EMS System Evaluation

Developing and Utilizing Quality Indicators

Today’s Roadmap
Where are we going?

1. Gaining Perspective
2. Defining what a Quality Indicator is?
3. Spec Sheet (ISS)
4. Developing a Quality Indicator (3 types)
5. Follow up Demonstration/Exercise
6. Reporting a Quality Indicator
7. Evaluating and Acting on Quality Indicators
8. Follow up Exercises/Report Out

We are all quality teammates today!

Walk Away Objectives.

- Describe how to integrate quality measures (indicators) within a structured EMS oriented CQI program.
- Demonstrate how to develop, define, and write a quality indicator specification sheet (ISS) with the consensus of a CQI-stakeholder group.
- Determine the most appropriate format to communicate and report out a quality measure to a constituent or quality stakeholder group.
- Identify the basic domains and steps of evaluating, reaching consensus and acting on quality measures within a EMS oriented CQI program.

Putting It in Perspective

The concepts of quality improvement are mostly about motivating groups of people with common interests to do their best.

2012 World Champion San Francisco Giants

Improve Performance

Baseball and Indicators = $
A Little History of Our Journey
“Where did these quality indicators come from?”

- 1999 - rearranging the deck chairs on the Titanic – “DRG’s”
- 2000 - Grant; MVEMSA, EMSA, Children’s Hospital San Diego,
- 2001 - NHTSA, CEMS, NEMSIS - testing
- 2001 - Peer review : Journal of Quality Improvement; (JCAHO)
- 2002 - Model Guidelines; Quality Indicators
- 2005 – Davis Balestracci – Process control
- 2011 - Institute for Health Improvement (IHI)
- 2011 – Data Sanity Training – Patient Safety Centers - CEMSPI
- 2012-13 – Core Measures Project
- 2014 – “Healthcare Analytics” as a profession - UC Davis

Dr. Deming

- “...W Edwards Deming who popularized the PDCA cycle took his ideas and philosophy of quality management to Japan in 1947 at the invitation of the McArthur administration
- A statistician by training, Deming applied a rigorous data-driven approach to quality improvement (using PDCA and statistical process control) and coupled this with a management philosophy based on a deep respect for the customer and the people who work within an organization.
- Deming’s philosophy of quality management was based on a number of key principles, the first and most important being that the key task of the leadership of any organization is to "establish constancy of purpose" towards continually improving the service to its customers...”

1950 – W. Edwards Deming gives his first seminar in Japan

ACO’s are an emerging concept of partnerships between physicians and hospitals to coordinate healthcare services with greater efficiency and quality
- Concept introduced to Medicare’s Payment Advisory Commission in Nov 2006.
- Allowable by the Federal Trade Commission (FTC) as long as the involved providers share substantial financial risk
The Quality Improvement Perspective

- Soft vs. hard science
- Sometimes close is good enough
- Blame the process not the person
- The process is “perfectly designed” to get the outcome it deserves

Recognition Distinctions in Quality Programs

The vast majority of improvements in patient care come not from reacting to what went wrong, but from discovering what went right and then making it part of the culture.

The Quality Improvement Perspective

- Soft vs. hard science
- Sometimes close is good enough
- Blame the process not the person
- The process is “perfectly designed” to get the outcome it deserves
Quality Improvement

Healthcare Analytics

Quality Measures (Indicators)

Data

“A word or two about data….”

“He who has data is king”

Be careful what you ask for…

• What you put in is what you will get out..

• The system is perfectly designed to get the result…

"The more you know what is wrong with your data, the more useful it becomes."


was an American mathematician best known for development of statistical data analysis
Don’t torture the data until it confesses.

Better Data
Davis Balestracci

There are four key questions to any data collection that should always be clarified prior to beginning:

1. Why collect the data?
2. What methods will be used for the analysis?
3. What data will be collected?
4. How will the data be measured?

There are four more questions relating to the logistics of the data collection process.

