This manual was developed to serve as a template for PAEMS System EMS managers needing to establish and/ or maintain a program for continuously monitoring and improving the quality of patient care and support services in all parts of the EMS system. It encourages EMS leaders to integrate continuous quality improvement practices as essential parts of normal EMS routines.

The mission of EMS is to provide timely and appropriate emergency medical care and transportation of the ill and injured, which requires consistent on-going evaluation of both organizational efficiency and operational quality. To achieve this end, EMS agencies should embrace the following fundamental principles:

1. EMS agencies can and must be improved

2. It is the responsibility of every provider to participate in the effort to improve EMS

3. The foundation of EMS Quality Improvement begins at the agency level

4. There must be a commitment to quality care by the governing body of each EMS agency, the EMS office.

The goals we have established for our System EMS QI program are based on nationally recognized standards and are as follows:

1. The public should be able to easily access EMS through an enhanced 911 system that uses medically approved dispatch protocols and functions under medical supervision.

2. EMS responders should possess adequate training and emergency response vehicles should be appropriately equipped and staffed.

3. Patients should be transported to a medical facility that can provide appropriate care and a system of medical oversight must be in place to ensure optimal levels of care consistent with accepted standards of medical practice and available resources.

4. Finally, all components of the EMS system should be linked together by a high quality EMS system and a quality improvement mechanism.

This manual is designed to provide current leaders, managers, and providers of emergency medical services with the information and tools necessary to monitor their service, with an eye towards transitioning from data collection and analysis to action points of change. In order to successfully use quality improvement findings to promote positive behavior within services or regions, we need to fully understand the implications of what makes some agencies more successful than others, and apply those principles to our everyday EMS operations.

The agency QA/QI coordinator, in cooperation with agency Training Officers may utilize data gathered by PCR through patient care records review to formulate local training schedules and/or programs, track and document equipment and medication usage, skill proficiency, SOP and Protocol adherence, in addition to other methods.

Remember that completion of an electronic run report and participation in a quality improvement program by every service and every licensed provider is required by **Illinois Statute Section 515.350**. Quite simply, licensed EMS services and providers in Illinois must participate in the quality improvement process.

QI Activities:

QI activities are comprehensive in their scope and encompass many strategies. They utilize a number of approaches and models of problem solving and analysis. These activities, while distinct, are inter-related and address clinical and system issues from three perspectives:

-Prospective: Working proactively to mitigate future issues before they occur through training and active involvement.

-Concurrent: Assessing issues and addressing them as they happen.

-Retrospective: Examining the data we have collected to provide additional insight into the efficacy, effectiveness and efficiency of the agency. This is done through protocol changes via evidence based medicine.

Reasons for QA/QI data collection and event reporting:

Provider Recognition- the QI program may regularly recognize the efforts made by providers, in order to promote high quality patient care.

Data Collection and Analysis - The collection of data allows the agency and Peoria Area EMS System to identify frequency, trends, improvements, declines and other areas that are actionable.

Patient Care Report (PCR) Reviews - PCRs are a valuable source of information of the quality of patient care delivery and data trends.

Skill Maintenance - QI analysis can identify deficiencies in skills or procedures. These skills and procedures should receive performance review and testing.

Continuing Education (CE)- covers regulatory and mandated training as well as educational needs as a result of QA/QI findings

Protocol and Procedure Review - Regular timely review of treatment protocols is imperative. Review is important to update medical procedures and apply new rules and regulations that may affect patient care.

Generating Activity Reports - Activity reports such as cardiac arrest & airway reports are summaries of various measurable events that can be based on the Peoria Area EMS system. These reports can be used to establish trends, consistencies and rates of proficiency. These reports can help to establish training needs or identify the need for system changes.

Benchmarking - comparison of a system's performance statistics against the national, state, regional or locally established performance levels.

EMS Event Review Process - Issues or concerns can come from a variety of sources and may be clinical, operational or both. Peoria Area EMS agency events are to be reviewed and the characteristics of the events measured and analyzed for improvement of the Peoria Area EMS system. If a provider or department member(s) observes what appears to be inadequate/poor patient care practices, or an area that can be improved upon they should first address the provider. If further intervention is needed they should contact an officer of the agency for further follow up. If the agency supervisor feels that Peoria Area EMS System should be involved they should inform the EMS office for review by the Medical Director.

Equipment/Technology Evaluation- QA/QI plays an important role in creating processes to objectively evaluate and analyze new gear, equipment and technology.

