

HOSPITAL DIVERSION: READY OR NOT

EXECUTIVE LEADERSHIP

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ABSTRACT

Hospital diversion or bypass is a serious problem that can be found in practically any community throughout the country. The issue first came to the attention of EMS personnel during the 1970's and continues to impact EMS services today. Delay in patient care seems to be the most evident of negative impacts. Fire and EMS departments throughout the country are trying to effectively cope with the issue. EMS officials in Prince William County are facing the same challenge.

The problem was the lack of a formal plan to adequately address the issue of hospital diversion at the County's two hospitals. The purpose of this applied research project was to determine if the Prince William County Department of Fire and Rescue and the Prince William County Fire and Rescue Association should develop a formal policy on hospital diversion for the two hospitals in the County.

Action research was utilized to identify (a) are hospitals legally allowed to divert patients, (b) what are other EMS agencies doing regarding hospital diversion, (c) what would be the impact if any of the Prince William County hospitals were to go on divert status, and (d) how are hospital diversion requests being managed today in Prince William County.

The procedures utilized were a literature review of the topic and a survey of other fire and EMS departments. The literature review focused primarily on (a) what are the causes for hospital diversion, (b) what are the impacts of hospital diversion on EMS systems, and (c) what is being done to ease the burden from hospital diversion on EMS system agencies. The survey was conducted primarily to determine if other

departments had a hospital diversion plan and if they believed hospital diversion impacted their ability to provide EMS services.

The results concluded (a) hospitals are not legally allowed to divert ambulance patients, (b) many fire and EMS agencies in the Washington D.C. metropolitan region and throughout the state of Virginia do have formal hospital diversion plans, (c) Prince William County is not as prepared as it should be for an actual hospital diversion incident, and (d) Prince William County has been operating under an informal diversion management.

Recommendations from the research included (a) a formal hospital diversion plan should be developed, (b) a more complete and thorough analysis should be conducted regarding the actual impacts from hospital diversion on Prince William County EMS, (c) Prince William County EMS should continue in its stance of accepting any request for diversion to be considered advisory in nature, (d) the local hospitals should be encouraged to study what causes them to seek diversion status, (e) a regional approach should be taken in the management of diversion, and (f) an educational program directed towards the EMS providers should be developed.

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INTRODUCTION

Prince William County, Virginia, exemplifies a typical modern suburban community in its attempt to provide a high-level of emergency medical services (EMS) care to its citizens. Government and local healthcare leaders work in harmony to achieve this goal. The balance of providing excellent prehospital care and prompt care at the receiving hospital has been challenging in recent years. The lack of a formal plan to adequately address the issue of hospital diversion at the County's two hospitals is the problem.

The purpose of this applied research project is to determine if the Prince William County Department of Fire and Rescue and the Prince William County Fire and Rescue Association should develop a formal policy on hospital diversion at the two area hospitals. Action research was employed to answer the following questions:

1. Are hospitals legally allowed to divert patients?
2. What are other EMS agencies doing regarding hospital diversion?
3. What would be the impact if any of the Prince William County hospitals were to go on divert status?
4. How are hospital diversion requests being handled today by the Prince William County Department of Fire and Rescue?

BACKGROUND AND SIGNIFICANCE

Prince William County is located in Northern Virginia approximately 35 miles southwest of the Nation's Capital. The County encompasses 348 square miles and includes two independent cities and four incorporated towns. The federal government owns nearly 20 percent of the total land area within the County and includes two

national parks and the Quantico Marine Corps Base (Prince William County, 2002).

The County has long been considered a bedroom community with its citizens commuting daily to Washington, D.C. or other neighboring jurisdictions. Recently, local leaders have made it a high priority to actively lure and recruit high-tech businesses to the County hoping to capture the high-tech wave.

Current estimates place the County's population at 280,813. The County's population has nearly doubled since 1980 when the population was 144,703. On average, the population has grown by approximately 7,000 persons per year since 1980 representing an annual growth rate of 3.39 percent. By 2020, the County's population is expected to be over 390,000 (Prince William County, 2002).

Prince William County has evolved from volunteer fire and rescue services to today's version of a combination career/volunteer system consisting of 275 career and 840 volunteer personnel. The system has been forced to change due to increased emergency incident volume and reduced volunteer participation. Fire and rescue services are comprised of 12 independent volunteer fire and rescue departments operating 18 stations and the supplemental career forces, employed by the Department of Fire and Rescue, who staff the volunteer stations, Monday through Friday, 6 a.m. to 6 p.m. Career personnel also staff four advanced life support units and one station on a 24-hour coverage basis. The volunteer forces are responsible for the remaining time, which includes weekends, holidays, and Monday through Friday, 6 p.m. to 6 a.m.

