Medical Services at the Crossroads. Washington, DC: National Academy Press; 2007.
2. Rawlinson C, Crews P. Access to Quality Health Services in Rural Areas: Emergency Medical Services: A Literature Review. Rural Healthy People 2010: A companion document to Healthy People 2010. College Station, TX: Texas A&M University System Health Science Center, School of Rural Public Health; 2003. p. 37-48.
3. Rogers FB, Shackford SR, Osler TM, Vane DW, Davis JH. Rural Trauma: The Challenge for the Next Decade. *J Trauma Inj Inf Crit Care*. 1999 October;47(4):802-22.
4. Rogers FB, Shackford SR, Hoyt DB, Camp L, Osler TM, Mackersie RC, et al. Trauma Deaths in a Mature Urban vs Rural Trauma System. *Arch Surg*. 1997 April;132(4):376-82.
5. Gonzalez RP, Cummings C, Mulekar M, Rodning CB. Increased Mortality in Rural Vehicular Trauma: Identifying Contributing Factors Through Data Linkage. *J Trauma Inj Inf Crit Care*. 2006 August;61(2):404-9.
6. Heady HR. A Delicate Balance: The Economics of Rural Health Care Delivery. *J Amer Med Assn*. 2002 January 2;287(1):110.
7. Dillman DA. Mail and Internet Surveys: The Tailored Design Method. Second ed. New York, NY: Wiley; 2000.
8. Ullrich F, Mueller KJ, Shambuagh-Miller M. Emergency Medical Service Volunteer Personnel in Nebraska: Workforce for the Present, Hope for the Future? Lincoln, NE: Nebraska Center for Rural Health Research; 2004 December. Report No.: Project Report 04-24.
9. Moreno D. 1999 North Dakota Emergency Medical Services Provider Survey. 1999 [cited 2007 September 4]; Available from: http://tasc.ruralhealth.hrsa.gov/documents/EMS_Provider_Survey.doc
10. Arizona Rural Health Office: Department of Family and Community Medicine. 2001 Arizona EMS Needs Assessment. 2001 [cited 2007 September 4]; Available from: http://tasc.ruralhealth.hrsa.gov/documents/Body_2001.doc
11. State of Idaho EMS Bureau. Critical Access Hospital EMS Project EMS Agency Technical Assessment Survey. 1999 [cited 2007 September 4]; Available from: http://tasc.ruralhealth.hrsa.gov/documents/technical_assessment_survey.doc
12. Bailit JL, Blanchard MH. The Effect of House Staff Working Hours on the Quality of Obstetric and Gynecologic Care. *Obstetrics and Gynecology*. 2004 April 1, 2004;103(4):613-6.
13. Samkoff JS, Jacques CH. A Review of Studies Concerning Effects of Sleep Deprivation and Fatigue on Residents' Performance. *Academic Medicine*. 1991 November 1, 1991;66(11):687-93.
14. Gaba DM, Howard SK. Fatigue among Clinicians and the Safety of Patients. *New Engl J Med*. 2002 October 17, 2002;347(16):1249-55.
15. Rittenberger JC, Beck W, Paris PM. Errors of Omission in the Treatment of Prehospital Chest Pain Patients. *Prehosp Emerg Care*. 2005 January-March;9(1):2-8.

Appendix One

EMT Survey



Indiana Emergency Medical Services Needs Assessment

Conducted by

**Purdue University
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and

**Office of Rural Health
Indiana State Department of Health**

For questions contact:

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Instructions

Please complete the attached questionnaire, and return it to the research team at address indicated on the cover. An addressed, postage paid envelope is included for your convenience.

Purpose of Research

This study is being conducted by Purdue University on behalf of the Indiana State Department of Health for the purpose of obtaining information on Emergency Medical Services in Indiana, particularly on training needs of EMS personnel.

Specific Procedures to be used

Your responses to the attached survey questions will be used to construct statistical models to identify specific training and other EMS needs in the state of Indiana.