1. How often will the data be collected?
2. Where will the data be collected?
3. Who will collect the data?
4. What training is needed for the data collectors?

TRUST
In the end, the most important thing about data is not how it looks, or how sophisticated your data system was, or how scientific you felt your process for collecting the data was, or how it was collected, or even what it says……

In the end, the most important thing about data is, do you trust it? And more importantly, do the people who are going to use it, trust it?

Data communication should be people oriented, not machine oriented…

“Getting the Nomenclature right”

Quality Indicators
Quality Measures
Quality Metrics
Quality Benchmarks
apples in a basket?

Dow Jones of EMS Performance

Apple Product Sales
net sales in billions of dollars (FY 2010)

The ISS – Part I
What is the question?

Definitions
- Name
- Description
- Type of measure
- Numerator
- Denominator
- Final value
- Reporting format
- Benchmarking
- References

The ISS – Part II
How will it be answered?

- Standardized Data Approach
  - Inclusion-exclusion criteria
  - Source
  - Purpose and rationale
  - Query and sampling
  - Aggregation

- Testing
  - Statistical
  - Trending
  - Process

- Reports
  - Formulas
  - Values
  - Formats

Customers
- Patients
- Clinicians
- Subject Experts

Data Specialists
- IT Support
- Technical Experts
- Interface Experts

Quality Indicator

Asking the question?

Answering the question?

CONSENSUS

COLLABORATION

COLLABORATION
Classification by Attribute Avedis Donabedian Model

Structure: the things in a system

Process: the activities in a system make “stuff” happen

Outcome: the results of the things making the stuff happen.

Quality Indicators (attributes) of an Quality-Baseball System

Structure + Process = Outcome

<table>
<thead>
<tr>
<th>Things</th>
<th>+</th>
<th>Activities</th>
<th>= Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fields, Players</td>
<td>+</td>
<td>Hits, Runs</td>
<td>= Score</td>
</tr>
<tr>
<td>AED’s</td>
<td>+</td>
<td>Defibrillations</td>
<td>= Survival</td>
</tr>
</tbody>
</table>

Functional Relationship

\[ S + P = O \]

change in structure = change in outcome?
change in process = change in outcome?

Defining Indicators by Utility

Core, Tertiary, Adhoc

Core - Dow Jones Leaders
(Something’s wrong somewhere…)
Tertiary - Used as Needed
Adhoc - Special Studies

3 Types of Indicators

Bi-variable Indicators (Most Indicators)
Reports a single attribute (%) or item (fraction) based upon two separate variables (numbers) related to each other – such as number of paramedics per ambulance (2:1 Ratio) or percentage of patients that receive bystander CPR (35%).

Continuous variable Indicators
Reports that have an established minimum and maximum attribute and where the data values can fall anywhere in between. Generally, these reports have an established threshold or standard attached to them such as the 90th percentile. Often used to report time intervals.

Single variable Indicators
Reports on a single (one) item based upon a single attribute or number of that item such as the number of accredited paramedics = 78. Only a denominator and no numerator is required.

The Indicator Spec Sheet (ISS)

Going from Brain to Paper
The only way that your stakeholders know and trust what your talking about....

Why the Indicator Specification Sheet (ISS) is so Important?

- Tool for system stakeholders to reach consensus on the objective of the indicator.
- Tool for subject experts to reach consensus on operational definitions of the indicator.
- Tool for data specialists to understand how the data will be collected, reported and analyzed.

Example of Final Reporting Value (number)

- Measure Name: The Indicator Spec Sheet (ISS)
- NEMSIS Indicator Format

<table>
<thead>
<tr>
<th>Data Elements</th>
<th>Data Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion Criteria</td>
<td>Exclusion Criteria</td>
</tr>
<tr>
<td>Type of Measure</td>
<td>Definition for ISS</td>
</tr>
<tr>
<td>Indicator Name</td>
<td>Definition care for ISS</td>
</tr>
<tr>
<td>Indicator Format</td>
<td>Percentage of patients with suspected cardiac arrest who have a return of spontaneous circulation (ROSC) at any time (Utstein) in a given period</td>
</tr>
<tr>
<td>Indicator Formula</td>
<td>Process control or run chart by month</td>
</tr>
<tr>
<td>Indicator Description</td>
<td>Variations may exist in the assignment of Chief Complaint coding; therefore, coding practices may require evaluation to ensure consistency.</td>
</tr>
</tbody>
</table>

Why are quality indicators valuable?

