

Appendix G 1a: Elements of an Emergency Medical Dispatch System

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Standard Practice for Emergency Medical Dispatch Management ⁽¹⁾

Introduction

The emergency medical dispatcher (EMD) is the principle link between the public caller requesting emergency medical assistance and the emergency medical service (EMS) resource delivery system. As such, the EMD plays a fundamental role in the ability of the EMS system to respond to a perceived medical emergency. With proper training, program administration, supervision, and medical direction, the EMD can accurately query the caller, select an appropriate method of response, provide pertinent information to responders and give appropriate aid and direction for patients through the caller. Through careful application and reference to a written, medically approved, emergency medical dispatch protocol, sound decisions concerning EMS responses can be made in a safe, reproducible, and non-arbitrary manner. These benefits are realized by EMS systems when appropriate implementation, sound medical management and quality assurance/quality improvement (QA/QI) at dispatch are provided within the EMD/EMS system. This practice assists in establishing these management and administrative standards.

1. Scope

1. This practice covers the function of the emergency medical dispatch (EMD). This function is the prompt and accurate processing of calls for emergency medical assistance. The training and practice through the use of a written or automated medical dispatch protocol is not sufficient in itself to ensure continued medically correct functioning of the EMD. Their dispatch-specific medical training and focal role in EMS has developed to such a complexity that only through a correctly structured and appropriately managed quality assurance environment can the benefits of their practice be fully realized. The philosophies of emergency medical dispatch have established new duties to which the emergency medical dispatch agency must respond. It is important that their quality assurance/quality improvement (QA/QI) activities, including initial hiring, orientation, training and certification, continuing dispatch education, recertification, and performance evaluation be given appropriate managerial attention to help ensure the ongoing safety in their performance of the EMD. This practice establishes functional guidelines for these managerial, administrative and supervisory functions.
2. The scope of this practice includes:
 1. The entry level selection criteria for hiring emergency medical dispatchers;

2. The orientation of new emergency medical dispatchers;
3. Development of QA/QI mechanisms, management strategies and organizational structures for use within a comprehensive emergency medical dispatch system;
4. Performance evaluation as a component of a comprehensive and ongoing quality assurance and risk management program for an emergency medical dispatch system;
5. Development and provision of continuing dispatch education activities for the emergency medical dispatcher;
6. Requirements for initial certification and recertification of the emergency medical dispatcher;
7. Provision for comparative analysis between different EMD program approaches available to the EMS community that conform to established EMD practice standards prior to implementation of an emergency medical dispatch program; and
8. Guidelines for implementation of an emergency medical dispatch program.

1. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability or regulatory limitations prior to use.*

2. Referenced Documents

1. ASTM Standards:

F 1258 Practice for Emergency Medical Dispatch (2)

F 1552 Practice for Training, Instructor Qualification, and Certification Eligibility of Emergency Medical Dispatchers (2)

3. Terminology

1. *Descriptions of Terms Specific to This Standard:*
 1. *case review template*-a structured performance evaluation document containing all necessary input and output actions required of dispatchers that parallels the EMDs' on-line protocols, policies, and procedures related to call-taking and processing. It contains check-off lists and compliance scoring mechanisms that objectively rate the EMDs' performance on a single call.
 2. *dispatch life support*-the knowledge, procedures, and skills used by trained EMDs in providing care through pre-arrival instructions to callers. It consists of those BLS and ALS principles that are appropriate to application by medical dispatchers.
 3. *emergency medical dispatch agency*-any organization or a combination of organizations working cooperatively, that routinely accepts calls for emergency medical assistance and facilitates the dispatch of prehospital emergency medical resources/personnel and provides medically oriented pre-arrival instructions pursuant to such requests.
 4. *performance evaluation*-the documented, objective, quantitative measure of an individual emergency medical dispatcher's performance based upon compliance to departmental protocols, policies and procedures.

5. *pre-arrival instructions*-telephone-rendered, medically approved written instructions provided by trained EMDs through callers which help to provide aid to the victim and control of the situation prior to arrival of prehospital personnel.
6. *quality assurance/quality improvement (QA/QI)*-the comprehensive program of prospectively setting standards; concurrently monitoring the performance of clinical, operational and personnel components; and, retrospectively improving these components in the emergency medical dispatch agency when compared with these standards.
7. *risk management*-a sub-component of the quality assurance program designed to identify problematic situations and to assist EMS medical directors, dispatch supervisors, and EMDs in modifying practice behaviors found to be deficient by quality assessment procedures; to protect the public against incompetent practitioners; and to modify structural, resource, and protocol deficiencies that may exist in the emergency medical dispatch system.

4. **Summary of Practice**

1. A comprehensive plan for managing the quality of care in an emergency medical dispatch system must include careful planning, EMD program selection, proper system implementation, employee selection, training, certification, QA/QI, performance evaluation, continuing dispatch education, recertification, and risk management activities. These functions must be designed and implemented to assist the medical director, dispatch supervisor, and emergency medical dispatcher in monitoring and modifying EMD performance found deficient by QA/QI to protect the public against incompetent practitioners, as well as modify organizational structure, resource, or protocol deficiencies that exist in the emergency medical dispatch system.
1. *Entry level selection*-The selection and evaluation of new dispatchers must include clearly written objective standards to be adopted for qualifying candidates, interviewing applicants, pre-employment aptitude and skill testing pursuant to the hiring of dispatchers.
2. *Orientation*-A pre-planned process of events focusing on the development and acclimation of an employee who will function within the organization's standards, practices, policies, and procedures.
3. *Quality Assurance/Quality Improvement*-Within a physician medically directed emergency medical dispatch system, the development and implementation of employee performance thresholds, concurrent evaluation of compliance to these thresholds through on-line supervision, retrospective evaluation of non-edited logged recordings of requests for emergency service measuring compliance with policy, practice, and procedure to validate that they are appropriate, and to correct them if found to be deficient.
4. *Performance Evaluation*-Each EMD in an emergency medical dispatch agency must regularly and routinely be evaluated with respect to their adherence to policy, protocol, and procedure through the QA/QI process. This determines their conformance to these elements and measures how this performance affects the efficiency and effectiveness of the emergency medical dispatch agency. The evaluation must be quantitative and qualitative.

