



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.....*

# The Issues

NAEMT Project Aims to Improve EMS Provider Fitness

 Health & Safety  
**Research Study Rates EMS Providers' Fitness Levels.**  
Is the average provider healthy enough to perform the job?

## **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

Discussion on the Wellness of EMS Providers and Episode 372

Are You Fit for Duty?

**EMS Physical Fitness, or Lack Thereof**

# 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

# Incident Overview

- 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

# Incident Overview Continued

- 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

# Incident Overview Continued

- 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

# Cause of Death

- 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

# Medical Evaluation Findings

- 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

# What is Out There Now?



- 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



# NFPA 1582



## ● 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

## NFPA Essential Tasks

- Carry victims
- Function as a team



## EMS Competencies and Tasks

- Lift, carry 125 lbs / 250 lbs with assistance
- Lift and move patients
- Lift, carry as a team
- Lifts and moves patients
- Operate during extrications

# 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



# Critical Task Comparison



## NFPA Essential Tasks

- Long periods of exertion
- Operate fire apparatus
- Complex problem solving in physical exertion

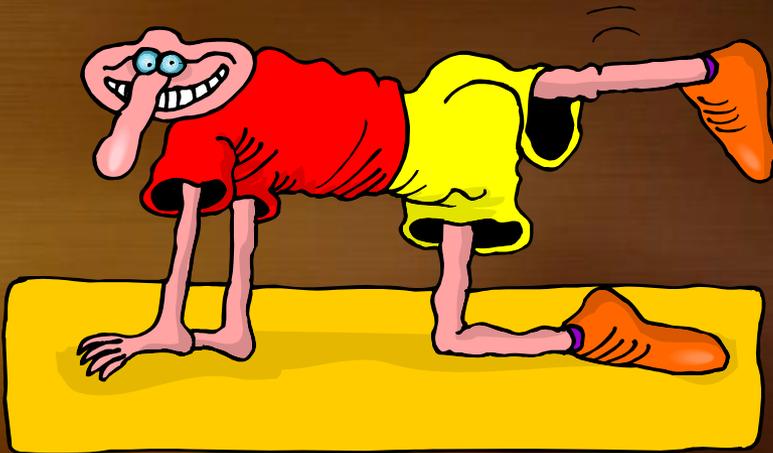
## EMS Competencies and Tasks

- Perform in situations that create stress
- Operate motor vehicle
- Maintain ambulance
- Operate ambulance
- Manual dexterity
- Operate in situations that create stress

