CRITERIA TO ESTABLISH AN EFFECTIVE SYSTEM FOR PRIORITIZING EMERGENCY MEDICAL SERVICE (EMS) SYSTEM RESPONSES AND TRANSPORTS FOR THE CITY OF NORFOLK, VIRGINIA DEPARTMENT OF FIRE-RESCUE

EXECUTIVE DEVELOPMENT

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An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program.

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Abstract

The problem was the City of Norfolk Department of Fire-Rescue did not have an effective system for prioritizing Emergency Medical Services responses and transports resulting in longer emergency response times. The purpose of the study was to identify criteria for an effective system of prioritizing EMS responses and transports for the City of Norfolk Department of Fire-Rescue. This is a descriptive research project. The research questions are:

1. What industry criteria exist for prioritizing EMS responses and transports?
2. What criteria are used in 911 centers to prioritize and dispatch emergency medical service responses?
3. Once on the scene of the call, what criteria are utilized to prioritize the patient’s initial reason for activating the EMS System?
4. What alternatives exist for EMS Agencies regarding non-emergency patient transportation?

The procedures involved analyzing EMS call data for a 3-year period to study non-emergency demand and average response time levels for the department. There was also a questionnaire created for the purposes of this research. The questionnaire was distributed as a convenience sample to each of the 47 member agencies of the Virginia Association of Governmental EMS Administrators (VAGEMSA). The 19 responses (40.4%) to the questionnaire were tabulated numerically.

The results were: non-emergency calls for Norfolk Fire-Rescue Ambulances have increased by 10% over the study period. Average response times for Norfolk Ambulances has increased to greater than 6 minutes over 3 years. 68.4% of the respondent agencies are using some form of Emergency Medical Dispatching system. Currently, 3 of the 19 total EMS agencies
(15.7%) are prioritizing their EMS dispatches and unit responses. With regard to field triage by paramedics, 15 agencies (78.7%) reported that this was being done. Ten agencies (52.6%) reported using a common patient assessment criteria framework described as BLS stretcher, BLS Ambulatory and ALS Stable and ALS Unstable. All respondent agencies (100%) expressed an interest in considering the use of formal protocols for better managing non-emergent cases. The 3 most reported public education types included: adult programs, kids programs and print media for the general public. Regarding the barriers to implementing EMD priorities, the top 3 factors are: Police 911 Center resistance, dispatcher training requirements and program costs. Respondents indicated the following criteria should be in place in order to implement an alternative system for handling non-emergency cases: formal protocols, QA/feedback program and medical-legal clearance.

The recommendations, based on this study, are for Norfolk Fire-Rescue to plan and implement medical priority dispatching of EMS response units in conjunction with new CAD system improvements and to undertake the development and pilot implementation of a non-emergency patient alternative transport system.
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Introduction

The City of Norfolk is an older coastal urban city with a current population of 230,000 residents living within the 65 square mile community. Norfolk is bordered on the north, west and south by water and to the east by the City of Virginia Beach. Norfolk is a major international seaport city with one of the largest natural deep water harbors in the world. The city has a high concentration of federal employees, especially Navy personnel and their families. Norfolk is recognized as an important player in the retail, commercial and banking markets in the southeastern U.S. The city is administered and governed through the Council-Manager form of organization and has seven city council members who are elected from five wards and two super wards.

Norfolk’s Department of Fire-Rescue (NFR) is a career department of 500 personnel responding to more than 31,000 Emergency Medical Services calls and 12,000 Fire, Hazardous Materials and support related responses yearly. The department maintains 15 Fire Stations, a training center, an administrative/fire prevention headquarters and a logistics-supply center. The department provides fire protection and emergency medical responses to the city’s permanent residents, large commuting workforce and growing number of visitors and tourists. NFR mans 10 Advanced Life Support (ALS) level Ambulances, 14 ALS Engines, 2 ALS Squads, 7 Basic Life Support Ladders (trucks), 1 ALS Battalion Chief, and 3 BLS Battalion Chiefs. There is no tiered BLS and ALS Ambulance capability within the City of Norfolk.

Norfolk Fire-Rescue’s calls for emergency medical services are received and dispatched from the Norfolk Emergency Communications Center (ECC); the city’s designated Public Safety Answering Point (PSAP). This ECC is manned by full-time career personnel all of whom are cross trained to provide call taking and dispatch functions for Fire, EMS and Police operations.
All Norfolk 911 Center dispatchers have been trained as Emergency Medical Dispatchers since 1988 and provide medical interrogation of callers and pre-arrival first aid instructions based upon physician approved protocols. However, the center has not implemented any standing protocols or procedures for prioritization of EMS dispatches in the city.

NFR also provides automatic aid to Norfolk’s Naval Base and the City of Virginia Beach and mutual aid response to other neighboring jurisdictions in the Hampton Roads Region. The department provides leadership and staff support for the Southside Hampton Roads Regional Hazardous Materials Response Team, the Marine Incident Response Team, the Hampton Roads Metropolitan Medical Strike Team (MMST), Virginia Task Force II, Urban Search and Rescue, and is the host locality for the Virginia -1 Disaster Medical Assistance Team (DMAT). The department has an annual general fund operating budget of twenty-seven million dollars, a capital improvement program (CIP) budget of $1 million dollars per year and state level special revenue allocations and grant funds with an average annual total of $400,000.00. The department has been the recipient of a Fire Act Grant totaling $370,000.00 during the previous biennium.

Over the last several years the department has implemented several activities to assist in improving the management and use of 911 services, especially Emergency Medical Services utilization. The impact of these activities has been monitored through 911 run data and time interval analysis. The analysis suggests that no decrease in the non-emergency use of our emergency medical service has occurred. On the contrary, more patients are calling the department for non-emergent cases.

The problem is the City of Norfolk Department of Fire-Rescue does not have an effective system for prioritizing Emergency Medical Services responses and transports resulting in longer emergency response times. The purpose of this study is to identify criteria for an effective system
of prioritizing EMS responses and transports for the City of Norfolk Department of Fire-Rescue. This is a descriptive research project. The research questions are:

1. What industry criteria exist for prioritizing EMS responses and transports?
2. What criteria are used in 911 centers to prioritize and dispatch emergency medical service responses?
3. Once on the scene of the call, what criteria are utilized to prioritize the patient’s initial reason for activating the EMS System?
4. What alternatives exist for EMS Agencies regarding non-emergency patient transportation?

The City of Norfolk does not currently utilize a prioritization system for dispatching EMS calls or a standardized system of prioritizing ambulance transports.