5. *Continuing Education*-Each emergency medical dispatch agency must provide for the development and implementation of a continuing dispatch education program for the benefit of their EMD personnel. This program must provide the EMD with applicable educational topics designed to enhance their general knowledge and skill in the philosophy and application of the EMD program used within the emergency medical dispatch agency.
6. *Risk Management*-A written practice and procedure shall be established for each agency that provides guidelines for physician medical directors, EMS system administrators, agency supervisors, and/or QA/QI personnel to follow when an EMD is identified through concurrent or retrospective review. This practice and procedure shall provide guidelines for proper investigative criteria relative to the medical or administrative nature of the perceived infraction, and the proper progressive disciplinary procedure to be followed in order to provide the EMD due process.
7. *Certification, Recertification*-All EMDs working in a medical dispatch agency shall be certified as competent in the use of the medically approved EMDPRS used within the medical dispatch center. Initial certification and recertification standards shall be established by each certifying entity associated with their EMDPRS protocols in accordance with ASTM-EMD standards that validate the individual EMD-s knowledge and competency in their use.
8. *Reciprocal Certification*-Reciprocal certification shall be established between certifying agencies and organizations having programs that meet the standards contained in this practice.
9. *Registration and Maintenance of Certification Records*-All certifying entities, agencies, or organizations shall maintain records for all certified individuals and shall provide documents and reports regarding testing and certification status as required by using agencies, states, or governmental units. All records shall be maintained for a minimum period of ten years from initial certification, recertification or testing of the individual.
10. *Revocation of Certification*-This guide shall set forth guidelines for assessing grounds for a possible suspension or termination of certification when questionable situations arise in EMD conduct or performance.
11. *Program Selection and Implementation*-Provision for comparative analysis between different EMD program approaches available to the EMS community that conform to established EMD practice standards. This is intended to assist the EMS administrator in the selection of the program that best suits the dispatch agency's needs from a medical, legal, and operational perspective.
12. *Physician Medical Director*-Each emergency medical dispatch agency shall have a physician medical director, who shall assist in evaluation and review of the EMD program under consideration. The physician medical director shall approve the selected EMD program written protocol. The physician shall be responsible for all medical aspects of the EMD program. Additional responsibilities include the medical oversight of the EMD training and certification program, continuing education requirements, recertification eligibility, QA/QI and risk management functions. These responsibilities include recommendations regarding the certification and employment eligibility of individuals found to be unsafe practitioners through employee evaluation and disciplinary due process.

5. **Significance and Use**

1. The emergency medical dispatcher should be a specially trained telecommunicator with specific emergency medical knowledge. Many of these personnel still perform in this role without the benefits of dispatch specific medical training and medically sound protocols. The majority perform their duties without appropriate medical management provided through a structured quality assurance/improvement environment. Training only prepares a new EMD for correct use of the EMDPRS. It cannot ensure that it is accessed and complied with as intended. Since the EMD is now clearly defined as a pre-hospital medical professional, it is necessary to establish sound medical management processes through a multi-component QA/QI program administered by the EMD's agency in conjunction with the physician medical director. Prompt, correct, and appropriate patient care can be enhanced through the use of a standardized approach to quality assurance, especially the component of EMD performance assessment. This practice is intended for use by agencies, organizations, and jurisdictions having the responsibility for providing such services and assurances to the public through the correct management of the nation's emergency medical dispatchers.

6. **EMD Entry Level Selection Criteria**

1. Each emergency medical dispatch agency shall adopt a formal written policy delineating the selection procedures for individuals to be employed as emergency medical dispatchers. It must address the ability to:
 1. Read and write at a high school graduate or GED level;
 2. Perform those clerical skills as delineated by the employing agency;
 3. Perform verbal skills in a clear and understandable manner, in the required language or languages established as necessary to that emergency medical dispatch agency;
 4. Perform alphanumeric transcription skills necessary to correctly record addresses, locations, and telephone numbers; and
 5. Demonstrate competency in basic telecommunications skills as required by the employing or training agency.
1. Selection criteria should also include the following:
 1. A clear attribute of helpfulness and compassion toward the sick or injured patient and caller advocate;
 2. The ability to clearly guide callers in crisis through application of necessary interrogation procedures and the provision of telephone pre-arrival instructions;
 3. The ability to learn and master the skills, philosophy and knowledge required to successfully complete the training process;
 4. The ability to efficiently and effectively organize multiple tasks and complicated situations and activities;
 5. The ability to handle the levels of emotional stress present in caller/patient crisis intervention, death and dying situations, call prioritization and triage, and multiple tasking;
 6. The ability to function within the team framework of public safety and EMS systems; and

7. The ability to elicit and assimilate caller information and then to prioritize and appropriately consolidate and summarize this information in a format used to inform and direct public safety responders.

7. **Orientation Guidelines for Emergency Medical Dispatchers**

1. When an individual has successfully completed the initial EMD training and is employed by an emergency medical dispatch agency, a comprehensive orientation program must be in place to initiate this individual to the intense and demanding conditions that exist in dispatch centers. It must include:
 1. An orientation manual for the new EMD;
 2. A formal orientation for the new EMD in the communications and dispatch operation as well as the employing agency as a whole including all relevant policies, practices, and procedures.
 3. Orientation should continue with a one-on-one preceptor concurrent with the employee's probationary period;
 4. Written evaluation of compliance should be performed through the agency's quality assessment practice as defined in this practice; and
 5. Written evaluation of performance during orientation and frequent feedback and critique from those individuals responsible for training and evaluation of the new emergency medical dispatcher.

8. **Performance Evaluation**

1. The EMD must function using a medically approved EMDPRS to establish the template for performance and protocol compliance evaluation. The ongoing performance appraisal must evaluate the EMD's ability to follow and comply with the established agency policies and procedures.
2. Established performance criteria should be shared with new employees and measured on a regular basis. These should include evaluation of performance in:
 1. Conformance to established policies of the employing agency, and
 2. Compliance with the EMDPRS of the employing agency.
1. Performance appraisal of the EMD through case review:
 1. Multiple cases that an individual manages must be reviewed on a regular basis.
 2. The selection of cases to be reviewed should provide a perspective of the individual's performance over the entire spectrum of call-types received. The review process should, as a minimum, review 7 to 10% of calls received by the emergency medical dispatch agency.
 3. Individuals performing dispatch case reviews must have an emergency medical background (preferably experienced at an ALS level) and be specially trained in the process of EMD case review.
 4. This reviewer shall use a standardized *case review template* form that objectively outlines and quantifies all parameters of EMDPRS compliance by which the EMD will be evaluated.
 5. Records must be kept showing at a minimum the following areas of compliance:

