

**Creating a Quality Assurance/Quality Improvement Program
In The Perrysburg Fire Division EMS Bureau**

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CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

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ABSTRACT

The problem that this study focused on is that the Ohio Revised Code 4765.12 states that all EMS agencies need to have a Quality Assurance/Quality Improvement (QA/QI) program within their organization. The City of Perrysburg does not comply with this law.

The purpose of this study was to determine what the components of an effective assessment program are and make recommendations for implementing a program in the Perrysburg Fire Division (PFD).

Descriptive research was conducted to answer four questions:

1. What makes an effective QA/QI program?
2. What are organizations similar to PFD doing for QA/QI?
3. Who should be responsible for implementation of a QA/QI program?
4. How should the QA/QI program be implemented to prevent a negative reaction within the PFD?

The procedure used was to first determine what constitutes a quality assessment program. Next, the study focused on what aspects of EMS response are important to both the Medical Director and the PFD. Interviews were conducted with various agencies to determine what they review, their successes and their failures.

It was first determined that even though there is no national standard for EMS assessment, a survey of 10 EMS agencies found they examined all chest pain, cardiac arrest, multiple traumas and the use of uncommonly used interventions such as needle decompression for a tension pneumothorax (collapsed lung). There was little feed back from receiving hospitals for comparison to determine diagnosis abilities. Only Madison Township Fire Department officially promotes a well performed EMS response.

A recommendation was made to implement an assessment program based on positive runs versus the negative ones. The assessment program must be supported by all members of the division including the management of the Fire Division. Due to a call volume average of 3.5 per day at the PFD, all responses should be reviewed. Feed back should be obtained from patients transported to assure the medic crew ability to diagnosis.

TABLE OF CONTENTS

CERTIFICATION STATEMENT 2

ABSTRACT..... 2

TABLE OF CONTENTS..... 4

INTRODUCTION 5

 Statement of the Problem..... 5

 Purpose of the Study 5

 Research Questions..... 6

BACKGROUND AND SIGNIFICANCE..... 7

LITERATURE REVIEW 9

PROCEDURES..... 14

 Definition of Terms..... 16

 Limitations of the Study..... 18

RESULTS 18

DISCUSSION..... 24

RECOMMENDATIONS 29

REFERENCES 34

APPENDIX 1 – QA/QI Survey [365](#)

APPENDIX 2- QA/QI Survey Results.....36

APPENDIX 3 – QA/QI Request for Patient Inforamtion..... 37

APPENDIX 4 – QA/QI Patient Survey Form..... 38

APPENDIX 5-QA/QI Explanation Form.....39

APPENDIX 6- QA/QI SOG.....40

INTRODUCTION

Statement of the Problem

The Ohio Revised Code (ORC) 4765.12, requires that “EMS organizations implement on-going peer review and performance improvement programs to improve the availability and quality of EMS Services”. “The problem was that the Perrysburg Fire Division (PFD) does not have an EMS QA/QI program as required by Ohio Law”

To become compliant with the ORC 4765.12, it needed to determine what areas of EMS responses needed to be examined to ensure compliance with the current medical protocols. It was unknown how well the EMS personnel are following the medical protocols and, if they were not being followed accurately, why they were not being followed so these deficiencies could be corrected.

The research method for this research project was descriptive. Other fire departments that provide EMS were contacted, and surveyed to determine how an assessment was performed with in their system. This information was evaluated to determine how the City of Perrysburg Fire Division could effectively implement an assessment program to comply with the needs of the City of Perrysburg Fire Division and ORC 4765.12.

Purpose of the Study

The purpose of this study was to research and identify components of an assessment program to be implemented with in the PFD. With an assessment program in place, the delivery of patient care within the PFD could then be accurately evaluated. Once a deficiency was identified in the delivery of patient care, steps can be put in place to improve patient care.

Research Questions

The following questions will be answered by this descriptive and action research project:

1. What makes an effective QA/QI program?
2. What are organizations similar to PFD doing for QA/QI?
3. Who should be responsible for implementation of a QA/QI program?
4. How should the QA/QI program be implemented to prevent a negative reaction within the PFD?

BACKGROUND AND SIGNIFICANCE

The City of Perrysburg (2005) provides Advanced Life Support (ALS) to the citizens of Perrysburg with three transport ambulances and one ALS engine. The city currently has 20 full-time paramedics, one part-paid paramedic and five part-paid basic EMT's. The division works a three platoon, 24 hour on shift with 48 hours off, with off-duty personnel coming back to staff the back-up unit when the primary medic is on a call (PFD 2005).

In order for paramedics to practice, under Ohio Administrative Code 4765-39, they may only perform invasive procedures under the direction of a physician. For medical direction, the city has entered into a consortium with St Luke's Hospital in Maumee, Ohio and with five other fire departments in the area providing ALS. The consortium's medical director is actively involved in the organization, but does not have the time to provide all the quality assurance for all the departments as well as work full-time in the Emergency Center at St Luke's Hospital.

