

Overview of Terrorism Research at the CDC

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Presented at 2003 Medical Research Summit
March 6, 2003



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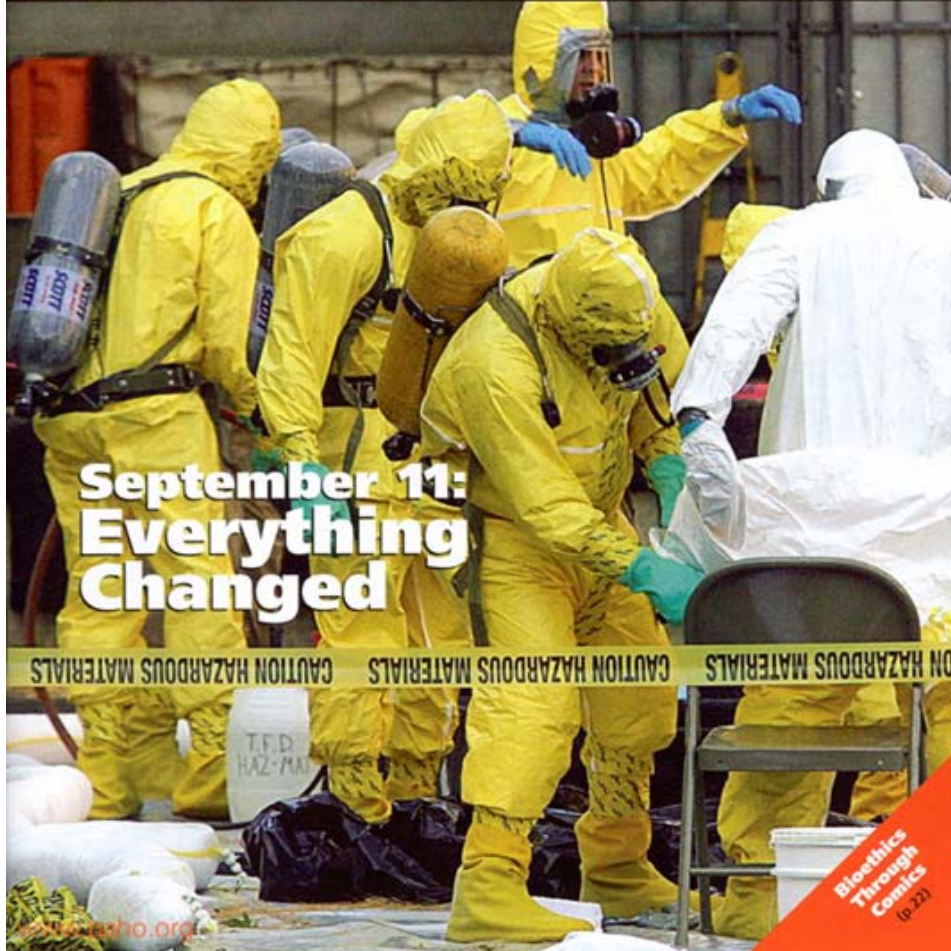


1902-2002 Celebrating 100 Years of International Public Health in the Americas

PERSPECTIVES

in Health
Volume 6 No. 2 • 2002

The Magazine of the Pan American Health Organization Regional Office of the World Health Organization