1. Compliance to asking the systematized interrogation questions. These should be subdivided to show different areas of interrogation in the EMDPRS.
 2. Compliance to providing the systematized pre-arrival instructions (when possible and appropriate to do so) should show separate compliance for each type of pre-arrival instructions found within the EMDPRS.
 3. Compliance to correctly selecting the dispatch response classification code.
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1. Records should be kept showing cumulative compliance scores in the listed areas for the following groups:
 1. Individual compliance averages;
 2. Shift compliance averages, and
 3. Emergency medical dispatch agency compliance averages.
 1. Group compliance averages should be periodically purged of older records allowing the EMD to reasonably improve scores over time, however, all records should be maintained and archived.
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1. The process of individual case review and their findings and recommendation should be managed by a specially trained diversified group of EMS and dispatch agency personnel. Participants in the management of the case review process should represent a cross-section of those individuals within the system affected by the emergency medical dispatch program. These should include, but not be limited to, line dispatchers, managers, administrators, medical control physicians or their representatives, or both, field personnel, and ancillary public safety groups such as 9-1-1, primary and secondary public safety answering points (PSAPs), that operate within the structure of an organized medical dispatch case review committee.
 2. The specific policies and procedures to be utilized for performance appraisal activity must be carefully explained to the EMDs whose performance will be measured and must be objectively and impartially administered.
 3. Regular feedback must be provided to the EMD based on the findings of their performance appraisal.
 4. The goal of the case review process is to enhance the performance of the EMD. This feedback should include both recognition of exemplary performance as well as behavior requiring remediation. This feedback must be provided in written form and maintained in the employee's records.
 5. EMDs who consistently provide quality care should be recognized. Commendations, awards, advancements, media exposure, and other forms of positive reinforcement are important elements of performance appraisal.
 6. The emphasis of any remedial activity should focus on re-training and modification of unacceptable practice patterns rather than on sanctions.
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1. Field-to-dispatch feedback mechanisms should be established to monitor, inquire about and document issues relative to the application of medical dispatch practices witnessed in the total system.

1. Standardized forms should be used to collect, record, and report this information.
2. All reports generated should be carefully tracked through the system, investigated and evaluated, and written "feedback" provided to the initiator. These reports shall be maintained.
3. All reports should be written as a request for clarification and should avoid any and all accusatory "noncolleagual" tones.

9. EMD Certification

1. To become certified an EMD shall successfully complete an EMD course that meets the requirements of this practice and the curriculum standard guidelines contained in Practice F 1552; and
2. Successfully pass a written or automated examination that evaluates the knowledge, comprehension and application of information required to function as an EMD as enumerated by Practice F 1258; and Practice F 1552.
3. The official sanctioning agency must evaluate the curriculum, testing, and EMDPRS of any emergency medical dispatch program to be approved through direct evaluation and approval by the physician medical director.
4. The initial certification period for a new emergency medical dispatcher shall be two years.
5. Certification of EMDs shall be documented and directly traceable to a nationally established organization with a recognized program sanctioned by the governmental body with jurisdiction for EMS systems in the state.
6. All certifying entities or organizations shall maintain records for all certified individuals and shall provide documents and reports regarding testing and certification status as required by using agencies, states, or governmental units. All records shall be maintained for a minimum period of ten years from initial certification, recertification or testing of the individual.

10. Recertification

1. To become recertified as an EMD a candidate shall provide evidence of successful completion of a minimum of 12 hours of approved continuing medical dispatch education per year during the required recertification period. This shall equate to 24 hours of continuing medical dispatch education for the initial certification or recertification period.
2. The content of the continuing medical dispatch education required shall be defined and approved by the certifying agency and consistent with the requirements of this practice; and
3. Successfully pass a written or automated examination that evaluates the knowledge, comprehension and application of information required to function as an EMD as enumerated by Practice F 1258; and the minimum curriculum guideline of Practice F 1552.
4. After the initial two year certification, the subsequent recertification period of the emergency medical dispatcher shall be not less than two years and not more than four years.
5. If an EMD recertification expires, the EMD shall have twelve months to recertify or the EMD shall be required to perform all requirements of initial certification.

11. Reciprocal Certification

1. Reciprocal certification shall be established between certifying agencies and organizations having programs that meet the requirements contained in this practice and Practice F 1552.
2. The diversified EMDPRS protocols require specific training and knowledge in their proper use, therefore, the emergency medical dispatcher wishing reciprocal certification must receive formal training on the specific EMDPRS that is used for the certification being sought and as used within the employing emergency medical dispatch agency.

12. Revocation of Certification

1. The goal of quality assurance is to correct deficiencies and encourage excellence, not just adhere to minimum standards. Demonstrated inabilities and failure to perform appropriate patient care through approved pre-arrival instructions and demonstrated inabilities and failure to perform according to the predetermined medically approved protocols are significant failures and cannot be tolerated within a comprehensive EMD program.
2. EMD certification or recertification may be suspended or revoked by the certifying entity for any of the following causes:
 1. Habitual or excessive use or addiction to narcotics or dangerous drugs, or conviction of any offense relating to the use, sale, possession, or transportation of narcotics, dangerous drugs, or controlled substances.
 2. Habitual or excessive use of alcoholic beverages or being under the influence of alcoholic beverages or controlled substances while on call or on duty as an EMD or conviction of driving under the influence of alcohol or controlled substances while driving a vehicle.
 3. Fraud or deceit in applying for or obtaining any certification, or fraud, deceit, incompetence, patient abuse, theft, or dishonesty in the performance of duties and practice as an EMD or other EMS professional.
 4. Involvement in the unauthorized use or removal of narcotics, drugs, supplies or equipment from any emergency vehicle, agency, or health care facility.
 5. Performing procedures or skills beyond the level of certification or not allowed by rules, or violation of laws pertaining to medical practice and drugs.
 6. Conviction of a felony or a crime involving moral turpitude, or the entering of a plea of guilty or the finding of guilt by a jury or court, of commission of a felony, or a crime involving moral turpitude.
 7. Mental incompetence as determined by a court of competent jurisdiction.
 8. For good cause, including conduct that is unethical, immoral, or dishonorable.
 9. In addition, recommendation for decertification or termination should also be based on the following:
 1. Demonstrated inabilities and failure to perform appropriate patient care through approved pre-arrival instructions, and
 2. Demonstrated inabilities and failure to perform according to the predetermined medically approved EMDPRS protocols.