Duration of Participation

We are asking that you answer the questions in the attached survey form, which should take between 10 and 20 minutes. After completing the questionnaire, please return it to us in the enclosed addressed, stamped envelope.

Benefits to the Individual

This study will be used to identify training needs for Indiana EMS personnel, as well as preferred modes of delivery for training programs. The ISDH Office of Rural Health has commissioned this study with the intent to use its findings to better allocate future HRSA resources in order to improving training and continuing educational opportunities for Indiana EMS organizations and personnel such as yourself.

Risks to the Individual

Risk involved are minimal. Some responses may involve confidential data, however, that information will be deidentified as described below.

Confidentiality

This survey is designed to collect data in a form that will protect the identity of the individual respondent to the maximum extent possible. We do ask that you provide the identity of your EMS organization so that we may link results from organizational level surveys to responses from EMS personnel. Once this linkage is made and the research dataset is generated, the identities of the EMS organizations will be replaced in the working dataset with a code to further protect your identity. We ask for your name solely for the purpose of analyzing for non-response biases, and this data will not appear in either the final study dataset nor any report produced by the study. Only the principal investigator (Dr. Avery) will retain access to identifying data, which will be stored on secure media for the duration of the study. Datasets containing the exact identity of EMS organizations or respondents will not be shared outside the research team.

Researchers will report only aggregate data from this study. No report will contain any identifying, individual, or geographic data below the state level. This condition exists to prevent identification of my individual responses.

Voluntary Nature of Participation

Although we do request your assistance, you do not have to participate in this research project. By returning this questionnaire, you are agreeing to participate and to allow the research team to use your responses for this study. You can refuse to participate by refusing to return this survey instrument, without penalty. You are free to answer or fail to answer any question in the survey instrument.

Human Subject Statement:

If you have any questions about this research project, I can contact Dr. George Avery at 765-496-3330 or by e-mail at gavery@purdue.edu. If you have concerns about the treatment of research participants, you can contact the Committee on the Use of Human Research Subjects at Purdue University, 610 Purdue Mall, Hovde Hall Room 307, West Lafayette, IN 47907-2040. The phone number for the Committee's secretary is (765) 494-5942. The email address is irb@purdue.edu. By returning this form, you are indicating that you have had the opportunity to read these instructions, ask questions about the project, and that you have consented to participate in this study.

Section A. Background in Emergency Medical Services

1. At what level are you certified?
 - ? a. Basic Emergency Medical Technician
 - ? b. Basic/Advanced Emergency Medical Technician
 - ? c. Intermediate Emergency Medical Technician
 - ? d. Paramedic

2. What is your current EMS employment status?
 - ? a. Work on a volunteer (unpaid) basis
 - ? b. Employed part-time
 - ? c. Employed full-time
 - ? d. Retired from EMS work
 - ? e. Not currently working in EMS for reasons other than retirement

3. If you are active in Emergency Medical Services, what organization do you work for?

4. Approximately how many *hours* per week do you work in your EMS position?
_____ hours

5. On average, how many *runs* per week do you work in your EMS position?
_____ runs

6. Do you have another job outside of Emergency Medical Services?
 - ? a. No
 - ? b. Yes, part-time
 - ? c. Yes, full-time
 - 6a. If yes, is this a healthcare position?
 - ? a. Yes
 - ? b. No

7. How long have you been *certified* as an EMS Provider?
_____ years

8. How long have you *worked* as a volunteer or paid EMS Provider?
_____ years

9. How long have you worked (as a paid employee or volunteer) for your current EMS organization?
_____ years

10. Why did you originally decide to work in Emergency Medical Services? (Check all that apply)

- a. Satisfaction in helping others
- b. The community needed people to work in EMS
- c. I had an interest in emergency medical/trauma care
- d. Challenge of providing emergency medical care
- e. Satisfaction of being part of a team
- f. Encouraged to do so by my family and/or friends
- g. Advance my medical career
- h. Earn a living as a paid EMT/paramedic
- i. Other

11. As of right now, how long do you plan on continuing to work in EMS?

- a. Less than one year
- b. One to two years
- c. Three to four years
- d. Five or more years

11a. If you are planning on leaving EMS work, why? Please check all of the following reasons that apply?

