



Continuous Quality Improvement (CQI)

Application of a quality management processes for EMS

Objectives

- o Define Quality Assurance (QA) and Continued Quality Improvement (CQI)
- o Identify QA & CQI processes
- o Discuss QA & CQI benefits for authorized Iowa EMS programs

CQI in EMS

- o Required for all authorized service programs in Iowa
 - o Iowa Administrative Code 641-132
- o EMS is part of the complete patient care system
- o Change in clinical care or operations should be based on evidence instead of assumptions or expert opinion
- o All service/processes can be improved

Definition

o Quality Assurance (QA)

- o Any systematic process of checking to see whether a product or service being developed is meeting specified requirements
- o EMS - The process by which the performance of individual providers is monitored to ensure compliance with treatment protocols and service program operational policies

o Continuous Quality Improvement (CQI)

- o A management philosophy that organizations use to reduce waste, increase efficiency, and increase internal (meaning, employees) and external (meaning, customer) satisfaction. It is an ongoing process that evaluates how an organization works and ways to improve its processes through monitoring and analyzing data rather than speculations
- o EMS - The continuous monitoring of the service program's performance as a whole for opportunities of operational policy, treatment protocol and process improvement based on the findings of quality assurance

Application

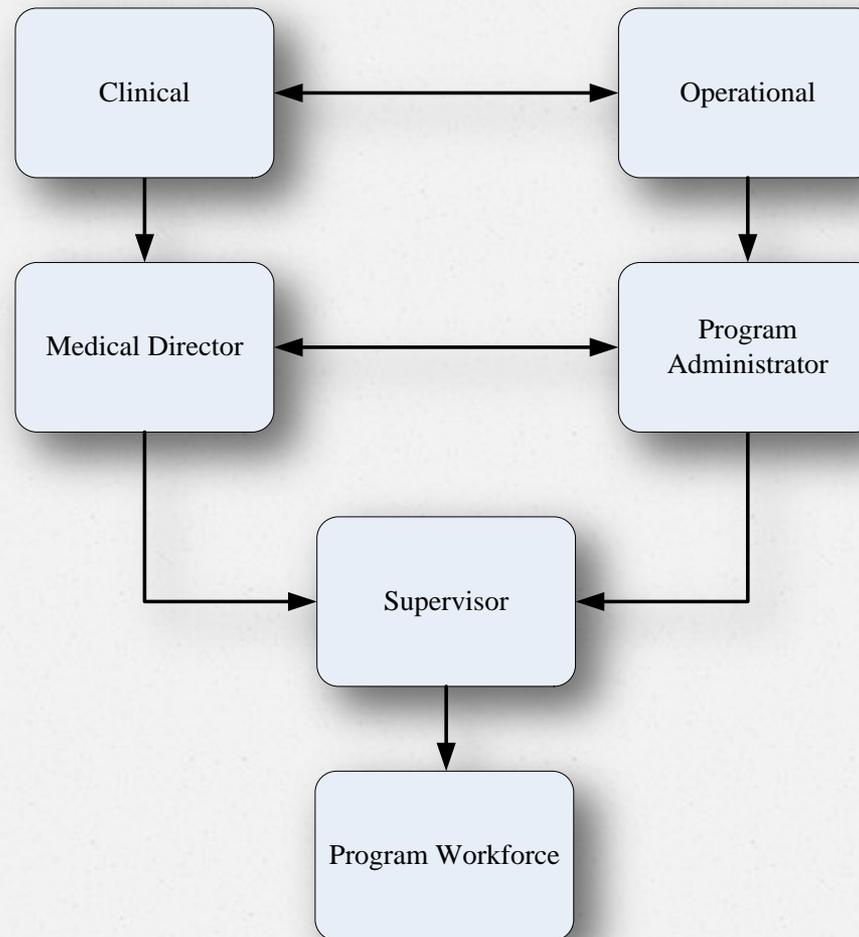
- o While these two processes (QA & CQI) are separate, they are intertwined and operate in parallel
- o The process of quality management (QA & CQI) must reflect the service program's administration and medical director's vision and direction as well as customer expectations



