OFFICE OF THE MEDICAL DIRECTOR

Quality Improvement Plan for the Johnson County Ems System

Contents

PURPOSE AND SCOPE

The office of the Medical Director provides medical oversight to the county ambulance service, eight municipal fire departments, and the county emergency dispatch center.

MISSION AND VISION

OUR MISSION

Providing comprehensive, patient-centered, evidenced-based, medical direction to the EMS System by:

- Ensuring patient care protocols adhere to best practices
- Using CQI/QA and peer review processes to guide system medical education
- Monitoring system performance through innovative methods and clinical registries
- Advocating for improved collaboration between the EMS system and community health partners

OUR VISION

To strive for the best possible outcome for every patient by continuously enhancing the quality of care provided by the Johnson County EMS System

JUST CULTURE

OVERVIEW

The Johnson County EMS System centers around Just Culture. A just culture balances the need for an open and honest reporting environment with the end of a quality learning environment and culture. While the organization has a duty and responsibility to employees (and ultimately to patients), all employees are held responsible for the quality of their choices. Just culture requires a change in focus from errors and outcomes to system design and management of the behavioral choices of all employees.

TRAINING

The EMS system participates in Just Culture Training. The leadership at each agency participates in 3 phases of Just Culture training.

Phase 1: One-hour overview presentation conducted by the Center for Patient Safety
Phase 2: Four-hour online course
Phase 3: Seven 30-minute webinars on various topics as well as interaction/discussion from the group participants.

All other staff complete an Introduction to Just Culture training video.

PATIENT SAFETY ORGANIZATION (PSO)

The Johnson County EMS System is part of a Patient Safety Organization called the Center for Patient Safety (CPS). PSOs support the collection, analysis, sharing and learning from incidents, near misses and unsafe conditions using Common Formats for uniform reporting of patient safety events. The information collected helps to determine what medical errors are occurring and why to prevent them from occurring again.

- PSOs aggregate data from many clinicians to identify risk patterns of care and system failure
- PSOs allow clinicians to work together in a confidential, protected space

- PSOs do not impose fines or other punitive results for participating – PSOs are not a regulatory body
- PSOs assure participating clinicians their safety work will not be used against them

PATIENT SAFETY EVENT (PSE) REPORTING

OVERVIEW

The Johnson County EMS System uses an electronic platform that allows clinicians to enter a patient safety event. On average there are around 230 reports made each year. The OMD reviews 100% of these calls.

EMS System agencies are expected to report the following Patient Safety Events (PSE) to the Office of the Medical Director (OMD) using electronic platform as soon as reasonably possible after an event:

- Harm or potential harm (ex. Near Miss/Close call) to patient or clinician during the course of patient care
- Unsafe condition/environment: any circumstance that increases the probability of a PSE
- Medication errors (including errors of omission, ex. failure to give medication when indicated)
- Clinician actions outside of protocol
- Clinician action that exceeds local scope of practice as determined by credentialing category
- Medical device/Equipment failures that occur during patient care
- Hospital/Outside Healthcare clinician/Public Complaint regarding patient care provided
- Medical Examiner Office request
- Agency leadership discretion
- Medical Director discretion

HARM SCALE

The following Agency for Healthcare and Research Quality (AHRQ) Harm Scale will be applied to all PSEs that reach the patient in order to categorize and track the intensity of harm:

- Mild Harm: Bodily or psychological injury resulting in minimal symptoms or loss of function, or injury limited to additional treatment, monitoring, and /or increased length of stay
- Moderate Harm: Bodily or psychological injury adversely affecting functional ability or quality of life, but not at the level of severe harm
- Severe Harm: Bodily or psychological injury (including pain or disfigurement) that interferes significantly with functional ability or quality of life
- Death
- No Harm: Event reached the patient, but no harm was evident
- Unknown

NEAR MISS EVENTS

Near Miss (Close Call) events that do not reach the patient will be categorized by reasons that prevented the near miss (close call) from reaching the patient:

- Fail-safe designed in the process and/or safeguard worked effectively
- Clinician or healthcare team member who made the error noticed and recovered from this error (avoiding any possibility of it reaching the patient)
- Spontaneous action by a clinician or healthcare team member prevented the event from reaching the patient
- Action by the patient's family member/friend/bystander prevented the event from reaching the patient
- Unknown

INVESTIGATION OF PATIENT SAFETY EVENTS

- The determination of whether a PSE meets the threshold for a formal investigation will be at the discretion of the Agency and OMD and will be event dependent.
- All PSE investigation activities should be done within the PSO to ensure appropriate protections and safeguards are in place.