Background and Significance

Since the early 1970’s, emergency medical services have continued to evolve as a principle public safety service provided by many fire service organizations. The delivery of Emergency Medical Services (EMS) in Norfolk, Virginia accounts for seventy-three percent of the total Fire-Rescue 911 calls for service. During the 1970’s, 1980’s and 1990’s, Norfolk, Virginia saw an increasing trend in demand for Emergency Medical Services. This has been suggested due to an aging population of baby boomers, a steadily growing population of seniors of retirement age and increasing numbers of people without health insurance coverage or the means to pay for regular health care (Donovan, et al, 1990). These factors are exacerbated by a stressed national economy that puts significant pressure on local and state budgets.

In a 3-year study from 2000-2002, Norfolk’s demand for EMS services has shown an upward trend in non-emergency patient’s utilization of the service. In reviewing total EMS Transports,
data shows that ambulatory Basic Life Support Ambulance transports increased 10% for the 3-year period. Preliminary data for calendar year 2003 suggests that this increasing trend is continuing.

As Norfolk Fire-Rescue officers have monitored the use of the city’s 911 services in the context of monthly information management and annual budget preparation activities, efforts to improve service quality and improve processes have come to the forefront. One of the principles that budgeting and quality improvement processes share is the need to identify, in finite terms, the current status of a program and its procedures and processes. For Norfolk budget officers, this translates into units, program costs and cost effectiveness over time. For the Norfolk Fire-Rescue chief and his staff, this must also translate into the measurement and analysis of the level and quality of the service delivered to the public. The City of Norfolk has seen its ALS (Advanced Life Support) Transport units response times increase over the recent 3-year time period. In addition, increases have occurred in the number of times no NFR Ambulance Units are available for response within the city.

Over the recent several years, a number of management activities have been initiated. These have included: 1) An on-duty EMS Battalion Chief having approval discretion for every non-emergent EMS requests from hospitals or other 24/7 clinical facilities; 2) Adoption of a City Ordinance making the use of 911 for a non-life threatening condition a class 3 misdemeanor; 3) When repeated non-emergent use is identified during post incident case reviews, a series of letters is initiated by Fire Chief’s Office in an attempt to make change in behaviors; 4) Statistical Tracking of certain facilities utilization of 911 services such as the top twenty nursing home/rehabilitation homes in the city.
In the future, Norfolk Fire-Rescue will face continuing pressures and many new and unique challenges. The resources necessary to meet these complex and evolving pressures and challenges will be limited. The nature of the public demand on the EMS System will require a high level systems management approach and diligent leadership action in order to best match resources to the needs of the community’s citizens. The intent in developing and implementing a system of prioritization for responses and transports will help to ensure that Norfolk’s citizens will receive the most timely and effective Emergency Medical Services response and ambulance transport.

This Applied Research Project (ARP) relates to the service quality / marketing and organizational behavior chapters described in the *Executive Development* course. This project is an analysis and description of the processes and criteria which can be used to improve the utilization and effectiveness of Norfolk’s EMS System; the results will help determine if a change is needed. The addition of standardized prioritization criteria for EMS dispatch and ambulance transports will enhance the availability of emergency resources and shorten the response times of Norfolk’s EMS units.

This research problem relates to the United States Fire Administration manual objective “To promote within the communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization” (NFA, 2002, p. II-2) by utilizing standardized criteria and processes to enhance patient care effectiveness, response and emergency transports of Norfolk Fire-Rescue’s EMS system.
Literature Review

The purpose of this literature review is to obtain and review existing information and data to construct the foundation for the study. Four questions need to be addressed.

1. What industry criteria exist for prioritizing EMS responses and transports?

This research question actually poses two issues; one pertains to the emergency communications center functions of call dispatch and response determination criteria and the other regards the patient transport criteria standards. First considered was the communications, dispatch and response prioritization criteria process. It has been suggested that a community’s PSAP (Public Safety Answering Point), where emergency calls are taken and dispatching is accomplished “is the most basic building block” (FEMA, 1997, p.19) of the emergency communications system. In addition, emphasis is placed on medically validated protocols that should include pre-arrival patient care instructions and a method to establish the priority and response configuration for each call received (FEMA, 1997). Clausen, J., principal contributor to the National Association of Emergency Medical Service Physicians (NAESMP Position Paper, 1989, p.1) states that “the functions of emergency medical dispatching must include the use of predetermined questions, pre-arrival instructions and pre-assigned response levels and modes”. Furthermore, the NAEMSP (EMD Position Paper, 1989, p.2) suggests that “dispatch prioritization is an essential element in any EMS system for it establishes the appropriate level of care including the urgency and type of response”. The National Highway Traffic Safety Administration, in its published document, *NHTSA EMS Agenda for the Future*, indicates that Emergency Medical Dispatchers (EDM’s) “are able to query callers and determine the appropriate resources to be dispatched”.

Specific criteria for prioritizing Emergency Medical Services calls by 911 center dispatchers are found in two primary sources: the U.S. Department of Transportation/National Highway Traffic Safety Administration publication: *Emergency Medical Dispatch: National Standard Curriculum* and in the American Society of Testing and Materials (ASTM), International’s published standards: F1258-95(2001) *Standard Practice for Emergency Medical Dispatch*, and FF1560-00 *Standard Practice for Emergency Medical Dispatch Management*. The criteria that are identified in these two sources share much in common. This includes a distinct number of baseline patient categories such as Individual Chief Complaint, Traumatic Injury Complaint and Time/Life Complaint (NHTSA, 1996). Time/Life complaints are most often considered those calls for service that are obviously life threatening or calls having a high potential to be life threatening in nature. The NHTSA standard includes a further delineation of thirty-two chief complaint sub-types that are subsets of each of the baseline patient complaints listed above.

Pursuant to that part of the research question regarding existing criteria for prioritizing EMS System transports, the U.S. Department of Transportation *National Standard Curricula for Emergency Medical Technicians* (NHTSA, 1994) and a joint position statement (1993) by the National Association of State EMS Directors and the National Association of EMS Physicians have promulgated the fundamental criteria for every comprehensive EMS system in the nation. This includes the EMS System’s responsibility to provide for both emergency ground, air and water transport and non-emergency, medically supervised transport. However, this criteria does not dictate or recommend how this is to be accomplished with the exception that non-emergency patient transports need to be medically supervised. NAEMSP further states in its document, *Ethical Challenges in Emergency Medical Services* that “emergency medical services often set priorities of care or classify certain calls as non-emergencies”. Also, “patients with minimal
illnesses may not be transported, or may have transport delayed”. “This rationale or triage of care must be based upon medical indication and well-defined protocols” (NAEMSP, 1994). The protocols to formalize this non-emergency versus emergency transport triage has largely been left up to the individual states, regions and localities. A recent Houston, Texas based study (Key, C.B., 2003, p12) concludes that First Responders equipped with Automated External Defibrillators (AEDs) on fire apparatus can be sent to low-risk 911 calls without an ambulance thereby improving response intervals while reducing ambulance committed times on non-emergency calls. An opposing view has been offered by Bauserman based on an interview with Susan McHenry of the NHTSA EMS Section “who confirmed that there were no standards or guidelines in place to be used as a model for EMS providers” (Bauserman, 1997, p3). In summary, literature shows that industry criteria exist regarding medical priority dispatching and prioritization of patients in the field.