Organizational Hierarchy

- o Administration of a service program can be divided into 2 distinct areas
 - o Clinical and Operational
- o Must work together in concert
- o Service program administration and medical director must have an open relationship

Organizational Hierarchy



Quality Assurance - QA

Quality Assurance

- Looks to answer the question: “Did the care/performance/service fulfill a specific set of requirements?”
- Criteria to which the service program or provider will be held to needs to be clear, unambiguous, and provided before the evaluation process begins
- Is firm usually requiring either a “Yes” or “No” response

Quality Assurance

- QA findings may trigger the need for a CQI process or vice versa
- Failure to meet expectations should be remediated by the service program administration and/or medical director
- Expectations should not be tied to individual case (patient) outcomes since a bad outcome may occur despite the fact that all procedures and processes were applied and followed



What are some areas in EMS that can be reviewed by a QA process

Hint: Known and established criteria,
yes/no response

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QA Considerations for EMS

- o Individuals:

- o Adherence to established treatment protocols
- o Operating within Scope of Practice
- o Documentation practices

- o Service program:

- o Mission statement
- o Established policies

Continuous Quality Improvement - CQI

CQI: Why?

- ✓ Recognize, reward, and reinforce positives
- ✓ Assign specific responsibilities
- ✓ Identify trends
- ✓ Set performance standards
- ✓ Obtain outcome-based information
- ✓ Provide communication to all stakeholders
- ✓ Focus/promote training related to outcomes
- ✓ Accountability

CQI Core Concepts

- o Quality = meeting or exceeding the expectations of our customers (internal or external) = Success
- o Focus is on process rather than the individual
- o Most problems are found in process, not in the people
- o CQI does not seek to blame, rather improve process
- o Variation in process can lead to unwanted variation in outcome
- o Incremental changes using scientific/objective method

CQI Core Concepts

- o Ensuring that the necessary resources and supports are in place to facilitate ongoing enhancements and improvement
- o Looks to answer the following questions:
 - o “How are we doing?”
 - o “Can we do it better?”
 - o “Can we do it more efficiently?”
 - o “Can we be more effective?”
 - o “Can we do it faster?”
 - o “Can we do it in a more timely way?”

