Management of EMS

CHAPTER 13

EMS Quality Management
Learning Objectives

13.1 Define the activities involved with quality assurance.
13.2 Define the activities involved with quality improvement.
13.3 Apply QI techniques to various aspects of EMS operations.
Learning Objectives (Cont.)

13.4 Identify the techniques to measure quality indicators in EMS operations.

13.5 Locate and identify other sources of quality data information that can improve EMS operations.

13.6 Create and implement a customer-service assessment as part of a quality improvement program.
Learning Objectives (Cont.)

13.7 Understand and create a process that helps document trends that require increased education or modification of the EMS system.

13.8 Evaluate and apply the historical aspects of quality improvement to modern EMS efforts.

13.9 Chronicle the history of CQI activities.
Quality in EMS

• Most people in EMS come to work with the philosophy to do the best job possible
• In most cases they never see results or are never given the feedback on their performance
• Lack of feedback on performance creates apathy
Quality in EMS (Cont.)

• Quality-improvement activities are essential to keep the workforce motivated, provide excellence in patient care, and reduce the risk to the organization.

• There are two key themes to keep in perspective when managing EMS quality-improvement activities: do the right thing, and do the right thing well.
Quality in EMS (Cont.)

- EMS quality-improvement activities need to be effective with regard to the tests, procedures, treatments, and services that are provided.
History of Quality Management

• Quality improvement
  – Sum of all activities undertaken to continuously examine and improve products and services
  – Activities are prospective, concurrent, and retrospective, depending when they are conducted relative to an event
  – Tools include tests, databases, infield observations, chart review, customer service surveys, and checkout sheets
History of Quality Management (Cont.)

• Scientific management
  – Fredrick Taylor
    ▪ Author of *The Principles of Scientific Management* (1911)
    • A formal look at the motivations of work that would result in improved efficiency
History of Quality Management (Cont.)

• Frank and Lillian Gilbreth
  – Improved upon scientific management by studying human motivations at work and the psychological aspects of work
History of Quality Management (Cont.)

• Elton Mayo
  – Studied the efficiency of work and its relationship to working conditions
  – The Hawthorne studies
    ▪ Focused more attention on understanding individuals, attitudes, and groups and less on organizational structure and efficiency of the work
    ▪ Concluded that the knowledge of being observed causes alterations in behavior
History of Quality Management (Cont.)

• W. Edwards Deming
  – Applied quality processes to modern manufacturing
  – Began working in Japan in 1950 and was instrumental in building the Japanese industry into an economic world power
  – Problems in a production process are due to flaws in the design of the system, as opposed to being rooted in the motivation or professional commitment of the workforce
History of Quality Management (Cont.)

• W. Edwards Deming
  – Quality is maintained and improved when leaders, managers, and the workforce understand and commit to constant customer satisfaction through continuous quality improvement

• If Deming’s principles were applied to the prehospital area, EMS would focus on quality patient care and appropriate use of resources
History of Quality Management (Cont.)

- The EMS system would be focused on system quality and productivity, not revenue.

- Two other modern quality-improvement methods, supported by the Joint Accreditation Committee on Hospital Organizations, provide a background for EMS-related quality-improvement or quality-assurance activities.
History of Quality Management (Cont.)

– Philip Crosby
  - Organizations should redesign operations to encourage doing the job right the first time
  - Challenged organizations to think of how processes could be redesigned to reduce errors and to reach a goal of zero defects

– Ernst and Young
- Identify and define the problem.
- Measure the impact on customers.
- Prioritize possible causes.
- Research and analyze root causes.
- Outline alternative solutions.
- Validate that solutions will work.
- Execute solutions and standardize.

**Figure 13.5**
Ernst and Young QI Steps.
History of Quality Management (Cont.)

• DR. Joseph M. Juran
  – Revolutionized the Japanese philosophy on quality management
  – Juran’s work incorporates the human aspect of quality management, which is referred to as total quality management (TQM)
  – Top management involvement
  – The need for widespread training in quality
History of Quality Management (Cont.)