Mandatory vs Voluntary reporting:

It is important to note that there are two main types of event reporting systems, mandatory and voluntary. Mandatory reporting systems have two major downfalls: They are often punitive in nature (a barrier to self-reporting), and their reporting criteria select for accidents and errors which cause harm. Thus, "near-miss" data, which are known to be highly valuable for predicting future problems, are absent from the database. The importance of near-miss reporting and analysis has been emphasized by the Institute of Medicine. In medicine, near misses are thought to occur 300-400 times more often than adverse events, and the higher rate allows for more powerful analysis. Non-punitive voluntary reporting systems avoid both of these vulnerabilities: they have a high degree of acceptance among system participants and therefore capture a much larger proportion of actual errors. They also permit participants to report "near-miss" events, increasing the total amount of analyzable information that is captured. The Institute of Medicine, Agency for Healthcare Research and Quality, American College of Emergency Physicians, and other prominent medical organizations all support standardized systems of event reporting as a method for improving patient safety.   PAEMS would like to see "near miss" data in the form of an incident report submitted by the QA/QI coordinator. PAEMS would like to see that the "near miss" was addressed with the provider and an understanding of what could have happened is documented.

What is required of the PAEMS agency:

The first requirement for a quality oversight program is to set a target goal. Through establishment of protocols, policies and procedures, all field providers should clearly be able to understand what they are expected to do to meet the System-defined "standard of care". Protocols, policies and procedures are used to identify the expected level of performance for the agency based upon the established PAEMS protocols. Additionally specific requirements are as follows:

1. PAEMS participating agencies shall provide PAEMS QA/QI coordinator access to PCR's, whether via software access or monthly submission of all PCR's to the EMS office. **IDPH Code *515.350c***
2. PAEMS non-transporting agencies must submit all PCR's via email or fax to our office and to the State of Illinois. **IDPH Code *515.350b***
3. Any and all incident reports submitted to PAEMS must have corresponding PCR along with any supporting documentation attached.
4. Cardiac Arrest & Airway Management reports along with corresponding PCR shall be completed and emailed or faxed to PAEMS office by the next business day.
5. DEA controlled substances forms must be submitted to the EMS office monthly.
6. Monthly CE training topic & roster shall be submitted to the EMS office.

Additionally participating agencies in the Peoria Area EMS System must notify the EMS Office of the following:

1. Notify the System in any instance when the agency lacks the appropriately licensed and System-certified personnel to provide 24-hour coverage. Transporting agencies must apply for an ambulance staffing waiver if the agency is aware a staffing shortage is interfering with the ability to provide such coverage.

2. Notify the System of agency personnel changes and updates within 10 days. This includes addition of new personnel and resignations of existing personnel. Rosters must include: Name/level of provider, license number, expiration date, current address, phone number, date of birth, and B-med certification status.

3. Notify the System anytime an agency is not able to respond to an emergency call due to lack of staffing. The report should also include the name of the agency that was called for mutual aid and responded to the call.

4. Notify the System of any incident, via incident report within 24 hours, which could or did adversely affect the patient, fellow responders, or the System.

5. Provide the EMS Office with updated copies of FCC Licenses and Mutual Aid Agreements upon expiration.

6. Notify the System of any changes in medical equipment or supplies.

7. Notify the System of any changes in vehicles. Vehicles must be inspected by the System and the appropriate paperwork must be completed prior to the vehicle being placed into service.

8. Notify the System if the agency's role changes in providing EMS.

9. Notify the System if the agency's response area changes.

10. Notify the System if changes occur in communication capacities or equipment.

11. Glucometer logs. Testing should be done a minimum of once per week, any time a new bottle of strips is put into service and any time the glucometer is dropped. Glucometer logs should be kept in the ambulance (or other vehicle) and must be made available upon request of EMS Office personnel.

12. All agencies and agency personnel are to comply with all of the requirements outlined in HIPAA regulations with regard to protected health information.

13. Provide a copy of all provider's licenses who are on their roster, and submit such a roster along with appropriate paperwork to the EMS office anytime that a change is made.

It is the responsibility of the QAQI officer to review the required number of charts for completeness and accuracy. The QAQI officer along with other agency designated officers are tasked with documenting and correcting deficiencies in charts and working with their agency personnel to improve charting procedures.

Below are the required criteria for review of the standard patient care report for EMR-ALS agencies. Any deficiencies should be corrected by the agency as needed.

EMR & BLS non- transport and transport agency charts QA/QI procedure

All reviewed (QA/QI) charts should be reviewed for the following:

-Recognition of the chief complaint and proper protocol adherence.

-Dispatch-En Route-Scene-At Patient-Transport-At Hospital-Back in Service times.