In 1991, the Fire Division made 450 EMS calls, with 1,223 calls being made in 2005. Not only have the call volume increased, but how care was delivered has changed. In 1991, paramedics had to call medical control (emergency center physician) to give many of the medications. In 2005, the majority of medications could be given without ever contacting a physician for direction. Not only do the paramedics give medication without direction, but also perform procedures such as retrograde intubations, chest decompression and intraosseous infusion. These are invasive procedures that must be performed correctly.

In today's society, it is no longer acceptable to provide care for patients and hope for the best possible outcome. Personnel can be held legally responsible in criminal court, civil court or both. But most important of all, was that EMS personnel conduct themselves as professionals.

Professionals should not only ensure that the best possible patient care was given, but they should want to give their very best on each and every call.

The problem that this study focused on is that Ohio Revised Code 4765.12 states that all EMS agencies need to have an assessment program within the organization. By increasing the quality of care given to the patients, not only are the patient's outcome improved but also possibly their future quality of life. Liability will be decreased because of adherence to current state-of-the-art pre-hospital medical practices. Pitfalls in care will be identified so management will be able to provide job aids to maintain adherence to the protocols.

LITERATURE REVIEW

The Literature Review for this research project includes manuals, journal articles, yearly city reports, and websites from various fire departments, books, survey and interviews.

Charlton (2001) discussed Clinical Governance as it applies to health care in the United Kingdom which is a governmental program to assure that adequate internal auditing is in place. This study stated that even though there was a quality assurance in place, it does not necessarily mean it will create improvements in the system. Each assessment system must have a good flow of information throughout the organization from top to bottom and back up. It needs to be transparent, meaning that nothing is being kept secret, and all information is accessible. With this, the organization must also be accountable to what is found, both positive and negative.

Darr (1991) compared quality assurance and quality improvement. He determined that quality was “a degree of adherence to the standards or to predetermined criteria” and was done retrospectively. He felt that it should be defined as “meeting latent needs: identifying needs that customers may not even know that they have but that they are pleased to acknowledge when the provider identifies and meets them. Darr was able to show that Quality Assurance (QA) is a more negative process that focuses on who is the problem. Quality Improvement (QI) on the other hand looks for the why of the problem or the inefficiencies in the system that caused the problem and focuses on improving the process. In QI, it is noted that a unique event or an unusual result should be ignored unless they pose a danger and that attention should be directed toward improving the process. In QA since focus is directed at the process it was not uncommon to conclude that people feel that they are good enough, while QI focuses on improving what is in place to make it continually better. All levels of the team must be a part of the process of improvement, or they will remain a part of the problem.

Darr & Kurt (1999) brought together the process of Risk Management (RM) and Quality Improvement (QI). The responsibility of a RM is to systematically report any circumstance that puts an organization at risk, such as their protocols not being followed and focusing on improving the system in place. The three concepts that must be in place for QA are peer review, the means to identify problems and a corrective action plan to improve the deficiencies. Practice parameters are a description of what should be done while the indicators are the means of measuring. They are guidelines as to how a specific situation should be handled. Thereby creating a standard of how all members of an organization will perform in a similar situation. It must be known how the outcome was produced, so a process can be put in place to prevent any undesirable outcomes.

Mattera (1995) wrote about the shift from quality assurance to quality improvement in prehospital care. In quality assurance the focus rested with the inspection group and not the producers of the product. In years past people looked at the outcome, after the results. But with quality improvement, focus was on the process to prevent a poor outcome. "If the process themselves can be fixed, problems in the outcomes can be prevented, thereby eliminating the need to correct errors or to deal with dissatisfied customers." Two quality management philosophies were discussed; Total Quality Management (TQM) and Continuous Quality Improvement (CQI). TQM focuses on a cooperative partnership centered on a customer driver master plan. CQI emphasizes the change process, long-term commitment with a participation that spurs improvement. In establishing a program, the leaders must not only create a vision with obtainable objectives, but provide the tools or means to accomplish the goal. They must become role models as well as becoming mentors and seek out and find those doing things the correct way and making role models out of them.

Greenberg (1995) developed 15 parameters for EMS quality indicators: 1. Patient satisfaction; 2. Patient outcome; 3. EMS crew satisfaction; 4. partner satisfaction; 5. paramedic wellness/occupational illness; 6. EMS cost effectiveness; 7. Equipment practicality; 8. Managerial satisfaction; 9. dispatch accuracy; 10. call quality; 11. response times; 12. complaints; 13. crew and equipment appearance; 14. public confidence; 15. innovations/research. This emphasizes anticipating errors, prevention and putting steps in place to prevent errors. These initiatives may take up to 6 years to achieve and see results. Management must understand that the people doing the work must have a stake in how it is done in order to give the employee ownership in the project. Care should be taken that after implantation; these initiatives are not abandoned due to resistance in the project.