- QI program must reflect the strong interdependency among all of the operations within an organization's production processes
- Juran advocated a quality trilogy that included quality planning, quality control, and quality improvement
History of Quality Management (Cont.)

• Quality planning
  – The process of understanding what the customer needs
  – Designing all aspects of a system that is able to reliably meet those needs
History of Quality Management (Cont.)

• Quality control
  – Is used to constantly monitor performance for compliance with the original design standards
  – If performance falls short of the standard, plans are put into action to deal quickly with the problem
History of Quality Management (Cont.)

• Quality Improvement (QI)
  – Occurs when new, previously unobtainable levels of performance are achieved
  – Requires the continuous comparison of the system to itself using performance measures
Total Quality Management (TQM)

- Total Quality Management (TQM)
  - A management system that focuses on continuously improving performance at every level of function, focusing on customer satisfaction
  - An EMS operation using TQM involves both leadership and employees
  - Assumes that most problems result from the inability of the system to perform, rather than the individual’s inability to perform
In an EMS system, TQM requires three elements:

- EMS managers and leaders must have an absolute commitment from the top
- It must be easy to identify measurable and accurate indicators of quality
- There must be involvement in the quality-improvement process by EMTs, paramedics, and support personnel in all quality-improvement methods
EMS Quality Improvement

- EMS quality improvement officially began with an initiative from the NHTSA
- “A Leadership Guide to Quality Improvement in Emergency Medical Services”
- National seminars on basic quality improvement
EMS Quality Improvement (Cont.)

- Most EMS systems are operating under standards that were designed years ago with little or no scientific background to determine if the service was efficient and effective.
- EMS providers will be confronted with threats of reduction of service hours, staffing decreases, or budget reductions.
EMS Quality Improvement (Cont.)

- It is important to evaluate the EMS system to determine the value of the service provided and to carefully examine the medicine for outcomes.
- Analysis of the quality of EMS services is either a qualitative or quantitative measurement.
EMS Quality Improvement (Cont.)

• Quality improvement requires a genuine drive to provide good patient care; evaluate health-care costs; analyze policy, patients, and the system; and defend against litigation

• Quality of care
  – The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge
EMS Quality Improvement (Cont.)

- Quality is often seen by the provider as getting what they want, and often that is a quick response and ride to the hospital
- Many EMS organizations have attempted to establish quality measurements and standards
  - NFPA 1710, CAAS, ASTM F-30, and the American Heart Association, along with local and state health authorities, have attempted to establish consensus standards
EMS Quality Improvement (Cont.)

- Accreditation is a process by which an agency evaluates and recognizes a department or organization as meeting certain predetermined standards or qualifications.
- Quality improvement is a necessity for attaining accreditation from the Committee of Fire Accreditation International and from the Commission on Accreditation of Ambulance Services.
EMS Quality Improvement (Cont.)

• It is important through a labor-management partnership that EMS agencies identify, define, and develop EMS system indicators of quality.

• A performance indicator is a point of comparison used to answer the question “how are we doing” for a specific issue.
EMS Quality Improvement (Cont.)

- Key components of performance indicators focus on providers, standards of care, hiring processes, the training process, supervision, system certification, appropriateness of vehicles and equipment, hospital facilities, CQI programs/process, clinical education, and anything else that either directly or indirectly affects patient care.
EMS Quality Improvement (Cont.)

• In EMS, quality becomes a measure of how well customers are treated clinically and how well their expectations of care and service are met.
EMS Quality Improvement (Cont.)

- Patient care and operations in most systems are conducted by a retrospective process
  - More traditional approach to quality management
  - Tends to look back at system performance
  - Chart reviews are often the most common type of quality-assurance activity conducted in an EMS agency
EMS Quality Improvement (Cont.)