-Applicable AVPU, SAMPLE, and OPQRST criteria documented.

-Adequate vital sign acquisition and at regular intervals.

-Proper medication dosages and routes of administration.

-Secondary and ongoing assessments throughout the call.

-Changes in patient condition and proper adjustments in treatments.

-Notification methods and times to the receiving facility if applicable.

-Quality of the narrative, preferably utilizing SOAP method.

ILS & ALS transport and non-transport agency reviewed charts QA/QI procedure

All reviewed (QA/QI) charts should be reviewed for the following:

-Recognition of the chief complaint and proper protocol adherence.

-Dispatch-En Route-Scene-At Patient-Transport-At Hospital-Back in Service times.

-Applicable AVPU, SAMPLE, and OPQRST criteria documented.

-Adequate vital sign acquisition and at regular intervals.

-Proper medication dosages and routes of administration.

-ILS & ALS specific interventions.

-Secondary and ongoing assessments throughout the call.

-Changes in patient condition and proper adjustments in treatments.

-Notification methods and times to the receiving facility if applicable.

-Quality of the narrative, preferably utilizing SOAP method.

PAEMS Agency Minimum QA/QI expectations

1-400 PCR's per year QA/QI 100%

401-600 PCR's per year QA/QI 80%

601-1000 PCR's per year QA/QI 50%

1001+ PCR's per year QA/QI 30%

Specific chief complaints or types of calls must be reviewed regardless of the outcome. These specific calls are to be reviewed, catalogued, and filed within the agency. PAEMS reserves the right to audit an agency and request these reports.

Below are the specific calls and/or complaints to be reviewed.

Airway Control QA/QI Procedure

Any call where an adjunct is utilized to protect, take control of, or make patent a patient's airway. OPA/ NPA, IGel, or ETT adjuncts included in protecting and securing a patient airway.

EMR/ EMT

Early recognition of poor airway compliance.

Establish airway patency with appropriate simple technique or invasive procedure to acquire adequate rate, rhythm, and depth of respirations based upon the patient's age and condition.

If an airway adjunct was utilized were manual c spine maneuvers needed and maintained?

If an IGel is utilized was it properly prepared, sized, and placed per protocol?

Were there any patient complications prior to or post airway maneuver?

ALS intercept along with agency and if not, why

ILS/ ALS

Implement EMR/EMT procedures

Was a pre intubation assessment performed to establish Cormack-Lehane scale Grade 1-4?

Appropriate sized ETT selected, lubricated, and tested for inflation of the cuff?

Was a Bougie utilized?

Did the provider preoxygenate and prepare the airway (suctioning, positioning)?

Was there proper visualization of the cords and multiple criteria for verification of tube placement?

Use of ETCO2 detector and listening for epigastric sounds and lung sounds?

If a misplaced tube is detected did they reattempt or discontinue and move to IGel placement?

Was manual C spine stabilization maintained, if applicable?

STEMI QA/QI Procedure

Any call where a patient is exhibiting signs and symptoms of a possible STEMI with or without a confirmed 12 lead STEMI.

EMR/EMT

Were ASA and/ or Nitro SL administered per protocol, and was there a change in pain levels?

Was the patient placed on O2? If not why?

Was a 12 lead ECG performed and transmitted within 10 minutes of patient contact?

Was a STEMI declared via TWIAGE or Medical Control?

ALS intercept along with agency if not, why?

ILS/ ALS

Implement EMR/EMT procedures

Was pain control medication administered?

Was any other medication administered and why?

Were serial 12 leads acquired?

Cardiac Arrest with or without ROSC

Any call where the patient is confirmed pulseless and/ or apneic.

EMR/ EMT

Early recognition of condition of the patient.

CPR and following AHA guidelines for BLS providers.

Basic Airway Control Procedures (See above).

Use of AED-# of shocks and intervals.

Need for Narcan or Glucagon?

Assess viability of the patient with notification of DAS.

ALS intercept along with agency and if not, why

ILS/ ALS

Implement EMR/ EMT Procedures

Utilization of AHA guidelines for ALS providers

Use of an advanced airway control (See above)

Was there IV/ IO access and attempts vs success?

Medication administration

Utilization of cardiac monitor/ defibrillator with detailed manual rhythm recognition

Investigations into H's and T's

After ROSC (all levels of care)

Was targeted temperature regulation implemented?

Was a 12 lead ECG acquired?

