Are You Heart Fit....
Or Are You a Sitting Duck?

Medical Screening Success Stories

Fire Chief Richie Bowers
&
Battalion Chief Jennie Collins
Objectives

- Understand the cause and factors associated with EMS provider line of duty injuries and deaths
- Identify the critical medical screenings all EMS providers should receive
- Develop a framework to establish a medical screening physical program for their own agency
- Review and discuss case studies related to medical screening success stories
Introductions

- Name and agency
- Why are you here today
- Do you have examples of significant injuries or medical related challenges in your agency
- Have you experienced a line of duty death in your agency
Influence of Tragedy

There is no greater influence of change in the fire service than a line of duty death of an EMS provider.

Yet, there is no greater tragedy than that of a fallen provider whose death prompted the passage of a safety policy which may have prevented his death....
EMS providers urged to face personal problems in EMS Today keynote

JEMS Editor-in-Chief A.J. Heightman spoke candidly about his own five-year experience of morbid obesity.
When it Hits Home -
FF Recruit Cecilia Turnbough

- Joined Dale City Volunteer Fire Department May 2000
- Certified as an Emergency Medical Technician
- Enrolled in Firefighter I program in Fall 2008
- Died in the Line of Duty on November 9, 2008
Volunteer Firefighter I training program held at the Prince William County Public Safety Academy

Students being instructed on proper techniques to overcome obstacles and entry into the maze

- Classroom
- Dressing Drills
- Hose Maze
- SCBA Talk / Low Profile
- Maze practical
Firefighter Recruit Cecilia Turnbough was a student in the Firefighter I program.

Cecilia had completed all stations leading up to the Maze.

While moving through the maze, the instructors were in voice contact with Cecilia.

Instructors recognized Cecilia was having some problems in the maze.
When instructors reached Cecilia, she did not respond to verbal commands and was unresponsive.

Cecilia was removed from the maze and CPR initiated.

Cecilia was transported to the hospital where resuscitation efforts continued but were unsuccessful.
The autopsy report listed several pathological diagnoses:

- Arrhythmogenic right ventricular cardiomyopathy/dysplasia
- Asthma
- Hypertension
- Hypothyroidism
- Obesity
- No sign of significant injury

The medical examiner determined the cause of death to be *Arrhythmogenic right ventricular cardiomyopathy/dysplasia* and the manner of death to be natural.
Standards, Policies and Procedures recommend or require medical evaluations and/or medical questionnaires.

- FRA career members receive medical evaluation pre-hire; incumbents receive age based evaluations.
- FRA volunteer members may or may not receive a medical evaluation; they are self regulated.

Recommendations Implemented

- All FRA members shall receive an entry level medical evaluation in accordance to NFPA 1582.
- All FRA members shall receive a yearly medical evaluation in accordance to NFPA 1582.
The Issues

The most common illnesses and injuries are:
- Exposure to blood-borne pathogens
- Injuries from lifting and moving patients
- Wounds inflicted by violent patients
- Injuries caused by traffic accidents involving ambulances

Line of Duty Deaths
- Over 200 line of duty deaths recorded by National EMS Memorial database
Numerous Fire Based EMS Agencies

Candidate Physical Abilities Test
- Joint IAFF/IAFC Wellness-Fitness Task Force
- New hires only
- Eight-event test wearing a 50 lb. weighted vest
- Required mentoring prior to test attempt

Incumbent Performance Evaluations
- Joint IAFF/IAFC Wellness-Fitness Initiative
- Incumbent personnel
- Focused on performing essential job tasks
- Non-punitive
What is Out There Now?

NHTSA’s model for responder credentialing system

- Must be healthy to function under field conditions
  - 12-hour shifts
  - Extreme weather conditions
  - Long periods of standing
- Not require medications that must be refrigerated
- Not have physical conditions, impairments, or restrictions that prevent moving and lifting patients, equipment and supplies
- Have current immunizations
**Comparative Analysis**

- **Firefighter**
  - Identified essential firefighter job tasks
  - **Benefits for firefighters**
    - Annual medical screenings
    - Fitness evaluations
    - Fitness prescriptions
    - Numerous life saving diagnosis of illnesses

- **NFPA 1582**
  - Candidate
  - Incumbent
Purpose

Outline an occupational medical program
Reduce the risk and burden of fire service occupational injury and fatalities
Improve the health, and thus the safety and effectiveness, of fire fighters operating to protect civilian life and property