• Prospective activities include observing and conducting primary EMS and recertification training

• Case reviews, clinical rotations, and quarterly skills practices are required to ensure skills and proficiency
EMS Quality Improvement (Cont.)

- Attendance at outside continuing-education conferences and ongoing modification in clinical protocols and policies are considered prospective.
- This includes research and following the medical advances and changes in the practice of EMS.
Building a Successful Program

- Early stages of implementation of a quality-improvement process require strong leadership and commitment at the local, regional, and state level to:
  - Learn and understand quality-improvement strategies
  - Assess thoroughly the present situation of each EMS organization or system
  - Establish action plans for training and orientation in quality improvement
Building a Successful Program (Cont.)

• Service audit
  – An assessment of all services being provided by the organization
  – Analysis of the EMS system for strengths and weaknesses
Building a Successful Program (Cont.)

- Establishing goals
  - Establish achievable goals for every behavior inherent in the system
  - When goals that are compatible with your system do not exist as a local, state, or national written standard, you are faced with either guessing or studying available data
Building a Successful Program (Cont.)

• Identify and develop standards of care
  – EMS managers should look for recognized standards on a national level
  – EMS standards need to be designed based on the components that focus on measurements encompass, a structure, process, or outcome
Building a Successful Program (Cont.)

- Identify and develop standards of care
  - Structure results focus on the necessary resource components of the system
  - Process results examine the effectiveness of the design and delivery of work processes, productivity, and operational performance
  - Outcomes look at the effectiveness of patient care, support services, and fulfillment of public responsibilities
Building a Successful Program (Cont.)

- Objectives and performance indicators
  - Whether a standard is developed around a structure, process, or outcome, it must relate to the organization’s objectives
    - Objectives are measurable statements that are consistent with the system's or agency’s mission, vision, and key drivers
• Objectives and performance indicators
  ▪ Performance indicators sometimes are called key performance indicators or key drivers are quantifiable measurements that reflect the critical success factors of an EMS organization
  • The goals for a particular driver may change as the organization’s goals change or as it gets closer to achieving a goal
  • Performance indicators are available to EMS agencies from NHTSA, IAFF, and the National EMS Management Association
• Objectives and performance indicators
  ▪ Performance indicators sometimes are called key performance indicators or key drivers are quantifiable measurements that reflect the critical success factors of an EMS organization
  • The International Association of Firefighters has a validated set of indicators free to IAFF fire services, and the NHSTA minimum data or NEMSIS set are available through the federal government
<table>
<thead>
<tr>
<th>Reporting example</th>
<th>Peripheral IV success rates.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting period</td>
<td>Month of 7/07.</td>
</tr>
<tr>
<td>Numerator</td>
<td>Total number of successful peripheral IVs (N = 1769).</td>
</tr>
</tbody>
</table>
| Formula           | Numerator/denominator × 100 = %  
(1769 / 2021 × 100 = 87%). |
| Analysis          | Summary indicator reported item = 87% success rate on peripheral IV on adult patients. |
| Process           | Rate is within the researched benchmarks at like departments or systems. |
| Outcome           | Benchmark comparison—best practices. |
| State benchmark   | To be determined by baseline data collection. |

**Benchmark references:**

**Figure 13.12**
Sample Reporting Definition Template.
FIGURE 13.13
Sample Performance Objectives.

Objectives: Appropriate/timely patient interventions.

Performance Indicator: Endotracheal Intubations.

Procedure-Oriented Objectives:

1. Finalize the computerized intubation data collection and reporting system by December 2007.

2. Implement a statewide skills requirement for endotracheal intubation.

3. Identify anesthesiologists and hospitals in each region willing to sponsor paramedic intubation experiences in the operating room.

Outcome-Oriented Objectives:

Improve the intubation success rate across the entire state to 90%.

Evaluation of Compliance:

1. Statewide skills requirement implemented in March (annual requirement of two live intubations).

2. Intubation success rate of 90% across entire state with exception of rural response areas.

3. 50% statewide compliance with skills requirement.

