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Worker Protection Strategies

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Worker Protection Goals

- Prevent or mitigate injury and illness from environmental, occupational, and operational threats (including traumatic stress)
- Enable epidemiological investigation of emerging concerns
- Clarify deployment-related liabilities
- Ensure resources and services are available when prevention fails

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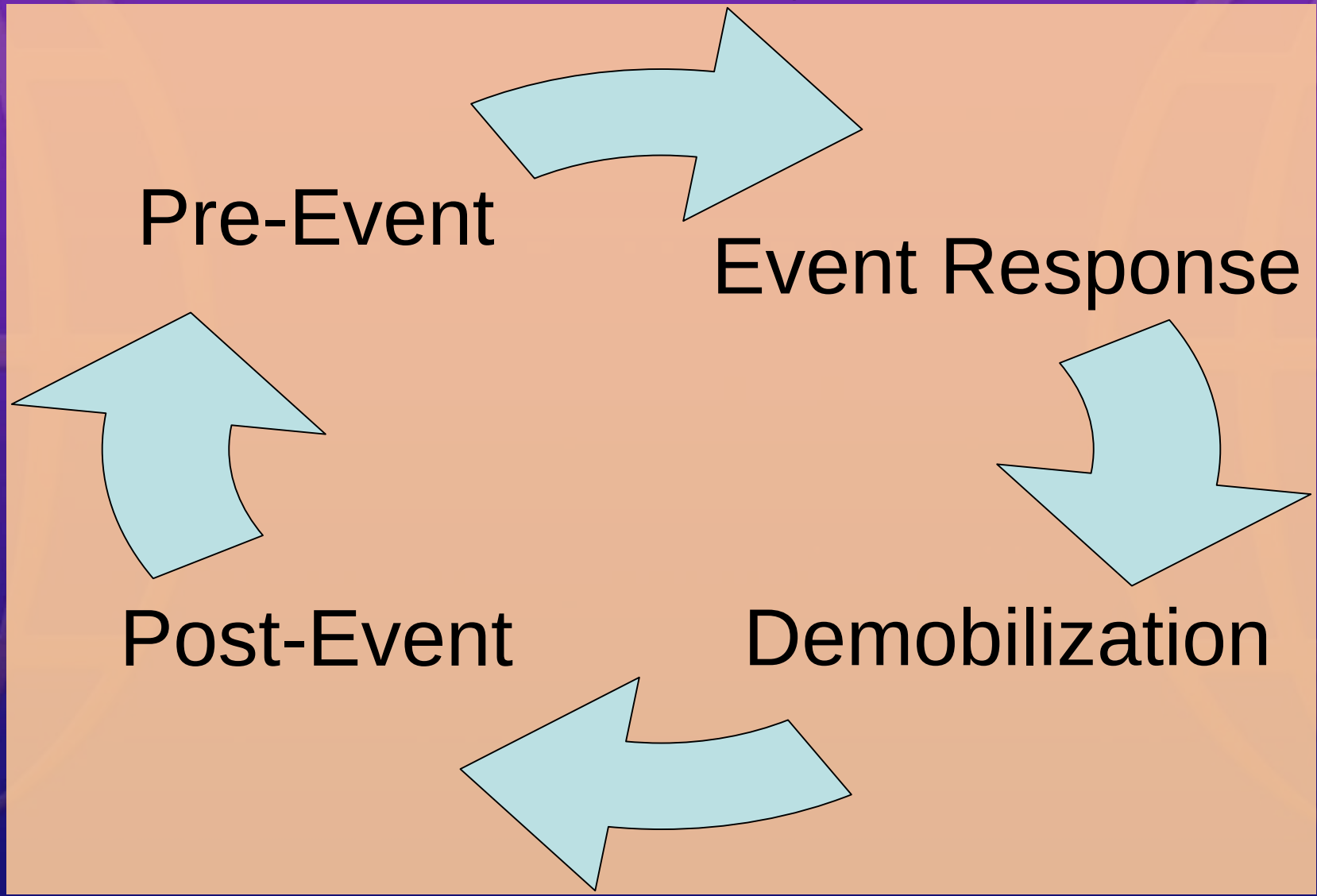
Health and Safety Activities