2. What criteria are used in 911 centers to prioritize and dispatch emergency medical service responses?

In response to a voluntary national standard, 911 Centers and their EMS Agencies have the option whether or not to implement any level of EMD Service. However, emergency medical dispatching is considered a vitally important element for EMS System improvement and strategic planning (TEMS Council, Inc., 2003) and has continued to see growth since the 1970’s. (NAEMD, 2003) The National Academy of EMD indicates they have more than 27,000 EMD individual members and 2,300 EMD agencies within their practice. As agencies develop their EMD programs and 911 center dispatchers, the need for standardized, medically approved protocols and training is significant. Common criteria among quality EMD programs includes chief complaint and incident type protocols which allow the dispatcher to efficiently obtain vital
information about the patient’s status and scene conditions (National Academy of Emergency Medical Dispatch, 2003). Several pre-packaged EMD protocols and training programs are available through private sector vendors and organizations for Emergency Medical Dispatcher Training to meet this growing need. Some of these programs include: the Emergency Medical Dispatch/Medical Priority Dispatch system through the National Academy of Emergency Medical Dispatch, Salt Lake City, Utah; the Association of Public Safety Communications Officers (APCO) Institute’s Emergency Medical Dispatch Program; the Emergency Medical Dispatch course by Powerphone, Inc.; and the course offered by the National Highway Traffic Safety Administration in Washington, D.C. Some of these programs emphasize pre-arrival first-aid instructions to a higher degree than priority dispatching criteria (i.e. Powerphone, 2003). A pioneer of the Emergency Medical Dispatching concept, Dr. Jeff Clausen states (Principles of Emergency Medical Dispatch, 3rd Edition, 1998, p4) “the consistent and predictable use of a uniformed, medically managed and supported Emergency Medical Dispatch protocol ensures each 911 caller receives EMD that is consistent with current standards of care”. One example of specific criteria that is in use currently includes a 911 case entry protocol that requires the dispatcher to glean the following initial information: incident location verification and a callback number, the patient’s age, the status of their consciousness level, the status of their breathing and their chief complaint. If the dispatcher learns that the patient is unconscious or not breathing for any reason an immediate dispatch of maximum EMS resources is sent prior to any additional questions or pre-arrival instructions. If the case is not in the category of a time/life threat, additional key questions are asked of the caller to further delineate the specific nature of the patient’s chief complaint and its severity based upon pre-determined signs and symptoms. This process is akin to a first responder’s or EMT’s detailed medical exam except it is done by
telephone. (Clausen, 1998). Based upon the answers to these key questions, the pre-determined dispatch levels of appropriate units and resources are deployed. Some EMS systems, such as Salt Lake City, Utah use both the hot response mode using red-lights and sirens and the cold mode which is non-emergency mode driving with no emergency warning devices used. In addition, EMS systems who have the ability to deploy first responder BLS and/or ALS units in addition to ALS Ambulances may use the following additional dispatch criteria: A (Alpha) the closest BLS unit cold, B (Bravo) the closest BLS unit hot, C (Charlie) ALS and/or Paramedics hot, D (Delta) a maximum response with both the closest BLS and ALS units hot, E (Echo) the closest BLS or ALS unit hot (Clausen, 1998).

There is abundant literature that documents criteria and programs which can be utilized in 911 centers to become more effective in dispatching EMS System resources which should provide the right resources, at the right places at the right time.

3. Once on the scene of the call, what criteria are utilized to prioritize the patient’s initial reason for activating the EMS System?

First Responders and EMTs of all certification levels have been trained since the inception of EMS to perform a series of patient assessment skills and survey criteria to determine the safety of the environment in which he or she is operating and level of life threat and the relative emergency status level for each patient contacted (Browner, 2002). This has evolved from the scene size-up and primary and secondary survey to the more recent scene and initial assessment followed by the focused then detailed patient assessment criteria. Based on these criteria, a patient suffering either a trauma or a medical chief complaint receives triage into an emergent or non-emergent status (Mistovich, 2000). Norfolk Fire-Rescue’s Standard Operating Procedure 0-29 (2003) - Emergency Medical Services further delineates the triaged status of patients once
assessed by departmental personnel. The protocols allow Norfolk medics to assign patients to the following categories in preparation for ambulance transport: Basic Life Support Stretcher Patients, Basic Life Support Ambulatory Patients, Advanced Life Support Stable Patients, and Advanced Life Support Unstable Patients. There is currently no non-transport option provided within the Standard Operating Procedure.

To briefly summarize, there is a modest amount of current or past industry based literature which provides comprehensive and standardized criteria for prioritizing patients in the field. These sources are principally training textbooks that can provide a reasonable start to the discussions of transport prioritization. These sources, coupled with published study results in the industries journals provides a snap-shot of the current difficulties and controversies surrounding this issue.

4. What alternatives exist for EMS Agencies regarding non-emergency patient transportation?

The referral of non-emergency patients to alternative transportation or community resources is not extensively documented in the current literature. However, there are examples of systems in which Advanced Life Support EMS agencies, whether Fire Service based or otherwise, maintain a non-emergency transport relationship with a private ambulance service such as Norfolk, Nebraska’s experience (Weidner, 2001) in which the Norfolk Fire Division “parlayed” the non-emergency transports to a local private provider when the demands for the service began to pressure the fire division’s manpower allocation and resources.

Nationally recognized organizations such as the American College of Emergency Physicians have also recognized the stressors being placed upon EMS agencies and hospital emergency rooms by non-emergent patients. To this end, the organization issued 2 recent policy statements,
in partnership with the National Association of EMS Physicians. In the first statement, ACEP and NAEMSP “believe that each EMS System should develop medically directed protocols regarding patients who are assessed in the out-of-hospital setting and not transported” (ACEP, 2000). This statement also details certain elements that should be instituted with a patient non-transport policy: documentation, patient consent and refusal and EMTALA applicability, minor’s refusal, educational materials for those not transported, formal protocols with medical control, appropriate patient disposition options and integrate CQI programs to gain feedback on effectiveness of the policy. The second policy statement states: “EMS systems may encounter patients who do not need advanced life support (ALS) level care or evaluation at an emergency department. In these circumstances, transportation by alternative means or to an alternate destination may be appropriate” (ACEP, 2001). The ACEP and NAEMSP organizations outline the following key elements that should be implemented for such a standard of operation including: EMS physician oversight and leadership in developing policies, procedures and research activities designed to ensure patient safety and appropriateness of alternative transportation or destination decisions, education programs for paramedics, physicians and the public and compliance with established emergency medical dispatch criteria.