- a. Time commitment required for the job
- b. Training and continuing education requirement
- c. My age
- d. Shortage of personnel for back-up
- e. Lack of leadership
- f. Poor retention efforts by my service
- g. Personality conflicts with other EMS personnel
- h. Legal liability issues
- i. My personal health
- j. Inadequate pay
- k. Stress
- l. Physical demands of EMS work
- m. Health hazards associated with the job
- n. I am planning on relocating/moving from the area
- o. Lack of adequate equipment
- p. Other

12. What is the maximum number of seriously injured or ill patients you believe that your EMS **organization** can handle at one time **without** being overloaded?

- ? a. One to five (1-5)
- ? b. Six to ten (6-10)
- ? c. Eleven to fifteen (11-15)
- ? d. Sixteen to twenty (16-20)
- ? e. More than twenty (>20)

13. How well prepared do you feel to deal with the following types of incidents?

a. Tornado involving multiple serious injuries and/or deaths

?	?	?	?	?
Very Unprepared	Somewhat Unprepared		Somewhat Prepared	Very Prepared

b. Auto accident involving multiple injuries

?	?	?	?	?
Very Unprepared	Somewhat Unprepared		Somewhat Prepared	Very Prepared

c. Explosion at a factory involving multiple injuries including burns

?	?	?	?	?
Very Unprepared	Somewhat Unprepared		Somewhat Prepared	Very Prepared

d. Train derailment involving multiple people exposed to chemical fumes

?	?	?	?	?
Very Unprepared	Somewhat Unprepared		Somewhat Prepared	Very Prepared

e. Outbreak of influenza involving many seriously ill patients

?	?	?	?	?
Very Unprepared	Somewhat Unprepared		Somewhat Prepared	Very Prepared

f. Heart attack at a local shopping center

?	?	?	?	?
Very Unprepared	Somewhat Unprepared		Somewhat Prepared	Very Prepared

14. Rate your satisfaction with each of the following areas regarding your current EMS position.

a. Professional respect from nurses

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

b. Professional respect from physicians

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

c. Leadership in my EMS organization

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

d. Relationship with co-workers

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

f. Professional respect from members of the community

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

f. Level of EMS-related stress

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

g. Quality of EMS equipment/supplies

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

h. Quality of care provided by local EMS workforce

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

i. Quality of continuing education and training opportunities

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

j. Organizational support for continuing education and training opportunities

?	?	?	?	?
Very Dissatisfied	Somewhat Dissatisfied		Somewhat Satisfied	Very Satisfied

Section B. Training

15. Please Indicate which of the following areas you have been trained in:

<u>Area</u>	<u>Received training?</u>			
a. Basic Trauma Life Support	?	Yes	?	No
b. Advanced Trauma Life Support	?	Yes	?	No
c. Advanced Cardiac Life Support	?	Yes	?	No
d. Pediatric Advanced Life Support	?	Yes	?	No
e. Automatic Defibrillation	?	Yes	?	No
f. Manual Defibrillation	?	Yes	?	No
g. I.V. Maintenance	?	Yes	?	No
h. Epinephrine Administration	?	Yes	?	No
i. Flight medical Crew	?	Yes	?	No
j. Auto extrication	?	Yes	?	No
k. Hazardous materials	?	Yes	?	No
l. Bioterrorism incident response	?	Yes	?	No
m. Airway maintenance	?	Yes	?	No
n. Infection control	?	Yes	?	No
o. Foreign language skills	?	Yes	?	No
p. Triage methods	?	Yes	?	No
q. Personal protective equipment	?	Yes	?	No
r. Scene Safety	?	Yes	?	No
s. Emergency communications	?	Yes	?	No
t. Incident control/management	?	Yes	?	No