Riley (1991) opened his Quest For Quality with the statement “no company ever achieved success by leaving well enough alone” and “good is not good enough if it can be better”. Successful companies top management positions were actively committed and involved throughout quality improvement programs. In most companies the chain of command was too lengthy and a good quality improvement program must have “real-time decisions and hands-on actions by the employees on the job site. This means decisions were made in the least amount of time in the places it makes the most difference. The organization should understand that quality improvement is not fast, simple, or a single solution, but rather an ongoing process of change. In a GE plant in Somersworth NH, they found when implementing a quality improvement program that more than half of the plant employees quickly joined, thus creating a large problem-solving team.

National Highway Traffic Safety Administration (1997) produced a manual for leaders in EMS to establish a Quality Improvement (QI) system for EMS systems. This manual uses the

Malcolm Quality Program model to illustrate the seven areas that were important to an assessment program which are as follows: a) Leadership, b) Information & Analysis, c) Strategic Quality Planning, d) Human Resource Development and Management, e) EMS Process Management, f) System Results and g) Satisfaction of Patients and Other Stakeholders. These seven areas were then grouped in three (3) stages which are: 1) building potential for success by developing an awareness and appreciation that QI is a worthwhile endeavor; 2) expanding workforce knowledge and capability in QI practices and techniques; and 3) fully integrating the strategic quality planning process and related quality improvement actions into the daily EMS operation. PDA cycle was recommended which are Plan, Do, Check and Act. This is a continuous circle that is constantly changing while you plan what to do, do (put plan into action), and check to see its success and act to modify as needed. They then take the above information and build it into a usable quality improvement process.

Developing a Performance Improvement Program (2001) is a publication from the State of Ohio covering six chapters 1.) The Purpose of Performance Improvement; 2.) Medical Direction; 3.) Intent; 4.) Implementation; 5.) Sample of PI forms; and 6.) Feedback Mechanism. This manual is a step-by-step process on how to establish a QA/QI program to comply with ORC4765.12.

Ohio Revised Code (2005) is a consolidation of all statutes of permanent and general provisions governing the State of Ohio.

Perrysburg Fire Division (2005) Perrysburg Fire Division's Chief's Report is a review of the activity of all aspects of the Fire Division including the EMS Bureau. It provides a breakdown in the total number of responses of both fire and EMS and response times.

United States Department of Transportation, National Highway Traffic Safety Administration, (1997), is a comprehensive guide dedicated to improving the quality of pre-hospital care. It aids each individual organization in improving the care provided and guides the team in implementing a program specific to their needs. Once the needs have been determined, it discusses the importance of management getting involved with the personnel providing the care, assessing progress of the program along with QI tools and techniques. It brings together meeting the needs of the organization, customers and all others the organization interacts with, such as other EMS providers and hospitals.

The literature review focused on three specific areas: medical assessment, structure of an assessment process and requirements of pre-hospital assessment. This information was used to create how the assessment process will be structured.

PROCEDURES

Based on the Literature Review, the initial research investigated what, if any requirements the State of Ohio has for QA/QI for EMS organizations. This investigation was made by telephone interview with Tim Erskine, Ohio Department of EMS in the EMS and Trauma Data Program. Next, the State of Ohio EMS Web Site and Anderson's Online Documents Ohio Revised and Administrative Code were reviewed on the internet. These sites provided the requirements that are needed to meet the state's expectations.

The next contact was the Medical Director, Dr. Mary Beth Crawford. All previous information previously reviewed requires the medical director to be involved in the assessment since the department is operating under the medical director's medical license.

The Perrysburg Twp. and Waterville Fire Departments who are in the Medical Director's consortium were also contacted. These contacts were necessary to determine how other departments operating under the same protocols are performing their assessment to maintain some consistency within the group.

In Northwest Ohio there is a large population of pre-hospital advanced life support (ALS) providers. Rossford, Northwood, Maumee and Sylvania Twp. Fire Departments were selected because of their similar call volume and structure of the PFD. Lucas County EMS was contacted; however, at the time of this research project they did not have an assessment program in place. With the PFD being located in Wood County, the Wood County EMA who also provides a paramedic ALS intercept unit was contacted. For several years they have attempted to create a single county protocol for all agencies within the county to follow.

So as not to limit this research project to only regional EMS providers, two other outside agencies were selected, Madison Twp. Fire Department and Rittman EMS. This researcher has

personal knowledge of these agencies and that they did have an organized assessment of their emergency responses.

To develop the survey, this researcher reviewed all types of responses made by the PFD. This information was then used to create survey groups. Because of the large numbers and various types of calls the PFD responds to, it was determined by this research to make them specific to type such as trauma, rather than specific injuries such as fractures, open wounds, burns, etc.. As the assessment of EMS responses becomes established.

The survey was conducted in person and by telephone. Perrysburg Twp., Waterville and Northwood were performed in person and the rest were done by telephone. The data received was used to assist in formulating how the PFD will assess its EMS responses.

Last an internet search was done where fifteen other sites regarding assessment of EMS were reviewed. These assessments were reviewed for types of responses assessed, frequency of calls assessed and positive or negative discipline. Other fire departments and EMS agency's Standard Operating Guidelines were obtained to determine how they performed an assessment. This indicated how some other fire departments throughout the county perform QA/QI.