What percent (%) of patients that arrive at the ED via EMS are discharged within 1-4 hours of arrival?

Here’s your answer...
At some point, your going to have to
“show what you know”...

SHOW ME THE MONEY

Supports Better Decision Making

Customers
Patients
Clinicians
Subject Experts

Data Specialists
IT Support
Technical Experts
Interface Experts

IMPORTANT DECISION?
(Indicator)

Who do you like?

Who’s the best?

Trimming down the “Touchy-Feely “ stuff

Integrating Quality Indicators into an EMS System
Example of EMS System Report Using Core Indicators

Q1 2012
Core Quality Indicators Report
Contra Costa EMS Agency
Core Indicator # TC00005
Data Source: Meds - Trauma One  July 2010 through November 2011
N= 1269 total trauma alerts. N=301 Total MTV's

Major Trauma Victim Ave Scene Time Interval in Mins
Ground Transport Q1 - 2012

% Cardiac Survival – Utstein by Year
2012-Q1
(witnessed & found in shockable rhythm) N=32
National Benchmark: 32%

Arrival Time at Receiving to Arrival at Trauma Center 2010-11

Lessons Learned
➢ Keep it simple – stupid
➢ Indicators have to be formed by consensus of the stakeholders and subject experts
➢ Consensus among stakeholders is the key to trust
➢ Trust is the key to having meaningful indicators and data
➢ The more you know what is wrong with your data the more useful it becomes.
➢ Many times close is good enough
➢ It’s the third or fourth time, that you start to get good
➢ The discussion is often more important than the outcome
➢ Cutting costs does not eliminate the cause of costs

Building the Perfect Indicator

How do I make a Quality Indicator?

PART I
Customers
Patients
Clinicians
Subject Experts

PART II
Data Specialists
IT Support
Technical Experts
Interface Experts

IMPORTANT QUESTION?
(Indicator)
Steps in Indicator Development

1. Indicator Specification Sheet
2. Data Reporting Table
3. Final CQI Reporting Format

3 Types of Spec Sheets

- **Bi-Variable**
  - % = Numerator (sub population) over denominator (larger population) x 100 (20 successful IV’s over / 100 attempts = 20% success)

- **Continuous Variable**
  - Measuring units that are continuous such as time and then establishing a threshold to determine – i.e. 90th percentile

- **Single Variable**
  - Count – number of paramedic engines. N = 10

**Quality Indicator Specification Sheet**

**Bi-Variable**

Two variables
(Numerator and Denominator)

Denominator (larger sample population)
Numerator (smaller-sub population)

The Math
If the data says 20 successful IV’s over / 60 attempts

\[
\frac{20}{60} = .33 \times 100 = 33\% \text{ success rate}
\]
Continuous Variable
Determining the percentile (%)

1. Data points for 14
2. Ranked in ascending order for 14
3. The Math
   N=14
   14 x .90 =
   12.5
   The 90th percentile
   90% is 33
4. Finding the 90% Value
5. Sections Completed by Initial Stakeholders and Subject Experts

- Standardized definitions
  - Name
  - Description
  - Type of measure
  - Numerator
  - Denominator
  - Final Value
  - Reporting format
- Benchmarking
- References
**Demonstration of Indicator Development & Utilization at Statewide Level**

**Steps in the Process**

CEMSIS INDICATOR RE2A: % Oxygen Administered:
Primary Impression: Pulmonary Edema