16. Does your EMS Organization pay or reimburse you for continuing education and training?

- ? a. Yes, pays all the costs of training or continuing education
- ? b. Yes, reimburses part of the costs of training or continuing education
- ? c. No, we pay for training ourselves

17. Where did you receive your primary EMS Training?
- ? a. My EMS agency
 - ? b. Community College
 - ? c. Four Year College
 - ? d. Area Health Education Center
 - ? e. Hospital
 - ? f. Private company other than my EMS Agency
 - ? g. Military
 - ? h. Other (Please Specify:_____)
18. From which of the following sources have you taken a continuing education/refresher training course in the **past two years**? (Check all that apply)
- ? a. My EMS agency
 - ? b. Community College
 - ? c. Four Year College
 - ? d. Area Health Education Center
 - ? e. Hospital
 - ? f. Private company other than my EMS Agency
 - ? g. Military
 - ? h. State Homeland Security
 - ? i. Federal Homeland Security
 - ? j. Other (Please Specify:_____)
19. Which of the following resources are available to you for training and/or continuing education? (Check all that apply)
- ? a. VCR
 - ? b. DVD player
 - ? c. Computer with CD-ROM
 - ? d. Internet Access
 - ? e. Access to telemedicine
 - ? f. Journals and other professional literature
 - ? g. Hospital tapes and chart review
 - ? h. Training Officer
- 19a. If your EMS organization has a training officer, what is their relationship with the agency?
- ? Employed full-time
 - ? Employed part-time
 - ? Employee of another organization, but oversees our training
 - ? Volunteer with the agency
20. What factors may keep you from participating in a continuing education or training course? (Check all that apply)
- ? a. Time
 - ? b. Location
 - ? c. Cost
 - ? d. Other (Specify:_____)

21. Which of the following types of training do you find the **most** effective way of refreshing your existing EMS skills or learning new skills? (select one)

- ? a. Classroom lectures
- ? b. Laboratory or "hands-on" classes
- ? c. Video presentations
- ? d. Reading books and training manuals
- ? e. Written correspondence courses
- ? f. Computer training programs
- ? g. Training exercises and simulations
- ? h. Debriefing and review of problems faced during runs
- ? i. Other (Specify:_____)

22. Are you licensed or accredited in any other healthcare field?

- ? a. Physician (M.D. or D.O.)
- ? b. Physician's Assistant (P.A.)
- ? c. Registered Nurse (R.N.)
- ? d. Nurse Practitioner or Advanced Practice Nurse
- ? e. Licensed Practical Nurse (L.P.N.)
- ? f. Certified Medical Assistant (C.M.A.)
- ? g. Nursing Assistant
- ? h. Respiratory Therapist
- ? i. Radiology Technician
- ? j. Laboratory Technician or Technologist (MT/MLT)
- ? k. Other (Specify:_____)

23. My EMS organization has a written policy and procedure manual available for my reference.

- ? a. Yes
- ? b. No

24. Please rate **each** of the following delivery mechanisms for continuing education and training in terms of how **convenient** and **useful** you would find such a course if offered:

a. Day-long interactive video courses offered at my county extension office

?	?	?	?	?
1	2	3	4	5
Not Useful				Very Useful
Or Convenient				and Convenient

b. Classroom course at a local high school or college one night a week

?	?	?	?	?
1	2	3	4	5
Not Useful				Very Useful
Or Convenient				and Convenient

c. One- or two-day course offered to EMS personnel from around the state at a common location such as Grissom AFRB

?	?	?	?	?
1	2	3	4	5
Not Useful				Very Useful
Or Convenient				and Convenient

d. Correspondence courses involving video and written materials.