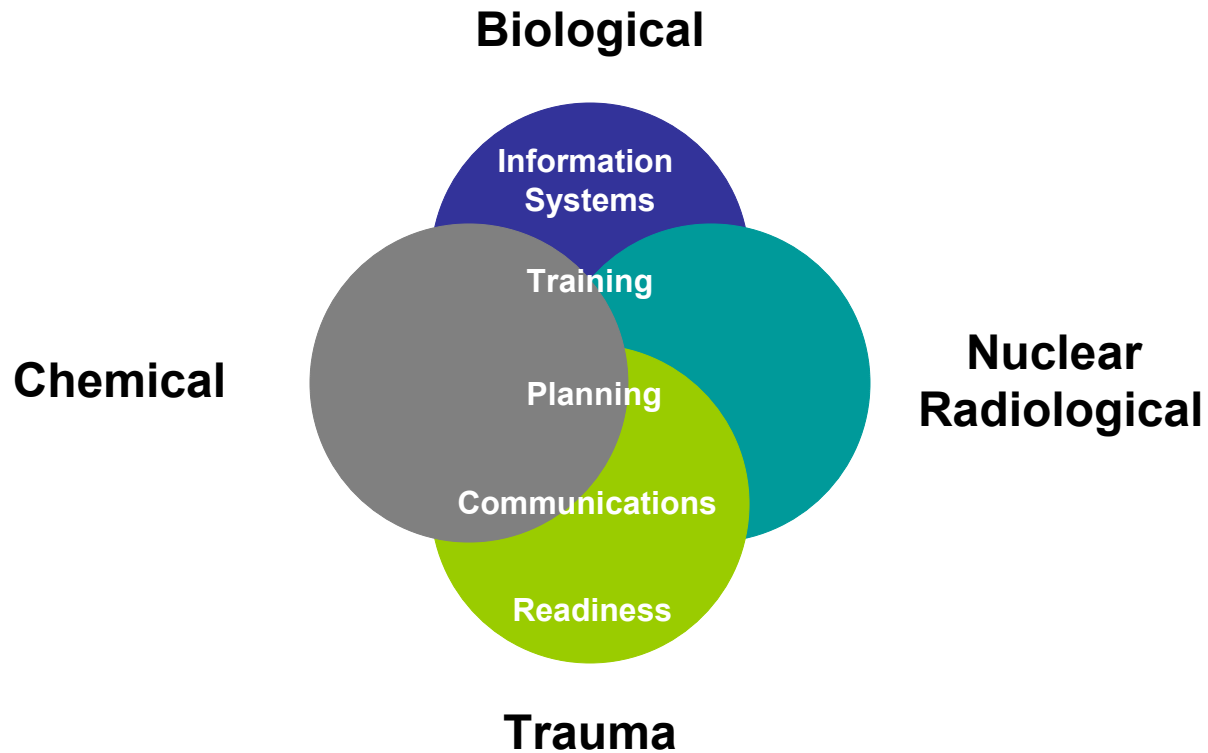
September 11: Everything Changed

CAUTION HAZARDOUS MATERIALS CAUTION HAZARDOUS MATERIALS CAUTION HAZARDOUS MATERIALS

Bioethics
Through
Comics
(p. 23)

www.who.org

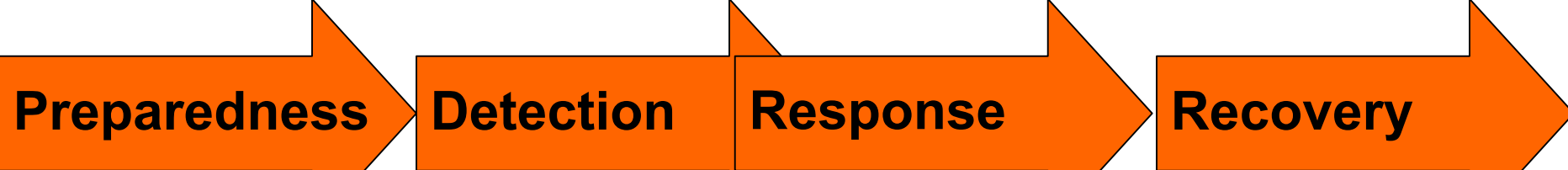
All Hazards Approach



Major Program Components

- **Preparedness and Response Planning**
- **Public Health Interventions**
- **Rapid Disease Detection and Investigation**
- **Biological and Chemical Laboratory Capacity**
- **Application of Information Systems and Technology**
- **Public and Media Risk Communications**
- **Training**
- **Worker Safety**
- **Environmental Monitoring**
- **Select Agent Monitoring**
- **Public Health Law**