The management of the fire and rescue services is empowered to the Prince William County Fire and Rescue Association (FRA) by the Board of County Supervisors. The Association is comprised of the Department of Fire and Rescue Chief, the next

ranking career officer, one career representative below the rank of lieutenant, and the chief from each of the 12 volunteer fire and rescue departments. The Association is responsible for the coordination and delivery of fire and rescue services within the County.

Prince William County provides EMS service to the community using BLS and ALS fire tactical units, BLS transport ambulances, and ALS transport ambulances. During career hours, nine ALS ambulances and one BLS ambulance are staffed. At all other times, the number of transport units available will vary depending on volunteer participation. On average there are six ALS ambulances and five BLS units available for available for service requests during the traditional volunteer response period.

Prince William County is served by two community hospitals. Western Prince William County is served by Prince William Hospital, and the east end of the County is served by Potomac Hospital. The geographic configuration of the County, population centers, and the fire and rescue services' operational response procedures make it very easy to determine which hospital is closest and best suited to receive patients being treated by Prince William County EMS. Neither of the hospitals have a trauma center certification.

Prince William Hospital is a 170 bed community hospital. Critical care is limited to 11 beds with another 20 progressive care beds. The hospital offers a wide range of services including a "birthing inn" and cardiac rehab services. Last year over 50,000 patients were seen in its 24 bed emergency department, which often maximized available resources at the facility.

Potomac Hospital is another community hospital with a 153 bed capacity.

Located along a major interstate highway, the emergency department stays very active with over 54,000 patients being evaluated and treated in their 25 bed emergency department. Potomac provides much the same services as Prince William Hospital. Its resource capabilities too are often stretched to the limit during peak periods.

Hospital diversion has been a significant issue in the Northern Virginia region for several years. The issue has been aggressively addressed by the Northern Virginia EMS Council (NVEMSC). The council is comprised of representatives from each of the six northern Virginia jurisdictions and the local airport authority. Area hospitals have actively participated with the council to help find a remedy to the extensive problem of hospital diversion throughout the region.

The Prince William County Department of Fire and Rescue and the Fire and Rescue Association have no formal policy on hospital diversion. In the past, the decision to consider a diversion request by a local hospital was left up to the EMS Operations Chief or his designee. The informal policy has been to work with the requesting agency to rectify the situation but not to recognize a diversion status.

This research project relates to the Executive Fire Officer's Executive Leadership course as discussed in the Developing Self as a Leader chapter. Leadership is a process through which an individual influences others toward the accomplishment of common goals (United States Fire Administration [USFA], 2000, p. SM 2-3).

This research project is relative to the researcher's current role as a senior level command officer assigned to EMS Operations. The researcher's assigned tasks

include coordinating emergency medical services delivery for both the career and volunteer personnel.

LITERATURE REVIEW

The literature review for this research project concentrated on three primary areas (a) what are the causes for hospital diversion, (b) what is the impact of hospital diversion on EMS systems, and (c) what is being done to ease the impact of hospital diversion on EMS agencies?

Causes for Hospital Diversion

There is a wide-range of factors influencing hospitals that go on diversion.

Ludwig (2000) writes:

The baby boom population is becoming older and more susceptible to diseases and illness. Also adding to the equation is the fact that managed care has made hospitals more financially accountable for their operations. To save money, hospitals are not staffing as many beds as they once did. Finally, a nursing shortage does not help the matter (p. 28).

“Two commonly identified causes for diversions were intensive care unit and cardiac monitoring bed unavailability” (Acker, Bennison, Long, Neely, Norton, & Schriver, 1991, p. 459). Garza (1989) writes “it’s not the actual beds – frames, mattresses, and sheets that are unavailable. What’s missing is the staff – primarily nurses to attend to patients in the beds. The problem is critical care beds. When they’re full, the emergency departments back up” (p. 45).

“Most emergency physicians don’t believe the problem is in the ED per se. It’s more the fact that we can’t move patients from the ED to an in-hospital bed, so the ED

gets filled up with patients waiting for someplace to go” (Nordberg, 2001, p. 31).

Others believe the actual number of hospitals themselves have drastically impacted hospital diversions.