Several studies have drawn mixed conclusions regarding efforts to triage non-emergency patients either on the front end of the 911 call or in the field once EMS personnel are on the scene. One King County, Washington study (Smith, W.R, 2001) that was presented in the Pre-hospital Research Forum in Orlando concluded that transferring non-urgent 911 calls to a nurse on the front end resulted in a decrease in BLS responses in the Seattle area over a 4-month period with no reported adverse patient outcomes and the maintenance of high levels of patient satisfaction. In a prospective Eastern Virginia Medical School study, emergency physician’s
impressions of patient acuity were compared with those of Norfolk Fire-Rescue Advanced Life Support provider’s acuity impressions for the same population of several hundred patients over a 6-month period. It was concluded that there was a high degree of agreement (97%) between paramedics and physicians. The 3% of cases that were not in agreement demonstrated paramedics over-triaging all but one of the cases (Knapp, B., 2002). The study suggests that paramedics can reliably triage patient acuity levels in the field. A University of Washington School of Medicine study involving 2 EMS Agencies implemented a program of alternative care destinations for non-urgent patient cases. It was concluded that an EMS based program of alternative destinations may represent one approach to limiting non-urgent EMS and Emergency Department use (Schaefer, R.A., 2002).

On the other hand, a recent New Mexico based prospective study of 183 patient cases concluded that paramedics cannot safely determine which patients do not need ambulance or emergency department care (Hauswald, M., 2002).

To summarize, authors continue to debate both sides of the concept of alternative transports and destinations for non-emergent EMS system patients. There are well documented studies which seem to support both the pro and the con of paramedics and even first responders performing triage and referring non-urgent patients to alternate means of care and transport. More research and benchmarking is needed to develop industry criteria that is proven useful, consistent and effective.

Procedures

**EMS Call and Response Time Data**

The City of Norfolk Fire-Rescue run data was gathered retrospectively from the Department’s Firehouse reporting software database and from Norfolk 911 center CAD
(Computer Aided Dispatch) system files for a 3-year period from 2000 through 2002. Data was validated through a cross-check system involving departmental employees and the city’s 911 center staff. Data in the department’s Firehouse reporting system was compared to 911 CAD system files for the same time periods. The data shows a high degree of reliability. Research surrounding this data was undertaken to assess and identify the magnitude of the perceived problem.

_Feedback Form/EMS Dispatch and Transport Priorities Questionnaire (Appendix A)_

In addition, a feedback questionnaire was designed and distributed to collect data on EMS Call Dispatch and Transport Priorities efforts. This questionnaire was reviewed by the Executive Committee members of the Virginia Association of Governmental EMS Administrators (VAGEMSA) and by the Administrative Services Manager for the Norfolk Department of Fire-Rescue for content and clarity. The EMS Dispatch and Transport Priorities constructs addressed were:

1. How many departments use an Emergency Medical Dispatch (EMD) system, 2. If so, what kinds of EMD systems are being used, 3. How many departments allow medics to further prioritize calls once they are on the scene and have assessed the patient, 4. What criteria and/or methods are used by department personnel to prioritize calls once on-scene, 5. How many departments have a system in place to refer “non-emergent patients not needing emergency ambulance transport to other alternatives, 6. How many departments have a formal system or referring non-emergent patients to other means of transport or service, 7. How many agencies have an interest in considering using formal criteria to better manage non-emergency EMS calls, 8. What specific forms of public education do departments use for teaching the proper use of 911 services, 9. What are the specific barriers to implementing a system of priority EMS Dispatching
and Transports decision making, 10. What specific minimum criteria do departments believe are required in order to implement a system of priority EMS Dispatching and Transports decision making?

*Population*

A convenience sample was used for the purposes of this research element. The questionnaire was distributed to each of the 47 member agencies of the Virginia Association of Governmental EMS Administrators (VAGEMSA) at two consecutive meetings of the association and via e-mail by the author. Clear instructions were provided to each agency’s contact person. In addition, a phone number was provided in order to provide a means for respondents to ask questions or seek clarity regarding the contents of the questionnaire. One additional follow-up phone call or e-mailing was made to each agency contact by the author regarding a question that required additional clarification. VAGEMSA member agencies were selected as the sample population because each agency is a governmental EMS organization. Most provide both fire and EMS services similar to Norfolk Fire-Rescue. The decision to limit the population of agencies to those only in Virginia was based upon the relative ease of access and follow-up, the limited research funds and the timeframe to complete the research. Additional selection criteria included the reasoning that all surveyed agencies function under a Dillon Rule statutory environment and in a Right-to-Work State system. It is reasonable to derive useful information and descriptive results from a representative cross section of urban and rural based Virginia EMS agencies. The total number of departments that responded to the questionnaire was 19. “For descriptive research, a sample of 10 percent of the population is considered minimum: (Gay, 1987, p. 114). For this initial study, no attempt was made to obtain data from all U.S. Fire-Rescue Departments who provide emergency medical services dispatching and transports regarding their use or experience
with criteria for Emergency Medical Priority Dispatching or ambulance transport prioritization systems.

*Alternative non-emergent Transport Options– Benchmarking Phoenix Fire Department*

The author participated in a research visit in Phoenix, Arizona with members of the Phoenix Fire Department (PFD) for the purpose of benchmarking PFD’s criteria and practices regarding Emergency Medical Services delivery. This research included interviews with management, labor leaders and field personnel at a station level. It also included a ride-along with an ALS Engine Company crew. Research emphasis was placed on the criteria and practices of tiered response, ambulance transport decision making and a non-emergent patient referral processes. A number of pre-determined questions were utilized in the interviews in an effort to insure the same questions were asked to several different individuals. Field observation and study of actual 911 crew responses and personnel practices on calls was used to validate the interview/discussions content and the more formalized departmental written procedures and criteria.

*Limitations and Assumptions*

This is a descriptive study; therefore a more detailed evaluation of all possible dispatching or transport priority options, programs or their implementation is beyond the scope of this research. The use of a convenience, judgment sampling for the research questionnaire does not provide the level of scientifically robust results that could be achieved from a more rigorous parametric sampling approach. However, the author has utilized this approach as a valid method given that the departments sampled “correspond to certain aspects of the population” (GAO/PEMD 10.1.7, 43). Also, personal interviews during field research are subject to respondent opinions and biases that may not be immediately evident to the researcher. It is assumed the additional efforts
undertaken to validate interview results with actual observed field performance achieved a balanced benchmarking approach. Other questions not addressed in the research framework will require additional study. It is assumed that all respondents answered the questions contained in the questionnaire in an honest manner.