After reviewing the literature research it was determined by this researcher to perform a survey of eighty percent of the local EMS agencies and twenty percent of the other EMS agencies in the state to determine how they assess their EMS response. Those individuals contacted are directly involved in the assessment process and provided the most accurate information.

This research focused on seven specific areas; Organized QA/QI Program, Cardiac, Trauma, Procedures, Times, Hospital Feedback and Discipline. These seven areas were based on the Literature Review and the telephone surveys. This research project, started with a broad

view of the types of EMS responses made. Further, research should be performed specific to types of call such as abdominal pain, fractures, EKG changes, etc.

The following organizations were chosen for this study. A member of the department who was responsible for the organizations assessment were contacted. The date of contact is recorded.

1. Perrysburg Township Fire Department, Dep. Chief Tom Brice, February 1, 2006
2. Rossford Fire Department, Asst. Chief Josh Drouard, February 1, 2006
3. Northwood Fire Department, LT Brian Dempsey, February 1, 2006
4. Maumee Fire Department, Asst. Chief Tom Wagner, February 1, 2006
5. Toledo Fire Division, Ed Herrick, February 3, 2006
6. Sylvania Township Fire Department, LT Mike Ramm, February 3, 2006
7. Waterville Fire Department, Capt. Keith Moosman, February 4, 2006
8. Wood County EMA, Director Eric Larson, February 4, 2006
9. Madison Township Fire Department, Capt Wes Green, February 4, 2006
10. Rittman EMS, Chief Andy Baillis, February 3, 2006

Definition of Terms

The definitions are from the Ohio Revised Code, PFD Medical Protocols, and various medical dictionaries for accuracy.

Advanced Life Support: Emergency medical care for sustaining life, including defibrillation, airway management, and drugs and medications

Algorithm: A step-by-step problem-solving procedure, especially an established, recursive computational procedure for solving a problem in a finite number of steps.

Basic Life Support: Emergency procedures performed to sustain life that includes cardiopulmonary resuscitation, control of bleeding, and treatment of shock, stabilization of injuries and wounds, and first aid.

Emergency Medical Service (EMS):- a service that is provided after the sudden onset of a medical condition manifesting itself by acute symptoms of sufficient severity that in the absence of immediate medical attention could reasonably be expected to result in placing the

patient's health in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of any bodily organ or part.

EMT-A or EMT-Basic: an individual who holds a current, valid certificate issued under section 4765.30 of the Revised Code to practice as an emergency medical technician-basic to provide basic life support.

Intraosseous Infusion: the process of injection directly into the marrow of the bone. The needle is injected right through the bone and into the soft marrow interior

Medical Director- a physician who is involved in the practice or supervision of emergency medicine in a hospital or pre-hospital setting and who assumes responsibility for the medical components of an EMS training program that applies for, or holds, a certificate of accreditation or certificate of approval issued by the board under section 4765.17 of the Revised Code.

Medical Protocols: the formal system of rules for correct behavior for pre-hospital care providers to follow.

Medic Unit: transport ambulance

Quality Assurance (QA): - adhering to a standard or a criterion

Quality Improvement (QI): - suggesting a process that improves as knowledge about it and experience with it accumulates over time.

QA/QI: for the purpose of this study, QA/QI will be referred to as an assessment.

Paramedic: an individual who holds a current, valid certificate issued under section 4765.30 of the Revised Code to practice as an emergency medical technician-paramedic capable of performing advance life support.

PCR: Patient care report

Scope of Practice: Skills identified may be performed by a pre-hospital practitioner at the practitioner's level of certification/recognition only if the practitioner has successfully completed training (cognitive, affective and psychomotor) on the specified skill, which includes training to perform the skill on adults, children and infants, as appropriate.

STEMI- (ST segment Elevation Myocardial Infarction): Findings on an EKG that suggests the patient is currently having myocardial infarction, commonly know as a heart attack.

Limitations of the Study

The limitation of this study was that there were no specific national or State of Ohio QA/QI standards in effect on which to base an assessment. All assessment programs are based on local needs and what each organization deems important. Because each organization has differing QA/QI areas of concern, it is difficult to compare and contrast across jurisdictional boundaries.

In the private sector, more emphasis is placed on billing, patient satisfaction and competition. In public sector EMS services, are geared toward protocol compliance rather than determining if services are meeting the needs of the public. Therefore, emphasis was placed on similar public sector EMS.

In order to use public sector organizations similar to the PFD, the survey group was limited in numbers. For further studies, it would be recommended to increase the survey field and possibly compare larger organizations to those similar to the PFD.

RESULTS

This research project was based on the ORC 4765.12 which requires an assessment of EMS responses. The following seven tables are common assessment features broken into specific areas of assessment (see Appendix 1).

Nine of the ten departments did analyze all their calls. One did ten percent of all calls and the other performed an assessment when requested by a member of the department or citizen. Seven had medical director involvement and only one used a peer review format. The Breakdown of QA/QI Program is illustrated below in Table 1.