Metcalf (2002) states:

As we know, the last 20-30 years have seen dramatic changes in the healthcare system. Few components of the system have been more dramatically impacted than hospitals, the brick and mortar structures that are the center of the healthcare system. As payment systems have evolved and economic/competitive pressures have increased, we have seen fewer new facilities constructed and we’ve often seen shrinkage of the available resources. At the same time that the population in this country continues to grow and the population ages, we are seeing a steady decline in the availability of hospital resources – both general beds and in emergency department capacity (p. 4).

Benson (1992A) writes “overcrowding is a nationwide epidemic as large and complex as our entire healthcare system, which is widely acknowledged to be the root of the problem” (p. 40). A study conducted by the American Hospital Association concluded the primary reason for ambulance diversions were lack of intensive care beds and the difficulty of recruiting and retaining well-trained critical care nurses (Neely, Norton, & Young, 1994, p. 45).

Some are more critical of hospital administrators and staff. Michael Williams, a consultant with the Abaris Group, a firm specializing in trauma and emergency care states:

I believe part of the problem is the permissiveness of diversion. There's a general tolerance of hospitals saying, 'We're kind of busy right now, and we have one ICU bed, but we have an open-heart patient coming in tomorrow and we want to save it for him.' I had one hospital tell me, 'Our nurses were tired and they needed some time off'--so it closed its ED (Nordberg, 1990, p. 39).

The researcher observed the influencing factors for hospital diversions stayed consistent during the span of time covered in the literature review. The researcher was left with the opinion that little has been accomplished over the years to address this important issue. Several causes discussed in this section are thought to be contributing causes to the hospital diversion problem in and around Prince William County.

Impact on EMS Systems

The American healthcare system is failing to adequately address the diversion issue. EMS systems throughout the country are being greatly impacted.

Nordberg (2001) writes:

There was a time when the sight of a hospital brought hope to those seeking emergency care. Patients knew they would be treated expeditiously by a team of caring professionals. Today, however, it's not uncommon for patient's to suffer silently in waiting rooms where the lights never go out and the noise level is never turned down. Across the country, hospitals are becoming as unhealthy as the patients they're expected to heal. Experts contend that this phenomenon can no longer be dismissed as a strictly urban problem. Hospital closures, nursing shortages, and a growing population of uninsured, indigent patients have brought

EDs across America to their knees – and many predict the situation will grow worse before it gets any better (p. 31).

Ludwig (2002) writes “ambulance services are dramatically impacted by hospital diversions. When ambulances must divert to a farther hospital, production is reduced and unit hours increased. The longer an ambulance remains out of service, the less it is able to produce (p. 38). Ullman (1995) states “one of the problems associated with diversion is an increase in time before arrival at the hospital (p. 166).

Delbridge, Garrison, & Glushak (1997, p. 100) state: EMS systems, including receiving facilities, must take all necessary measures to avoid diversion of ambulances, which may result in:

1. unacceptably prolonged transport time intervals;
2. prolonged out-of-hospital care when definitive hospital-based resources are needed, especially for unstable or critically ill patients;
3. inappropriate attempts by field personnel to predict the specific diagnostic and therapeutic resources needed by individual patients; and
4. delays in, or lack of, ambulances availability to the community because of diversion of units to distant hospitals.

Geiderman, Kim, and Silka (2001) state “diversions of ambulances in urban settings were common. These diversions led to delays in patient arrival to an ED as well as increased run time, increased cost, and decreased ambulance availability” (p. 23).

Smith and Steinhilber (1992) write “when there is ‘no room’ at the inn, and hospitals close their doors to patients, it is paramedics and EMTs who must explain to EMS patients and their families why” (p. 44). Blair, Collins, and Redelmeier (1994) state

“private and public health sectors need to be aware that ambulance diversion is a widespread and increasing event that delays ED arrival” (p. 47).

Hospital diversion is a fairly common and unsafe practice that greatly impacts EMS systems throughout the country. The most critical impact being the delay in medical care to those being treated and transported by EMS personnel. The researcher believes several of the impacts discussed in this section are indicative to the current situation in Prince William County.

Easing the Impact on EMS Systems

Easing the impact of hospital diversions on EMS systems is no easy task. EMS administrators must learn to recognize the issues causing the root of the problems.

Benson (1992A) writes:

The current logjam in EDS is not an EMS problem but a hospital problem.

Beyond that, it joins the larger, infinitely complex issue of healthcare in the United States. Most emergency physicians and pre-hospital staff express pessimism for timely cures. Reform in the healthcare system is years away. Still, EMS providers from emergency departments to EMT providers are testing new treatments to relieve the symptoms (p. 42).