Pre-Event

- Criteria for worker readiness
  - Credentials, education and training, PPE
  - Fitness for duty (medical clearance)
- Tracking deployed personnel
  - Who, where, how long
- Workforce and field safety management
  - Anticipate hazards
  - Infrastructure for health and safety

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Fitness for Duty: Risk

- What are the anticipated **job hazards**?
  - Role and task, work organization, setting, support
  - Risk of infection, routes of exposure
  - Physiological demands of PPE to control hazards
- What are the **personal risk** variables?
  - Chronic disease and degree of control
  - Special needs
    - Work restriction, medication handling, durable medical equipment, available help

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Fitness for Duty: Planning

- What control measures are available?
  - Engineering, administrative/work practice, PPE
  - What medical clearance is needed for recommended PPE?

Examples:

- **Disaster planning matrix for hurricanes**
  http://www.osha.gov/SLTC/etools/hurricane/index.html
- **Model health & safety plan (HASP) for clean-up of facilities contaminated with anthrax spores**
  http://www.osha.gov/dep/anthrax/hasp/index.html
- **Anthrax e-Tool**
  http://www.osha.gov/SLTC/etools/anthrax/index.html

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Event Response: Safety Management

- Connect with infrastructure for coordinated health and safety activities
- Situational awareness and anticipate hazards
- Compliance with site-specific health and safety plan (HASP)
- Injury and illness reporting
- Staff and data monitoring to achieve real-time exposure assessment and control

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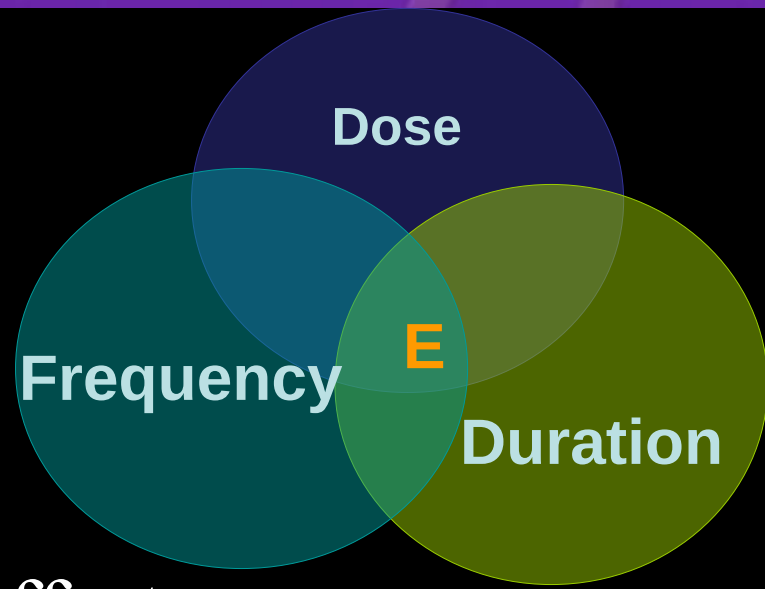
Area Exposure Estimation:
Industrial Hygiene Measures

- Environmental Sample Analysis:
  - Air, swipe, bulk samples
  - Screening vs. exposure characterization strategy
- Positive sample ≠ disease
  - Exposure ≠ disease
  - Human effects highly variable with route and type of exposure, physiology and susceptibility
  - What is the background (baseline) level of exposure?