- Each Agency will be responsible for performing an internal investigation and review of the events deemed to meet the threshold for requiring an investigation in consultation with the OMD. The OMD will aid agencies as necessary and appropriate.
- The minimum amount of information typically required for an investigation is as follows:
    - Relevant dispatch recordings/MDT call taker notes
    - Patient care/Incident reports
    - Monitor data (ex. EKG, 12-lead, waveforms, vitals)
    - Interviews of involved clinicians
    - Relevant photographic evidence (ex. device failure, environment)
    - Post-mortem radiographic imaging, autopsy and/or toxicology findings when applicable

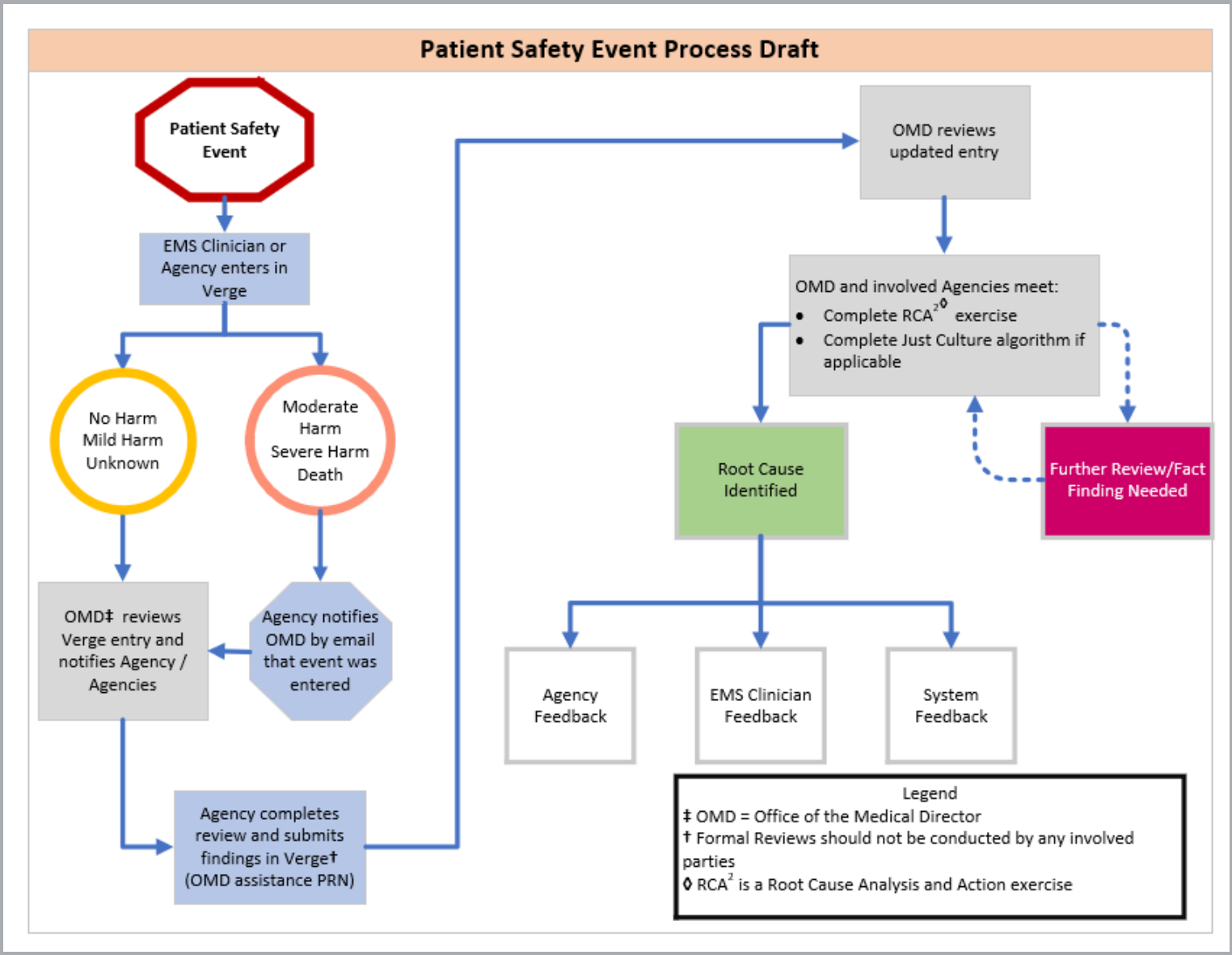
TIMELINESS OF REPORTING AND INVESTIGATION OF PSEs

- Agency leadership is expected to notify the OMD via phone/email as soon as possible for any PSE that results in moderate/severe harm or death.
- Once the OMD receives notification of a PSE the timelines for Agency leadership to acknowledge the PSE and begin investigation will be determined collaboratively and are event dependent.