?	?	?	?	?
1	2	3	4	5
Not Useful				Very Useful
Or Convenient				and Convenient

e. Computer-based training course

?	?	?	?	?
1	2	3	4	5
Not Useful				Very Useful
Or Convenient				and Convenient

f. Course involving travel to a university to use a patient simulator

?	?	?	?	?
1	2	3	4	5
Not Useful				Very Useful
Or Convenient				and Convenient

Section C. Demographics

Please answer the following questions in order to provide some basic background information

25. What is your gender?
- ? a. Male
 - ? b. Female
26. How old are you?
- _____ years
27. In what COUNTY do you live?
- _____
28. In What COUNTY do you primarily work in Emergency Medical Services?
- _____
29. What is your marital status?
- ? a. Single (including previously married)
 - ? b. Married
30. Do you have children at home?
- ? a. Yes
 - ? b. No
31. What is the highest level of education you have completed?
- ? a. High school or equivalent
 - ? b. Some college, no degree
 - ? c. Associate degree
 - ? d. Bachelor's degree
 - ? e. Graduate degree
32. What is your name (for analyzing for non-response only: this will not appear in the study dataset or final report)
- _____

Section E. Cardiac Care

33. Do you use a 12-lead EKG Monitor on all suspected heart attack patients?

? a. Yes

? b. No

34a If yes, how is EKG information relayed to the receiving Emergency Department?

? a. Electronic Transmission

? b. Printed and given on receipt of patient

? c. Other

34b. If using a 12 lead EKG, and a heart attack is suspected, do you ever by-pass the nearest hospital because it does not have a cardiac catheterization laboratory?

? a. Yes

? b. No

34. If a heart attack is suspected, are you ever authorized to administer thrombolytic drugs?

? a. Yes

? b. No

Appendix Two

Organizational Survey



Indiana Emergency Medical Services Needs Assessment

Conducted by

Purdue University
Department of Health and Kinesiology

For questions contact:

George Avery, Ph.D., MPA
Assistant Professor of Public Health
Department of Health and Kinesiology
800 West Stadium Ave
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Instructions

Please complete the attached questionnaire, and return it to the research team at address indicated on the cover. An addressed, postage paid envelope is included for your convenience.

Purpose of Research

This study is being conducted by Purdue University on behalf of the Indiana State Department of Health for the purpose of obtaining information on Emergency Medical Services in Indiana, particularly on training needs of EMS personnel.

Specific Procedures to be used

Your responses to the attached survey questions will be used to construct statistical models to identify specific training and other EMS needs in the state of Indiana.

Duration of Participation

We are asking that you answer the questions in the attached survey form, which should take between 10 and 20 minutes. After completing the questionnaire, please return it to us in the enclosed addressed, stamped envelope.

Benefits to the Individual

This study will be used to identify training needs for Indiana EMS personnel, as well as preferred modes of delivery for training programs. The ISDH Office of Rural Health has commissioned this study with the intent to use its findings to better allocate future HRSA resources in order to improving training and continuing educational opportunities for Indiana EMS organizations and personnel such as yourself.

Risks to the Individual

Risk involved are minimal. Some responses may involve confidential data, however, that information will be deidentified as described below.

Confidentiality

This survey is designed to collect data in a form that will protect the identity of the individual respondent to the maximum extent possible. We do ask that you provide the identity of your EMS organization so that we may link results from organizational level surveys to responses from EMS personnel. Once this linkage is made and the research dataset is generated, the identities of the organizations will be replaced in the working dataset with a code to further protect your identity. Only the principal investigator (Dr. Avery) will retain access to identifying data, which will be stored on secure media for the duration of the study. Datasets containing the exact identity of EMS organizations will not be shared outside the research team.

Researchers will report only aggregate data from this study. No report will contain any identifying, individual, or geographic data below the state level. This condition exists to prevent identification of my individual responses.

Voluntary Nature of Participation

Although we do request your assistance, you do not have to participate in this research project. By returning this questionnaire, you are agreeing to participate and to allow the research team to use your responses for this study. You can refuse to participate by refusing to return this survey instrument, without penalty. You are free to answer or fail to answer any question in the survey instrument.