Thirteen essential job tasks identified

Compare the essential job tasks to the minimum competencies and tasks of an EMS provider
**Critical Task Comparison**

**NFPA Essential Tasks**
- Firefighting Tasks
- Wearing SCBA
- Exposure to toxic fumes

**EMS Competencies and Tasks**
- Lift, carry, bend, crawl, walk on uneven surfaces
- Use body substance isolation
- Operate in presence of haz-mat
- Operate in presence of haz-mat or on fire scenes
Critical Task Comparison

NFPA Essential Tasks
- Climbing six flights of stairs
- Wearing of protective ensemble

EMS Competencies and Tasks
- Perform in situations that create stress
- Bend, crawl, stoop, walk on uneven surfaces
- Body substance isolation
- Operate during extrications
## Critical Task Comparison

<table>
<thead>
<tr>
<th>NFPA Essential Tasks</th>
<th>EMS Competencies and Tasks</th>
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<tbody>
<tr>
<td>Carry victims</td>
<td>Lift, carry 125 lbs / 250 lbs with assistance</td>
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<tr>
<td>Function as a team</td>
<td>Lift and move patients</td>
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**Critical Task Comparison**

**NFPA Essential Tasks**
- Advance hose lines
- Climb ladders and work near hazards

**EMS Competencies and Tasks**
- Lift, carry and balance 125 lbs / 250 lbs with assistance
- Bend, crawl, stoop, walk on uneven surfaces
- Operate during extrications
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<tr>
<th>NFPA Essential Tasks</th>
<th>EMS Competencies and Tasks</th>
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<tr>
<td>Long periods of exertion</td>
<td>Perform in situations that create stress</td>
</tr>
<tr>
<td>Operate fire apparatus</td>
<td>Operate motor vehicle</td>
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<tr>
<td>Complex problem solving in physical</td>
<td>Maintain ambulance</td>
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<tr>
<td>exertion</td>
<td>Operate ambulance</td>
</tr>
<tr>
<td></td>
<td>Manual dexterity</td>
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<tr>
<td></td>
<td>Operate in situations that create stress</td>
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Critical Task Comparison

NFPA Essential Tasks

Communicate

EMS Competencies and Tasks

Verbally communicate in English
Ability to hear, read and comprehend
Receives and verbally acknowledge dispatch
Reports verbally and in writing
EMS Medical Standards

**Strategies**
- Implement medical standards for EMS
- Implement medical screening for EMS
- Implement fitness standards for EMS
- Implement fitness assessments for EMS

**Outcomes**
- Reduction of injuries to EMS personnel
- Reduction of line of duty deaths to EMS personnel
- Healthier members = healthier organization
Identify essential job tasks
  - Focused on EMS providers
Comprehensive health, wellness and fitness program
Behavioral health program
  - Clinical
  - Substance abuse education and prevention
Worker rehabilitation program
Individual performance evaluation of essential job tasks
How To Implement

- Work with stakeholders and develop a plan
  - All need to believe in it and support the concept
- Educate, educate, educate
- Peer fitness trainers
- Exercise equipment
- Fitness assessments & exercise prescriptions
  - Annual assessments
- Dedicate time for fitness
How To Implement

- Assess resources and develop plan
- Consider options
  - Partnerships
  - Contract services – come to you or you go to them
  - Establish health center
- Collect data!
- Rehabilitation services
- Establish a schedule
Comprehensive Medical Screening

Assessment Types
- Candidate
- Incumbent evaluation

Medical screenings
- Annual
- Return to duty assessments
- Ratings
  - Fit for duty
  - Restricted duty
  - Not fit for duty
- Baseline documentation
- Occupational exposures
- Medical & psychological

Fitness assessment
- Injury care
- Medical rehab
  - Work hardening
  - Physical therapy
Medical Screening

- Patient history and medical screening
- Basic vitals
- Laboratory analysis
  - Blood
  - Urine
- Visual and hearing testing
- Cardiovascular stress testing
- Fitness evaluation
- Medical tracking and surveillance
  - Medical record - historical data
Benefits

- Life Saves
  - Cardio-vascular
  - Cancers
  - Blood disorders
  - Cholesterol balance
  - High blood pressure
Success Stories
Montgomery County Fire & Rescue Service