13. Continuing Dispatcher Education (CDE)

1. A sound, ongoing program of continuing dispatcher education is essential. Without regular educational experience specifically direct to their practice, the EMD will become less proficient in the understanding of and compliance to the EMDPRS. The agency's continuing dispatcher education (CDE) program should be coordinated and organized for the EMDs through the emergency medical dispatch QA/QI personnel, who through the evaluation of on-line case review, identify the specific and individual needs of the EMD. The training should meet as a minimum the following objectives:
 1. Develop an understanding of telecommunications and the EMDs' roles and responsibilities;
 2. Enhance the on-line skills in pre-arrival instructions and in all emergency telephone procedures within the practice of EMD;
 3. Improve skills in the use and application of all component parts of the EMDPRS, including interrogation, prioritization, and appropriate provision of pre-arrival instructions;
 4. Seek opportunities for discussion, skill practice, and critique of skill performance;
 5. Maintain a current understanding of the evolving science of emergency medical dispatching methods, procedures, techniques, and standards.
1. *Elements of Continuing Dispatcher Education*---CDE at a minimum must include a review of the elements of the curriculum, with special emphasis on operational functions, protocol and policy compliance, new procedures, medical advancements, problematic situations, and greater in depth understanding of the medical conditions that are represented within the EMDPRS. CDE learning can be obtained through various educational methods and may include but is not limited to the following suggested CDE categories:
 1. *Scenario Drills/Role Playing*-Workshops and seminars related to EMS, preferably related to the skills of an EMD; that is, airway management, review of essential telecommunication skills, telephone scenarios, medical legal issues, computer aided dispatch, stress management, refresher courses, etc. (maximum of eight hours per year);
 2. Local planning or management meetings, including general organization for disaster mass casualty, and HAZ-MAT related incidences (maximum of four instructional hours per year).
 3. *Case Review Activities*-Quality assurance/quality improvement case review, planning and analysis of issues or findings identified by dispatch QA/QI, theoretically or in practice (maximum of four instructional hours per year).
 4. Audio-visuals (films, video tapes, etc.), that illustrate and review proper emergency care and EMD procedures. Titles should be restricted to those specific to EMS, preferably EMD related (maximum of two instructional hours per year).
 5. *Didactic Lectures*-Teaching the general public any topic within the scope of basic EMD/EMS relations. Synopsis of the subject taught should be included in the CDE documentation (maximum of two instructional hours per year),

6. *EMS Field Experience*-Miscellaneous categories may include on-duty work experience as an EMT or EMD (maximum of two instructional hours per year), and
7. *Attendance at Remote Professional Conferences and Seminars*-Workshop and seminars related to EMS, preferably related to skills of an EMD.

14. Risk Management

1. The following attitudinal philosophy of risk management within a quality assurance program is derived from the *Guidelines for Quality Assurance (3)* from the Council on Medical Service of the American Medical Association and deals mainly with risk management-type issues. These ten guidelines should be utilized in any medical dispatch system, whether private or governmental operated and whether conducted by medical directors, administrators, supervisors, peers, or governmental agencies.
 1. The specific policies and procedures to be utilized for performance evaluation activity must be carefully explained to the EMDs whose performance will be measured. All procedures must be objectively and impartially administered.
 2. Any formal corrective activity related to an individual EMD should be triggered by concern for that individual's overall practice, rather than by deviation from specified criteria in single cases. Judgment as to the competence of specific dispatchers should be based on an assessment of their performance with a number of patients and not on the examination of single, isolated cases, except in extraordinary circumstances.
 3. The institution of any corrective action or activity should be preceded by discussion with the EMD involved. There should be ample opportunity for the EMD to explain observed deviations from accepted practice patterns to supervisors, professional reviewers, or the medical director, or all three, before any remedial or corrective action is decided on.
 4. Emphasis should be place on retraining and modification of unacceptable practice patterns rather than on sanctions. The initial thrust of any remedial activity should be toward helping the EMD correct deficiencies in knowledge, skills, or techniques, with practice restrictions or disciplinary action considered only for those not responsive to such remedial activities.
 5. The employing agency must provide the appropriate educational resources needed to affect the desired practice modifications whether they be peer consultation, continuing education, retraining or self-learning and self-assessment programs.
 6. Feedback mechanisms should be established to monitor and document needed changes in practice patterns and allow for assessment of the effectiveness of any remedial activities instituted by or for an EMD.
 7. Restrictions, sanctions or disciplinary actions should be imposed on those dispatchers not responsive to remedial activities, whenever the employing agency or medical director, or both, deem such action necessary to protect the public. Depending on the severity of the deficiency such restrictions may include loss of certification.
 8. The imposition of restrictions, sanctions or disciplinary actions must be timely and consistent with due process. Before a restriction or

disciplinary action is imposed, the EMD affected should be provided an explanation of the basis for such actions, ample opportunity to request reconsideration and to submit any documentation relevant to the request, and the right to meet with those considering its imposition. However, in cases where those considering the imposition of restrictions, sanctions or disciplinary action deem the dispatcher to pose an imminent hazard to the health of patients, personnel or the public at large, such restrictions or disciplinary actions may be imposed immediately.

9. Quality assurance systems for medical dispatch should be structured and operated so as to ensure immunity for those conducting or applying such systems who are acting in good faith. To ensure the active unfettered participation of all parties in the review process, all case reviews, and the documents and opinions generated by them, should be structured, if possible, for protection from subpoena and legal discovery.
10. To the fullest degree possible, quality assurance systems should be structured to recognize care of high quality as well as correcting instances of deficient practice. The vast majority of practicing, professionally trained EMDs provide care of high quality. Quality assurance systems should explore methods to identify and recognize those treatment methodologies, procedures, and protocols that consistently contribute to improved patient outcomes, system efficiency, and safety. Information on such results should be communicated to the medical control community and dispatch agency administrations. EMDs providing high and consistent quality care should be rewarded. Commendations, awards, advancements and other forms of positive reinforcements are important facets of quality assurance.

15. Sequence of Implementation

1. This section is intended to serve as a sequential step guideline of activities that must be completed to implement an emergency medical dispatch program. All administrative and oversight functions must be established and in place prior to training the EMDs or any "on-line" use of the EMDPRS.
1. Selection and orientation of the medical director (who also serves on the QA/QI and oversight committees noted below),
 1. EMD project director;
 2. Communications center manager;
 3. Emergency medical service system(s) administrator(s);
 4. EMD program QA/QI personnel;
 5. Active on-line dispatcher (s);
 6. Prehospital care provider representative (EMT or paramedic, or both);
 7. EMD labor organization representative; and
 8. Continuing dispatch education personnel;
1. The committee must identify the goals and objectives of their proposed EMD program.