1. Indicator Specification Sheet
2. Data Reporting Table
3. Final CQI Reporting Format

**The Indicator Spec Sheet (ISS)**

**Going from Brain to Paper**
Denominator Data Table

RE2A demonstration table - May 8 2012
denominator population

Universe: NONE  Population: RE2ADEMO_DENOMINATOR  Repeat Set: NONE
RE2ADEMO_DENOMINATOR
Patient Count: 326
Processed Patients: 326

Incident Date From 01/01/2010 To 12/31/2010

Incident Date - Month And Year  Frequency  Percentage of all Denominator
JAN 10  29  8.93
FEB 10  21  6.51
MAR 10  27  8.40
APR 10  36  10.99
MAY 10  28  8.70
JUN 10  13  4.04
JUL 10  14  4.33
AUG 10  26  8.12
SEP 10  27  8.50
OCT 10  26  8.12
NOV 10  27  8.50
DEC 10  16  5.09
Total  326  100.00

Numerator Data Table

RE2A demonstration table - May 8 2012
numerator population

Universe: NONE  Population: RE2ADEMO_NUMERATOR  Repeat Set: NONE
RE2ADEMO_NUMERATOR
Patient Count: 211
Processed Patients: 211

Incident Date From 01/01/2010 To 12/31/2010

Incident Date - Month And Year  Frequency  Percentage of all Numerator
APR 10  30  6.13
MAY 10  30  6.46
JUN 10  26  5.30
JUL 10  22  4.67
AUG 10  24  4.85
SEP 10  24  4.85
OCT 10  23  4.71
NOV 10  21  4.26
DEC 10  22  4.26
Total  211  100.00

Final Reporting Format

CEMS INDICATOR RE2A: % Oxygen Administered:
Primary Impression: Pulmonary Edema

Questions?
Converting your data to a report…

The Final Touches…
Choosing the right reporting format

<table>
<thead>
<tr>
<th>Month</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>21</td>
</tr>
</tbody>
</table>

Seven Basic CQI Tools

1. Check Sheets
2. Scatter Diagrams
3. Pareto Diagram
4. Histogram
5. Control Charts
6. Flowcharts
7. Cause-Effect Diagram

Exploring Data Visualization

<table>
<thead>
<tr>
<th>Common Uses for Visualizations in Health Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
</tr>
<tr>
<td>Comparison</td>
</tr>
<tr>
<td>Composition</td>
</tr>
<tr>
<td>Distribution</td>
</tr>
<tr>
<td>Trend Over Time</td>
</tr>
<tr>
<td>Deviation</td>
</tr>
</tbody>
</table>
- Highlights a correlation between two or more data points
- Contracts different variables
- Shows a complete picture for a variable (i.e., a count of all surgical procedures, where done, types of tests ordered for those procedures, etc.)
- Show data points distributed throughout a data set (i.e., show wait-time distributions for ED)
- Plot events across a time series (i.e., patient visits over the past 30 days)
- Detect when values deviate from baseline

To Compare

What it means? You want to compare one set of value(s) with another.
Examples:
- Performance of Product A vs. Product B in 5 regions
- Interview performance of various candidates
Charts that can be used for this reason:
- Bar Charts,
- Column Charts
- Scatter Plots
- Pie Charts
- Line Charts
- Data Tables
- Box Plots

Bar Charts

- Highlight independent elements and compare values
- An excellent choice for highlighting disparities
- Horizontal bars allow for the inclusion of more metrics
- Bar charts play on humans’ inherent ability to draw quicker conclusions based on side-by-side lengths
AARP Chart: Why It Works
This stacked chart allows the eyes to easily compare state and national averages.
- Bright orange data showing federal targets offer another access point, clearly indicating the differences in usage rates and target goals.

Source: Use of Preventive Services Among People 50-54 years of age, California vs. US national averages, AARP.