**Definition of Terms**

ACEP – American College of Emergency Physicians

ACLS – Advanced Cardiac Life Support, an American Heart Association Training Program for advanced EMT and medical personnel.

Acuity – the severity or acuteness of a patient’s condition.

ALS – Advanced Life Support

Ambulatory – A patient who is able to walk on their own with no assistance from others or with the assistance of special mobility assisting equipment.

APCO – Association of Public Safety Communications Organizations

BLS – Basic Life Support

ECC – Emergency Communications Center; also called a 911 center.

EMD – Emergency Medical Dispatch

EMS – Emergency Medical Service (s)

EMTALA - Federal Emergency Medical Treatment and Active Labor Act also known as COBRA or the Patient Anti-Dumping Law. A law that makes it illegal for hospitals to dump or transfer an emergent patient to another facility once that patient is on the hospital’s grounds and/or property.

Life-Threatening – any medical condition that could reasonably be expected to cause a patient to have ineffective breathing or to stop breathing, experience a cardiac arrest and loss of pulse or
significant blood loss causing signs of shock. These kinds of conditions require immediate and often specialized emergency care including unique equipment and rapid transportation to a hospital.

Non-emergent – The same a non-urgent; not requiring specialized treatment, patient care packaging or stabilization equipment or ambulance transport to the closest Hospital Emergency Department.

Non-urgent – The same as non-emergent; not requiring specialized treatment, patient care packaging or stabilization equipment or ambulance transport to the closest Hospital Emergency Department.

NHTSA – National Highway Traffic Safety Administration

NAEMSP – National Association of EMS Physicians

OMD - Operational Medical Director Physician, the lead physician responsible for off-line and on-line medical control for an EMS Agency or organization.

VAGEMSA – The Virginia Association of Governmental EMS Administrators

Results

The analysis of City of Norfolk EMS run data, including non-emergency transport rates and average response times was gathered retrospectively from the Department’s Firehouse reporting software database and from Norfolk 911 center CAD (Computer Aided Dispatch) system files for a 3-year period from 2000 - 2002. In addition, 19 of 47 agencies completed and returned the EMD and Transport Priorities Feedback/Questionnaire form for a return rate of 40.4%.
Problem analysis shows that the number of non-emergency Basic Life Support (BLS) Ambulatory Transports (Figure 1) and average ambulance response times (Figure 2) have increased over the 3-year study period, 2000-2002.

Figure 1

Question 1

Research shows there are specific national level industry criteria that exist for prioritizing EMS Responses (NHTSA, 1996) and (ASTM, 2001). These criteria are referenced by several of the national EMD training program providers as industry standard criteria. The results of a Virginia Governmental EMS Agency Survey indicates a majority (68.4%) of the 19 total respondent agencies utilize an EMD program of some type (Appendix B).

Question 2

Not all 911/Emergency Communications Centers in Virginia use criteria to prioritize and dispatch emergency medical services calls. Those that do, based upon the survey feedback, use a variety of systems dependent upon the type of EMS Training Program and tools in use in the
local ECC. Thirteen respondent agencies ECC’s use an EMD program and have dispatchers who provide physician authorized pre-arrival first-aid instructions. Regarding prioritizing of EMS dispatches, 3 of 19 agencies (15.7%) reported their dispatchers prioritize their EMS dispatches based upon a follow-up call by the author. The criteria used by these EMS dispatch prioritizing centers are established by their 911 center managers, the EMS Chief Officer and the agency’s medical director (s) using the framework of the specific EMD program purchased and are built-in to the formal protocols and training objectives of the specific EMD training program given to dispatchers.

Question 3

The criteria in use by field providers among some of Virginia’s largest EMS agencies include the use of several different categories of patient status following field assessment. These criteria are based upon a Basic Life Support Patient and an Advanced Life Support patient model as defined in the body of this research and in industry sources. A majority of the respondent agencies utilize a 4-tier system that expands these 2 categories of assessed patient: BLS-Stretcher, BLS-Ambulatory, ALS-Stable and ALS-Unstable.

The specific constructs of the EMS Dispatch and Transport Priorities Questionnaire were: 1. How many departments use an Emergency Medical Services dispatch system 2. If so, what kind of EMD systems are being used: 3. How many departments allow medics to further prioritize calls once they are on the scene and have assessed the patient 4. What criteria and/or methods are used by department personnel to prioritize calls once on-scene 5. How many departments have a system in place to refer “non-emergent patients not needing emergency ambulance transport to other alternatives 6. What specific alternative referral systems do departments find acceptable 7. How many departments would have an interest in using formal
criteria to better manage non-emergency EMS calls. What specific forms of public education do departments use for teaching the proper use of 911 services? What are the specific barriers to implementing a system of priority EMS Dispatching and Transports decision making? What specific minimum criteria do departments believe are required in order to implement a system of priority EMS Dispatching and Transports decision making.

The questionnaire feedback indicates that 68.4% of the respondent agencies are using some form of Emergency Medical Dispatching system. Currently, 3 of the 19 total EMS agencies (15.7%) are actually prioritizing their EMS dispatches and unit responses. Of the thirteen agencies using an EMD system, 6 agencies are using the NAEMD program. Some are using NAEMD’s hand-held flip-cards and others are using computer software based system called ProQA. With regard to field triage by medics, 15 agencies (78.7%) reported that this was being done although only 1 agency reported using a non-emergency referral system to a private ambulance provider. Criteria A pertains to the patient status levels determined in the field after medical assessment. Ten agencies (52.6%) reported using a common criteria framework as previously described as BLS stretcher, BLS Ambulatory and ALS Stable and ALS Unstable. All respondent agencies (100%) expressed an interest in considering the use of formal protocols for better managing non-emergent cases. Results regarding public education types included the three most common media which in order are: adult programs, kids programs and print media for the general public. Next most common types in order include: TV/Radio, EMS week and civic presentations and stand-bys followed by local ordinances and letters to those who are misusing the EMS system. Regarding the barriers to implementing EMD priorities, the top 3 factors are: Police 911 Center resistance, dispatcher training requirements, program costs. These are followed by no barriers, no tiered response capability, OMD resistance and other. Barriers
reported for implementing an alternative transport system include: Attorney/medical legal, OMD resistance, and Mgt., Elected officials political support. These were followed in order by EMD Training Requirements and Public Perceptions. The final category sought to gain information on criteria that should be in place in order to implement an alternative system for handling non-emergency cases. There were high levels of agreement on certain criteria. These include in ranked order: formal protocols, QA/Feedback Program and medical-legal clearance. These top 3 were followed in ranking by manager and political officials support, public education and referrals limited to senior EMS Technicians.