Notification to receiving facility

Review of times and intervention intervals per AHA guidelines

Post-ROSC reassessment of the airway, vital signs, and neurologic response

Suspected Stroke QA/QI Procedure

Any call where the patient exhibits signs and/ or symptoms of a possible stroke with or without confirmation.

EMR/ EMT

Recognition of condition and early FAST exam procedure followed

Blood glucose analysis and necessary treatment if applicable

O2 administration, if not why?

12 lead ECG within 10 minutes of patient contact

Establish last known normal

ALS Intercept along with ALS agency and if not, why

ILS/ ALS

Implement EMR/ EMT Procedures

IV access attempts vs success

Early notification to receiving facility

Sepsis QA/QI Procedure

Any call where the patient exhibits signs and symptoms of Sepsis such as HR>90, RR >22, Hypo or Hyper thermic, ALOC, AMS, and/ or possible confirmed infection.

EMR/ EMT

Early recognition of patient's condition and possible S/S of Sepsis per Sepsis Protocol

Blood glucose analysis

Acquire patient temperature

Maintaining warm environment

ALS Intercept along with agency and if not, why

Early Notification to receiving facility

ILS/ ALS

Implement EMR/EMT Procedures

IV/IO access attempts vs success along with fluids administered

Sepsis specific notification

Dead at Scene QA/ QI Procedure

All Providers

Obvious signs of death must be present per protocol

Was call to medical control/ coroner made?

Did the provider acquire a 4 lead strip of 6 seconds Asystole-if not why?

Possible etiology with history and all patient demographics

Was Police or Fire on scene and who took over custody of the body?

If any other QA/QI procedure is applicable include in this review

Level 1 or 2 Trauma QA/QI Procedure

EMR/EMT

Early recognition of MOI and patient condition

Appropriate C-Spine precautions and spinal immobilization procedures

Limiting scene time <10 minutes

Establish AVPU and GCS early and often

ALS Intercept along with agency and if not, why

Early notification to the appropriate receiving facility

ALS

Implement EMR/ EMT Procedures

Limiting on scene procedures

IV/IO access and fluid administration en route to the receiving facility

Medication administration (TXA)

Early notification to the appropriate receiving facility

Violent or Aberrant Situations QA/QI Procedure

<u>All Providers</u>

If there was a crime scene was PD on scene, or were they notified-and by whom?

In situations of apparent abuse was all mandated reporting completed?

Were restraints utilized properly per protocol?

Was the patient under arrest?

Were wounds or injuries documented properly and thoroughly?

Was the patient transported to the proper facility?

Was evidence collected and transported with the patient?

Was there suspected human trafficking?

Were there any injuries to the crew or other responders, and by what means?

Was hospital security notified and/ or was PD on board during transport?

Meeting with the Medical Director and/ or representatives from the EMS office

The EMS office reviews many patient care reports and EMS calls. They field complaints and concerns from hospitals and their providers, other EMS providers, health care recipients, and the general public. Investigations are generated for a multitude of reasons. Many of which are completed without ever involving the provider or agency in question.

It may be necessary, however, to discuss face to face with a provider and/ or representatives of an agency on specific topics. These topics may include a provider or agency's actions, observations, documentation, and/ or care of a specific patient. It may include inquiries into details of a particular call and/ or interactions with additional responders on scene. There may be discussions of details of care for various reasons in an effort to teach and help improve future patient care by this provider and perhaps implementing changes to protocols and provide system wide educational opportunities.

In the event that a provider is requested to meet with the Medical Director and/ or representatives of the EMS office there will be correspondence to determine the agreed upon date, time, and location of the meeting. The provider and/ or agency will be informed of the reason for the meeting and the provider may bring a representative from their agency if they so choose.

In the event that the Medical Director feels disciplinary action is necessary he or she may rule as they see fit. The provider has the right to appeal any rulings to the System Review Board within 15 days.

According to Section 515.420 of the Illinois EMS Act; If an appeal is requested the review board must convene as soon as possible, but at least within 21 days of the formal request. The System Review Board shall consist of a minimum of 3 members-1 of which is a physician with knowledge of EMS, 1 EMT, and 1 provider at the same level as the provider in question. The Review Board will be presented with all of the evidence and/ or testimony and may choose to uphold, increase, reduce, or void the Medical Director's decision. The provider in question then has the right to request an appeal to the State EMS Disciplinary Review Board in accordance with the Act and (Section 3.40e). A copy of the roster for the System Review Board may be found posted on the bulletin board outside the EMS office.

A copy of the Illinois Administrative Codes aka EMS 515 codes may be found at:
https://www.ilga.gov/commission/jcar/admincode/077/07700515sections.html .