To Show the Distribution

What it means? You want to show the distribution of a set of values (to understand the outliers, normal ranges etc.)
Examples:
- Distribution of Call waiting times in a call center
- Distribution of bugs found in 10 week software testing phase
Charts that can be used to show distribution:
- Column Charts
- Scatter Plots
- Line charts
- Box Plots
To Show Parts of Whole

What it means? You want to show how various parts comprise the whole
Examples: Individual product sales as a percentage of whole revenue
• Browser types of customers visiting our website
Charts that can be used to show Parts of Whole:
• Column Charts
• Bar Charts
• Pie Charts
• Data Table

To Show Deviations

What it means? You want to see which values deviate from the norm.
Examples:
• Failures (or bugs) in the context of Quality Control
• Sales in Various Stores
Charts that can be used to show Deviations:
• Column Charts
• Bar Charts
• Line Charts
• Run Charts
• Process Control Charts

To Show Trend Over Time

What it means? You want to understand the trend over time of some variable(s).
Examples:
• Customer footfalls on the last 365 days
• Share price of MSFT in the last 100 trading sessions
Charts that can be used to show Trend Over Time:
• Column Charts
• Line Charts
• Run Chart
• Process Control Chart
2. Check Sheet

- The Check Sheet is a simple document that is used for collecting data in real time and at the location where the data is generated.
- The document is typically a blank form that is designed for the quick, easy, and efficient recording of the desired information, which can be either quantitative or qualitative.
- A defining characteristic of a check sheet is that data is recorded by making marks – checks – on it.
- Typical check sheets are divided into regions, and marks made in different regions have different significance. Data is read by observing the location and number of marks on the sheet.

<table>
<thead>
<tr>
<th>Region</th>
<th>Area</th>
<th>Product</th>
<th>Price</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>11</td>
<td>8</td>
<td>27</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>28</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rule of Thumb**

- **Structures** (things) - usually are best represented by bar or pie graphs.
- **Processes** (activities) - are almost always best to show over time in a line graph. My favorites are process charts or run charts.
- **Outcomes** (end results) - work best usually in a bar or column graph.
- Yes, there are exceptions….
Instructions

1. Develop a indicator spec sheet (ISS).
2. Using the objective of determining the percentage (%) Acute Coronary Patients (ACS) who received 12 Lead ECG by paramedics.
3. Use your group to reach consensus and enter the following information on your abridged ISS worksheet.

   - indicator name,
   - description,
   - reporting value
   - type of measure,
   - denominator statement & inclusion criteria
   - numerator statement & inclusion criteria
   - exclusion criteria
   - example formula numeric expression
   - example of final reporting value

Exercise #1
Making a Quality Indicator

Bi-Variable Indicator Template

Rules of Engagement

- Respect time – move on
- Establish leadership
- Take turns speaking and listening
- Postpone side conversations
- Silence your devices
- Keep an open mind
- Participate constructively
- Blame the process, not the person
- Do what you say you’ll do
- Don’t get hung up on technical data details at this point – we will address that later
- Utilize facilitators when stuck

Example of Completed ISS
Exercise #1

Example of Completed ISS
Exercise #1

Example of Completed ISS
Exercise #1

Demo Control and Bar Chart Conversion

EXERCISE #1

Indicator ACS-2

Corresponding Data Table

<table>
<thead>
<tr>
<th>Mth</th>
<th>Day</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>21</td>
<td>24</td>
<td>90</td>
</tr>
<tr>
<td>Feb</td>
<td>23</td>
<td>25</td>
<td>93</td>
</tr>
<tr>
<td>Mar</td>
<td>19</td>
<td>22</td>
<td>89</td>
</tr>
<tr>
<td>Apr</td>
<td>18</td>
<td>21</td>
<td>87</td>
</tr>
<tr>
<td>May</td>
<td>19</td>
<td>22</td>
<td>89</td>
</tr>
<tr>
<td>Jun</td>
<td>19</td>
<td>21</td>
<td>90</td>
</tr>
<tr>
<td>Jul</td>
<td>23</td>
<td>26</td>
<td>90</td>
</tr>
<tr>
<td>Aug</td>
<td>21</td>
<td>24</td>
<td>90</td>
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<tr>
<td>Sep</td>
<td>23</td>
<td>25</td>
<td>92</td>
</tr>
<tr>
<td>Oct</td>
<td>21</td>
<td>23</td>
<td>92</td>
</tr>
<tr>
<td>Nov</td>
<td>20</td>
<td>22</td>
<td>90</td>
</tr>
<tr>
<td>Dec</td>
<td>22</td>
<td>25</td>
<td>89</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>89</td>
</tr>
</tbody>
</table>