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Section A. EMS Personnel and Training

First, we would like to get an idea of your workforce distribution and needs,

1. How may EMS personnel do you currently employ at each of the following license levels?
 - a. Basic EMT _____
 - b. Basic/Advanced EMT _____
 - c. Intermediate EMT _____
 - d. Paramedic _____

2. How many vacancies do you currently need to feel art each of the following license levels?
 - a. Basic EMT _____
 - b. Basic/Advanced EMT _____
 - c. Intermediate EMT _____
 - d. Paramedic _____

3. How difficult do you find it to hire good, qualified EMS staff?
 - ? a. Very difficult
 - ? b. Somewhat difficult
 - ? c. Somewhat easy
 - ? d. Very Easy

4. What is the most significant barrier to recruiting good, qualified EMS staff for your organization?
 - ? a. Inadequate salary
 - ? b. Stress
 - ? c. Geographic Location
 - ? d. Time commitment
 - ? e. Only use volunteers
 - ? f.. Lack of trained pool of applicants
 - ? g. Other (Specify:_____)

5. Do you feel that your staff needs to be trained to a higher level in order to adequately perform their job duties?
 - ? a. Yes
 - ? b. No

6. What do you think are the greatest areas of need for your staff in terms of training?
Check all that apply.

Area

- ? a. Basic Trauma Life Support
- ? b. Advanced Trauma Life Support
- ? c. Advanced Cardiac Life Support
- ? d. Pediatric Advanced Life Support
- ? e. Automatic Defibrillation
- ? f. Manual Defibrillation
- ? e. I.V. Maintenance
- ? f. Epinephrine Administration
- ? g. Flight medical Crew
- ? h. Auto extraction
- ? i. Hazardous materials
- ? j. Bioterrorism incident response
- ? k. Airway maintenance
- ? l. Infection control
- ? m. Foreign language skills
- ? n. Triage methods
- ? o. Personal protective equipment
- ? p. Scene Safety
- ? q. Emergency communications
- ? r. Incident control/management
- ? s. Other (Specify:_____)

7. Do you compensate staff for continuing education or training course tuition costs?

- ? a. Yes, full tuition costs
- ? b. Yes, partial cost of tuition
- ? c. No, we don't cover tuition costs

8. Do you compensate staff for the cost of training materials?

- ? a. Yes, full training material costs
- ? b. Yes, partial cost of training materials
- ? c. No, we don't cover training material costs

9. Do you pay your staff for the time involved in training and/or continuing education activities?
- ? a. Yes
 - ? b. No
10. What do you believe is the greatest barrier to your employees in terms of continuing education and training?
- ? a. Time
 - ? b. Location
 - ? c. Cost
 - ? d. Other (Specify:_____)
11. Which of the following resources are made available **by your organization** to your staff for training and/or continuing education? (Check all that apply)
- ? a. VCR
 - ? b. DVD player
 - ? c. Computer with CD-ROM
 - ? d. Internet Access
 - ? e. Access to telemedicine
 - ? f. Journals and other professional literature
 - ? g. Hospital tapes and chart review
 - ? h. Training Officer
- 11a. If your EMS organization has a training officer, what is their relationship with the agency?
- ? a. Employed full-time
 - ? b. Employed part-time
 - ? c. Employee of another organization, but oversees our training
 - ? d. Volunteer with the agency
12. Which of the following sources have you or your staff used for continuing education/refresher training course in the **past two years**? (Check all that apply)
- ? a. My EMS agency
 - ? b. Community College
 - ? c. Four Year College
 - ? d. Area Health Education Center
 - ? e. Hospital
 - ? f. Private company other than my EMS Agency
 - ? g. Military
 - ? h. State Homeland Security
 - ? i. Federal Homeland Security
 - ? j. Other (Please Specify:_____)
13. Do you make available to your EMS staff a written policy and procedure manual.
- ? a. Yes
 - ? b. No

Section B. Organizational Background

Now, we would like to ask you some questions regarding your EMS organization's environment, workload, and capabilities.