CQI Core Concepts

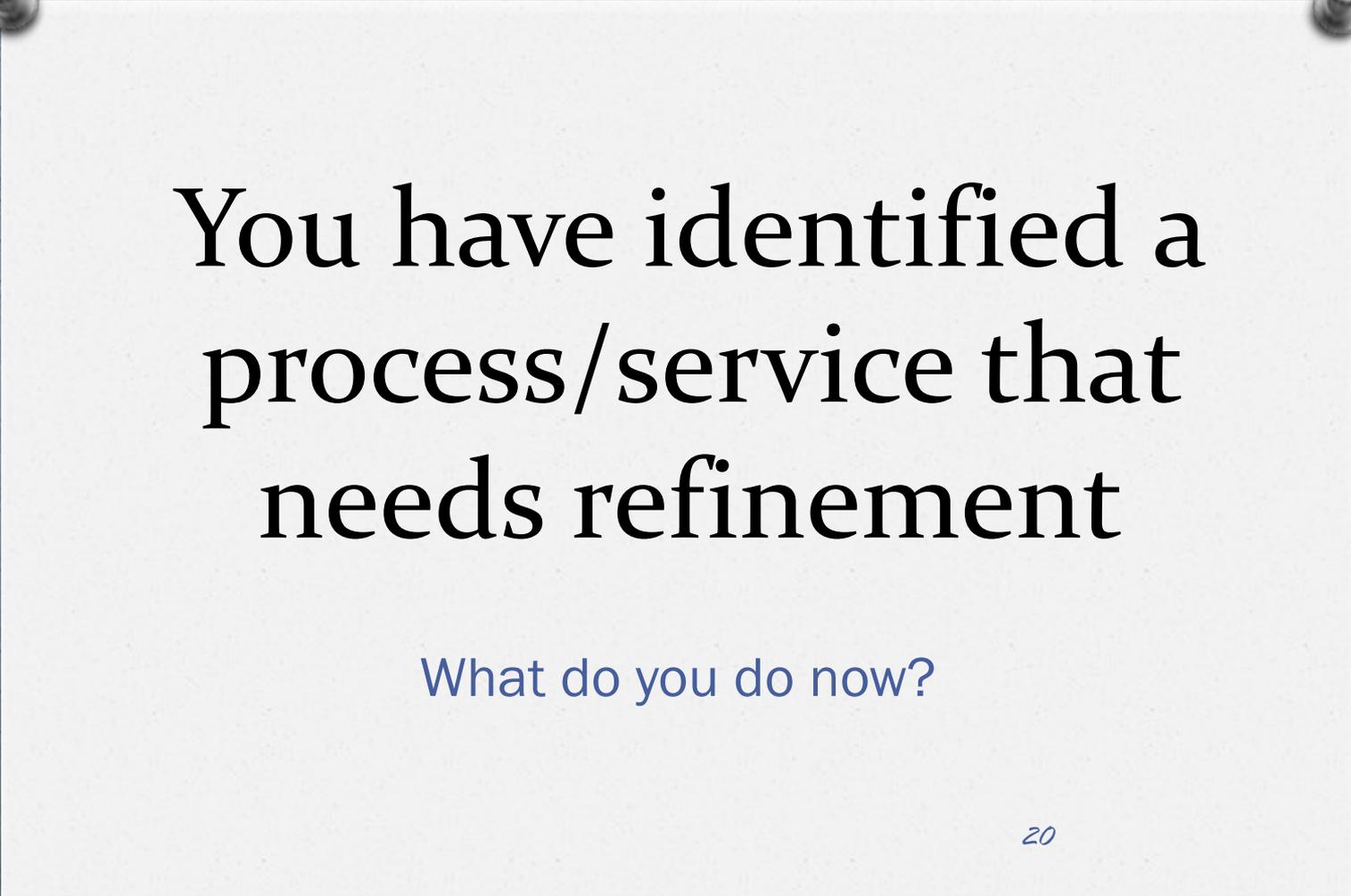
- o Process resembles a cycle much more than a straight line
- o Requires structured clinical and administrative data
 - o Data is only as good as the inputted information (garbage in, garbage out)
- o Data is collected and utilized to make positive changes – even when things are going well

What are some of the
areas in EMS that
should be part of a CQI
program?

What do we do that we can we do better?

Considerations for EMS CQI

- o Response times:
 - o Time from dispatch to enroute
 - o Time from enroute to scene
 - o Time at scene
 - o Time to receiving facility
- o Call types;
 - o Medical
 - o Trauma
 - o Transfer
- o Procedures:
 - o What and how often
 - o Are there skills that need attention



You have identified a
process/service that
needs refinement

What do you do now?

Core Steps

- o Form a team
 - o Clinical or operational
- o Members:
 - o Knowledge of entire system
 - o Understands the needs of the customer
- o Define a clear goal
- o Identify & define measures of success

