Objectives

- Outline key historic events in EMS
- Identify elements needed for effective EMS systems operations
- Differentiate between the four levels of EMS providers
- List benefits of professional association membership
- Describe benefits of continuing education

Objectives

- Differentiate between professionalism, professional licensure, certification, registration
- Describe the paramedic’s role in a patient care situation
- Describe the benefits of off-line and on-line medical direction
- Outline the components of an EMS QI program
- Identify key components and benefits of EMS research
Scenario

It’s early morning when the driver of a late-model SUV clutches his chest momentarily before losing consciousness and swerving into a large tree while traveling at 50 miles per hour.

Discussion

- What factors will influence his survival?
- What resources will he need to maximize his chance to regain a productive life?
- What safeguards influence the quality of his care?
- How will the care he received today differ from 50 years ago?
- What will determine which treatments are most effective for him?

EMS System Development

- Pre-20th century
  - Biblical
  - Edwin Smith papyrus
  - Code of Hammurabi
  - Jean Larrey—Napoleonic Wars
  - American Civil War
    - Clara Barton, nurse
20th Century

- WWI and WWII developments
  - Battlefield ambulance corps developed

- 1950s and 1960s
  - Urban, hospital-based systems develop into municipal services
  - Rural funeral homes develop into volunteer fire and freestanding services

1966

- National Academy of Sciences - National Research Council report
  - Accidental Death and Disability: The Neglected Disease of Modern Society (the White Paper)
    - Defined 10 critical points

- Highway Safety Act of 1966
  - Created USDOT as a cabinet-level department
  - Legislative authority and funds to improve EMS
    - More than $142 million between 1968 and 1979
  - Early advanced life support pilot programs
Mortality Comparisons

- WWI to Vietnam
  - Advances in field care emerged for trauma patients
  - Reduced deaths from similar trauma

1970s

- 1973 Emergency Medical Service Systems Act
  > Defined 15 required components
  > Regional approach, trauma focus
- Regional system development 1974-1981
- 1977 paramedic educational standards

1980s-1990s

- Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1981
  > Preventive Health and Health Services Block Grant consolidation
  > NHTSA effort to sustain the DHHS effort with reduced funding and staff
  > NHTSA’s 10 system elements
EMS Agenda for the Future 1996
- Integration of health services
- EMS research
- Legislation and regulation
- System finance
- Human resources
- Medical direction
- Education systems
- Public education
- Prevention
- Public access
- Communications systems
- Clinical care
- Information systems
- Evaluation

EMS Agenda for the Future 1996

EMS in the 21st Century
- 2000 - EMS Education Agenda for the Future
- 2004 - Rural & Frontier EMS Agenda for the Future
- 2005 - National EMS Scope of Practice
- 2006 - National EMS Core Content: The Domain of EMS Practice
Health Care Reform

- Managed care
- Expanded scope of practice

Current EMS System

- Network of coordinated services
- Work as unified whole

EMS System Operation

- Citizen activation
- Dispatch
- Prehospital care
- Hospital care
- Rehabilitation
EMS Provider Levels

- Dispatchers
- Emergency Medical Responder
  - First Responder
- Emergency Medical Technicians
  - EMT-Basic
- Advanced EMT
  - EMT-Intermediate
- Paramedic

Dispatcher

- Receives and processes calls
- Dispatches and coordinates EMS resources
- Relays medical information
- Coordinates with public safety agencies
  - Various technological capabilities
  - Some dispatchers give pre-arrival instructions

Emergency Medical Responder

- Includes FD, police, athletic trainers, industrial response teams
- Trained to
  - Recognize condition and injury extent
  - Assess need for EMS
  - Give initial care for airway, breathing, circulation
  - Perform safely
Emergency Medical Technician
- Trained in all phases of BLS
- Use of AED
- May assist with administration of some medications

Advanced EMT
- EMT with several additional skills
- Practice varies by state: may include
  - Advanced airway adjuncts
  - IV therapy
  - Defibrillation
  - ECG interpretation
  - Selected drug administration

Paramedic
- Provides emergency care based on
  - Advanced assessment skills
  - Formulation of a field impression
- Advanced training in
  - ECG interpretation
  - Defibrillation and pacing
  - Drug therapy
  - Airway management
National EMS Groups

- Local, state, national
- Involved in development, education, and implementation of EMS
- Help set EMS standards
- Promote professional status of EMS
- Unified voice for EMS issues

Benefits of Involvement

- National associations
  - Information sharing
  - Promotes profession
  - Enhances status of the profession
  - Unified voice on EMS issues

National Registry of EMTs

- Professional standards development
- Verifies competency
- Reciprocity
- Reduce costs of exam development
- Research in EMS profession
EMS Standard-Setting Groups

- Get input from profession and public
- Ensure public interest is served in standards development and implementation
- Protect public from unqualified providers

Initial Paramedic Education

- National standard curriculum
  - Competencies
  - Pre- or co-requisites
  - Minimum content for standardized program
  - Cognitive, psychomotor, affective objectives
  - Clinical requirements
  - Length of course defined

Paramedic Continuing Education

- Maintains core or minimal levels of knowledge
- Maintains fundamental technical/professional skills
- Expands skills and knowledge
- Promotes awareness of advances in profession
Licensure
- License to practice a profession
- Occupational regulation
- Permission by competent authority to engage in a business, profession, or activity otherwise unlawful
- Involves governmental activity
- May be required for paramedic practice

Certification
- Authority to participate in an activity if qualifications met
- Fulfillment of requirements for practice in a field
- Usually refers to action of a nongovernmental entity
- May be required for paramedic practice

