Public Health Surveillance and Research in an Emergency Response Setting

Gulf of Mexico Oil Spill
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Overview

• Goals
• Methods and examples: 9/11 and others
• Implications for the Gulf Oil Spill
Assessing and reducing health impacts: information needs

- **Exposures**: (physical, chemical, and psychosocial), populations and vulnerabilities.
- **Control measures**: (e.g. training, PPE, public messages) reach, effectiveness
- **Services**: needs, reach and utilization
- **Acute injury and illness**: potentially attributable to the spill or response
- **Exposure-dose-response relationships**: for acute and chronic effects
- Surveillance and research are relevant to each need, but the emphasis varies
Public health surveillance data sources and methods

- “Syndromic surveillance”
- Surveys
- Registries, cohorts, panels
- Worker medical surveillance
- Others:
  - Provider reporting – mandatory, voluntary, active, passive
  - Laboratory reporting
  - Vital records
  - Sentinel providers or labs
  - Administrative data systems
  - Others

Adapted from http://www.cdc.gov/ncphi/disss/nndss/phs/overview.htm
Syndromic surveillance

- Tracking of non-diagnostic health indicators, e.g. ED chief complaints, help-line calls usually near-real-time
- NYC ED surveillance initiated September 13, 2001 as on-site manual system, automated in following months
- Improved over time, adaptable: e.g.: 2003 blackout-associated diarrheal illness, heat illness, asthma
- Major role in tracking H1N1
- Limitations: Lacks exposure info and clinical detail. Geographic coverage depends on data sources.
Surveys: phone, in field, electronic

- Mental health impact and service needs post 9/11 - phone 1st wave 5-8 weeks post 9/11
- PPE use among FDNY WTC responders
- School outbreak of H1N1 – first online survey 3 days after outbreak reported
- Estimates: general or target populations
- Rapid implementation possible
- Limitations: self-report, cross-sectional
Worker medical surveillance

• The World Trade Center Medical Monitoring and Treatment Program – NIOSH funded. [http://www.wtcexams.org/](http://www.wtcexams.org/)
  – Responders receive standardized examinations
  – > 20,000 initial exams between 2002-7

• Documented high rates of persistent respiratory, mental health and other conditions
  • Treatment for specified covered conditions

• Limitations: Limited data on exposures and universe of those eligible (Savitz et al. 2008)

• FDNY WTC responder follow-up: well defined population, pre-event and periodic follow-up examinations
World Trade Center Health Registry

- Voluntary enrollment: residents, employees, students, passers-by, and R/R workers. From lists of potentially exposed and self-identified.
- Enrolled > 70,000 in 2003-4. Estimated 400,000+ eligible.
- Documented persistent respiratory illness and mental health problems.
- Features: Periodic follow-up, allows record linkage, and multiple nested studies by outside researchers through a managed process, link to services
- Advisory boards: Community, labor, science
- Limitations: Limited data on exposures and baseline health. May not be representative of all eligible.

Suggestions

• A flexible, multi-layered, coordinated approach
• Use to inform worker and public health and safety measures
• Worker health surveillance – initiate prior to deployment, ensure independence
• Surveys may help estimate and identify exposed populations, track some population impacts, and inform recruitment for registries if appropriate.
• Registries and follow-up? Need to identify or estimate universe of eligibles (e.g. rostering of workers), baseline health, exposure, and covariates for those enrolled.
• Explore enhancements of syndromic surveillance: e.g. data sources, coverage, and syndrome coding
• Coordinate, provide resources
• Set priorities: “Is the juice worth the squeeze?”
Thank you

REFERENCES


Investigation modes

- **Public health surveillance**: “Ongoing, systematic collection, analysis, and interpretation of health-related data ... [and] timely dissemination ... to those responsible for prevention and control.” [including workers and the public](http://www.cdc.gov/ncphi/disss/nndss/phs/overview.htm)
- **Workplace medical surveillance**: “the analysis of health information to look for problems that ... that require targeted prevention”  
- **Research**: "a systematic investigation....designed to develop or contribute to generalizable knowledge." (45 CFR 46)
- The lines between these are often blurry
Time

Pre-exposure health

Universe of eligible

Cohort

Exposure

Registry

Follow-up

recall

Exposure
Syndromic Surveillance

Laboratory Confirmed H1N1 Hospital Admissions and Emergency Department (ED) Visits for Influenza-like Illness (ILI) in NYC
April 26 - June 10, 2009