FAST-PDCA

Focus on a specific aim

Assess basic data

Select potential changes

Test the proposed changes

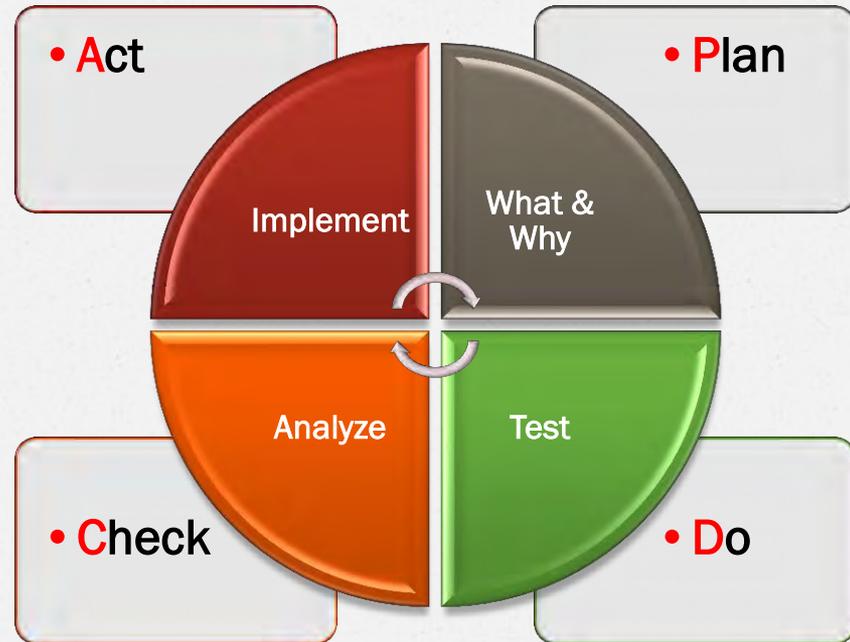
Plan

Do

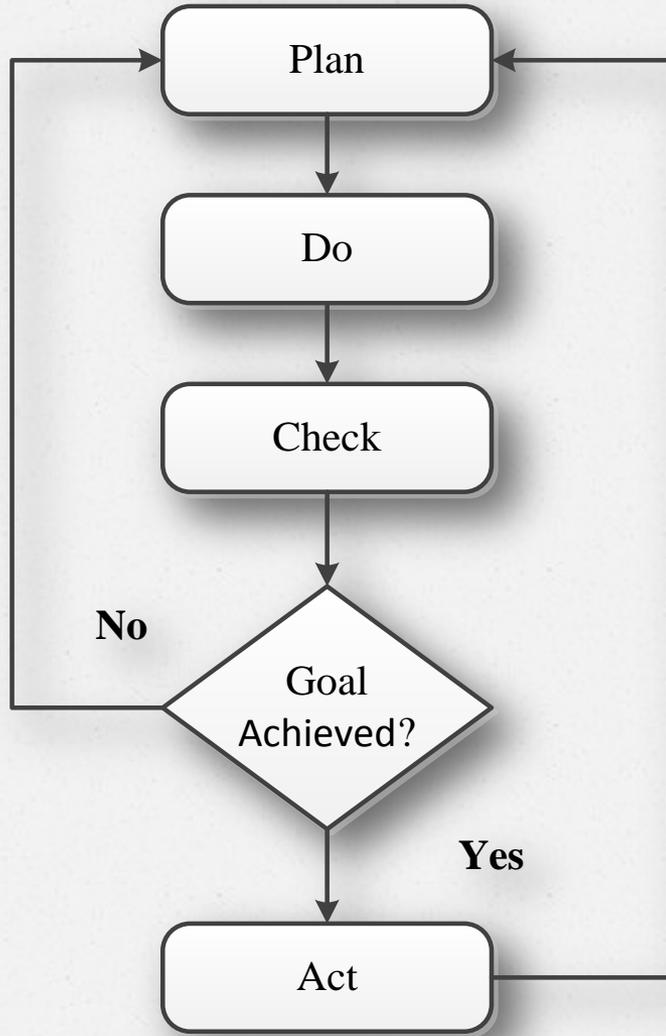
Check

Act

(Deming Cycle)



Modify parameters



Another problem or improvement

Plan

What (identify the problem):

- o Identify the problem to be examined
- o Formulate a specific problem statement to clearly define the problem
- o Set measurable & attainable goals
- o Identify stakeholders & develop necessary communication channels to communicate & gain approval

Plan

Why (analyze the problem):

- o Divide overall system into individual processes – map the process
- o Brainstorm potential causes for the problem
- o Collect & analyze data to validate the root cause
- o Formulate a hypothesis
- o Verify or revise the original problem statement