Data Table (P=50)

% numerator over denominator by month 2011

N=280
Break

Part II
Evaluating Quality Indicators

"Someone’s gonna have to pay"
Tony Soprano

85% of all work problems are controlled by the processes and only approximately 15% are caused by direct involvement of people working in the process, yet we tend to lay “blame” on the person responsible.

Donald Berwick M.D.
Institute for Healthcare Improvement
“Each system (process) is perfectly designed to get the results it is already getting”

Donald Berwick, IHI

So... how are we doing?

If American industry defines quality as: “the degree of which a system is free from bugs and flaws”, then it would seem that Emergency Medical Services (EMS) as a relatively young industry, appears to be at a tolerable level?

Truth is......

We don’t really know.

Engaging Stakeholders

objective, evidence based, stratification,
The five (5) whys?

Consensus leads to standardization
Standardization leads to trust

Three Primary Domains of Evaluation

System Performance
Patient Safety
Cost Efficiencies
Looking at “Our Stuff”
A Four Step CQI-Decision Making Process

**Visualize**

**Analyze**

**Compromise**

**Actualize**

Here is some wisdom from Dr. Donald Berwick -- from almost 20 years ago:

"Plotting measurements over time turns out, in my view, to be one of the most powerful devices we have for systemic learning. Several important things happen when you plot data over time. First, you have to ask what data to plot. In the exploration of the answer you begin to clarify aims, and also to see the system from a wider viewpoint. Where are the data? What do they mean? To whom? Who should see them? Why? These are questions that integrate and clarify aims and systems all at once. Second, you get a leg up on improvement. When important indicators are continuously monitored, it becomes easier and easier to study the effects of innovation in real time, without deadening delays for setting up measurement systems or obsessive collections during baseline periods of inaction. Tests of change get simpler to interpret when we use time as a teacher...So convinced am I of the power of this principle of tracking over time that I would suggest this: If you follow only one piece of advice from this lecture where you get home, pick a measurement you care about and begin to plot it regularly over time. You won’t be sorry.”

(from Berwick’s 1995 Institute for Healthcare Improvement Forum plenary speech “Run to Space”)

**Process Analysis**

Evaluation of data by using graphic representations of activities which show trends and variations over time.

**Trending**

The process of showing by plot or process control chart, the upward, downward or level movement of an activity over a specified period of time.

**Variation**

**Special Cause**

A source that causes a fundamental change in a process. Special cause variation signals a change in a process and can usually be traced back to a single source.
**Statistically Speaking**

Only four things really matter…

1. The sample size
2. The average
3. How things are spread around the average
4. How things change over time.

**Sample size does matter!**

**Sampling**

Rule of thirty (n=30)

Rate vs. Sentinel

**Measures around the Average (Central Tendency)**

- **Mean** - sum of all values
  total number of values
- **Median** - middle value when data arranged in numeric order
- **Mode** - most common (repeated) value
Measures outside the Average (Dispersion)

**Range**
the maximum value minus the minimum data value.

**Standard Deviation**
a measurement which shows how widely spread (dispersed) data is around the mean.

Analyzing Performance

- Compared to what?
  - Benchmarks
  - Best Practices

- What if there are no best practices available?
  - Local community and stakeholders determines performance standards

Analyzing Costs

Cost–Benefit Analysis
Cost per Unit (CPU)
Cost-Performance Analysis (CPA)

Cost-effectiveness Analysis (CEA)

- Measuring the costs and effects of a particular program, or intervention
- Average cost-effectiveness ratio (ACER)
  - One divides the net cost of the program by the net effects of the program (ie, lives saved)
  - Example - measles vaccination outreach program costs $50,000 and is estimated to prevent 100 cases of measles. The average cost effectiveness ratio is $50,000/100 = $500 per measles case prevented
- Incremental cost-effectiveness ratio (ICER) – compares the differences in both costs and outcomes for two interventions that compete for resources.