PSE INVESTIGATION PROCESS (SEE PSE PROCESS CHART)

- PSE occurs
- Clinician or Agency enters event into Verge
- If Moderate/Severe harm or death occurs as result of PSE, the Agency and/or Clinician notifies OMD via phone call
- OMD reviews the Verge entry
- Agency completes investigation and submits investigation documents/findings into Verge
- OMD reviews investigation documents in Verge
- OMD and involved Agencies meet to discuss investigation and complete RCA^2 exercise to determine root cause as appropriate
- Just Culture algorithm applied as applicable
- Agency/Clinician/System Feedback

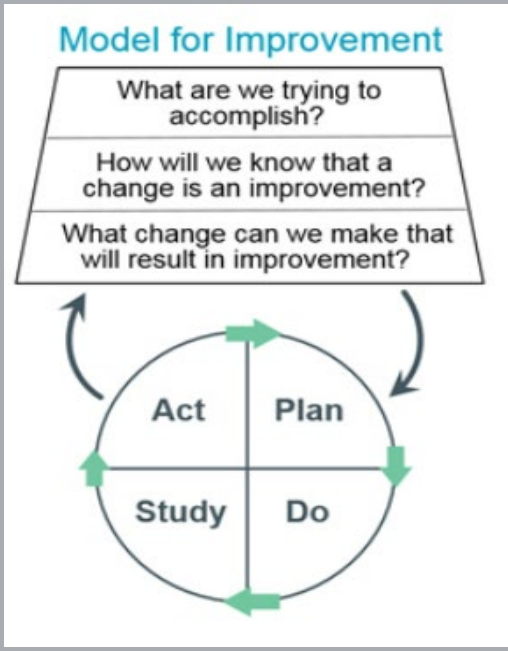
PSE PROCESS CHART



QUALITY IMPROVEMENT MODEL

The Johnson County EMS System uses the Plan-Do-Study-Act (PDSA) Model for Improvement. The PDSA cycle is shorthand for testing a change by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method, used for action-oriented learning.

PDSA MODEL FOR IMPROVEMENT



STEPS IN THE PDSA CYCLE

STEP 1: PLAN

Plan the test of observation, including a plan for collecting data.

- State the objective of the test
- Make predictions about what will happen and why.
- Develop a plan to test the change.

STEP 2: DO

Try out the test on a small scale

- Carry out the test.
- Document problems and unexpected observations.
- Begin analysis of the data.

STEP 3: STUDY

Set aside time to analyze the data and study the results

- Complete the analysis of the data
- Compare the data to your predictions.
- Summarize and reflect on what was learned.

STEP 4: ACT

Refine the change, based on what was learned from the test.

- Determine what modifications should be made.
- Prepare a plan for the next test.

QUALITY IMPROVEMENT IDEAS

Clinicians within the EMS System can share quality improvement projects/ideas through a SurveyMonkey form found on the OMD website (https://www.surveymonkey.com/r/X8FBVPV). These submissions are reviewed by the OMD and are then reviewed at the Medical Director Liaison Committee (a committee with representation from every EMS System agency) for possible implementation.

CONTINUOUS QUALITY IMPROVEMENT INITIATIVES

CARDIAC ARREST

The OMD participates in the Cardiac Arrest Registry to Enhance Survival (CARES). CARES was developed to help communities determine standard outcome measures for out-of-hospital cardiac arrest (OHCA) locally allowing for quality improvement efforts and benchmarking capability to improve care and increase survival. By participating in the registry, it enables communities to compare patient populations, interventions, and outcomes with the goal of identifying opportunities to improve quality of care and ascertain whether resuscitation is provided according to evidence based guidelines. The overall goal of the CARES registry is to save more lives from OHCA and to strengthen the collaboration between 911 centers, first responders, emergency medical services (EMS) agencies and hospitals.

The OMD reviews 100% of cardiac arrests that happen in Johnson County and enters over 80 data points into the CARES registry. On average, there are 383 resuscitations that are attempted in JOCO each year. When reviewing cardiac arrests, we are looking at clinical management, accurate treatments/interventions, and documentation. When reviewing cardiac arrests, we may use various resources, including the electronic patient care record from one or more agencies and cardiac monitor files from our patient care monitors. With the use of the cardiac monitor files, we are able to use a case review and playback function where we can see any interventions performed with the cardiac monitor. Through this process, we are able to monitor system performance and observe for areas of improvement.