Allin, Brennan, Calkins, Enguidanos, Heimback, Preudn, and Stilley (2000, p. 376) believe that EMS systems, including all of its component agencies, must develop a cooperative diversion policy designed to:

1. Identify situations in which a hospital's resources are not available and temporary ambulance diversion is required.

2. Notify EMS system and hospital personnel of such occurrences. This notification must occur through the EMS lead agency or a designated communications coordination center.
3. Regularly review and update the hospital's diversion status.
4. Provide for the safe, appropriate, and timely care of patients who continue to enter the EMS system during periods of diversion.
5. Notify EMS system personnel and affected hospitals promptly when the situation that caused diversion has been resolved.
6. Explore solutions that address the cause of diversion and implement policies that minimize the need for diversions.

Benson (1992b) describes two tactics that might ease both hospital and EMS woes, she writes:

The first is the construction of two comprehensive-care facilities, to which non-critical emergency care can be directed. The second is the development of hospital service areas: each must accept all patients from within certain geographical boundaries, but do not have to accept from without (p. 43).

EMS administrators must recognize the burden placed on their services by hospital diversions. They must be aggressive in their attempts to effectively deal with the issues at hand.

Ludwig (2002) writes:

One thing is sure: Diversions are a courtesy that ambulance services grant to hospitals. With an aging population, managed care penetrating healthcare more

and no short term fix for the nursing shortage in sight, hospital diversions will continue. Only those EMS agencies that aggressively address this issue will provide the best patient care (p. 40).

Recognizing the need for instant current information was also reviewed.

Acker et al. (1991) writes:

We recommend the development of an inter-hospital computer-based, telecommunications system to track availability of hospital resources. The system would monitor ambulance diversions and provide system status at-a-glance to 911 dispatch centers, the medical control base-station, and to all area hospitals linked to the system. The system would create a data base of diversions that would provide accurate information to each hospital and the EMS system for use in future policy considerations. Also, the practice of displaying hospital resource availability data on a system-wide basis quickly identifies and crystallizes issues requiring further attention (p. 460).

A common theme throughout the review on this topic was effective communications between EMS agencies and the hospitals who are requesting diversion status. Communications had to be established and maintained to effectively coordinate prompt patient care and enhance unit availability. This sort of ongoing communications is common practice in Prince William County.

PROCEDURES

Definition of Terms

Advanced Life Support (ALS). The use of adjunctive equipment, cardiac monitoring, defibrillation, intravenous lifeline, and drug infusion.

Basic Life Support (BLS). Emergency lifesaving procedures without the aid of mechanical devices whereby first responders can correct respiratory or circulatory failure.

Emergency Medical Services (EMS). The combined efforts of several agencies to provide pre-hospital emergency care to the sick and injured.

Fire and Rescue Association (FRA). The governing body, comprised of designated representatives, who oversees the coordination and delivery of fire and rescue services within Prince William County.

Assumptions and Limitations

While conducting the literature review, it was assumed that all reference material was unbiased and provided an accurate presentation of the information and facts given. All authors of reference material were presumed to be credible and reliable in their findings and recommendations.

Participants of the survey were all presumed to have answered the questions with a fair and honest intent. It was assumed the survey allowed the person being polled the ability to properly identify his or her answer to the question being asked.

The research was limited based on the findings that although there were numerous reference sources on the topic, the actual content of the material appeared to be repetitive in nature. This led the researcher to believe that efforts to effectively overcome the obstacles of hospital diversion had failed or efforts were lacking at best. A noted pattern of research literature release dates also supported this finding. New literature on the topic was available approximately every five years. This led the researcher to fully believe little success had been achieved.

The survey conducted was limiting in nature in that it only involved pre-hospital EMS agencies in the Washington, D.C. metropolitan area and the state of Virginia. Due to the local political climate and past experiences, the researcher restricted this survey to these geographic areas. Past research indicated results from other than Virginia or D.C. area jurisdictions were not weighed or looked upon as favorably as those from these areas.

Research Methodology

Action research was utilized for this project. The problem statement was rechecked for clarity and comprehensiveness and found to be appropriate for the literature research. The purpose of this research was to determine if the Prince William County Department of Fire and Rescue and the Prince William County Fire and Rescue Association should develop a formal policy on hospital diversion.

A thorough literature review was completed at the Learning Resource Center (LRC) at the National Emergency Training Center located in Emmitsburg, Maryland. Current sources were utilized to provide the latest information on the research topic. The literature review focused on three subtopic areas (a) what are the causes for hospital diversion, (b) what is the impact of hospital diversion on EMS systems, and (c) what is being done to ease the impact of hospital diversion on EMS agencies.