Actualizing

The Decision Process

to act or not to act?
draft problem statement
action oriented objectives

Consensus-Oriented Decision-Making,
7 key steps.

1. Framing the topic
2. Open discussion
3. Identifying underlying concerns
4. Collaborative proposal building
5. Choosing a direction
6. Synthesizing a final proposal
7. Closure - ownership
Exercise #2

Developing & Utilizing an EMS Quality Indicator (Outcome)

Exercise #2 Instructions

1. Develop a indicator spec sheet to determine the % cardiac arrest survival to hospital discharge per Utstein definitions and benchmarks.
2. Use your group to reach consensus on the details and definitions of what data you will need.
3. Use only the information available to you.
4. Consult with facilitator as needed.
**Evaluation of Cardiac Arrest Indicator**

1. Was the process safe and in control?
2. Is there an opportunity to increase patient safety?
3. Did it meet performance expectations?
4. Is there an opportunity to increase performance levels?
5. Is there an opportunity to institute a cost saving initiative?
6. Is there an opportunity to institute an operational efficiency initiative?
7. Was an Action Plan Initiated?
EMS Quality Improvement 101
Taking Action

“I will now proceed to untangle the entire area”

Taking Action

- by far the weakest link in process
- takes the most energy
- developing the “Action Plan”

Developing an Action Plan

- answers the problem statement
- choose a model (RCI; QISD, JIT, PDCA)
- clear and achievable objectives
- define steps in process
- define timelines & deadlines
- accountability (who is responsible?)

Part I: Root Cause Analysis

Contra-Costa EMS CQI Initiatives Board

Pediatric Medication Safety

- Step 1: Identify the problem
- Step 2: Analyze the problem
- Step 3: Implement the solution

Bariatric Resources

- Step 1: Identify the problem
- Step 2: Analyze the problem
- Step 3: Implement the solution
Survey of Action Models

- Traditional Plan-Do-Check-Act (PDCA)
- Lean
- Six Sigma
- Rapid Cycle Improvement (RCI)
- Quality Incident Stress Debrief (QISD)
- Just in Time Training (JIT)
- CE and Remediation

Thinking Outside the Box

Rapid Cycle Improvement (RCI) for EMS

What is rapid cycle improvement?

Rapid cycle improvement (RCI) is traditional quality improvement (PDCA) process except the work is accelerated to be ready to implement within a 90 day cycle.

When should RCI be initiated?

RCI is most applicable to issues within a system which require timely resolution due to their high risk or high frequency attributes. RCI is highly suitable for EMS.

Quality Incident Stress Debrief (QISD)

- Real Time
- Field based
- Supportive
- Collegial
- Defuse
- Follow up

“Almost” Real-Time Training

- On the Job
- Work Environment
- Urgency
- Simplicity
- Tailgate
- MCI
- Effectiveness

CE and Remediation

- traditional response
- easy to implement
- individual
- punitive?
Checking Action

- what is it?
- how is it measured?
- what is the benchmark or end point?
- how will it be reviewed?

Sustaining the Gain

- it’s what you learn after you know everything that counts.
- barriers and aids
- level of difficulty - tedious, boring
- dealing with attrition
- stakeholder apathy
- top-down support vs. apathy

Watching Out for Innovation

- Every persons opinion counts
- Thinking outside the box
- Collateral benefits
- Finding our way home again

Exercise #3

Evaluating and Acting on an EMS Quality Indicator

(Continuous Variable)

Instructions

Exercise #3

1. Review and approve the indicator spec sheet.
2. Review the data and chart showing the monthly 90% percentile of on scene trauma time intervals for severely injured trauma patients transported by paramedics. (Continuous Variable)
3. Your group should try to reach consensus on the details and definitions of what ISS and charts say.
4. Use only the limited information sheet that has been handed to you, complete an evaluation and develop a draft action plan.