Analysis of QA/QI Features

Table 1

Review of QA/QI being performed by other EMS organizations

	Yes	No	Other
Organized QA/QI Program	80%	10%	10%*
Reviewed By Medical Director	70%	30%	0%
Peer Review	0%	90%	10%**

**QA Performed as needed*

*** Peer review on some calls*

All organizations with an organized assessment program did chest pain and cardiac arrest calls. STEMI is a term regional to Lucas and northern Wood County protocols indicating EKG changes suggesting a possible MI.

Six departments did all STEMI and two did them as needed. Two organizations outside the geographic region did not have a specific QA/QI protocol addressing this.

While all organizations did Multiple Trauma and Trauma Alerts, only five included minor trauma patients. Three of the organizations randomly performed an assessment on minor trauma patients. The breakdown assessment of Cardiac responses is below in Table 2.

Analysis of Cardiac Responses

Table 2

Review of the cardiac analysis by other EMS organizations

	All	Some	None	N/A
Chest Pain	80%	20%	0%	0%
STEMI*	60%	20%	0%	20%
Cardiac Arrest	90%	10%	0%	0%

* This terminology is used in Lucas County Hospitals. The organizations which do not recognized the term STEMI performed QA/QI on all chest pains. Therefore, these PCR's would have been reviewed if the patient presented with chest pains. Table 3 is the breakdown assessment of Trauma responses.

Table 3

Review of Trauma analysis by other EMS organizations

	Yes	No	Some
Minor	50%	20%	30%
Multiple Trauma	90%	0%	10%
Trauma Alert	90%	0%	10%

For endotracheal intubations and intraosseous infusions, eight evaluated proper placement and success rate while two did not. However, both organizations operate within the Lucas County EMS System (LCEMS) as first responders. Endotracheal intubations and intraosseous infusions would typically be performed by the LCEMS unit.

Intravenous success rates were evaluated by five of the organizations; however there was some question as to what a successful IV was. Some organizations did not look at how many attempts were made, just if an IV was obtained. Others looked at overall total number of IV attempts.

The miscellaneous section was added due to variables and differences with individual medical protocols. This would cover chest decompression, retrograde intubation, surgical cricothyroidectomy, or other invasive procedure that could cause harm to a patient if incorrectly performed. The breakdowns of Procedures are in Table 4

Table 4

Review of invasive procedure analysis by other EMS organizations

	Yes	No	N/A
Intubations	80%	20%	0%
Intraosseous Infusions*	80%	10%	10%
IV Success Rate	50%	40%	10%
Misc.**	60%	40%	0%

*Not review by that organizations QA/QI, however they are reviewed by LCEMS.

** Other procedures not listed such as retrograde intubation or chest decompression specific to each organization.

Of the ten departments, 60% reviewed on scene arrival times for trauma; 50% required a ten minutes or less on scene time and one department required an eight minute or less on scene time. Fifty percent of the departments assessed on scene times of medical calls and only 30% of the departments reviewed the amount of out-of-service times at the hospital. Table 5 is a breakdown of Times that are reviewed.

Table 5*Review of times analysis by other EMS organizations*

	<8	<10	<20	Yes*	No
	Min	Min	Min		
Trauma	10%	50%	0%	30%	10%
Medical	0%	0%	50%	10%	40%
Out-of-Service	0%	0%	0%	70%	70%

* Times are reviewed, but not required to meet a specific time.

On calls with patients refusing assistance and/or transport to a hospital, 70% reviewed all and 20% reviewed reports at random. Only 30% received feed back from the receiving hospitals on the diagnosis of patients brought to them. Table 6 shows Refusal and Hospital Feedback QA/QI.

Table 6*Review of other EMS organizations refusal and hospital feedback*

	Yes	No	Some
Refusal of care/AMA	70%	10%	20%
Hospital Feedback	40%	60%	0%

Only one organization acknowledged in a positive way, such as a letter of commendation, an outstanding call and/or PCR. Conversely, three did use the findings for negative discipline. All three of these did not discipline on isolated mistakes, such as omissions or spelling mistakes. The mistakes had to be serious (wrong medication or dosage) and/or repetitive mistakes. Table 7 is QA/QI used for Discipline.

Table 7

Review of positive and negative discipline analysis of other EMS organizations

	Yes	No
Positive	10%	90%
Negative	30%	70%

Clearly, the majority of organizations contacted had some form of assessment of emergency responses with medical director involvement. The primary responses being assessed are cardiac and trauma patients. Not surprisingly, 80% of the surveyed organization assessed endotracheal intubations and intraosseous infusions, but surprising to this researcher, only 50% assessed intravenous infusions which is a common procedure for advanced life support units. Only 40% of the organizations received feedback from the receiving hospital thereby not providing feedback to personnel on the accuracy of their patient care. Of all organizations surveyed, only one agency provided a positive to its personnel for a response that went well but 30% did utilize the assessment for negative discipline.

DISCUSSION

The previous information was compiled and analyzed to answer the four specific questions asked. The information obtained in answer to the research questions will provide the information necessary to implement an assessment method that will meet the requirements of ORC 4765.12.

Research question 1 asks “What makes an effective QA/QI program?”