14. What **county** is your EMS organization located in? _____

15. Is your EMS organization hospital-based?

? a. Yes

? b. No

16. Is EMS your organization publicly or privately owned?

? a. Yes

? b. No

17. Is your EMS organization part of a fire or police department? (Check all that apply)

? a. Fire Department

? b. Police Department

? c. None of the above

18. How many hospitals **in your county** does your organization service?

? a. One

? b. Two

? c. Three

? d. Four or more

19. Does your organization routinely transport patients **outside of your county**?

? a. Yes

? b. No

20. Which forms of revenue support your EMS organization?

? a. Reimbursements from health insurers

? b. Member subscriptions

? c. County, City, or township appropriations

? d. Grants

? e. Fundraising drives

? f. Funded by a parent corporation for occupational safety

21. Does your organization operate a helicopter?

? a. Yes

? b. No

22. How many ambulances does your organization operate?

_____ ambulances

23. On average, how many ambulance runs does your organization make in a typical week?

_____ runs

24. What is the maximum number of seriously injured or ill patients you believe that your EMS **organization** can handle at one time **without** being overloaded?

- ? a. One to five (1-5)
- ? b. Six to ten (6-10)
- ? c. Eleven to fifteen (11-15)
- ? d. Sixteen to twenty (16-20)
- ? e. More than twenty (>20)

25. How well do you feel that your EMS organization is prepared to deal with the following types of incidents?

a. Tornado involving multiple serious injuries and/or deaths

?	?	?	?	?
Very	Somewhat		Somewhat	Very
Unprepared	Unprepared		Prepared	Prepared

b. Auto accident involving multiple injuries

?	?	?	?	?
Very	Somewhat		Somewhat	Very
Unprepared	Unprepared		Prepared	Prepared

c. Explosion at a factory involving multiple injuries including burns

?	?	?	?	?
Very	Somewhat		Somewhat	Very
Unprepared	Unprepared		Prepared	Prepared

d. Train derailment involving multiple people exposed to chemical fumes

?	?	?	?	?
Very	Somewhat		Somewhat	Very
Unprepared	Unprepared		Prepared	Prepared

g. Outbreak of influenza involving many seriously ill patients

?	?	?	?	?
Very	Somewhat		Somewhat	Very
Unprepared	Unprepared		Prepared	Prepared

f. Heart attack at a local shopping center

?	?	?	?	?
Very	Somewhat		Somewhat	Very
Unprepared	Unprepared		Prepared	Prepared

Section C. Pediatric EMS Care

26. Does facility have a written protocol or agreement in place for critically ill or injured **pediatric patients** specifying a decision-making process re: pt. transfer to another facility?
- ? a. Yes, We have a protocol in place
 - ? b. We are currently developing a protocol
 - ? c. No, we do not have a protocol and are not developing one
27. In a typical month, how many runs do you make for patients 18 years of age or younger?
- _____ runs
28. Does your EMS organization have the necessary specialized equipment to transporting and treat a critically ill **pediatric** patient?
- ? a. Yes
 - ? b. No
29. Does your EMS staff have the necessary specialized training to transporting and treat a critically ill **pediatric** patient?
- ? a. Yes
 - ? b. No
30. Does your EMS agency established some type of arrangement/agreement with an acute care facility or medical personnel to provide on-line (real time) pediatric medical direction to your **basic life support (BLS)** at the scene of an emergency?
- ? a. Yes, We have an agreement
 - ? b. We are currently developing an agreement
 - ? c. We do not have an agreement and are not developing one
31. Does your EMS agency established some type of arrangement/agreement with an acute care facility or medical personnel to provide on-line (real time) pediatric medical direction to your **advanced life support (ALS)** at the scene of an emergency?
- ? a. Yes, We have an agreement
 - ? b. We are currently developing an agreement
 - ? c. We do not have an agreement and are not developing one
32. How many ambulances does your organization operate?
- _____ Basic Life Support
- _____ Advanced Life Support