**EMS Fellowship Board Review Pearls
September 03 2019
Occupational Health and Medical Surveillance**

**Chapter 23: Medical surveillance of emergency response personnel**

* OSHA and NFPA regulations provide guidance on mandatory surveillance programs.
* NFPA 1500 series relates to occupational medical programs
* OSHA 29CFR requires medical surveillance for specialized operational teams such as hazardous mat response teams, or employees who wear a respirator > 30 days per year
* Medical surveillance also applicable to firefighting personnel
* Members serving on specialized teams may have other requirements
* Goals: Early recognition of haz mat exposure, early intervention, effective management of disease process and illness prevention
* Occupational medicine program must be physician supervised and comprehensive. Physician should be familiar with job related hazards, toxicology, etc
* Components of medical surveillance: tracking system, dedicated staff, suitable office space, protocols for individual testing, compliance with information privacy
* Funding needs to provide “competitive salaries for staff… necessary office space and technology.”
* Medical screening includes five categories of examination: post employment offer, baseline, annual or periodic, job termination, and exposure/injury specific
* Records must be maintained 30 years post resignation or retirement
* Initial employment exam: visual, auditory, vital sign, ECG testing, blood chemistry, UA , CXR
* Fit testing may be combined with initial ntry examination
* Baseline exam: performed when individual joins an EMS/specialized operations team
* Annual or periodic examinations follow at intervals of not less than 2 years
* On scene medical exams: EMS personnel usually perform these exams on fireground. NFPA standards contain information about frequency and duration of assessment. NFPA 1584 contains standard operating procedure for rehab
* Patients usually require a rest period during extended periods of hazmat operations. Other recommendations include limitations on caffeine, and hydration
* Recommendations include rest periods 2-2.5 times the length of the operational period. Depending upon ambient stressors and SCBA bottles used, the requirements may be extended
* Termination exam must be performed in accordance with OSHA mandate

**Chapter 24: Prevention and Intervention for psychologically stressful events**

* CISM formed foundation for stress prevention but little evidence supports efficacy. This strategy involved dedicated teams that would deploy to location of a stressful incident and discuss debriefing
* NFPA 1500 provides guidance on structure of employee assistance programs, or EAPs. These programs are more comprehensive and offer longitudinal support. Sometimes EAPs are contracted to an external vendor
* Evidence based guidelines for professional assistance:
-Immediate assistance: proximal, non intrusive, ecologically intact using principles of basic stress first aid.
-Easy, reliable, and non intrusive assessment
-Stepped care: method of escalating surveillance/support if needed
-Evidence based tx of clinical conditions should be conducted by trained personnel
* In interviews with Canadian EMS providers, there was utility seen in the hosting of a “debriefing” or “time out session” following a stressful incident
* Simple structure of a “hot wash: what happened, what was successful, what could have gone better, how could EMS/organization improve
* Hot wash should not be reserved only for high impact/stressful events
* A “trauma screening questionnaire” was discussed in the textbook. EMS providers who scored positive with six or more items could be referred to EAP for a more complete assessment
* Elements of an integrated system include:
-After action review
-Curbside manner: stress first aid
-Trauma screening questionnaire
-Developing an effective behavioral health program (NFPA 1500)
-Assistance to behavioral health providers
-Stress first aid (imbedded program of coworker assistance and referral
* Resilience also built upon strong foundation of personal wellness

**Chapter 25: Protection of EMS Personnel from occupationally acquired infections**

* Formal guidelines issues from CDC on blood borne pathogens; guidelines recently updated to cover potentially infectious bodily fluids. Emphasis on personal protective equipment and safer handling of needles/sharps.
* Table in textbook summarizes CDC guidelines for working with potentially infectious bodily fluids.
-Gloves recommended for handling blood, bodily secretions, contaminated equipment
-Gowns needed during procedures that may cause provider to come in contact with fluids and secretions
-Mask: masks and eye protection required during procedures likely to generate splashes or sprays of bodily fluid. Recommended for suctioning and intubation for example
* Additional table provided guidance of type of isolation recommended for various clinical syndromes
-Acute diarrhea/enteric pathogens: contact
-Meningitis: droplet, contact for infants and children. Airbone recommended if infiltrate
-Petechial rash: droplet plus contact for first 24 hours of antimicrobial therapy. N95 recommended if aerosol generating procedure performed
-Maculopapular rash w/cough/coryza: airborne
-Most contagious respiratory infections warrant airborne precautions according to CDC table
* Droplet precautions: required when disease is likely spread through coughing/sneezing
* Airborne: required for more contagious, aerosolized disease processes. Mandate use of N95 or higher. Consider airborne for zoster/varicella
* OSHA regulations: 29CFR required that health care workers be protected against potentially blood borne pathogens. Employee health records had to include components of exposure surveillance and documentation
* Ryan White Act: Initially incepted in the wake of the HIV epidemic, this law requires health care facilities to report possible exposures from EMS
-Requires that each emergency response agency have a dedicated ICO
-Newer regulations addressed obligatory notification of emergency responders
-Potentially life threatening diseases covered under the act are also contained in the CDC list
-Health care facilities must collaborate with EMS agencies to address mandatory reporting requirements, provide necessary PEP, and occupational medical surveillance
* NFPA 1500 series: voluntary standards relating to occupational health and safety in the fire service. As industry standards, they may be cited by OSHA
* NFPA 1582: Addresses medical eval of firefighter candidates and fitness for duty requirements. Document also describes screening and surveillance of occupationally acquired infectious diseases
* NFPA 1581: Standards of fire department infection control program: outlines ICO responsibilities in accordance with Ryan White Act. ICO oversees all aspects of infection control in the fire department including education, training, selection of engineering controls
* Hepatitis B: Agencies must provide Hep B vaccination programs. EMS providers should not serve as HCPs until they have received the first dose of the vaccine. Providers at risk should have antibody levels determined at 1-2 months following completion of vaccine dose. Early HepBIG may protect against exposure for non responders to the vaccine. Routine titers are NOT recommended.
* Hepatitis C: Average risk following percutaneous exposure if 1.8% (from an HCV positive patient). Data collected before engineering safeguards went into effect. Mucous membrane exposure is also rare. No known post exposure prophylaxis for HCV. Recommendations include serologic testing and viral RNA testing according to textbook.
* HIV: though risk from needlestick is low, guidelines recommend immediate ED eval and issuance of postexposure prophylaxis for at risk encounters. According to textbook, PEP for HIV is not recommended if source patient tests negative for HIV. PEP should be started as soon as possible, ideally less than 72 hours (of course, standards of care advocate sooner initiation of treatment). Follow up texting for seroconversion is also recommended at regular intervals.
* Recommended immunizations: EMS providers should be offered Hep B, MMR, and varicella if not immune. TB testing is offered in accordance with risk assessment. Annual flu shots also recommended. Immunization programs are known to be, “cost effective.” Recommendations outlined in NFPA 1582