The literature for this research project clearly showed the focus of any assessment program should be on the process. Even though it might be that an individual made a mistake, the root cause of the problem is usually the procedure. For this reason an assessment should only focus on policies, procedures and structure of the problem. When dealing with the employee and investigating a problem, questions should be in the third person and all steps should be made to not make the employee feel as if they are being accused of a wrong doing.

Darr (1991) defined quality as “a degree of adherence to standards or to predetermined criteria”. For this reason, standards must be clear and available to all so they know what is expected. If an event was found to be unique or usual, it should be disregarded. The only exception to this rule would be if it posed a danger, then the process should be changed.

Information being reviewed must be up-to-date, easily accessible and accurate. The information found should be available to all so any problem areas can be easily found and corrected.

To be effective, information should be flowing throughout the organization allowing input at all levels. The research showed that most of the problems are easily solved by those

who are actually doing the job. Too many times the individuals who do not have a good understanding of the task required to fix the problem.

It should be remembered that we are here to serve the public. Therefore, how they perceive the organization and what do they consider quality.

In today's society, an assessment is dynamic. Technology and evolving techniques change what is considered state-of-the-art and acceptable. Any assessment program must be dynamic and change to keep up with the needs of those who are served.

Research question 2 asks "What are organizations similar to PFD doing or QA/QI?"

The survey showed that most departments' assessment programs are similar. Ninety percent had an organized assessment system in place with 80% medical director involvement at some level. Run evaluation is being performed on all calls by the majority of EMS agencies that have the same type of call volume with only one utilizing peer review.

Of those who have an assessment program, the research clearly demonstrated emphasis on evaluating cardiac and major trauma type responses. Even though each category was broken down, all assessment programs look at all chest pains and cardiac arrest. Only Wood County EMA who reviews all cardiac calls anyway, listed a No on STEMI Alerts.

The Procedures section showed that invasive procedures were universally assessed. Basically, if something is placed inside the body, it was reviewed for accuracy, how many attempts were needed and was it appropriate for the patient.

During the survey it was noted that seven organizations reviewed all refusals for care and/or transport, and two did an assessment of refusals as needed. The primary concern was placed on appropriate documentation rather than whether or not procedures were followed. This was to prevent liability for patients refusing care when the EMS crew believed further medical

evaluation at a hospital was warranted.

Only four organizations have a means of feed back from the receiving hospital. In the literature review, it was shown that feed back is important to an assessment program. The treatment rendered may have been correct for what the EMS crew believed to nature of the problem. But, if they were incorrect in their diagnosis, it would be an inappropriate treatment.

Most EMS providers believed that on scene time was important. The standard was ten minutes for trauma and twenty for medical emergencies. However, out of service times at the hospital was only a concern for three organizations.

Once an assessment was completed by the organization, only Madison Township Fire Department used the findings for positive reinforcement. Conversely, three used it for negative discipline, but must have a serious infraction that did, or could have potentially caused harm to the patient.

Research question 3 asks “Who should be responsible for implementation of a QA/QI program?”

While management most definitely has the highest responsibility, so do the employees. The reason for an assessment program is to provide the best in customer service for anyone who calls for help. If EMS can not provide a quality service, the patient can either call someone else, or publicly not voting for levies. This must remain the focus at all times.

Management must promote the assessment system by setting the example. If they deviate from the standard, they should be treated as anyone else. They should be enthusiastic and talk about the benefits assessment when talking to the employees.

The employees must also aid in implementing the assessment program. Implementation of an assessment program can be very stressful for the employees, primarily due to the fear of the

unknown. By getting them involved early, it aids in reducing their fear by giving them a better understanding of the upcoming assessment program.

Research question 4 asks “How should the QA/QI program be implemented to prevent a negative “reaction within the Perrysburg Fire Division?”

The research did show that most people see an assessment program as a negative and not a positive for them as well as the organization. Throughout the literature review, several of the common factors continued to be presented which are as follows:

Prior to implementation all personnel must have input in the processes. By having involvement, they gain ownership which not only helps to keep an assessment program in a positive light, but aids in sustaining the program. The guidelines of the program must also be well known as well as consequences for negative assessment findings.

Management must become involved in and support the assessment program. Research shows that employees follow the lead of management, so if management “sees” an assessment as a nuisance, so will the employee.

When variations occur, the assessment review team must be careful how they handle these situations. They should speak in the third person and not refer to people. Focus needs to be on the situation, and not individuals.

Fear of the unknown will play a factor when people are forced to change. Since this will affect how they do their job, it is not uncommon for people to fear “will they be able to make the change or lose their job?”. Will the change be more or harder work for them? They may see that an assessment program will most likely create constant change at some level to keep up with the times. Public embarrassment when a mistake is made and the rest of the organization finds out. These factors must be present in the minds of management to keep them at a minimum.

Dwell on the positive and not the negative. By publicly rewarding those, it shows the rest of the team what is expected by creating role models of the good employee. This also aids in boosting the employee's moral by showing them that management does notice and appreciates a job well done.