Do

o **Develop Solution:**

- o Establish experimental success criteria
- o Design experiment to test hypothesis
- o Gain stakeholder approval & support for the chosen solution

o **Implement a solution:**

- o Implement the experiment/solution on a trial or pilot basis

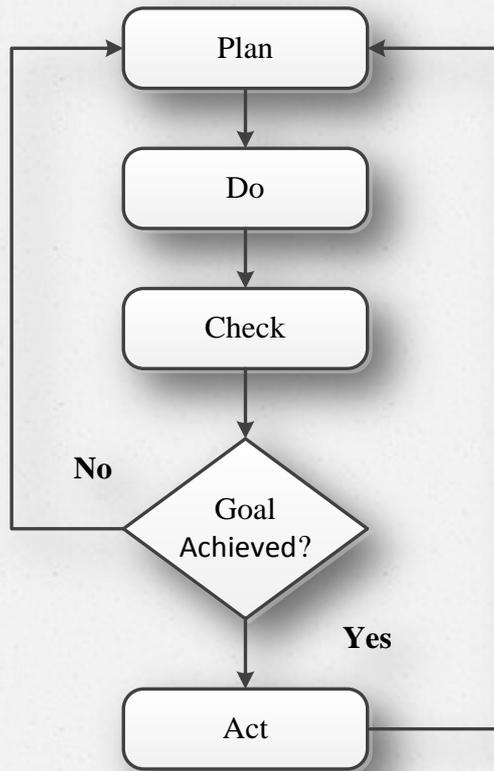
Check

- o **Evaluate the results:**
 - o Gather/analyze data on the solution
 - o Validate the hypothesis
- o **Did you achieve the desired goal?**
 - o If “YES” proceed to Act
 - o If “NO” revise hypothesis or problem statement

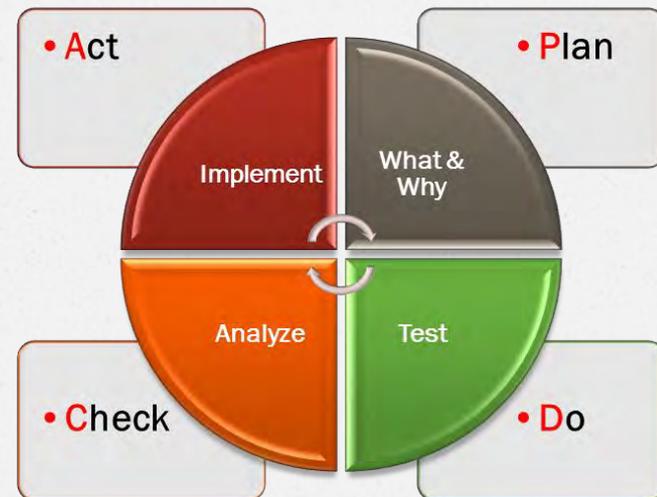
Act

- o **Implement the solution:**
 - o Identify systemic changes & training needs for full implementation
 - o Plan ongoing monitoring of the solution
- o Look for other improvement opportunities

Modify parameters



Another problem or improvement





Looking at measurable outcomes



- Goal to help EMS Systems measure and improve quality at all levels
- Funded by the National Highway Traffic Safety Administration
- Led by the National Association of State EMS Officials

Objectives

- o Develop a core list of measures with specific definitions for EMS to improve quality
- o Use evidence-based recommendations and best practice data as the foundation of the development process
- o Utilize data elements from the National Emergency Medical Services Information System (NEMSIS) whenever possible

Objectives

- o Engage local, state and national stakeholders throughout the development and testing process
- o Design a system to support continuous updating and expanding the performance measures dictionary going forward

Performance Measures

- o An indicator that helps an organization know how well it is achieving its goals
- o A numerical indicator showing how often a desired outcome is achieved
 - o Numerator/Dominator

Domains of Measurement

- o Patient and Family Engagement
- o Patient Safety
- o Care Coordination
- o Population/Public Health
- o Efficient use of Healthcare Resources
- o Clinical Process/Effectiveness
- o Provider Safety
- o Vehicle Integrity & Safety
- o Data Quality

Measures Under Review

- o Hypoglycemia 1
 - o Treatment administered for hypoglycemia
 - o Measure of patients who received some sort of treatment to correct their hypoglycemia
- o Hypoglycemia 2
 - o Improved post-treatment condition
 - o Improved blood glucose level after treatment