1. Selection of an EMDPRS by the oversight committee, with the written approval of the program medical director, conforming to the goals and objectives identified above.
 2. Acquire the selected EMDPRS.
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1. Orientation about the EMD program for all relevant governmental or municipal personnel, EMS personnel (field responders, supervisory, administrative) and communications managers, administrators, and oversight committee members.
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1. Develop QA/QI program for employee evaluation as indicated in the section on performance evaluation.
 2. Ensure that all oversight committee functions, QA/QI mechanisms, continuing education programs and other above outlined administrative functions are established prior to commencement of EMD training.
 3. Arrange, schedule and conduct all prerequisite or pre-EMD training programs such as CPR or emergency medical orientation (first responder) classes for communications personnel.
 4. Arrange, schedule and conduct EMD training program for all communication personnel, all oversight committee members, and medical direction personnel.
 5. Implement the EMDPRS in the communications center
 6. Begin performance evaluation of EMD cases according to the QA/QI program.
 7. Initiate the continuing dispatch education program (CDE).
 8. Begin dispatch feedback mechanisms and performance remediation process.
 9. Conduct orientation of ancillary public safety communications centers in the geographic area.
 10. Provide for a public education component to orient the serviced population to the new EMD program.
 11. Continue to gather and record data relative to the effectiveness of the EMDPRS and evaluate the impact of the EMD program on the delivery of emergency medical services.

The American Society for Testing and Materials takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.

References

1. This practice is under the jurisdiction of ASTM Committee F-30 on Emergency Medical Services and is the direct responsibility of Subcommittee F30.04 on Communications.
2. Annual Book of ASTM Standards, Vol. 13.01

Guidelines for Quality Assurance, Council on Medical Service of the American Medical Association.

Appendix G 2a: Elements of an Emergency Medical Dispatch System

(The information below is included as an illustrative resource regarding EMD dispatch.)

(National Institutes of Health; NIH Publications. 1994. No 94-3287)

terms: Emergency medical dispatching; acute myocardial infarction (AMI); coronary heart disease (CHD); sudden cardiac death; cardiac arrest; "chain of survival" for victims of cardiac arrest; emergency medical system (EMS); cardiopulmonary resuscitation (CPR); emergency medical dispatcher (EMD); caller-interrogation questions; prearrival instructions; vehicle response mode; medical dispatch protocols; dispatch life support; medical dispatcher training; medical dispatcher certification; emergency medical dispatch quality control and improvement; advanced life support (ALS); basic life support (BLS); lights-and-siren response; standard response classification codes; "dispatcher abandonment"; telephone aid; "ad libbed" instructions;

EMERGENCY MEDICAL DISPATCHING: RAPID IDENTIFICATION AND TREATMENT OF ACUTE MYOCARDIAL INFARCTION

FOREWORD Coronary heart disease (CHD) continues to be the leading cause of death in the United States despite a remarkable decline in CHD mortality over the last 30 years. The National Heart, Lung, and Blood Institute estimates that as many as 1.25 million people will experience an acute myocardial infarction (AMI) in 1993, and nearly 500,000 will die.

The importance of early treatment has been underscored in the last decade with the results from clinical trials of thrombolytic therapy demonstrating mortality reductions with earlier treatment. Out-of-hospital sudden cardiac death is an ever-present threat, further highlighting the importance of early recognition and treatment.

However, a fundamental barrier to timely treatment is delay -- at the level of the patient, the emergency medical services (EMS) system, and the emergency department. In June 1991, the National Heart, Lung, and Blood Institute launched the National Heart Attack Alert Program (NHAAP) with the goal of reducing AMI morbidity and mortality, including sudden cardiac death. The NHAAP Coordinating Committee was formed to help develop, implement, and evaluate the program. This committee is composed of representatives of 39 national scientific, professional, governmental, and voluntary organizations interested in lowering AMI morbidity and mortality through professional, patient, and public education.

The importance of the EMS system for cardiac care has been highlighted in the American Heart Association's recent guidelines for cardiopulmonary resuscitation and emergency cardiac care where early access to EMS is identified as the first link in the chain of survival for cardiac arrest. The chain of survival concept has been expanded to include patients with symptoms and signs of AMI.

Emergency medical dispatching has been recognized as a vital part of the early access link in the chain of survival for cardiac arrest. The potential important role for

emergency medical dispatchers (EMD's) in the prehospital care of patients with symptoms and signs of an AMI, as well as patients with cardiac arrest, is the underlying assumption of this paper.

Thus, while emergency medical dispatching is a broader topic than AMI and cardiac arrest, this paper represents a consensus of its potential contribution to the seamless prehospital identification and treatment of patients with AMI, including cardiac arrest, as well as a consensus of the critical issues and recommendations for medical dispatch protocols, processes, training and certification, and quality control and improvement.

Nevertheless, it should be noted that there is a paucity of research related to outcomes associated with emergency medical dispatching. Only through evaluation research can the optimal EMD processes and protocols, associated with specified outcomes, be elucidated.

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INTRODUCTION TO EMERGENCY MEDICAL DISPATCHING

The American Heart Association (AHA) has proposed the concept of a "chain of survival" for victims of cardiac arrest. The chain of survival includes four links, each of which must be robust to ensure maximum survival rates. The components of the chain are:

1. Early access to the emergency medical services (EMS) system
2. Early cardiopulmonary resuscitation (CPR), either by bystanders or first-responder rescuers
3. Early defibrillation by first responders, emergency medical technicians, or paramedics
4. Early advanced life support.

Although the chain of survival was initially conceptualized for cardiac arrest victims, patients with an acute myocardial infarction (AMI) also benefit from the chain-of-survival approach to emergency cardiac care in the community.

The first link of the chain of survival (early access) encompasses several major actions that must occur rapidly. Among these are recognition of the symptoms and signs of the AMI by the patient and bystanders, notification of the EMS system (often by use of the 9-1-1 emergency telephone number), recognition of a cardiac emergency by the medical dispatcher, and activation of available EMS responders. Each action is a part of the early access link.

During the past 15 years, the public has been educated to use the 9-1-1 emergency telephone number to summon help for a range of emergencies, from minor problems to life-threatening conditions. The value of the 9-1-1 system is probably increased if there is a qualified professional -- the emergency medical dispatcher (EMD) -- to process emergency medical calls.

An EMD is a trained public safety telecommunicator with the additional training and specific emergency medical knowledge essential for the efficient management of processing 9-1-1 calls and other emergency medical communications. EMD's can perform some important functions that may enhance the efficiency and effectiveness

of prehospital care for AMI patients. They can elicit symptoms from callers to determine if a heart attack is possibly occurring and activate appropriate EMS responders to deal with the AMI patient. Dispatchers can also provide 9-1-1 callers with instructions for how to care for the possible AMI patient until help arrives -- including CPR, if necessary. Effective emergency medical dispatching has the goal of sending the right EMS resources to the right person, at the right time, in the right way, and providing the right instructions for the care of the patient until help arrives.