4. Four hospitals agreeing to sponsor paramedic intubation training; three others considering it. No hospitals in rural areas have agreed to participate.

Action Plan:

1. Assemble intubation CQI team with members from regional and local EMS agencies, rural, urban, and suburban hospitals, and state anesthesia association to work on plan to improve intubation success rates and increase intubation clinical experiences.

2. Continue to hold quarterly training sessions throughout the state for local EMS companies regarding data collection and reporting of intubation attempts and successes.
- Response time.
- Call-processing time.
- Turnout time.
- Travel time.
- Staffing.
- Deployment.
- Road structure coverage capability.
- Patient care protocol compliance.
- Patient outcomes.
- Defibrillation availability.
- Extrication capability.
- Employee illness and injury.
- Employee turnover.
- Quality program.
- System-user opinion.
- Multiple-casualty event plan.

**FIGURE 13.14**

IAFF Key Drivers.

*Source: Bruegman’s *Exceeding Customer Expectations.*
*(Reprinted with permission of Pearson Education.)*
Benchmarking

- Benchmarking
  - The process of identifying, understanding, and adapting outstanding practices from organizations anywhere in the world to help your organization improve its performance
  - A means for determining how well a unit or organization is performing compared with similar units in the organization or externally
Benchmarking (Cont.)

- Is about systematically learning from the best in business or government and using that information to improve one’s own performance.
- An organization needs to understand the gap between its own performance and best practices and take actions to close that gap.
- Any aspect of an EMS operation can be benchmarked.
Benchmarking (Cont.)

• One of the biggest mistakes an EMS organization makes when conducting a benchmarking plan is to only look at the benchmarks within EMS.

• It is important to look at other companies or organizations outside of EMS to see at what they are doing as best practices.
Benchmarking (Cont.)

- Benchmarks have to be realistic, and setting the bar for attainment of a goal requires proficiency
- Results have to provide opportunities to educate providers and staff
- Everyone is accountable in a quality-improvement system, and evaluations need to be adjusted
Sentinel Events

• An unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof
• It signals the need for immediate investigation and response
• When a sentinel event occurs, an analysis and action plan should be done to correct the causes within 30 to 45 days
Quality Assurance

• Defined as a system for the maintenance of medically correct and consistent level of pre-hospital care

• Ideally, QA processes include:
  – Identification of errors or deficiency in patient care
  – Verification of proper completion of run reports
Quality Assurance (Cont.)

- Ideally, QA processes include:
  - Verification of completion of prehospital personnel procedures and skills
  - Identification educational opportunities, including opportunities to improve writing, grammar, and spelling
Quality Assurance (Cont.)

- Data collected on each run should include:
  - Dispatch and system response (times, and so on)
  - Patient prehospital treatment
  - Patient turnover status
  - Patient outcome (ED and post-ED)

- The system must also include minimum and measurable performance standards
1. Assign responsibility.
2. Delineate scope of care.
3. Identify important aspects of care.
4. Identify indicators.
5. Establish thresholds for evaluation.
6. Collect and organize data.
7. Evaluate care.
8. Take actions to solve problems.
10. Communicate relevant information to the organization-wide QA program.

**FIGURE 13.21**
JCAHO Steps for Developing Medical Quality Improvement.
QI Process Steps

• Developmental stages are:
  – Building potential for success by developing an awareness and appreciation that QI is a worthwhile endeavor
  – Expanding workforce knowledge of and capability in QI practices and techniques
  – Fully integrating the strategic quality-planning process and related quality-improvement actions into the daily EMS operation and education programs
QI Process Steps (Cont.)

• Conduct QI courses for front-line employees, including listening techniques, sensitivity training, and cultural diversity

• Establish patient-to-provider networks to provide effective, on-going communication for feedback and information gathering, (civic groups, call-in phone lines, surveys)
QI Process Steps (Cont.)