A situational analysis was conducted to determine if the influencing factors as determined by authors in the topic research field were the same as those being exhibited in Prince William County.

A survey of fire departments was conducted to help the researcher determine if other departments had developed a hospital diversion plan. The survey was distributed

electronically in an attempt to enhance return results. The departments were polled to document the following:

1. Do you have a formal hospital diversion plan?
2. If yes, was the development of your plan coordinated with your response hospitals?
3. If no, are you considering developing a hospital diversion plan?
4. Do you believe hospital diversion impacts your EMS delivery capabilities?
5. What is the major impact to your EMS system from hospital diversion?

Twenty-five surveys were distributed and 24 were returned. Based on this return, a confidence level of greater than 95 percent was achieved. The results were compiled electronically and tabulated to determine how common are hospital diversion plans and determine if there was an impact on EMS systems from hospital diversion. The researcher believes the results obtained accurately reflect the existence of hospital diversion plans in Virginia and the Washington, D.C. metropolitan area.

RESULTS

Guidelines for developing a hospital diversion plan are shown in Appendix A. Allin et al. (2000, p. 377), Blair et al. (1994, p. 101), and Ludwig (2000, p. 29) comprise the hospital diversion plan development guides in Appendix A.

Answers to Research Questions

Research Question 1. Hospitals are highly regulated by state and federal laws. Federal law mandates a hospital cannot refuse a patient unless the receiving hospital is physically closed due to a fire, electrical outage, etc. This law applies to any hospital in the country that accepts funding from Medicare. There are few exceptions to the rule.

Other federal requirements also come into play when dealing with patient refusals. Ludwig (2002) writes:

The federal laws do not apply to just Medicare patients. The chief federal law that prevents hospitals from refusing treatment to patients is the Emergency Medical Treatment and patients, refusing to treat them, or transferring them to “charity hospitals” or “county hospitals” because they are unable to pay or are covered under the Medicare or Medicaid programs. In essence, hospitals are required by law to screen all patients seeking emergency care and to provide medical treatment to stabilize those patients with emergency conditions (p. 40).

Another federal regulation that could have an impact on hospital diversions is the Consolidated Omnibus Budget Reconciliation Act (COBRA). This law impacts every non-hospital owned ambulance service that transfers a patient in need of emergency care from one hospital to another. Beekman (1998) states “a hospital must either stabilize a patient or it may transfer a patient under certain conditions” (p. 8). Under COBRA guidelines, an unstable patient cannot be transferred unless the patient so requests or the attending emergency physician certifies in writing the transfer is in the patient’s best interest.

Research indicates hospital diversions are not legally permitted but overcrowding and other significant contributing factors will continue to force hospitals to go on diversion status. EMS responders must realize that when a hospital goes on diversion it is simply an advisory status. Patient condition, transport times, unit availability, and receiving hospital suitability will continue to pressure EMS systems as they strive to meet response and hospital demands.

Research Question 2.

A survey was conducted polling regional and state EMS agencies to determine if other departments had a formal hospital diversion plan in place and to determine if they believed hospital diversion had an impact on their ability to deliver EMS services. In this research question, the results of the former will be discussed first. Full representation of the survey can be found in Appendix B.

When asked, “Do you have a formal hospital diversion plan?”, nearly 70 percent responded positively. Another 20 percent advised they had in place an informal plan and the remaining 10 percent reported no hospital diversion plan. All of the departments with a formal or informal plan advised they had coordinated with their receiving hospitals as to the development of their respective plans. The 10 percent of respondents who did not have an existing plan advised they were considering developing a hospital plan.

All of the 24 departments who responded to the survey believed that hospital diversion impacts their ability to deliver EMS services. The respondents ranked five potential impacts on how they believed their respective EMS service was impacted by hospital diversion. The potential impacts were ranked as follows:

1. Delay in patient care.
2. Increased EMS response times.
3. Reduced availability of EMS transport units.
4. Stress on EMS providers.
5. Increase in cost of EMS service delivery.

Research Question 3. If one or both of the hospitals located in Prince William County were to go on diversion status, it would have drastic effects on the County's ability to provide adequate EMS service delivery to the citizens. Geographically the hospitals are located at opposite ends of the County. During normal operations, this is a great benefit to EMS and helps to easily determine what hospital a patient should be transported to. If one of the hospitals were to divert patients, transport times would increase by over 100 percent and strain the entire EMS system.