By implementing an assessment of the PFD EMS responses, the PFD will be in compliance with the ORC 4765.12 mandate and allow us to be compliant with the law. But equally important, staff will be able to quantify the patient care that is provided to the patient which currently is not possible to do.

Currently it is not possible to determine if our personnel are providing patient care in compliance with our protocols as well as accepted medical practice. If the protocols are being followed there is no way to determine if the current protocols are effective and having the desired outcome. Only once it can be verified compliance with the protocols, can it be determined if the current procedures are effective.

RECOMMENDATIONS

This researcher recommends the following steps be instituted within the PFD. By incorporating all nine of the recommendations, an effective program will be established with supporting guidelines and protocols.

What makes an effective QA/QI program? Greenberg (1995) had fifteen parameters of EMS indicators. These indicators look at all aspects of that should be incorporated into the structure of the assessment program.

Clearly the focus should be on the structure and not individuals in the organization. The question is simply what can the organization do to make its operation perform efficiently. In this study, the second research question was what other similar organizations are doing for QA/QI. The following recommendations will address each question for the PFD.

1. PFD should assess all EMS responses (see Appendix 2). Appendix 2 was created by this researcher to facilitate a check list of assessment areas by the PFD.

Clearly, the literature review demonstrated how important the structure of the assessment program is. Since there is no national standard, it is up to the medical director and the Perrysburg Fire Division what information is reviewed. Due to an average of three and a half EMS calls per day, all calls should be reviewed. Enroute and on location times should be monitored with on scene times of 10 minutes for trauma and 20 minutes for emergency medical calls. Longer on scene times may be detrimental for multiple trauma patients and those experiencing AMI. With the city boundaries expanding, longer times to get to the patient may show a need for additional medic unit and/or stations. Particular attention should be paid to those procedures that are not routinely performed such as endotracheal intubations, IO's and chest decompression for success rates, need for increase training and their effectiveness.

2. On-scene evaluation of EMS crews should be carried out.

Reviewing run sheets are just the first step. What happens on scene may not be accurately documented by the PCR which will not be evident just by reading and reviewing the report. There needs to be an occasional on scene evaluation of the crew's actual performance. Not only should actual patient care being performed be monitored, but how the crew interacts and relates the customer should also be noted.

3. PFD should receive hospital feed back about patients transported by them (see model Hospital Feedback Form in Appendix 3). Appendix 3 was created by this researcher to assist in obtaining feedback from St Luke's Hospital that we normally transport to.

As stated above, there is more to treating the patient than what is on the PCR. Feedback needs to be obtained from the receiving hospital on their findings and the final diagnosis at the hospital. It does no good to have the proper treatment of a cardiac patient if the patient was suffering from a gall bladder problem. This information then needs to be provided to those providing care so they can critique themselves.

4. Surveys should be given to patients allowing PFD to see how the citizens being served view the service provided to them (see model Patient Questionnaire Form in Appendix 4). Appendix 4 was created by this researcher to allow the patients that we care for to evaluate the service they received from the PFD.

The satisfaction of the customers that are served can not be overlooked. It is possible to give them the best of care and even save their lives, but they may not be happy with their care for various reasons. Since the City of Perrysburg charges for transport services, a survey should be added with the invoice. This will allow the Perrysburg Fire Division to gain an in site from the patients to better provide for their needs.

5. Employees should be given the opportunity for input on how to improve EMS delivery by the PFD (see model Explanation Form in Appendix 5). Appendix 5 was created by this researcher to allow the EMS personnel to respond to the findings of the assessment of a response.

The medic crew must have an avenue to respond to all assessment findings. By giving them an opportunity to respond, they help to give in site on where the positives and negatives are in the system. Management typically makes the rules that labor follows. However, management does not always see the potential pitfalls in their policies or how these policies and equipment actually work. But those who use these policies and equipment on a day-to-day basis know where these pitfalls are. Management and labor must work together to correct problems to provide the best care possible to the customer's that are served.

Question three was who should be responsible for QA/QI within the PFD.

QA/QI should be done by the Assistant Chief of EMS or their designee.

A number of research articles were very positive about peer review. The thought is that the reviewers are also doing the same job so in theory they should have a good idea of what is expected. However, being a small department, personalities and previous history may come into play and create distension within the division. It is recommended that peer review not be used at least until the assessment program has been in place for a period of time and all personnel become comfortable with the assessment process.

The last question was how to prevent a negative reaction to the QA/QI program during the implementation phase. There are three recommendations to answer this question.

1. The QA/QI policy/SOG should be in place prior to implementation of assessment program (see model QA/QI SOG in Appendix 6). Appendix 6 was created by this researcher to provide a frame work of how the assessment of EMS responses will be performed.

Prior to implementation, all the ground rules must not only be in place, but everyone involved must have a clear understanding of what is expected. A clear policy and procedure needs to be formulated spelling out who will be doing the assessment, how will an assessment be done, and how the results will be handled such as an exceptional performance or a major protocol violation. Several SOG's were evaluated by this researcher Ocean City (03) and Winter Park (00), for format and content.