*Alternative Transport Options—Benchmarking the Phoenix Fire Department*

Phoenix Fire Rescue has a system of paramedic-engine company non-emergency alternative transport referrals. Results of the author’s research visit, interviews and field observations in Phoenix demonstrated a well functioning system of alternative transport for non-emergency patients once they had been thoroughly assessed on the scene. Criteria used for this approach was in writing as standard protocols for all personnel. Non-emergent calls as defined by Phoenix criteria include: stable vital signs, no shortness or breath or difficulty breathing, no chest pain or chest discomfort, no light-headedness, no large loss of blood or uncontrolled bleeding, no lack of mobility due to recent injury, no other suspicion that there may be an underlying injury or chronic illness or illness history that could result in a deteriorating condition or cause a sudden life threat if not seen by an emergency physician in a hospital emergency department. If the patient is mobile without need of assistance and meets the criteria of a non-emergency case, the PFD paramedics, in concert with their station officers have the discretion to refer the patient to self transport or public taxi service. PFD provides patients with a taxi voucher if they lack their own transportation means and yet need to be seen by a clinic or hospital based physician on a
non-urgent basis. PFD personnel must provide detailed documentation of each of these referred cases to the EMS Quality Assurance Officer for the department. Any case in which the paramedics and company officer are in disagreement, the patient is transported by a PFD BLS for ALS ambulance dependent upon their clinical presentation in the field.

Discussion

The results indicate the demand for non-emergency Emergency Medical Services calls in Norfolk, Virginia are increasing. This is also true with regard to average ambulance response times citywide. Data clearly shows that non-emergent calls resulting in ambulatory transports have increased over the past three years (Figure 1). In addition, average response times for Norfolk Ambulances have also increased during the same 3-year period as shown in Figure 2. This upward trend is continuing based upon preliminary departmental data for 2003. Neither the City of Norfolk Department of Fire-Rescue nor the 911 dispatch center utilizes any prioritization system for EMS calls. All responses are considered emergencies until responding unit (s) are on the scene. However, since 1988 the city has used the pre-arrival medical self-help instructions that are part of the Emergency Medical Dispatch program as purchased from the National Academy of Emergency Medical Dispatch in Salt Lake City, Utah. The department does not use a priority dispatching protocol therefore all response units are sent in the red lights and siren response mode to every call. In this time of increasing non-emergency call utilization and higher committed times, Norfolk Fire-Rescue and other agencies not utilizing a prioritization system are compelled to re-visit this option and consider possible changes for efficiency and safety.

The environment seems right to consider a broad, well integrated approach toward full implementation of a Priority Emergency Medical Dispatch system. This effort might offer some efficiency by including some neighboring agencies in such elements of implementation as train
the trainer courses and basic EMD training classes. Purchasing of EMD product lines may also prove advantageous with group purchasing power wherever possible. There may be no better time for Norfolk Fire-Rescue and its 911 center to implement priority dispatching and a robust quality improvement/QA function in the process. Near future CAD system upgrade efforts will give the city a window that may not be open again for many years.

In regards to implementing a system of alternatives for handling non-emergency cases, an integrated approach is needed to develop medically approved criteria and procedures to insure patient safety and internal tracking and documentation. These criteria should insure that the consensus recommendations of organizations like the Emergency Medical Physicians are taken well into account. With several recent supportive studies that lend support to paramedics and EMS physicians in making alternative transport decisions, the time has come to seriously consider embarking on this effort. If so, participation opportunities should be provided to representative Fire-Rescue ALS providers, operational medical directors and the city attorney, social services managers, the community services board, the Norfolk Police department and others at interest who will need to contribute to the process and also understand the alternative care procedures when they are finalized.

Organizational implications for Norfolk Fire-Rescue are significant with regard to this study. The negative impacts of inappropriate utilization and ineffective resource management over a number of years is contributing to a drop in EMS service levels. Changes need to be planned and implemented; using models that already exist in other communities, and then tailored to Norfolk’s citizens and the Fire-Rescue service. A pilot project may be an excellent way to initiate a substantial change in the manner in which the department delivers services. A significant public education campaign will be absolutely critical for the success of the program.
Recommendations

Based upon the research, several options for change exist for Norfolk Fire-Rescue and the City’s 911 service for better managing EMS resources including reducing the department’s mean ambulance response times and reducing the impact of non-emergency ambulatory transports. Evidence suggests that the community could likely benefit from EMS system changes that include instituting a priority dispatch of appropriate units based upon standardized criteria developed by agency managers and medical directors. Additionally, an option exists for the department to develop carefully crafted protocols and criteria for evaluating non-emergent patients on the scene who can be referred to alternative transportation and/or care facilities or agencies. Additional integrated planning is a must to assure that any changes will meet the needs of the community.

The design of the enhanced medical priority dispatching and alternative transport criteria and procedures should include input from all appropriate sources: operations managers, EMS manager, dispatchers, field providers, training personnel, and physician medical control. Planning, development efforts and timetables for training must be carefully explored and well documented. Each step of the implementation process should have clear objectives, plans for meeting objectives, and identification of points of contacts and the person(s) accountable to deliver the completed work elements. Equally important, legal counsel should be included as well as an assessment of the public policy and political impacts of changing the EMS System operations. In the absence of proper citizen and community leader education, complaints about services and unmet citizen expectations can be certain therefore implementation planning must include the means to deliver public and leadership education, public service announcements and
press/media releases. All public education efforts should emphasize that the new procedures, such as more questioning from 911 center EMD dispatchers during a 911 call and lower priority response modes for non-emergent calls are designed to make sure the patients who need the highest level of response get that service more responsively.

Quality improvement and management plans should include provisions to collect data during the initial start-up period. Adequate information feedback will support and track the use of the new procedures as well as indicate points when possible changes are needed for greater effectiveness. If Norfolk Fire-Rescue is going to be more responsive to the citizens it serves, continued feedback and reevaluation is a necessity. It will require more than a marginal change in personnel activity and must be innovative and offer cutting edge approaches to EMS dispatch, response and transport system processes. New efforts aimed toward implementing effective priority dispatching and appropriate transport alternatives will provide fire-rescue service chiefs with the ability to improve the availability and utilization of human and material resources in the provision of quality, effective patient care and emergency services.