An alternative to lessen this impact would be to transport the sick and injured to out-of-County hospitals. This sounds easier than it actually is with the nearest out-of-county hospitals being either further away than the other in-county hospital or more likely being already on divert status themselves. The latter being a more likely scenario because they are in more heavily populated areas and are often the reasons why the Prince William County hospitals are busting at the seams.

Another drastic impact on the Prince William County EMS services would be their ability to adequately maintain sufficient numbers of EMS transport units to properly cover the call volume and rural areas of the County. The regular daily call volume places a tremendous strain on unit availability and level of service care (ALS or BLS). This is due primarily to lack of timely funding and the County's slow process of recognizing the need for and the building of new fire and rescue stations.

Response times would be increased because of the two before mentioned impacts. This would lead to a delay in patient care and impact patient outcomes no matter what the call type.

The combination system would soon be faced with inadequate number of personnel and transport units to provide the level of care that has come to be expected from its career and volunteer staff.

System management would have to be quickly and decisively taken control of should one of the County's hospitals require divert status. Business would not be as usual and steps would have to be taken to modify response priorities and control ambulance traffic to distant hospitals. A strong command and control presence would be needed to ensure continuity or the system would fail to keep up with demand and efficient use of existing resources could be jeopardized.

Research Question 4. Currently, any request for diversion status from a Prince William County hospital is handled by an informal process. The informal process was developed and is based on the existing relationship between the management of the two hospitals and the career staff assigned to EMS Operations. Over the last several years, hospital management has been educated as to the resource allocation and availability of the career and volunteer EMS agencies.

The hospitals understand any diversion status from one of them would greatly impact the community's ability to adequately provide EMS service. Both hospitals consider themselves strong community pillars and take great pride in serving their respective parts of the County.

The existing informal process works primarily from the sense of cooperation. When one of the hospitals is overcrowded and are seeking relief they will first contact the Communications Center and advise of their status and will go on what is called "regional bypass." This implies they will remain open to Prince William County

ambulances but will no longer accept units from outside Prince William County unless an out-of-county ambulance has an unstable or critical patient. The Communications Center will then ensure area jurisdictions are aware of the hospital's status.

The Communications Center will then contact a representative from EMS Operations or the duty EMS supervisor. Contact will then be made with the hospital to discuss what is causing the burden on the emergency department. In most cases, a representative from fire and rescue will then respond to the hospital to offer whatever assistance is needed. The representative will help coordinate incoming ambulances and serve as a liaison between the hospital and fire and rescue until the situation is relieved.

Basically, the personnel from EMS Operations have taken the stance of not allowing either of the hospitals to go on a diversion status that would impact EMS units from Prince William County. To this date, this posture has worked successfully due in part to the excellent spirit of cooperation demonstrated by both hospitals and the working relationship with EMS Operations.

DISCUSSION

Hospital diversions are nothing new to the fire and rescue service. Metcalf (2002) states, "Divert or bypass is not something new. It's been around at least since the 1970's in one form or another (p. 4). What is interesting is the lack of a formal response from EMS agencies and leaders throughout the fire and rescue service. The researcher believes this to be fact based on the obvious lack of attention given the subject from the readings during the literature review. Dates of the review material indicated media attention seemed to be heaviest in approximately five year cycles. The

material continued to discuss primarily the same theme during the identified time cycles. There was nothing “earth shattering” being identified as a cause for hospital diversion but simply the same issues time after time. This led the researcher to believe attempts to resolve the issues from an EMS perspective had been futile at best.

The survey conducted verified the findings discussed in the literature review. Fire and EMS leaders firmly believe that hospital diversions have a negative impact on EMS service in every community. Delay in patient care, reduced response times, and availability of EMS units lead the list of impacts.

What are fire and rescue agencies to do regarding hospital diversion? Leaders in the fire and rescue service have to take the lead to find a satisfactory solution to the whole mess. Most likely, hospitals will continue being impacted the way they are and their requests for diversion status will continue to grow. EMS managers cannot allow the situation to go unchecked. Their systems are not built or maintained to allow the impact of hospital diversion to be absorbed.

Metcalf (2002) writes:

We in the EMS community are being put in an impossible situation. Perhaps it's time for us to stop giving in (providing the safety valve function) and start to stand up for what's right for our patients and for the rest of our customers. Safety values are intended as a last resort, not as a normal course of doing business. If we allow activation of the safety valve to become the norm, rather than the exception, we are allowing a faulty system to continue in operation. We wouldn't let that happen in the fire protection systems that we advocate, so why are we so willing to allow it to go on in the EMS system? It's your call, no one else's (p. 4).