# 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

# Development of Medical Standards

- 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

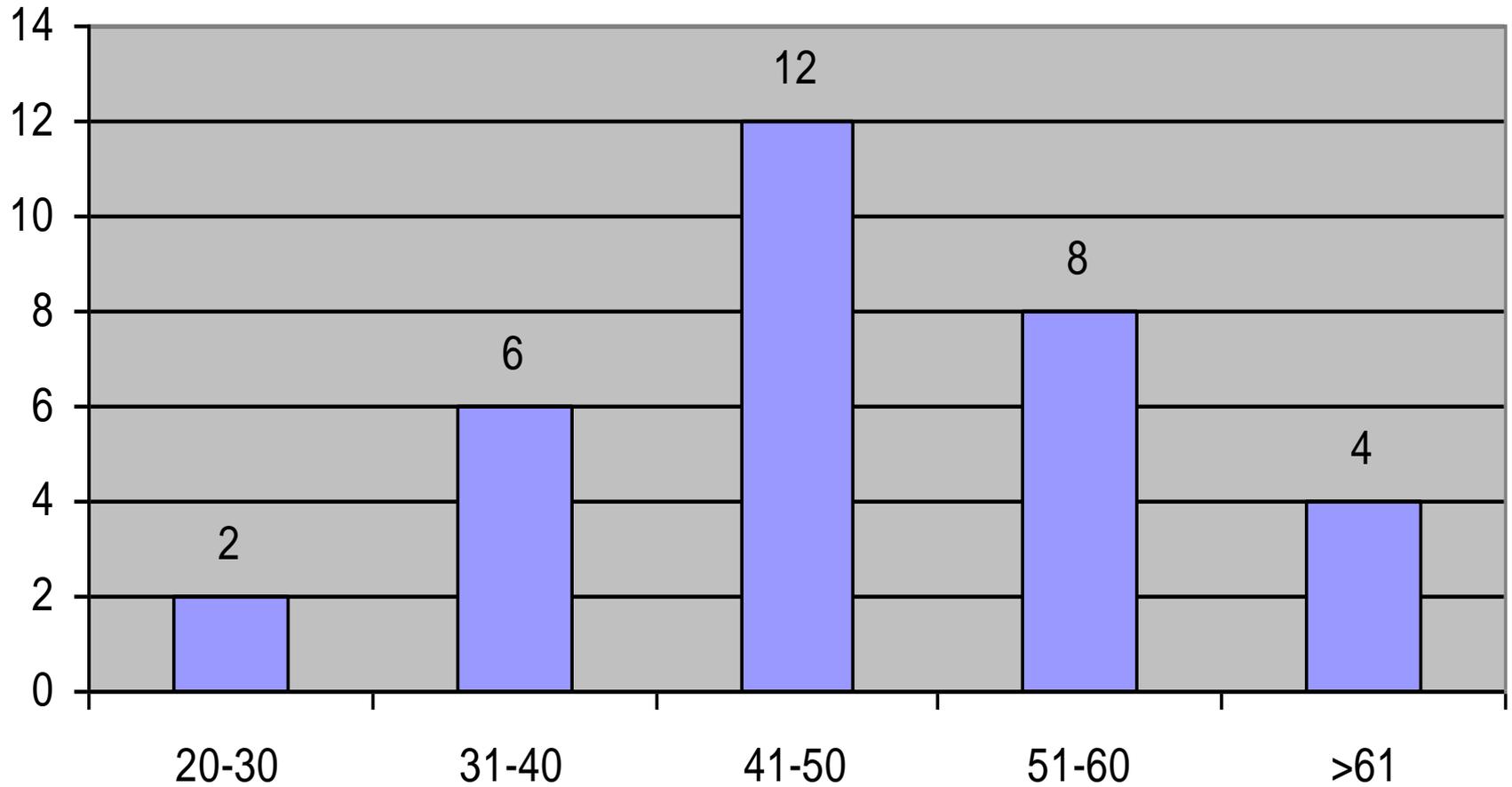


# *Success Stories*

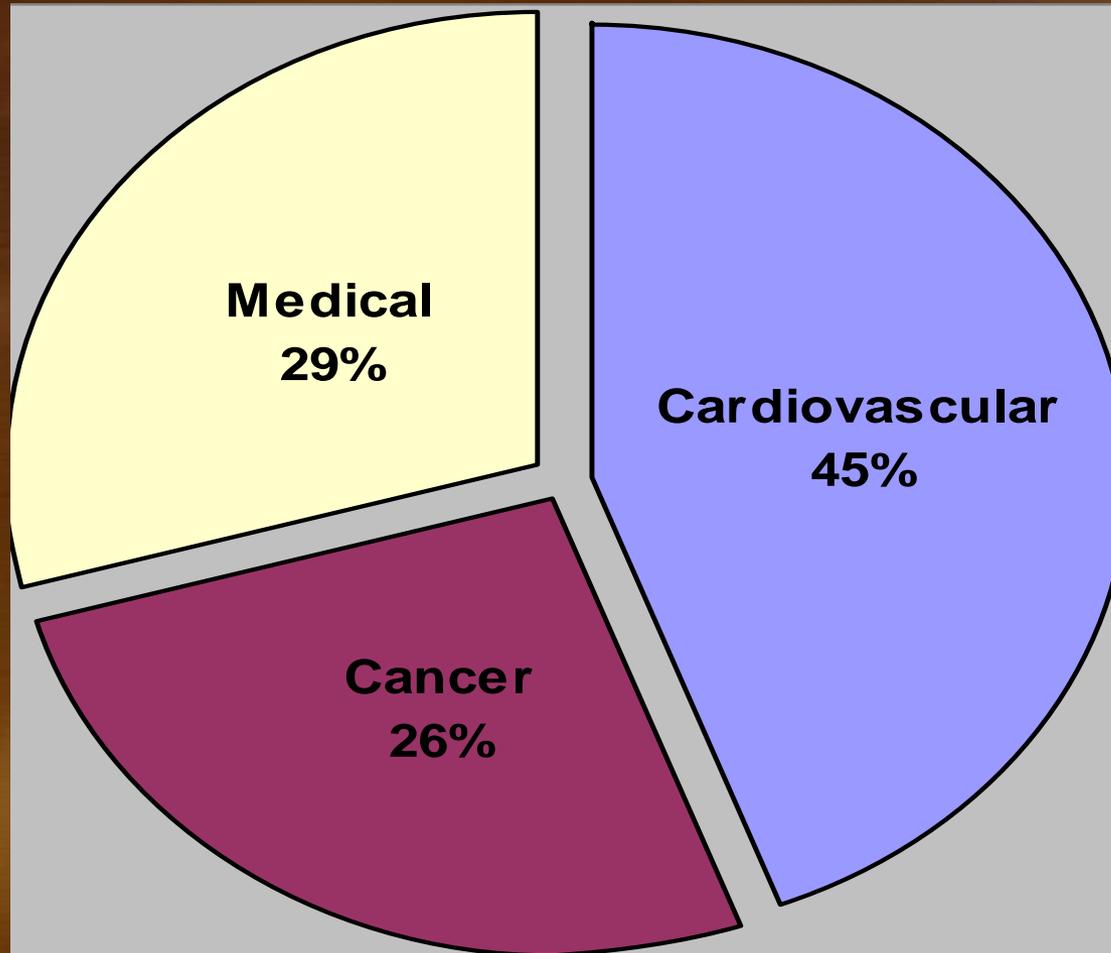
# Montgomery County Fire & Rescue Service

- Fire & Rescue Occupational Medical Section (FROMS)
- Established
  - 2003 – Career Department
  - 2006 – Volunteers
- 3<sup>rd</sup> party private contractor
- Specialized occupational health physician
- Type of care provided
  - Wellness
  - Minor injury & illness
  - Return to work