Human Exposure
Assessment Parameters

- Dose, frequency, duration
  - Characteristics of agent:
    - virulence, stability
  - Route of exposure
  - Dose-response relationship
- Incubation period; latency effects
- Other clues: animal deaths, epidemiological clustering, intelligence data



Sources of Stress

Role ambiguity, mismatched skills

Unrealistic expectations and inflexibility

High work demands with little control

Improper attention to safety (climate)

Fatigue and work shift/recovery cycles

Conflicting demands from personal life

Lack of team cohesion or communication

Poor or confusing chain of command

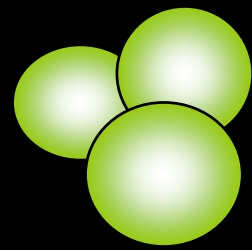
Demobilization

- Verify illness and injury events are captured
  - Situation awareness for safety manager
- Opportunity to provide health and safety briefing before return to routine tasks
  - Potential health effects
  - Available services and resources for care
  - Input for continuity and lessons learned

Unique Challenges After Biological Exposures

Detection Challenges:

- Delay due to case finding (incubation)
- Natural outbreak vs. bioterrorism?



Risk Quantification Challenges:

- Unknown persistence, virulence, transmissibility, minimum infectious dose, resistance to decontamination of introduced pathogens
- Potential spread by animal or insect vectors

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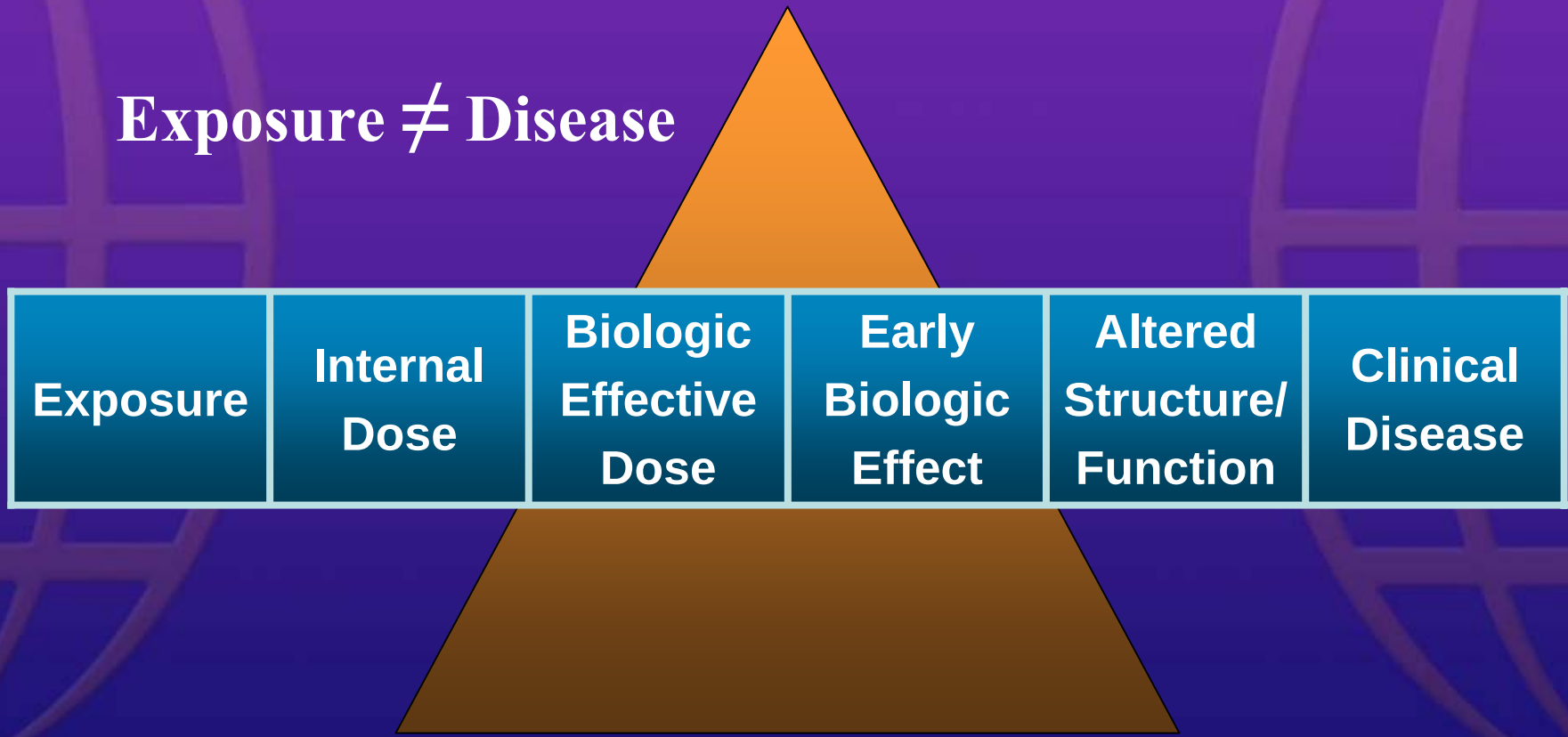
Post-Event