This goal can be ideally accomplished through the trained EMD's careful use of a protocol that contains the following elements:

1. Systematized caller-interrogation questions that are chief-complaint specific
2. Systematized prearrival instructions
3. Protocols that determine vehicle response mode and configuration based on the EMD's evaluation of injury or illness severity
4. Referenced information for dispatcher use.

The impact of well-trained, medically managed EMD's on the early care of potential heart attack victims is believed to be potentially beneficial. Five elements seem to be key to an effective emergency medical dispatch program:

- Use of medical dispatch protocols
- Provision of dispatch life support (see definition below)
- EMD training
- EMD certification
- Emergency medical dispatch quality control and improvement processes.

This paper discusses each of these elements and makes some recommendations for improving emergency medical dispatching in the United States. Local, county, and State governments have a responsibility to ensure that 9-1-1 and emergency medical dispatch centers are staffed by qualified EMD's. This involves including emergency medical dispatching as part of a community's assessment of the EMS needs, and designating resources that are indicated, to serve the welfare of its citizens.

ISSUES AND RECOMMENDATIONS FOR EMERGENCY MEDICAL DISPATCHING

Two documents on emergency medical dispatching that have been developed by nationally authoritative agencies are:

- The ASTM's "Standard Practice for Emergency Medical Dispatch"
- The National Association of EMS Physicians' (NAEMSP) positions paper, "Emergency Medical Dispatching."

The recommendations set forth in these documents are believed to be appropriate, and all EMS systems are encouraged to implement them as much as possible. Rather than repeating or superceding the points made in those documents, this paper addresses emergency medical dispatching issues with an emphasis on care of the AMI patient and reiterates the recommendations that are relevant for an emergency medical dispatching system to effectively handle the AMI patient.

The ASTM is also currently developing two additional documents on emergency medical dispatching. It is anticipated that these standards will parallel many of the recommendations contained in this paper. These documents are:

- The ASTM F-1552 "Standard Practice for Training, Instructor Qualification and Certification Eligibility of Emergency Medical Dispatchers"
- The ASTM F-1560 "Standard Practice for Emergency Medical Dispatch Management."

It should be noted that few well-constructed, objective, published studies exist that address the components or the effectiveness of components of emergency medical dispatching. This is in large part due to the difficulty in defining, as well as determining, those patient outcomes or improvements in patient conditions that are a result of emergency medical dispatching. The patient's condition can deteriorate during the time it takes a prehospital provider to arrive at the scene. Outcome parameters based on the EMS personnel's initial patient findings are not well defined for most prehospital problems other than cardiac arrest and critical trauma. To guarantee that outcomes actually result from the use of a given protocol, a study must demonstrate high compliance to that protocol by the dispatchers. Studies must clearly identify the exact protocol or specific part of the protocol that is undergoing evaluation. The need for further studies regarding the training and retraining, quality control and improvement of EMD's, and the benefit and optimum configuration of prehospital EMD protocols is a general recommendation of this paper.

MEDICAL DISPATCH PROTOCOLS

Effective EMD practice is based on the consistent use of medically approved dispatch protocols. These protocols are a written system of procedures for the evaluation of, response to, and provision of care to emergency patients. A written dispatch protocol system directs the EMD to complete a chief-complaint-specific, preplanned interrogation of the 9-1-1 caller to accurately assess and act on the medical emergency. A dispatch protocol requires the EMD to interrogate the caller to identify the demographics, characteristics, and general medical problem of the patient and to determine the status of consciousness and breathing. This is followed, when appropriate, by a more specific systematized interrogation related to the reported general medical problem, selected by the EMD from among protocol choices that cover all possible presenting medical emergencies. Systematized interrogation is an essential component of a comprehensive medical dispatch protocol, even for those systems not prioritizing between advanced life support (ALS) and basic life support (BLS) calls.

The dispatcher interrogation process has four important purposes:

1. Provide the EMD with the information needed to make a correct decision regarding initial unit response, including type of EMS personnel required and use of lights and siren
2. Enable the EMD to determine the presence of conditions or situations requiring prearrival instructions
3. Enable the EMD to provide responders with prearrival information for planning of, and preparation for, on-scene patient care activities
4. Assist in ensuring the safety of the patient, the responders, the caller, and other bystanders.

Use of a medical dispatch protocol helps the EMD to avoid making a faulty "diagnosis" of the medical emergency and incorrect dispatching decisions. When EMD's fail to use medical dispatch protocols, they may be prone to make an assessment of the situation based on inadequate information. The EMD may fail to identify the patient's chief complaint and, therefore, may provide inadequate response or advice. EMS literature provides many examples of the adverse outcomes and legal problems arising from such faulty dispatch practices.

The issue of patient and bystander denial of or inability to recognize heart attack symptoms is commonly encountered at dispatch.

Medical dispatch protocols should include standardized response classifications based on the EMD's structured assessment of the medical urgency of the incident and indicate the level of EMS response needed. These response classifications should be based on recognized medical symptoms and the type of incident. In systems that vary levels of response, dispatch protocols should specify which situations require an ALS versus a BLS response. This is important in those EMS systems that are "tiered" and allow rapid response by a level of EMS personnel appropriate for the seriousness of the emergency as determined by the EMD (e.g., ALS personnel are dispatched for life-threatening emergencies.) Medical dispatch protocols may also specify which situations require a lights-and-siren response to the scene and which do not. With EMS vehicle-related accidents in the United States reported to have been 2,400 for

ambulances in 1990, it is medically unsound and managerially unsafe to require lights-and-siren response on all accidents.

Response classifications will vary from one EMS system to another based on the type of system resources, response limitations, traffic patterns, and geography of their service areas. Response configurations often become more complex for larger or more sophisticated systems. It must be stressed that decisions regarding response assignments are a responsibility of medical management and should be subject to the approval of the medical director of an EMS system.

Ideally, standardized response classifications should be based on a uniform coding system. This should assist in consistency of use, statistical comparison, and scientific research across EMS systems that use the same medical dispatch protocols.

The non-English speaking caller poses an ever-increasing challenge for many dispatch centers, especially those in large urban centers. This issue has three basic solutions: 1) sufficient staffing of EMD's with multilingual capability where a center's constituency has demonstrated frequent use of a particular language or languages other than English; 2) secure access to a language-interpreting service such as that provided by one of the major long distance carriers; and 3) provision of medical dispatch protocols in commonly encountered languages. At the time of publication of this paper, alternate language versions of protocols used in the United States are available in Spanish, French, and German.

It is recommended that emergency medical dispatch protocols:

- Be medically approved
- Be uniform throughout each EMS jurisdiction
- Use standard response classification codes to facilitate scientific comparison and study among systems using the same protocols
- Be followed consistently and nonarbitrarily by all EMD's, except when additional clarification is needed
- Delineate the types of cases requiring an ALS versus a BLS response (especially in tiered systems) and the types of cases requiring use of lights and siren from those that do not.