2. Prior to implementation, all personnel must understand how QA/QI is a positive program for the organization.

During the implementation stage, all aspects of the assessment program should be based on how it will positively affect each individual as well as the organization. Management must be on board and be an active part in the entire process. They must be open to have their EMS calls review in the same manner as all other employees and learn from the critiques. This will aid in showing the rank-in-file that it is important and everyone is held to the same standard.

3. Focus should be placed on the positive aspects rather than the negative ones of a assessment program.

A reward system for good assessment review needs to be given. By rewarding those who do a positive job, it will help turn those good employees into a role model for others to follow. It should be noted that at sometime, a major protocol violation will occur. When this happens, the staff must know what to expect, and require fair treatment across all individuals, shifts and rank. This will need to be in-line with any current discipline policies.

These recommendations should implemented by the PFD. First, is to be in compliance with state law ORC 4765.12. By not implementing an assessment program, the PFD could be

found in violation of the law and possibly not eligible for grant funding by Ohio EMS, similar to not reporting to the Trauma Registry.

But more importantly, PFD is currently unable to quantify the care the patients are receiving. Once a standard is set, it then can be checked to see if not only the Medical Protocols are being adhered to and if so, are they working to improve patient outcome.

It is recommended by this researcher that future research be done to expand in several areas. First, should be conducted to research to determine if the time of day and day of the week influence the quality of care that patients receive. Second, research should be performed to determine if the medic personnel's years of experience have an impact on the patient care being performed within the PFD.

Response types should be broken down future for further research. An example of this would be instead of assessing IV success rates, this could be broken down to medical verses trauma IV success rates. Further, research should also be performed specific to types of call such as abdominal pain, fractures, EKG changes, etc.

The Appendix section was designed by this researcher to provide an organized method of assessing EMS responses in the PFD. Currently these guidelines have been approved by our medical director and the City's Law Director. They are with our SOG's Committee who will approve the SOG. Once the SOG has been approved there will be a thirty day period of review by the EMS personnel and will then be an official part of the PFD EMS Bureau.

Upon implementation of the SOG, it should be review at least bi-annually. This will ensure that the information that is being assessed is applicable for how the PFD is performing assessment of EMS responses.

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APPENDIX 1 – QA/QI SURVEY**Quality Assurance/ Quality Improvement Survey**

Does your organization have an organized QA/QI program? Yes___ No___

Does your medical director review your run sheets? Yes___ No___ Some___

Does your organization QA/QI all calls? Yes___ No___ Some___

If some, how is it determined what calls get reviewed? Percentage___ Type___

Cardiac

Cardiac Arrest Yes___ No___

Chest Pain Yes___ No___

STEMI Yes___ No___

Medical Emergency

ABD Pain Yes___ No___

Breathing Difficulty Yes___ No___

CVA Yes___ No___

Diabetic Yes___ No___

OB/GYN Yes___ No___

Psychiatric Yes___ No___

Seizure Yes___ No___

Trauma

Burns Yes___ No___

Fracture/Dislocation Yes___ No___

Wounds Yes___ No___

Procedures

Intubations: Yes___ No___

IO's: Yes___ No___

IV's: Yes___ No___

Misc: _____

Scene Times

Medical Yes___ How Long___ No___

Trauma Yes___ How Long___ No___

Out-of-Service Yes___ How Long___ No___

Refusal: Yes___ No___ Some___

Do you get a diagnosis back from the receiving hospitals? Yes___ No___

Discipline

Positive: Yes___ No___

Negative: Yes___ No___

Name: _____

Rank: _____

Notes: _____

APPENDIX 2 – QA/QI CHECK SHEET

**PERRYSBURG FIRE DIVISION
EMS Quality Improvement**

Run Number _____ Date ___/___/___ Shift A B C M2/3

PCR Writer _____ OIC _____

Address _____

Nature _____ ALS ___ BLS ___ No Patient ___

TIMES

Yes ___ No ___ Turnout Time Appropriate: _____

Yes ___ No ___ On Scene Time Appropriate: _____

Yes ___ No ___ At Hospital Time Appropriate: _____

Yes ___ No ___ Times for Medications

TREATMENT

Yes ___ No ___ Complies with current medical protocols (see comments)

Yes ___ No ___ Procedures performed in an appropriate order

Yes ___ No ___ Repeat vitals taken as needed

Yes ___ No ___ Appropriate choice of hospital

DOCUMENTATION

Yes ___ No ___ All patient information completed and spelled correctly

Yes ___ No ___ Course of treatment complete

Yes ___ No ___ Narrative gives complete history

Yes ___ No ___ Report written legibly

Yes ___ No ___ Refusal's have witness signatures, dated and HIPPA documented

Comments: _____

Reviewer initials: _____

APPENDIX 5- EXPLANATION FORM



Perrysburg Fire Division

EMS Quality Assurance

Explanation Form

Run Number: _____ **Run Date:** ___/___/___ **Shift** _____

Crew:

(OIC) (PCR Writer)

DEVIATION: _____

EXPLANATION: _____

Signature _____ **pg** ___ **of** ___