- Reporting of emerging health concerns
- Information sharing about potential concerns and available resources
- Tracking health concerns
  - When to further investigate
  - Medical monitoring
  - Treatment programs

Medical Monitoring for Exposure Disease

Exposure ≠ Disease



Links J. (2000). Principles of Exposure, dose and response in Environmental Health Sciences Course, Johns Hopkins Bloomberg School of Public Health..

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Medical Monitoring Considerations

- Who will be monitored?
- Will it be voluntary?
- Who will conduct the monitoring?
- How will the information be handled?
- Who will pay for the monitoring?
- What should be the content?

Medical Monitoring: Depends on the exposure(s)

Medical history and physical exam

Mental health assessment

Questionnaires

Special tests

Blood/urine chemistry, imaging studies, cardiac/pulmonary function, audiometry

Risk and health communication

Information Management

Retention	How long to retain records?
Access	Who will have access to records?
Storage	How and where to store records?
Utilization	How and who will use records?

Who Pays for Monitoring?

- Employer
- Insurance carrier
  - Worker compensation
- Contracted services

Pandemic Influenza: General Consequences

- Absenteeism and dysfunction
- Massive loss and grief
- Overwhelmed healthcare system
- Communities without supplies or support
- Fear leading to poor coping choices, violence
- Cascading economic problems

Reissman, Watson, Klomp, et al JHSEM, July 2006

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IOM Com. on Psychological Consequences of Terrorism 2003
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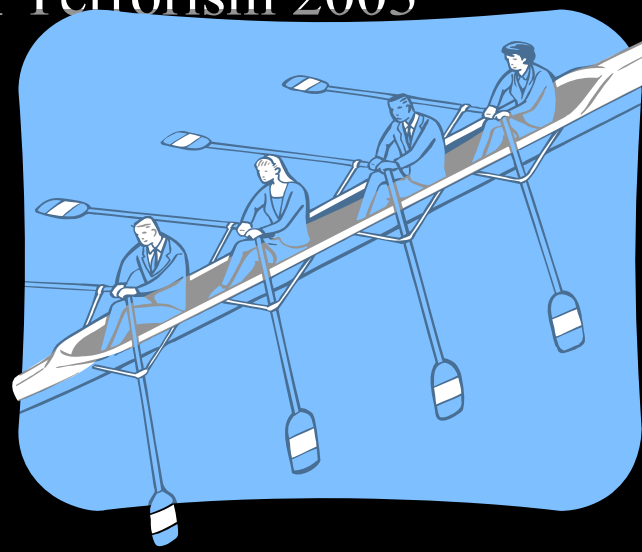
American Psychiatric Association
American Psychological Association
American Red Cross
Academic Centers for Public Health Preparedness



Tools of Workforce Management

Supervision

Leave policies

Job assignment policies

Co-worker cohesion

Work culture

Employee training

Physical & mental health care for employees & families

Workforce Management in Times of Disaster

- Rotate people
- Reserve force
- Limit work hours
- Regional response networks
- Cross training and surge capacity
  - Across tasks, managers, locations
  - Shared leadership
- Selection/Deselection of individuals