DISPATCH LIFE SUPPORT

Dispatch life support encompasses the knowledge, procedures, and skills used by trained EMD's to provide care through prearrival instructions to callers. It consists of those BLS and ALS principles that are appropriate for application by EMD's. Dispatch life support forms the basis for establishing the content and application methodology for prearrival instructions used by medical dispatcher. The NAEMSP has also defined dispatch life support (see the definitions that follow).

Prearrival instructions differ from the less well-specified telephone aid, and the differences between them form the basis of recommendations for standardization of EMD training and practice (including dispatch life support):

Prearrival Instructions. Prearrival instructions are medically approved, written instructions given by trained EMD's to callers that help provide necessary assistance to the victim and control of the situation prior to the arrival of EMS personnel. Prearrival instructions are read word for word by the EMD to the fullest extent possible.

The necessity to routinely provide prearrival instructions has been addressed by the NAEMSP: "Pre-arrival instructions are a mandatory function of each EMD in a medical dispatch center. Standard medically approved telephone instructions by trained EMD's are safe to give and in many instances are a moral necessity." The failure to provide prearrival instructions, when possible and appropriate, is currently being litigated in the Nation's courts as a form of dispatcher negligence. It is interesting to note that one of the most significant obstacles to the establishment of prearrival instructions, and medical dispatch protocol systems in general, has been the notion that agencies can be successfully sued for engaging in such activities. It appears that there has never been a dispatcher negligence lawsuit filed for the provision of medically sound prearrival instructions. There are a significant number of lawsuits recently completed or in progress for which the omission of prearrival instructions (or "dispatcher abandonment", as the legal terminology describes it) has been alleged.

The nature of prearrival instructions is such that they must be provided in a timely manner, over the telephone, and without the benefit of practice or visual verifications. Thus, it is important that EMD's carefully adhere to protocols for the provision of telephone-instructed treatment in a standard, nonarbitrary, and reproducible way.

Box 1.

Application of Emergency Medical Dispatching Principles to the Patient with Suspected AMI and Cardiac Arrest

Emergency medical dispatching principles, as operationalized in medical dispatch protocols and prearrival instructions, can be readily applied to the potential AMI and cardiac arrest patient. For all patients, key questions are asked as to whether the patient is reported to be unconscious and not breathing to ascertain if a cardiac arrest has occurred. For example, the answer "I'm not sure" regarding breathing status given by a second-party caller (someone who can see or easily access the patient) is assumed to mean "no"; therefore, a maximal response, preferably ALS/paramedics, would be sent immediately. The key questions, then, also determine the most appropriate level of response. If a cardiac arrest has been verified, first responders can be given the chief complaint, approximate age, the

status of consciousness and breathing, and the dispatch response code, facilitating preparation for possible use of an automated external defibrillator. Prearrival instructions in the case of a cardiac arrest would entail dispatcher-assisted CPR.

For a patient with chest pain, additional dispatcher interactions with the caller are recommended to overcome caller or patient denial or to validate that the caller's descriptions of symptoms and signs may represent the presentation of a heart attack. Specifically, the dispatcher may ask the caller if the patient has severe indigestion; tightness; heavy pressure; constricting band and crushing discomfort in the chest with the spread of these feelings to the arms, jaw, neck, or back; as well as the presence of nausea or sweating. Verification of these symptoms directs the dispatcher to advise the responders so that their functions at the scene can be expedited.

Prearrival instructions in these cases would include correct positioning of the patient, instructions for vomiting, and instructions to monitor very closely and call back if the patient's condition worsens.

Telephone aid. Telephone aid, as defined herein, consists of "ad libbed" instructions provided by either trained or untrained EMD's. Telephone aid differs from dispatch life support in that the instructions provided to the caller are based on the dispatcher's previous training in a procedure or treatment but are provided without following a scripted prearrival instruction protocol. This method exists because either no protocols are used in the medical dispatch center or protocol adherence is not required by policy and procedure (e.g., the dispatcher is "trained" in CPR and thus describes to the caller, to the best of his or her verbal ability, how to do CPR).

As noted in the section (above) on prearrival instructions, dispatchers must carefully adhere to written protocols.

Unfortunately, coupled with a growing interest and effort within public safety agencies to provide some type of telephone instructions to callers, many agencies are "allowing" dispatchers to ad lib instructions. There appears to be a significant difference between dispatch life support-based prearrival instructions and telephone aid. Telephone aid, as defined, may only ensure that the dispatcher has attempted to provide some sort of care to the patient through the caller but does not ensure that such care is correct, standard, and medically effective or even necessary in the first place.

Telephone aid often causes the following predictable errors:

1. Failure to correctly identify conditions requiring telephone intervention and therefore prearrival instructions in the first place (e.g., "saving" an infant having a febrile seizure who was incorrectly identified as needing CPR due to failure to follow protocols that are medically designed to verify need -- verify breathing, pulse, etc., before potentially dangerous dispatcher-invasive treatments such as compressions are initiated).
2. Failure to accurately identify the presence of interim symptoms and signs (or the lack of them) during the in-progress provision of telephone intervention (e.g., dispatchers who ad lib CPR sequences often miss important patient verifiers that cannot be seen by the dispatcher, such as watching for the chest to rise).

3. Failure to perform (describe or teach) multistep procedures, such as CPR care, in a consistent and reproducible fashion regardless of which dispatcher in a center provides such help (e.g., quality assurance review of these types of cases often reveals that dispatchers in the same center [or even the same dispatcher] perform care differently each time if they are not following scripted prearrival instruction protocols closely).

Telephone aid, as defined, often provides only the illusion of correct help via telephone without predictably ensuring consistent and accurate instructions to all callers. Telephone aid, therefore, is usually considered an inappropriate and unreliable form of dispatcher-provided medical care.

Medical dispatch practice must be safe, competent, and effective. The systematic use of medically preapproved protocols will help to ensure that the dispatcher performance is structured and reproducible and can be objectively measured.

In light of the important differences between prearrival instructions and telephone aid, and to improve standardization of EMD training and practice, it is recommended that:

- Dispatch life support be adopted nationwide as an essential concept of emergency medical dispatch
- Dispatch life support be standardized
- Prearrival instructions be provided from written protocol scripts for all medical emergencies.

MEDICAL DISPATCHER TRAINING

Formal EMD training contributes to the safe and effective performance of the medical dispatcher's role in EMS.