# Demographics - Age

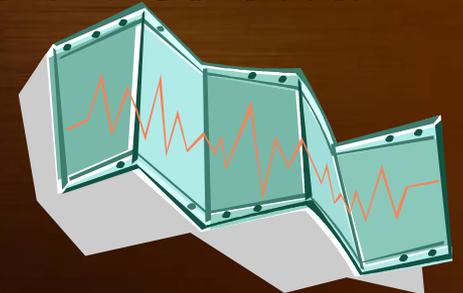


# Demographics - Condition Found



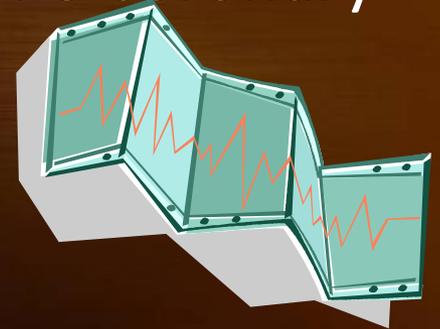
# Cardiovascular Related

- 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



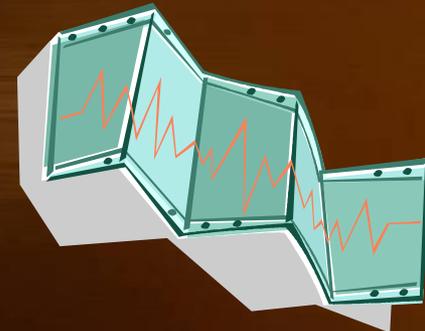
# Cardiovascular Related

- 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



# Medical Related

- 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



# Medical Related

- 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