Certification
A “certification” granted by a state, conferring a right to engage in a trade or profession, is in fact a “license"
Registration

- Act of registering
- Enroll name in a “register” or book of record
- Can be licensed/certified and registered
  - Example: State license and NREMT registration

Credentialing

- Local process
- Allows practice in a specific setting
- Usually guided by local medical director

Professionalism

- Profession
  - Existence of a specialized body of knowledge or expertise
  - Practitioners generally self regulate
  - Maintains standards
  - Includes initial and continuing educational requirements
Professionalism

- Standards of conduct and performance for the profession
- Approved code of ethics

Health Care Professional

- Conforms to standards of profession
- Provides quality patient care
- Instills pride in profession
- Strives for high standards
- Earns respect of others
- Meets profession’s expectations while on and off duty

Health Care Professional

- EMS personnel occupy positions of public trust
- Unprofessional conduct hurts profession
- Commitment to excellence is a daily activity
Health Care Professional

- Image and behavior
  - Personal appearance important
  - Establishes credibility
  - Instills confidence
  - Highly visible role model

Health Care Professional

- Paramedics represent
  - Self
  - EMS agency
  - State/county/district EMS office
  - Peers

Attributes of Professionalism

- Integrity
- Empathy
- Self-motivation
- Appearance and personal hygiene
- Self-confidence
- Communications
- Time management
- Teamwork and diplomacy
- Respect
- Patient advocacy
- Careful delivery of service
Primary Responsibilities
- Preparation
- Response
- Scene assessment
- Patient assessment
- Management
- Appropriate disposition
- Patient transfer
- Documentation
- Return to service

Additional Responsibilities
- Community involvement
- Supporting primary care efforts
- Citizen involvement advocacy
- Participation in leadership activities
- Personal and professional development

Medical Direction
- Medical director serves as
  - Medical leader
  - Resource
  - Patient advocate
Role of Medical Direction

- EMS system design/operations
- Education
- Personnel selection process
- Equipment selection
- Clinical protocol development
- Quality improvement
- Problem resolution

Role of Medical Direction

- Patient care input
- Interagency interfaces
- EMS advocacy in medical community
- “Medical conscience” of EMS system
- Advocate for quality care

Types of Medical Direction

- On-line/direct
- Off-line/indirect
### On-Line Medical Direction
- Immediate and patient specific care
- Telemetry
- Continuous quality improvement (CQI)
- On scene

### Off-Line Medical Direction
- Prospective
  - Protocols/standing orders
  - Training
  - Equipment, supplies, personnel selection
- Retrospective
  - Patient care report review
  - CQI

### On-Scene Physician
- If nonmedical direction physician
  - Follow established protocols
  - On-line medical direction
  - Physicians may jointly decide care
  - Legal responsibility defined
  - Conflict resolution
Improving System Quality

- EMS continually evaluate and improve care
- CQI
  - Focus is on system, not individual
  - Dynamic process
  - Not punitive
  - Identify and correct problems

Continuous Quality Improvement

- Looks at all areas of EMS
- Team approach
- Identifies cause of problem
- Develops remedies
- Designs action plan
- Reevaluates

Keys to Improving Quality

- Lead by example
- Use data to find facts
- Strategic quality plan
- Human resource development
- Examine entire process
- Evaluate success of CQI
- Measure satisfaction
EMS Research: Benefits

- Essential for future of EMS
- May prove/disprove benefits of care
- Can change standards, training, equipment, procedures
- May affect funding
- Enhances recognition and respect for EMS professionals

Research Types

- Descriptive
- Experimental
- Prospective
- Retrospective
- Cross-sectional

EMS Research

- Identify problem or question
- Develop hypothesis
- Decide measurement types/methods
- Define population
- Identify limitations
- Get review board approval
EMS Research

- Obtain consent
- Gather data
- Analyze data
- Publish
- Present
- Follow-up studies

Basic Research Principles

- Population—group

- Randomization and control
  - Sample
    - Systematic sampling
    - Alternative time sampling
    - Convenience sampling
  - Sampling error

- Parameter
  - Nuisance variables

- Blinding
  - Unblinded
  - Single blinded
  - Double blinded
  - Triple blinded
Basic Statistics

- Descriptive
  - Qualitative
  - Quantitative
    - Mean
    - Median
    - Mode
    - Standard deviation

Inferential Statistics

- Null hypothesis
  - Research hypothesis

- Confidence

- Level of significance

Research Ethics

- Institutional review board (IRB)
  - Risks to subjects minimized
  - Risks to subjects outweighed by benefit
  - Selection of subjects equitable
Research Consent Types
- Consent at a distance
- Consent by proxy
- Stepped consent
- Cohort consent
- Deferred consent
- Surrogate consent
- Consent jury

Research Format
- Introduction
- Methods
- Results
- Discussion
- Conclusion

Evaluating and Interpreting Research
- Was the research peer reviewed?
- What was the hypothesis?
- Was the study approved by an institutional review board and conducted ethically?
- What was the population being studied?
- What were the entry/exclusion criteria for the study?
Evaluating and Interpreting Research

- What sampling method was used?
- How many groups were there?
- How were the groups assigned?
- What data were gathered?
- Did the study have enough patients enrolled?

Evaluating and Interpreting Research

- Were any potential variables not accounted for?
- Were the data properly analyzed?
- Is the conclusion logical based on the data?
- Does the conclusion apply in local EMS systems?
- Are the study patients similar to those in the local EMS system?

Conclusion

The role of the paramedic is different from that of the “ambulance driver” of the past. Today’s paramedics work in sophisticated EMS systems.