Future opportunities for the City of Norfolk must focus on integrating the criteria and elements of priority dispatching, unit deployment and alternative transport decision making, as determined by management and medical control physicians, with the planned replacement of the City’s Computer Aided Dispatch system with new technology. Also, the existing foundation of Emergency Medical Dispatcher training can be relatively easily leveraged to include the added function of priority dispatching of Norfolk EMS response resources for future EMS System quality improvement. Exploration of opportunities to partner with health care programs via nurse help lines should be considered as another option for better managing non-emergent calls.
References


City of Norfolk Department of Fire-Rescue (2003), *Standard Operating Procedures 0-29, Emergency Medical Services*, Norfolk, VA: Author


Tidewater EMS Council, Inc. (TEMS), (2003, April). *Regional EMS System Strategic Plan*, Norfolk, VA: Author


Appendix A

EMS Dispatch and Transport Priorities Questionnaire       Page 1 of 2

This feedback form is a part of my Executive Fire Officer Program Applied Research Project. Responding to any or all questions is VOLUNTARY. Thank You! D.B. Palmer
(757) 664-6664 or (757) 373-8410 Please Circle and/or Fill in the Blanks.

1. Name & Type of Fire / EMS Organization: ___________________________________
   Governmental ____ Volunteer ____ Commercial ____
   Other – Specify_____________________

2. Name of individual completing form: (PRINT)____________________________________

3. Rank and Phone Number of individual completing form: _________________________
   E-mail address of person completing form____________________________________

   What organization manages the 911 center serving your agency?
   a. Your own
   b. Police
   c. Other

4. Does your 911 center (or equivalent) utilize a Medical Priority Dispatching System (EMD,
   PowerPhone, APCO, customized etc.)?
   a. Yes
   b. No

5. If so, what type of Medical Priority Dispatch System do you use?
   a. Medical Priority Dispatch
      (Dr. Jeff Clawson Model)
   b. Custom tailored to your organization
   c. PowerPhone
   d. APCO
   e. Other System (please specify): ___________________    f. none

6. Do your medics further prioritize EMS calls once they’ve arrived on scene and assessed the
   patient(s)?
   a. Yes
   b. No

7. What specific criteria, method(s) or system does your department utilize routinely to prioritize
   calls on-scene?
   ____________________________________________________________

8. Does your department have a formal system to refer “non-emergent” patients, who do not need
   emergency ambulance transportation, to other transport means or services?
   a. Yes
   b. No (if no go to question 10)
9. If you do use a referral system, what are acceptable referral methods, means or organizations to whom you refer? (Please circle all that may apply)
   a. TAXI  
   b. Medicaid/Medicare CAB  
   c. Social Services  
   d. Community Services Board – Mental Health Screeners  
   e. Police  
   f. EMS Service Refusal  
   g. Other (please specify)  

10. If you do not use a referral system, is your department interested in considering formal criteria that may be developed to assist you in better managing your non-emergency calls?
   a. Yes  
   b. No  

11. Given the environment nationally in which utilization of EMS systems continues to grow in a high percentage of communities, what efforts has your department made to educate the public in the proper use of 911 for EMS? Please indicate all that may apply to your department.
   a. Public Education campaigns directed at adults  
   b. Public Education campaigns directed at kids  
   c. Use of TV/Radio spots to educate the general public  
   d. Use of printed materials to educate the public  
   e. Letters/calls to individuals who have misused the EMS System  
   f. Passage of local laws/ordinances making misuse of the EMS System a crime  
   g. Other (please specify)  

12. What barriers do you see to implementing a formal system of medical prioritization of EMS dispatching through EMD or other types of programs?  

13. What barriers do you see to implementing a formal system of medical prioritization of EMS transports and referrals of non-emergent patients?  

14. What criteria do you think your management team and operational medical director(s) will require as minimum standards for implementing a pilot program of medical referral of non-emergent patients to resources other than your EMS agency? Please indicate all that may apply to your department.
   a. Formal and Standardized protocols  
   b. Medical-Legal clearance from your EMS agency attorney  
   c. Formal agreement and support of City/County Manager and elected officials of program  
   d. Referrals will be limited to the most senior medics during the pilot phase  
   e. Broad public education efforts will be a required component  
   f. A Quality Assurance and a feedback system process will be required  
   g. Other criteria (please specify)  

Please Return by Fax to Chief D.B. Palmer, City of Norfolk Fire-Rescue (757) 624-6832
This feedback form is a part of my Executive Fire Officer Program Applied Research Project. Responding to any or all questions is VOLUNTARY. Thank You! D.B. Palmer

(757) 664-6664 or (757) 373-8410 Please Circle and/or Fill in the Blanks.

What organization manages the 911 center serving your agency?

Your own (3) Police (10) Other (6)

Does your 911 center (or equivalent) utilize a Medical Priority Dispatching System (EMD, PowerPhone, APCO, customized etc.)?

Yes (13) No (6)

If so, what type of Medical Priority Dispatch System do you use?

Medical Priority Dispatch (6) Custom tailored to your organization (4)
(Dr. Jeff Clawson Model)

PowerPhone (0) APCO (2)

Other System (please specify): Emergency Training Associates (1) None (6)

Do your medics further prioritize EMS calls once they’ve arrived on scene and assessed.

Yes (15) No (4)

What specific criteria, method(s) or system does your department utilize routinely to prioritize calls on-scene?

BLS or ALS (5) BLS Stretcher, BLS Ambulatory, ALS Stable or Unstable (10)
Medical Control Decision (2)  Emergency versus Non-emergency (1)

19 Does your department have a formal system to refer “non-emergent” patients, who do not need emergency ambulance transportation, to other transport means or services?

   Yes (1)                      No (18) (if no go to question 10)

19 If you do use a referral system, what are acceptable referral methods, means or organizations to whom you refer? (Please circle all that may apply)

   TAXI                         Medicaid/Medicare CAB                      Social Services
    Community Services Board – Mental Health Screeners       Police
    EMS Service Refusal         g. Other: Commercial EMS Ambulance Service (1)
    Not Applicable/None (18)

19 If you do not use a referral system, is your department interested in considering formal criteria that may be developed to assist you in better managing your non-emergency calls?

   Yes (19)                      No (0)

19 Given the environment nationally in which utilization of EMS systems continues to grow in a high percentage of communities, what efforts has your department made to educate the public in the proper use of 911 for EMS? Please indicate all that may apply to your department.

   Public Education campaigns directed at adults (13)    Public education campaigns directed at kids (15) Use of TV/Radio spots to educate the general public (4)
   Use of printed materials to general public (9)         Letters/calls to individuals who have misused the EMS System (2) Passage of local laws/ordinances making misuse of the EMS System a crime (3) other (3)
What barriers do you see to implementing a formal system of medical prioritization of EMS dispatching through EMD or other types of programs?

Police 911 Center resistance (6), dispatcher training requirements (6), and program costs (5). No barriers (4), no tiered response capability (3), OMD resistance (2) and other (5).