Fire & Rescue Occupational Medical Section (FROMS)

Established
- 2003 – Career Department
- 2006 – Volunteers

3rd party private contractor

Specialized occupational health physician

Type of care provided
- Wellness
- Minor injury & illness
- Return to work
Demographics - Age

- 20-30: 2
- 31-40: 6
- 41-50: 12
- 51-60: 8
- >61: 4
Demographics - Condition Found

- Cardiovascular: 45%
- Cancer: 26%
- Medical: 29%
Cardiovascular Related

- **Male/55**: Could barely complete stress test
  - 90 & 100% blockage both femoral arteries
  - Stents placed

- **Male/48**: Suspicious ST segment changes
  - 85% coronary artery occlusion and scheduled for cath
  - Stent placed

- **Male/33**: Referred to Cardiology for PVCs and slight abnormal ST
  - Diagnosed cardiomyopathy
Cardiovascular Related

**Male/54:** Referred due to arm pain
- Thought arm was hurt while using standpipe
- Diagnosed: CAD
- Underwent angioplasty
- Retired on cardiac disability

**Male/46:** Referred for suspicious EKG findings during stress test
- Cardiac cath revealed 90% blockage of 3 coronary arteries
- Stents placed
Cardiovascular Related

**Male/39: ECG noted new RBBB**
- 90% blocked coronary artery
- Stent placed

**Male/41: Develop SVT during stress test**
- History of WPW
- Required ablation

**Male/50: ECG changes during stress test**
- Cardiac cath revealed advanced disease – unable to place stents
- Quintuple bypass performed
- Day before vacation – high altitude trip
Female/48: Uncontrolled diabetes
- Received medical treatment
- Condition stabilized

Male/59: Numerous health conditions and medications
- Received coordinated and comprehensive treatment for diabetes, weight control and other health issues
- Conditions stabilized
Male/53: Previous diagnosis of narcolepsy
- Referred for consult
- Sleep apnea determined as cause and received proper treatment

Male/54: Positive stool test result
- Diagnosis of hemachromatosis – excess iron accumulation; metabolic disorder
- Can lead to multi-organ failure if left untreated
- Receiving appropriate treatment
Medical Related

- **Male/31**: Noted enlarged area of thyroid
  - Diagnosed Hashimoto's Disease with goiter
  - Received proper treatment
- **Male/47**: Noted enlarged area of thyroid
  - Diagnosed goiter
  - Received proper treatment
- **Male/36**: Decrease pulmonary function tests
  - Diagnosed bronchogenic cyst
  - Receiving on-going monitoring
Male/31: Decrease pulmonary function tests

Diagnosed sarcoidosis - inflammation that produces tiny lumps of cells in various organs

Receiving on-going monitoring and treatment
Cancer Related

- **Male/33**: Noted enlarged thyroid
  - Three thyroid nodules found
  - Currently referred to endocrinologist

- **Male/61**: Elevated PSA test
  - Diagnosed prostate cancer
  - Received appropriate treatment

- **Male/23**: Blood trace in urine
  - Diagnosed bladder cancer
  - Treated with chemo
Cancer Related

- Male/20: Thyroid nodule found
  - Diagnosed papillary carcinoma of thyroid
  - Surgically removed

- Male/20: Thyroid nodule found
  - Diagnosed papillary carcinoma of thyroid
  - Surgically removed

- Male/26: Abnormal lab work
  - Rare blood cancer found
  - Treatment received
Cancer Related

**Male/53:** Lab work showed anemia
- Diagnosed colon cancer
- Received hemicolecctomy and chemo

**Male/54:** Elevated PSA test
- Diagnosed prostate cancer
- Received appropriate treatment

**Male/46:** Abnormal mole found during exam
- Diagnosed melanoma
- Received appropriate treatment
Demographics

Volunteer
13
38%

Career
21
62%

Program Established: 2006

Program Established: 2003
Demographics & Trends

![Graph showing trends over years]

- Career
- Volunteer
- Linear (Career)
- Linear (Volunteer)
Demographics

Applicants: 2 (6%)
Incumbents: 32 (94%)
The Next 30 Years

Will you be a change agent or a statistic for your agency?

Will you be a change agent or a statistic for EMS?
Questions or Comment?

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