Guidelines for the core content of EMD courses are currently being standardized by the ASTM. These guidelines will provide direction for the training (and certification) of EMD's regarding appropriate decisions about EMS responses in a safe, consistent, and nonarbitrary manner. Within the context of this broad goal, current EMD training is generally at least 24 hours in length (e.g., three 8-hour days). A typical course consists of an overview of dispatching objectives and basic dispatch techniques, concentrating on known problem areas. The role of the EMD is defined, and the concepts of medical dispatching are discussed in detail. The medical dispatch protocol in use by the sponsoring EMS agency is learned, with emphasis on interrogation skills, protocol compliance, and the provision of prearrival instructions. Common medical problems are reviewed, with an emphasis on interrogation specifics for each type of problem, and the relevance and relationship of listed prearrival instructions. Throughout the training, the importance of identifying the presence or absence of symptoms (such as "chest pain") during interrogation is emphasized, rather than making a judgmental diagnosis of "heart attack." The medical significance of the various levels of urgency for each chief complaint and its resultant response is clarified to give the student the ability to prioritize quickly the various types of incidents confronting EMD's daily. Often, courses use mock case drills to give the dispatcher a hands-on feel of protocol performance.

A formal examination to test student understanding and assimilation of the curriculum should be administered at the completion of an EMD course. This enables formal certification in jurisdictions requiring or allowing it.

It is recommended that EMD training:

- Be required for all medical dispatchers
- Be consistent in core curriculum content nationally
- Be based on the medical dispatch protocol selected and approved by the sponsoring agency's physician medical director, allowing for practice use of the protocol by the EMD trainee.

MEDICAL DISPATCHER CERTIFICATION

Given the very important role of the dispatcher in the chain of survival, certification should become governmentally mandated throughout the United States.

Certification should include requirements for continuing education and recertification. Continuing education programs should incorporate formal written and practical tests. Continuing education and recertification allow EMS agencies to formally promote and ensure the ongoing quality of EMD performance. Certification also establishes processes for decertifying individuals who cannot meet minimum standards. There have been no studies to determine the optimal frequency or process of recertification; therefore, expert panels have recommended that EMD's should be recertified every 2 to 4 years. At least 12 hours per year of continuing education should be required for EMD recertification.

It is recommended that EMD certification:

- Be required of all EMD's through either State government processes or professional medical dispatch standard-setting organizations
- Require continuing education and recertification as components of a continuing certification process.

MEDICAL DISPATCH QUALITY CONTROL AND IMPROVEMENT

Each EMS system should have in place a comprehensive quality improvement program. Four goals in the quality control and improvement of medical dispatch activities are that:

1. Dispatchers understand medical dispatch policy, protocol, and practice
2. Dispatchers comply with medical dispatch policy, protocol, and practice
3. Deficiencies in understanding and compliance with medical dispatch policy, protocol, and practice among dispatchers be corrected
4. Medical dispatch policy, protocols, and practice be updated on a continuous basis to ensure that they are appropriate and effective.

A comprehensive quality control and improvement system for emergency medical dispatching has several components. Among these are selection of personnel; orientation; initial training; certification and recertification; continuing dispatch education; physician medical direction; data generation; case review and performance evaluation; correction of performance problems (risk management); and decertification, suspension, or termination. These components of medical dispatcher quality improvement are essential for maintaining the type of employment environment necessary to ensure safe and effective patient evaluation and care.

One of the most important areas of quality control/improvement is that of case review and performance evaluation. Between 7 and 10 percent of each EMD's cases should be randomly reviewed. The review of random cases ensures that each dispatcher's current practice (especially compliance with protocol) is determined. In addition, the review of out-of-the-ordinary cases (both excellent and problematic) is important. These cases are often identified by sources external to the dispatch center. The involvement of EMS field personnel in reporting incidents that appear to

represent dispatch-related problems can be very helpful in strengthening the performance and policy evaluation process.

These case reviews should serve as the basis for periodic dispatcher performance evaluation. The cumulative level of compliance to protocol of each medical dispatcher should be evaluated and compared with preset levels of acceptable practice. This provides an objective method of establishing thresholds of performance for these essential members of the EMS team. Corrective steps may include continuing education or disciplinary action.

In the absence of adequate case review and performance evaluation, it has been shown that dispatcher compliance to protocol deteriorates and is generally under 50 percent.

Medical direction is an essential element in the overall assurance of quality performance of EMD's. Just as medical direction is uniformly recommended for emergency medical technicians and paramedics, the EMD requires careful attention and guidance. According to the NAEMSP, "The medical aspects of emergency medical dispatching and communications are an integral part of the responsibilities of the Medical Director of an EMS system. Quality Improvement, Risk Management, and Medical Control and Direction are essential elements to the management of medical dispatch operations within the EMS system."

It is recommended that ongoing medical dispatch quality control and improvement processes:

- Be in place for all medical dispatch centers
- Allow for random review of cases
- Require high-level compliance to protocol as a major factor in dispatcher performance evaluation
- Be the basis of dispatcher reeducation, feedback, discipline, and medical management
- Be carried out under the medical direction of a qualified physician.

SUMMARY

The EMD is a key member of the EMS team. EMD's may have a profound effect on the early care of potential heart attack victims. To ensure optimal emergency medical dispatching, this paper has made a number of recommendations, which are highlighted below:

- Each EMS system should utilize a set of written, medically approved dispatching protocols for the evaluation of, response to, and provision of care to the AMI patient. These protocols should be followed consistently and nonarbitrarily by all EMD's.
- Dispatch life support should be provided by each EMS system. EMD's should be required to use medically approved, written prearrival instructions to help callers provide aid to the AMI patient and control the situation prior to the arrival of EMS personnel.
- Every EMD should be formally trained, based on a nationally consistent core curriculum, with an emphasis on mastery of the dispatching protocol used by the sponsoring EMS agency.
- Certification should be required of all EMD's, either through State governments or professional medical dispatch standard-setting organizations. This process should also mandate continuing education and recertification.
- Every EMS system should have in place a system of continuous quality improvement for medical dispatching. This should include a random review of each EMD's cases. Periodic performance evaluations should be conducted with each EMD, with emphasis on the EMD's adherence to dispatching protocol.
- All aspects of emergency medical dispatching should be the ultimate responsibility of the EMS physician who provides medical direction for a given EMS system. That is, an EMS physician should be in an authoritative position to manage the medical care components of an EMD program, including overseeing training, selecting and approving dispatch protocols and prearrival instructions, and evaluating the EMD system.

These recommendations, if implemented, may result in improvement of emergency medical dispatching in general -- and potentially better identification and treatment of patients with symptoms and signs of AMI, in particular.