Open and direct communication between the hospitals and EMS agencies seemed to be a common theme in locations where the issue of hospital diversion was being properly addressed. It was agreed upon that diversion was a hospital problem but EMS was caught up in the middle and a balance had to be established. Hospital managers must be thoroughly educated as to the capabilities of their local EMS systems. Delbridge et al. (1997) advise, "all participants, including hospitals, medical control authorities, and provider agencies, must agree to an EMS policy that clearly delineates categories of hospital or ED diversion based on the lack of available resources" (p.100).

EMS providers must not be forgotten in this equation. Very little mentioned of this important aspect of any EMS system was found during the research. They are on the front lines coming in contact with the customer and have the task of telling patients they may not be able to go to the hospital of their choice. Garza (1989) states, one of the consequences of ambulance diversion is the EMTs and paramedics who are frustrated and stressed from shopping for somewhere to take their patients" (p. 43). Forcing the EMS provider to "shop" around for a receiving hospital enhances undue stress and could impact provider retention issues.

Webster's II New College Dictionary (1995) defines "plan" as a detailed scheme, program, or leader will have a plan mapped out as to what he or she wants to accomplish (p. 842). The same is true of any successful team, business, or organization. The importance of a clear and concise plan is of the utmost importance to any organization if it is to operate effectively during a period of unusual circumstances such as a hospital on diversion status. It appears from the results of the survey that a formalized plan regarding hospital diversion is more of the norm rather than the

exception. The informal hospital diversion plan currently being utilized in Prince William County was developed by and is managed by EMS Operations and could be weak in the absence of key personnel. A more thorough recognized plan is needed to meet the true definition.

It has long been the history of the Prince William County Department of Fire and Rescue and the Prince William County Fire and Rescue Association to identify impeding factors. No doubt, hospital diversion ranks as one of the most impeding factors to come along in awhile. Prince William County is no different than other jurisdictions dealing with this issue and in some instances is more impacted due to its large size, population, and limited number of hospitals.

Blair et al. (1994) in summary of their research report state, "Ambulance diversion is a common and increasing event that delays emergency care" (p. 43). A fact that is agreed upon by every survey respondent and literature material reviewed. A fact that cannot be overlooked by fire and rescue leaders in Prince William County.

RECOMMENDATIONS

Hospitals are not legally allowed to go on divert status for ambulances; however, most fire and EMS leaders agree this practice will continue until the healthcare industry makes the choice to solve the problem. The Prince William County Department of Fire and Rescue and the Prince William County Fire and Rescue Association should continue its current policy of only recognizing a diversion request as advisory in nature. These entities should, however, develop an operational hospital diversion plan that could be implemented in the event of a recognized diversion request. Secondly, this

plan could also serve as a template for operations in the event one of the County's hospital is closed for any reason such as a fire or environmental concern.

A full analysis should be conducted prior to the implementation of the plan to study the potential impacts from hospital diversion. The research survey concluded there is no doubt that diversion negatively impacts EMS. To what extent it would impact Prince William County should be formally researched and documented. Response models need to be prepared and studied to properly identify the potential impact. Hospital administrators and fire and rescue chiefs alike understand numbers which highlight the issue.

Local hospital administrators should be encouraged to conduct their own study on what are the influencing factors forcing them to consider diversion an alternative to normal business practices. This will help them to identify potential pitfalls and ways to hopefully correct or better manage the situation to eliminate the need for diversion.

Continued dialogs between the hospitals and fire and rescue personnel need to continue. The communication between should be at the highest level of the organizations. These are policy discussions, and the individuals who are empowered to make decisions need to participate to ensure buy-in. Discussions at these levels do not always take place. This could lead to non-compliance or lack of understanding with any adopted plans or guidelines.

Prince William County is not on an island in regards to the hospital diversion issue. Surrounding jurisdictions greatly influence the patient influx at the Prince William County hospitals. Area jurisdictions need to address the issue from a regional perspective and treat the issue as a common problem.

An educational program directed towards the EMS providers should be developed and distributed throughout the County and the regional area. This will keep our front line “soldiers” up to date with current information and give them guidance when if and when they are impacted on the street. An operational plan is useless if all involved personnel are not thoroughly familiar with it. A special section on dealing with patients and hospital diversion should be included with the educational program.