Public Health's System of Preparedness, Response, and Recovery



- Planning
- Command and control
- Exercising
-
- Training
-
-
-

- Surveillance
- Clinician training
-
-

- Communicating
 - Clinicians
 - Public health
 - General public
 - Responders
 -
 -
 -
- Coordination

- Monitoring health impact
- Community mental health
- Lessons learned – continuous response improvement

CDC Components Involved in Terrorism Preparedness

- National Center for Infectious Diseases (NCID)—
infectious agents
- National Center for Environmental Health (NCEH)—
chemical and radiologic agents
- National Institute for Occupational Safety and Health (NIOSH)—worker protection
- National Immunization Program (NIP) –
immunization
programs

All Hazards Preparedness and Response:

Chemical / Radiation / Biological

Chemical Terrorism

- Choking agents (phosgene / chlorine)
- Blood agents (cyanides)
- Blister agents (mustard gas)
- Nerve agents (sarin, soman, tabun, etc.)

Radiation Terrorism

- Dirty bombs
- Food / water supply contamination
- Power plants

Biological Agents of Highest Concern (Category A Agents)

- *Variola major* (Smallpox)
- *Bacillus anthracis* (Anthrax)
- *Yersinia pestis* (Plague)
- *Francisella tularensis*
(Tularemia)
- Botulinum toxin (Botulism)
- Filoviruses and Arenaviruses
(Viral hemorrhagic fevers)

Examples of Priority Areas of Smallpox Research

- Evaluation of immune response to smallpox vaccination and risk factors for adverse reactions
- Assessment of duration of immunity
- Comparison of cellular and humoral immunity in previously vaccinated vs recently vaccinated persons
- Assessment of vaccination site care regimens
- Evaluation of VIG and cidofovir for treatment of adverse reactions to

Examples of Priority Areas of Anthrax Research

- Development of model for cutaneous anthrax
- Rapid detection methods, including powder analysis
- Host response, including infectious dose
- Integration of human and veterinary surveillance systems
- Assessment of antitoxin therapy

Examples of Priority Areas of Botulism Research

- Production of heptavalent antitoxin
- Production of an immune globulin
- Rapid assays to detect toxins

Examples of Priority Areas of Plague Research

- Safety and efficacy of gentamycin vs. streptomycin or doxycycline for treatment
- Rapid diagnostic methods

National Institute for Occupational Safety and Health (NIOSH)

- Respiratory protective equipment
 - Recommendations for use
 - Testing & certification of equipment
- Sampling and analysis
 - Toxic industrial chemicals
 - Biological agents
- Workforce screening and health tracking
- Guidance for enhancing building preparedness
- Related research & surveillance



Medical Screening Program

- Mt. Sinai & Consortium of Health Clinics
- Voluntary clinical examination of WTC responders
- Focus:
 - Respiratory effects
 - Musculoskeletal disorders
 - Chronic effects from injuries
 - Psychological conditions



Future Work and Research Needs

- CBRN standards for additional classes of respirators
- Improved sensors and detectors
 - for protective equipment (service-life indicators)
 - for field sampling instruments
- Improved worker screening and health tracking tools
- Working with employers, workers, and responders to address other needs

Critical Next Steps to Support The Public Health System of Response

- **CDC:**
 - **Office of Terrorism Preparedness and Response established**
 - **Strategic direction**
 - **Coordination of resources**
 - **Accountability**
 - **Priorities:**
 - **Improve readiness with a focus on critical threats (i.e., Smallpox, VX, Dirty Bomb, Mass Trauma events)**
 - **Drive to exercise national, state, and local capacities to demonstrate response proficiency**
 - **Support Public Health Information Network**
 - **Research new ways to detect and diagnose disease presence in the population and develop new vaccines, antibiotics and other treatments**
 - **Train, train, train...**