• Solicit feedback through newsletters, Internet home-page postings, local television spots, and articles in local newspapers

• Expanding knowledge
  – Emphasis is placed on ensuring that the entire workforce of an EMS organization or system is informed about and participates in the development of the strategic quality-improvement plan
QI Process Steps (Cont.)

- Paramedics, and EMTs need a working knowledge of basic QI philosophy, tools, and techniques so they can be full partners in the strategic quality-improvement planning process.

- EMS workforce members should be able to identify their internal and external customers, how to measure the quality of the services provided or received, and how to identify and resolve quality problems in their own work.
QI Process Steps (Cont.)

- Full integration and monitoring
  - EMS workers must feel empowered to take action in work settings to identify, set up, and assesses new patient-care methods and approaches
QI Process Steps (Cont.)

- EMS crews can take self-correcting action by assessing timely information on performance levels for IAFF or NHTSA key quality indicators
- EMS management gives way to leadership that helps the workforce maintain and improve the quality of its work
Baldridge Criteria

• Malcolm Baldrige National Quality Award
  – A national award given to companies and businesses in recognition of their achievements in quality
  – The award is managed by the United States Department of Commerce's National Institute of Standards and Technology
  – Is given by the president of the United States
JCAHO Accreditation

- The Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
  - Sets standards for health-care organizations
JCAHO Accreditation (Cont.)

– When a health-care organization seeks accreditation, it demonstrates commitment to giving safe, high-quality health care and to continually working to improve that care

– Many of the CAHO principles have been applied to EMS, and it is a natural migration for CAHO standards to find their way from a physician medical director to an EMS agency
Provider Feedback and Access

- A quality-improvement program needs management support and marketing, and the best way to achieve this is to communicate the program and its results.
- Statistical information can be analyzed on a quarterly basis to produce trends in patient care and EMS operations.
Provider Feedback & Access (Cont.)

• Results from quarterly audits will need to be provided to the QI committee and the EMS medical director.

• Evaluation of those results by the quality-improvement committee and the EMS medical director will be provided to EMS leadership and the EMS chief.
FIGURE 13.19
People to Involve in Quality Improvement.
What Causes QI Efforts to Fail

• Barriers to success in QI activities can be divided into three levels:
  – Knowledge, attitudes, and behaviors

• Often the failure is in the leadership, and the lack of management buy-in is reflected by leadership’s attitude toward the program
What Causes QI Efforts to Fail (Cont.)

- QI program can be seen as a cause for punitive actions to providers, which may cause EMS providers to develop an attitude that they need to cover themselves.
- Late feedback and not communicating the results devalues a quality improvement program.
What Causes QI Efforts to Fail (Cont.)

• Creating performance measures that are unattainable signals that the program is not important
• Adult learners and employees in empowered organizations require feedback
• Quality-improvement programs need to be included in the strategic planning and should be reviewed periodically for effectiveness
Summary

• All EMS organizations participate in quality management, some through well planned and monitored approaches, and some through crisis management of sentinel events

• It is the choice of the organization, in most cases, to define how it will handle quality management
Summary (Cont.)

• As is the case with many of the nonemergency aspects of EMS, quality management is often relegated to a lower priority and is “tolerated” by an overworked management team.

• Quality management is an investment in preventative maintenance where a significant effort can be made up front before a potentially catastrophic failure occurs in the system.
Summary (Cont.)

- QM also offers a positive and nonpunitive way to focus the organization on continuous improvement, when done properly.
- EMS is a part of a variety of special operations in an all-hazards environment, including hazardous materials, confined space rescue, and tactical EMS.
Summary (Cont.)

• Agencies must focus on programs and response procedures that provide quality services to both the community and the providers
Summary (Cont.)

- Quality management must be based on a needs assessment; ensure that the design, development, and implementation of both existing and new services are effective and efficient in terms of the system and its performance; and make the inherent safety and care of those who will deliver the service a priority.