Each year the EMS System data is shared. Each agency receives an agency-specific Utstein Survival report as well as the raw data for the arrests within their respective response jurisdiction. The OMD tracks and trends survival rates, bystander CPR rates, and bystander AED rates.

TIME CRITICAL DIAGNOSES

The OMD collects data required for the AHA Mission: Lifeline® EMS. Mission: Lifeline EMS recognition is the American Heart Association's program that recognizes prehospital emergency agencies for their quality of care for heart attack and stroke patients. The recognition program focuses on transforming the quality of care by connecting all the components of heart attack and stroke care into a seamlessly integrated care system. Key tenets of these systems of care reinforce evidence-based guidelines and measures performance, identify gaps, and engage in quality improvement.

The OMD has participated in this program since 2016. Data is collected on various performance measures related to stroke and heart attack. Below is a list of performance measures required for the application:

Pre-Arrival Notification for Suspected Stroke
Documentation of Last Known Well for Patients with Suspected Stroke
Evaluation of Blood Glucose for Patients with Suspected Stroke
Stroke Screen Performed and Documented
12-Lead ECG Performed within 10 Minutes
Aspirin Administration for STEMI
Pre-Arrival Notification of STEMI Within 10 Minutes of Positive ECG
FMC to Thrombolytic Administration within 90 minutes for Patients with Stroke
FMC to Endovascular Therapy within 180 minutes for Patients with Stroke
FMC to PCI within 90 minutes for Patients with STEMI
FMC to Thrombolytic Administration within 30 minutes for Patients with STEMI

The OMD tracks and trends this data and shares the data with the EMS System. We are able to review these measures and are able to provide feedback to the EMS System on areas we can improve upon.

The OMD also receives feedback forms from area hospitals on TCD calls. We share these feedback forms to the agencies involved on these calls to help educate crews and provide feedback on their care they provided.

HIGH-RISK, LOW-FREQUENCY EVENTS

The OMD receives an automated report of high-risk, low-frequency events which include the following:

Pleural Decompression
Cricothyroidotomies
Orotracheal Intubations
Cardioversion
Pacing
Dual Sequential Defibrillation
Pregnant Cardiac Arrests
Pediatric Cardiac Arrests
Racemic Epinephrine administrations
Ketamine Administrations
Cold Water Immersions for hyperthermia treatment
Air Medical Fixed Wing or Rotor Craft Deployment
Transports with Lights and Sirens

The OMD reviews these calls for clinical management, accurate treatments/interventions, and documentation and provide feedback to clinicians if needed.

PROTOCOL CHANGES

The OMD routinely runs various reports and reviews charts to either help support or reject potential protocol changes. For example, we may want to propose using Haldol in our system. We will look at call types in which we may have used the drug for the specific indication to see if the data supports introducing this new medication in our system.

AIRWAY MANAGEMENT

The OMD routinely reviews airway management in the EMS System. We may use various methods to review this data, including electronic patient care records and our cardiac monitor files. With the use of the cardiac monitor files, we are able to use a case review and playback function where we can see time stamps of interventions, vital signs, and ETC02 waveforms and values. We monitor our first-pass success rates for advanced airway devices and provide feedback on airway management, troubleshooting, and documentation when indicated. We may also provide system education on trends we are seeing in the EMS System.

TOPIC-BASED CHART REVIEW

The OMD develops topic-based chart review templates for the EMS System to use within their own departments. These templates include key documentation points that should be captured within the patient care record based on specific call types. The departments can begin to track and trend the performance on the specific documentation points and develop improvement plans around those items. The templates for the following call types are available for the EMS System agencies to use at this time: Chest Pain/ACS/STEMI, Seizure, Suspected Stroke/TIA, and Trauma.

EDUCATION

The OMD provides education to the EMS system based on topics and concerns identified through the quality improvement processes and initiatives stated above. This may be delivered by producing video lectures, proposing topics for our system Skills and Simulation Quarterly Training, producing newsletters, sending out Potential Patient Safety Alerts, sending out Potential Provider Safety Alerts, creating checklists or job aids, or recommending system engineering changes to prevent potential errors. The OMD also reviews and approves all EMS system education before it is consumed by the EMS system.

REFERENCES

Science of Improvement: Testing Changes | IHI - Institute for Healthcare Improvement. (n.d.). Science of Improvement: Testing Changes | IHI - Institute for Healthcare Improvement. https://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

RESOURCES

Direct Medical Oversight

Johnson County EMS System Patient Care Protocols

OMD JOCO EMS System Credentialing Policy