EMS Core Measures Workshop 2014
Day 1 - Quality Improvement
Is there an opportunity to increase performance levels?

Was the process safe and in control?

Does the indicator need further review or stratification?

Is there an opportunity to institute a operational efficiency initiative?

Is there an opportunity to institute a cost saving initiative?

Don't forget to RANK the data high to low.

Evaluation of Trauma On-Scene Interval Indicator

1. Was the process safe and in control?
2. Is there an opportunity to increase patient safety?
3. Did it meet performance expectations?
4. Is there an opportunity to increase performance levels?
5. Is there an opportunity to institute a cost saving initiative?
6. Is there an opportunity to institute a operational efficiency initiative?
7. Was an Action Plan Initiated?
On Scene Interval - Severely Injured Trauma Patient 90th Percentile

Q3-10
Q2-10
Q1-11
Q2-11
Q3-11
Q4-11
Q1-12
Q2-12
Q3-12
Q4-12

On Scene Interval - Severely Injured Trauma Patient 90th Percentile

Chart Type: Chart for Individuals
Database Column
1
Avg of Data Shown 14.225
A. 1 Beyond Control Limit
E. 2 of 3 Beyond 2 Sigma
Median Data Shown 14.22
B. 9 On One Side of Average
F. 4 of 5 Beyond 1 Sigma
Sigma for Limits
0.3566
C. 6 Trending Up or Down
G. 15 Within 1 Sigma
Base for Limits
Average MR
D. 14 Alternating Up & Down
H. 8 Outside 1 Sigma
X. Excluded or Missing Data

Centerline: 14.23
Process Limits: Lower: 13.16 Upper: 15.29

Patient Safety Events

EMS PS Providing Federal Confidentiality Protection for Your Safety and Quality Improvement Work

SAVE THE DATE! Upcoming EMS Patient Safety Conference in May 2013! Find out more

CQI Action/Implementation Plan

CQI Project # ___________________________________________

CQI Project Name: ___________________________________________

Implementation Statement and deadlines:

Action Steps: Who? & by When?

Team Leader Name: _______________________________________

Team Facilitator Name: _____________________________________

Date: __________________

Patient Safety Events by % of Type Q1 2012

N=5

Assessment, 60% N=3

Medications, 20% N=1

Procedures, 20% N=2

Patient Name: __________________________

Incident/PCR#: ______________________

Time: ________________________________

Initiated by (Name/Title/Organization): __________________________

Contact Info: __________________________

Receiving Facility: ______________________

Event Location: __________________________

Others involved with the incident. Please include name and contact info:

Details of Event: (provide facts, observations, and direct statements. (Use addendum if needed)

Addendum Attached

Immediate efforts to resolve this issue: ____________________________________________________________________

____________________________________________________________________________________________________

_________________________________________________________________________________________________

N/A

Could this event cause a community concern or represent a threat to public health and safety?

No

Yes

If yes, contact your supervisor and the EMS Agency as soon as possible: 925-646-4690

□ Great Catch

□ Exemplary Care

□ Safety Event

□ Other
Some Final Thoughts

• still a place for quality assurance (QA)
  ✓ chart review
  ✓ individual counseling
• keeping an open mind
• standardized CQI training
• accreditation for EMS Quality
• enrichment at all future CQI meetings

Summary and Review

Walk Away Objectives

• Describe how to integrate quality measures (indicators) within a structured EMS oriented CQI program.
• Demonstrate how to develop, define, and write a quality indicator specification sheet (ISS) with the consensus of a CQI-stakeholder group.
• Determine the most appropriate format to communicate and report out a quality measure to a constituent or quality stakeholder group.
• Identify the basic domains and steps of evaluating, reaching consensus and acting on quality measures within a EMS oriented CQI program.