# Medical Related

- 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



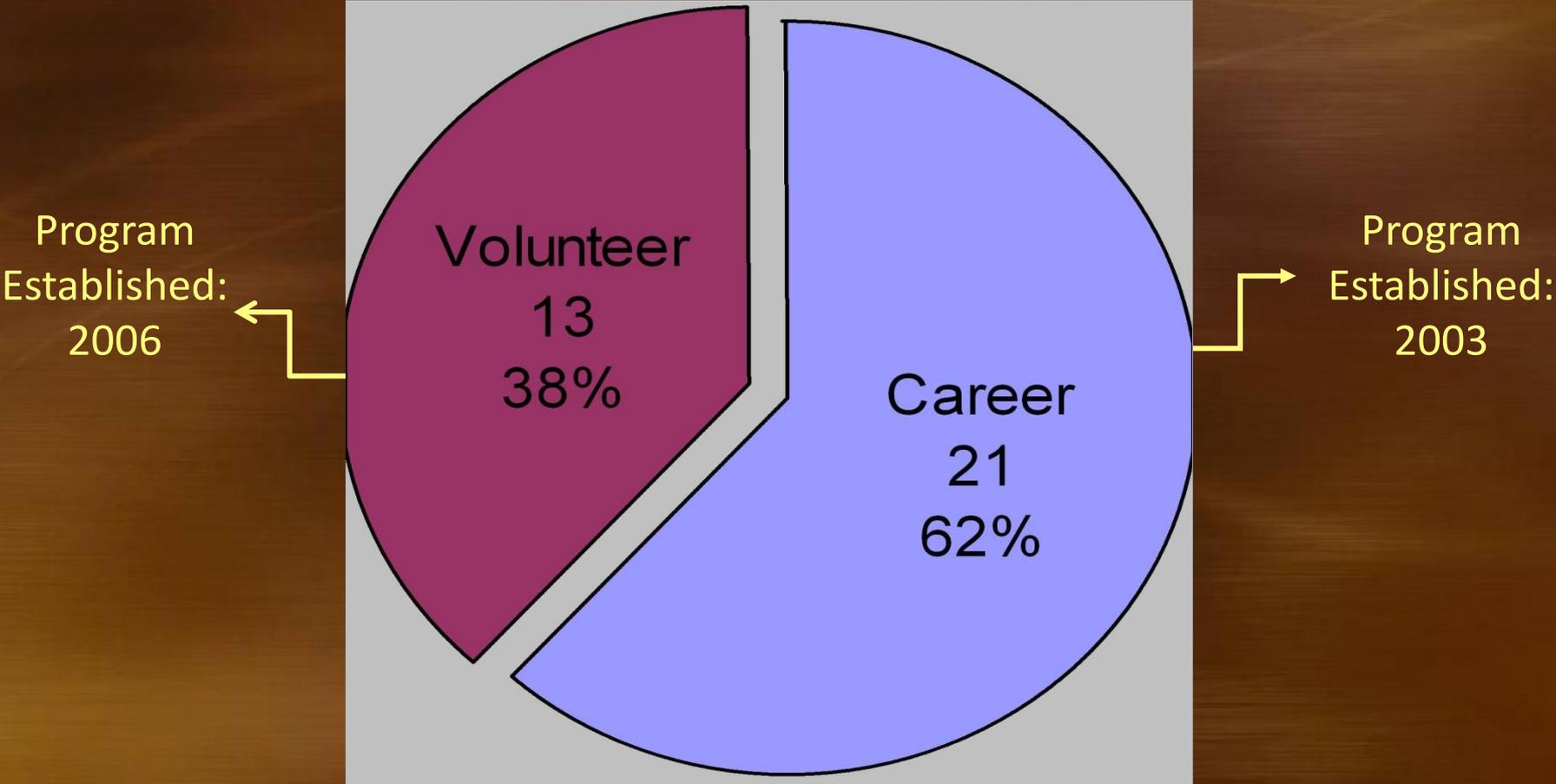
# Cancer Related



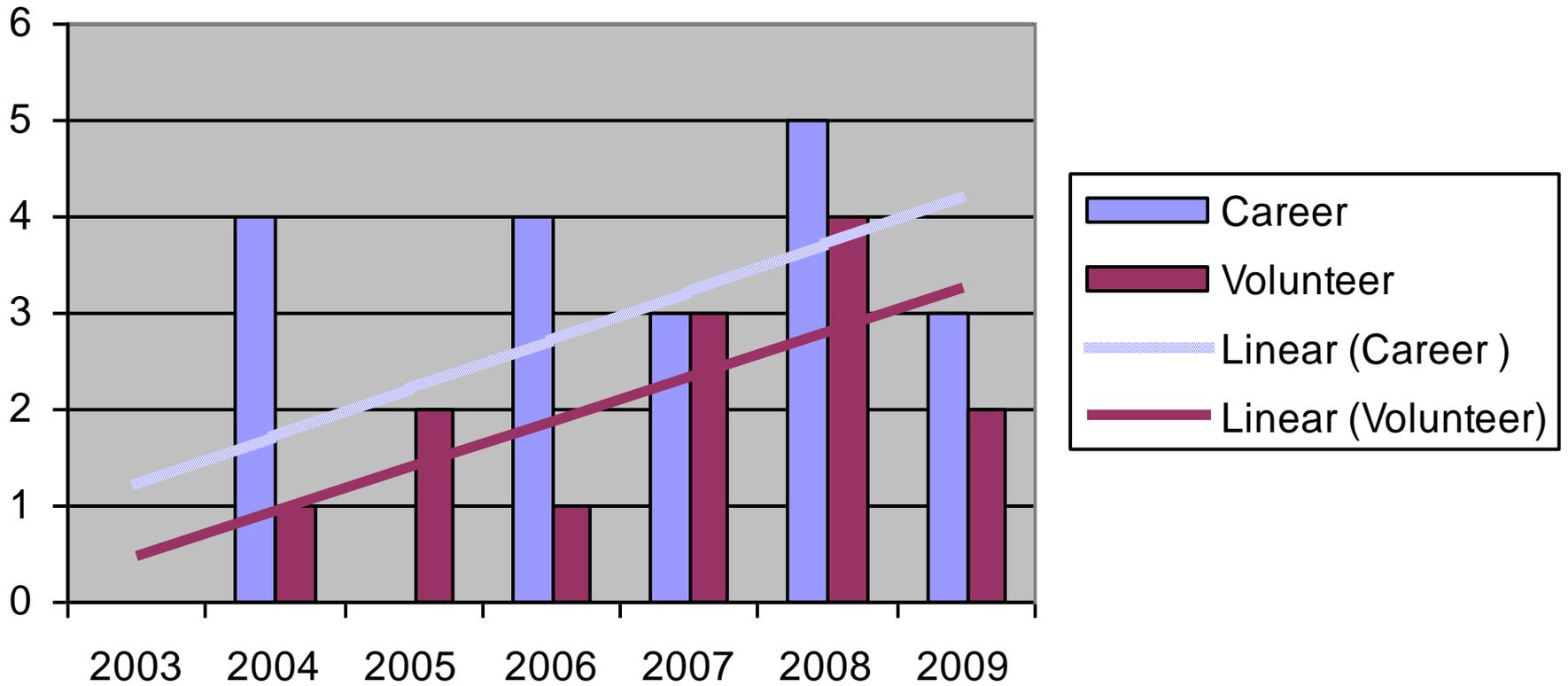
- Male/53: Lab work showed anemia
  - Diagnosed colon cancer
  - Received hemicolectomy and chemo
- Male/54: Elevated PSA test
  - Diagnosed prostate cancer
  - Received appropriate treatment
- Male/46: Abnormal mole found during exam
  - Diagnosed melanoma
  - Received appropriate treatment