Measures Under Review

- Hypoglycemia 3

- Hypoglycemic patients treated and not transported

- Total number of hypoglycemic patients who were treated by EMS and not transported

- Hypoglycemia 4

- Repeated response for patient previously not transported

- The number of patients who were treated but not transported and required an additional response within a 24-hour period

Measures Under Review

- o Seizure 1

- o Blood glucose evaluation

- o Measure of seizure patients who received an evaluation of their blood glucose

- o Seizure 2

- o Patient received intervention

- o Measure of patients with ongoing seizure activity for 5 minutes or more or two or more seizures in a 5 minute period without regaining consciousness between them who received intervention intended to stop the seizure

Measures Under Review

- o Seizure 3
 - o Patients with terminated seizure
 - o Measure of patients with ongoing seizure activity for 5 minutes or more or two or more seizures in a 5 minute period without regaining consciousness between them who had seizures that terminated by any means

Measures Under Review

- Stroke 1
 - Suspected stroke receiving hospital stroke assessment
 - To measure the percentage of suspected stroke patients who had a stroke assessment performed by EMS

Measures Under Review

- o Stoke 2
 - o Blood glucose measurement for patients with a provider impression of stroke
 - o Measure percentage of patients with a provider impression of stroke that have a documented blood glucose level

Measures Under Review

- Stroke 3

- Prehospital notification

- Measure of the percentage of patients with a positive prehospital stroke scale and transported by EMS with prenotification of a hospital verified, designated or otherwise identified as Acute Stroke-Ready or higher

Measures Under Review

- o Stoke 4
 - o Positive stroke assessment transported to a hospital identified as Acute Stroke-Ready or Higher.
 - o Measure of the percentage of patients with a positive prehospital stroke assessment transported to a hospital verified, designated or otherwise identified as Acute Stroke-Ready or higher

Measures Under Review

o Stroke 5

- o Provider impression of stroke with last known well documented
 - o Documented LKW times for all patients with a provider impression of stroke

o Stroke 6

- o Prehospital Stroke Care Bundle
 - o Measures the percentage of patients that received stroke measures 1 to 5

Measures Under Review

- Stroke 7

- For patients with positive stroke assessment, average time from last well known to arrival at a hospital identified as acute stroke-ready or higher
- Measures the time from LKW to arrival at a receiving facility

Measures Under Review

- Stroke 8
 - Emergency Department diagnosed stroke identified by prehospital stroke assessment
 - Measures the percentage of emergency department diagnosed stroke patients who had a positive stroke assessment by EMS

EMS Data Collection & Submission

Data

- o Quality improvement methodologies rely on the collection, analysis, and interpretation of electronic data in order to understand, modify, and improve processes
- o Without valid and reliable data, quality improvement activities are reduced to speculation and trial and error
- o With a large, accurate, and consistent data set any number of processes can be understood and improved

Data

- If data elements are common between agencies, then multi-agency, regional, state, and national comparisons are possible
- “Casting a wide net” in terms of data collection sets the groundwork for being able to answer questions that may arise in the future without having to modify or rebuild data sets
- Quality improvement is achieved when the data collected shows sustained improvement

Data

- o The most difficult data to use for quality improvement are written records or narrative fields
- o Involves massive man-hours to extract needed information
- o Data submission and a patient care report are two different items that does two different jobs

Benefits of a data collection

- o Quality management capabilities at local level
- o Peer review capabilities
 - o Objective versus subjective
- o Verification of what is actually being done by your service program
- o Recognizes what is being done correctly
- o Identify areas that need attention
 - o Internal & external customers
- o Staffing patterns
- o Budget issues
- o Meet service program authorization requirements
 - o IAC 641-132.8(3)q & r

Additional Benefits

- o A method to analyze performance of EMS agencies
- o Assess which EMS system configurations are useful
- o Benchmarks for standards of care
- o Better evaluation of the EMS role in health care
- o Budgets that can be defended by actual data
- o Comparison of data across jurisdictional and state boundaries
- o Determine which treatments are effective
- o Establish reliable outcome measures
- o Evaluate patients throughout the spectrum of care
- o Focus on data driven decision making
- o Identify and Reduce Errors
- o Identify Unmet Needs & Priorities
- o Improved analysis of EMS procedures and patient care
- o Protocols that are justified by factual evidence
- o Providing a better understanding of EMS