Anyone wishing to replicate some or all of this study within their own organization should start by asking themselves questions. Do we have a hospital diversion problem? If so, what are the impacts? Is there anything that can be done to help ease the problem? Are we doing everything we can to help the situation? Is our hospital(s) doing everything they can to help solve the problem? The problem needs to be identified. Research indicates diversion has been a problem for some time with little or no corrective action from EMS leaders.

It is important for local EMS leaders to remember we are dealing with patients who are experiencing medical emergencies. Every patient is entitled to prompt medical care without delay. The issue of hospitals trying to close the backdoor to ambulance patients while keeping the front door open is a serious matter that must be addressed at the highest level of hospital management and fire and rescue.

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Appendix A

Hospital Diversion Plan Development Guidelines

1. All hospitals and EMS agencies in the locality must have working agreements among themselves.
2. When all the area hospitals are requesting diversion status, all hospitals must stay open. The burden to properly rotate patients must be hospital based utilizing non-EMS ambulances.
3. Hospital criteria must be based on the defined capacities or services of the hospital.
4. Diversion must be temporary. The system must return to normal operation as quickly as possible. Unless otherwise notified, automatic return to normal status in a predetermined time is the preferred mechanism.
5. Hospital diversions should not be based on financial decisions. Hospitals should not go on diversion to save beds for either elective admissions or potential deterioration in the condition of hospitalized patients.
6. Diversion criteria must be defined prospectively. Diversion categories may include critical care divert, routine admission divert, and selective divert.
7. Ambulance diversion should occur only after the hospital has exhausted all internal mechanisms to avert a diversion, which includes calling in overtime staff.
8. The decision for diversion should be made by the emergency physician in the emergency department in coordination with nursing and/or administrative staff. Appropriate hospital representatives should be notified as soon as possible of the diversion status. All personnel with diversion decision power must be identified and titles prospectively communicated to the EMS system's lead agency.
9. When on diversion, hospitals must make every attempt to maximize bed space, screen elective admissions, and use all available personnel and facility resources to minimize the length of time on diversion.
10. A record of the diversion should be maintained by the hospital after each episode, which includes a record of appropriate approval, type of diversion and reason for it, time of diversion initiation and completion. All diversions must undergo physician review.

Appendix A continued

11. Consideration should be given to developing a mechanism for denial of a hospital's request for diversion or for overriding a hospital's diversion status when the EMS physician medical director determines a patient's condition may be jeopardized by bypassing a facility.
12. EMS physician medical directors must be an integral part of the development of policies governing diversions.
13. Diversion plans should allow for the occasional need to minimize transport times of critically ill patients, especially those requiring immediate interventions.
14. The decision to divert patients should be made by an attending emergency physician in conjunction with the nurse supervisor who is physically present in the emergency room and should be based upon considerations of patient treatment effectiveness and safety.
15. Inpatient bed availability should not directly affect decisions regarding diversion.
16. Patient choice should override diversion status. Patients should be advised of the situation at the hospital of their choice and there may be a significant delay, receiving treatment. However, if they insist, they should be transported there.
17. The EMS system must agree to criteria and procedures for overriding a hospital's diversion status. The following considerations should be addressed:
 - patient condition
 - duration of transport time intervals
 - multiple hospitals on diversion
 - mass casualty or disaster incidents
 - designation of the appropriate authority to make an override decision
18. Any policy creating specific categories of diversion must include concise assessment-based criteria to guide field personnel in their implementation for individual patients and must be accompanied by appropriate education of EMS providers.

Appendix B

Survey and Survey Results

Survey Questions

1. Do you have a hospital diversion plan?

_____ formal written plan _____ informal plan _____ no plan

Results: 17 formal written plans 5 informal plans 2 no plans

2. If yes, was the development of your plan coordinated with your receiving hospitals?

_____ yes _____ no

Results: 22 yes 0 no

3. If no, are you considering developing a hospital diversion plan?

_____ yes _____ no

Results: 2 yes 0 no

4. Do you believe hospital diversion impacts your EMS delivery capabilities?

_____ yes _____ no

Results: 24 yes 0 no

5. What is the major impact to your EMS system from hospital diversion? (Rank 1-5)

_____ Stress on EMS providers

_____ Delay in patient care

_____ Increase in cost of EMS service delivery

_____ Increased EMS response times

_____ Reduced availability of EMS transport units

Appendix B continued**Results:** Final Ranking Order

1. Delay in patient care
2. Increased EMS response times
3. Reduced availability of EMS transport units
4. Stress on EMS providers
5. Increased cost of EMS service delivery