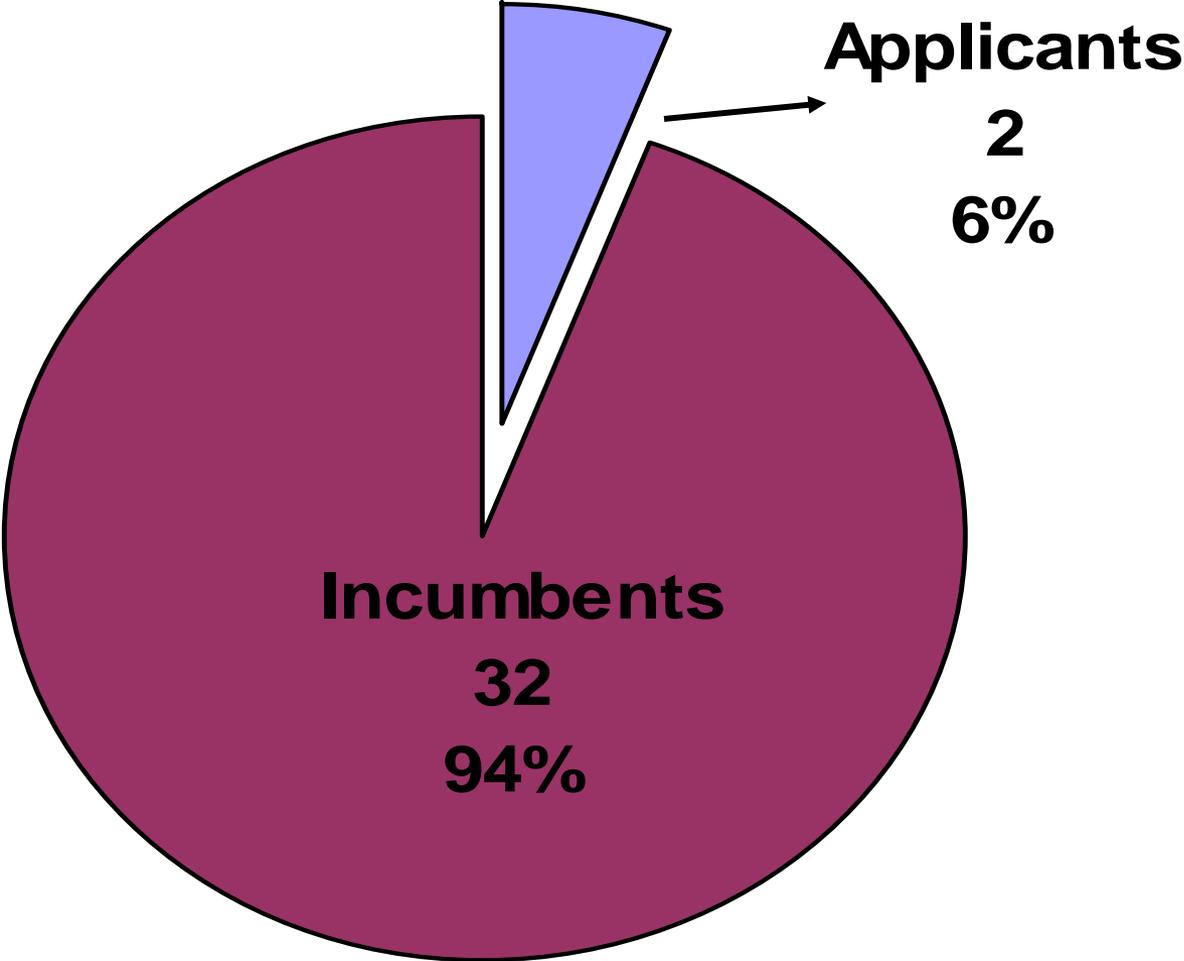
# Demographics



# Demographics & Trends



# Demographics



# 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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