Why Data Completion Matters

# days from incident to entry	45 - 31	30 - 16	15 - 1	0
Total Incidents	676	2475	6105	2491
# of "Not" Value Provider Impression	323	1078	1202	19
% of "Not" value PI	48%	44%	20%	.008%

Real-World Analysis

Provider Impression	Times Naloxone Administered
Trauma, Stroke, Cardiac Arrest, Weakness, Chest Pain, etc.	172
Substance Abuse/Drug Abuse, Poisoning/Drug Ingestion	186
Altered Level Consciousness, Behavioral/ Psychiatric Disorder	226
Not Available, Not Known, Not Recorded, Not Reporting	244

Iowa Trauma System

- o Both the pre-hospital data and PCR is required for complete patient picture and treatment plans
- o Pre-hospital data
 - o Both non-transport and transport services
 - o Not a duplication of information
- o Copy of PCR (transporting service) shall be submitted to receiving facility within 24 hours from call
 - o IAC 641-132.8(3)a

National EMS Information System: NEMSIS

- o National standard for EMS data collection
- o Designed to interface with hospital electronic medical records
- o NEMSIS 3 compatible data submission required beginning January 1, 2017
 - o All Iowa authorized service programs

Benefits of a National EMS Database

Will Be Useful In:

- o Developing Nationwide EMS Training Curricula
- o Evaluating Patient and EMS System Outcomes
- o Facilitating Research Efforts
- o Determining National Fee Schedules and Reimbursement Rates
- o Addressing Resources for Disaster and Domestic Preparedness
- o Providing Valuable Information on Other Issues or Areas of Need Related to EMS Care
- o And much more

NEMESIS 3 & Iowa

- o NEMESIS contains over 500 data elements that could be collected
- o Current Iowa version has 212 elements:
 - o Mandatory elements - 37 (22 demographic, 15 EMS)
 - o Required elements - 129 (13 demographic, 116 EMS)
 - o Recommended elements - 17 (2 demographic, 15 EMS)
 - o Optional elements - 29 (1 demographic, 28 EMS)
- o Still tweaking a bit but closing in on where it will end up.

Data Collection & Submission

- o Required for all authorized service programs
 - o Transport & non-transport
- o Free ImageTrend software program available from Bureau of Emergency and Trauma Services
 - o Other 3rd party vendors/services available
- o Data submission beginning no later than January 1, 2017 must be NEMSIS 3 compliant
- o Iowa FireBridge is not NEMSIS 3 compliant
- o ImageTrend Elite is NEMSIS 3 complainant

Elite Software Components

- o Data Collection
 - o Serves as the “conduit” from the service, to the State of Iowa, to NEMSIS
 - o Accepts “third” party vendor data uploads that comply with NEMSIS standards
 - o Provides the ability for services to use this system as their “primary” data collection site by directly entering their incidents (runs)
- o Electronic Patient Care Report (ePCR)
 - o Provides the opportunity for services to use the included ePCR for their incident reports
 - o Validation is built in to assist with incident report completion and Quality Assurance reviews

Future Additions to Elite

- o Coming to Elite:
 - o Checklists
 - o Provides the ability to create service checklists i.e.:
 - o Rig checks
 - o Equipment tracking and maintenance
 - o Etc.
 - o User's training records section to store:
 - o Service required trainings/documentation
 - o All continuing education records
 - o Etc.

Getting started with Elite

- o EMS Service Administrators should contact Terry Smith with the BETS to receive username and temporary password
 - o terry.smith@idph.iowa.gov
 - o 515-242-6075
- o First log-in: sign in and change password
- o On-going training provided through September 2016
 - o *If you will be using Elite for data entry/submission we highly encourage you to attend an Elite training session or at a minimum watch webinar*



Questions?



Thank You