What barriers do you see to implementing a formal system of medical prioritization of EMS transports and referrals of non-emergent patients?

Attorney/medical legal (10), OMD resistance (5), and Mgt., Elected officials political support (3), EMD Training Requirements (2), Public Perception problems (2)

What criteria do you think your management team and operational medical director(s) will require as minimum standards for implementing a pilot program of medical referral of non-emergent patients to resources other than your EMS agency? Please indicate all that may apply to your department.

Formal and Standardized protocols (19) Medical-Legal clearance from your EMS agency attorney (15) Formal agreement and support of City/County Manager and elected officials (14) Referrals limited to senior medics during the pilot phase (5)

e. Broad public education efforts will be a required component (11)

f. A Quality Assurance and a feedback system process will be required (19)

g. other criteria (please specify) ________________________________

Please Return by Fax to Assistant Chief D.B. Palmer, Norfolk Fire-Rescue (757) 624-6832
Appendix C

Data Table Definitions – EMS Dispatch and Transport Priorities Questionnaire Feedback

**Respondent Designation** – numbers designate respondent departments and their contacts as listed in Appendix E. Information includes agency name, person, position, and contact information.

**911Base Org** – defines management agency for respondents 911 communications center. Respondents own, police or other.

**EMD Use** – a yes or no question as to whether the respondents 911 center uses any emergency medical dispatch system.

**Type** – Question asks respondent to specify type of EMD system in use locally. Choices include Medical Priority Dispatch (Clausen model), custom tailored, Powerphone, APCO or other

**Medic Priority?** – a yes or no question to determine is the respondent’s agency permits EMS personnel to prioritize calls once on scene.

**Criteria A** – a completion style question seeking specific criteria, methods or systems that the locality uses to prioritize EMS calls for non-emergency patients. This is an open ended question.

**Non-E referral** – a yes of no question to determine if the respondent’s agency has a referral system in place for non-emergency transport cases.

**Types?** – A follow-up question to the one above that seeks information in referral options if the respondent uses such a system.

**Interest in Alt** – in the event that the respondent’s agency does not provide alternative referrals for non-emergency case, this yes or no question seeks to determine if the respondent is interested in obtaining such formal alternative criteria to help them manage non-emergency cases.
**PubEd Types** – questions asks respondent to indicate all types of public education means used by the agency. Adults. Kids. Radio and TV, printed material for general public etc.

**EMD Barrier** – a completion style question asking the respondent to list barriers their agency may have to implementing EMD priority dispatching.

**Alt Barrier** – completion style question asking the respondent to list barriers their agency may have to implementing medical prioritization of EMS transports and referrals for non-emergent patients.

**Criteria B** – a question that asks the respondent to pick from a list of criteria and standards those elements of a non-emergent medical referral system that would be needed in their agency.
Appendix D

Listing of Respondent Designations, Agencies, and Points of Contact

1. **Accomack County Department of Public Safety**
   Rob Glover, Director
   (757) 789-3610
   rlglover@visi.net
   P.O. Box 448
   Accomac, VA 23301

2. **Arlington County Fire Department**
   Chief John White
   (703) 228-7618
   jrwhite@co.arlington.va.us
   2800 South Taylor Street
   Arlington, VA 22206

3. **Chesapeake Fire Department**
   Assistant Chief Dan Fermil
   (757) 382-6297
   dfermil@fire.city.chesapeake.va.us
   304 Albemarle Drive
   Chesapeake, VA 23322

4. **Chesterfield Fire and EMS**
   Chief Gene Reams
   (804) 768-768-7520
   reamsg@co.chesterfield.va.us
   P.O. Box 40
   Chesterfield, VA 23832

5. **City of Fairfax Fire-Rescue**
   Chief Don Barklage
   dbarklage@ci.fairfax.va.us
   4081 University Drive, Suite 400
   Fairfax, VA. 22030

6. **City of Portsmouth Fire-Rescue**
   Laura Walker, EMS Manager
   Walkerl@ci.portsmouth.va.us
   645 Broad Street
   Portsmouth,VA 23707

7. **Colonial Heights Department of Fire & EMS**
   Chief John E. Snyder
   (804) 520-9361
   snydere@colonial-heights.com
   P.O. Box 3401
   Colonial Heights, VA 23834
8. Fairfax County Department of Fire-Rescue
   Chief Bill Bullock
   (703) 878-3646
   bnnbullock@msn.com
   4100 Chain Bridge Road, 5th Floor
   Fairfax, VA 22030-7000

9. Franklin County Department of Public Safety
   Chris Slemp, Director
   (540) 483-3091
   cslemp@franklincounty.va.us.org

10. Goochland Fire-Rescue
    Chief Ken Brown
    (804) 556-5304
    Kbrown@co.goochland.va.us

11. Hanover Fire-EMS
    Deputy Chief Randy P. Abernathy
    rpabernathy@co.hanover.va.us
    P.O. Box 470
    Hanover Courthouse
    Hanover, VA 23069

12. James City County Fire/EMS
    Chief Tal Luton
    (757) 220-0676
    tluton@james-city.va.us
    5077 John Tyler Highway
    Williamsburg, VA 23185

13. Newport News Fire Department
    Assistant Chief J. David Barrick
    dbarrick@ci.newport-news.va.us
    6th Floor, City Hall Bldg.
    2400 Washington Ave.
    Newport News, VA 23607

14. Norfolk Department of Fire-Rescue
    Andy Beaton, Administrative Services Manager
    (757)664-6600
    abeaton@Norfolk.gov
    100 Brooke Ave. Suite 500
    Norfolk, VA 23510

15. Prince William County Fire-Rescue
    Captain Jennie Collins
    (703) 792-7482
    jcollins@pwcgov.org
    13101 Public Safety Drive
    Nokesville, VA 20181
16. Spotsylvania County Fire-Rescue and Emergency Services
   Don Taylor, Assistant Director
   Dtaylor@spotsylvania.va.us
   9107 Courthouse Road
   P.O. Box 818
   Spotsylvania, VA 22553

17. Suffolk Department of Fire-Rescue
   Deputy Chief Ed Taylor
   (757) 925-5656
   ltaylor@city.suffolk.va.us

18. Virginia Beach Department of EMS
   Chief Ed Brazle
   (757) 437-4850
   ebrazle@city.virginia-beach.va.us
   1917 Arctic Ave.
   Virginia Beach, VA 23451

19. York County Department of Fire and Life Safety
   Chief Michael Player
   (757) 890-3627
   playerm@yorkcounty.gov
   P.O. Box 532
   Yorktown, VA 23690
Appendix E

EMS Dispatch and Transport Priorities Questionnaire Feedback Results

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Refer to Appendix C - Data Table Definitions and Appendix D – Respondent Designation and Agency Points of Contact