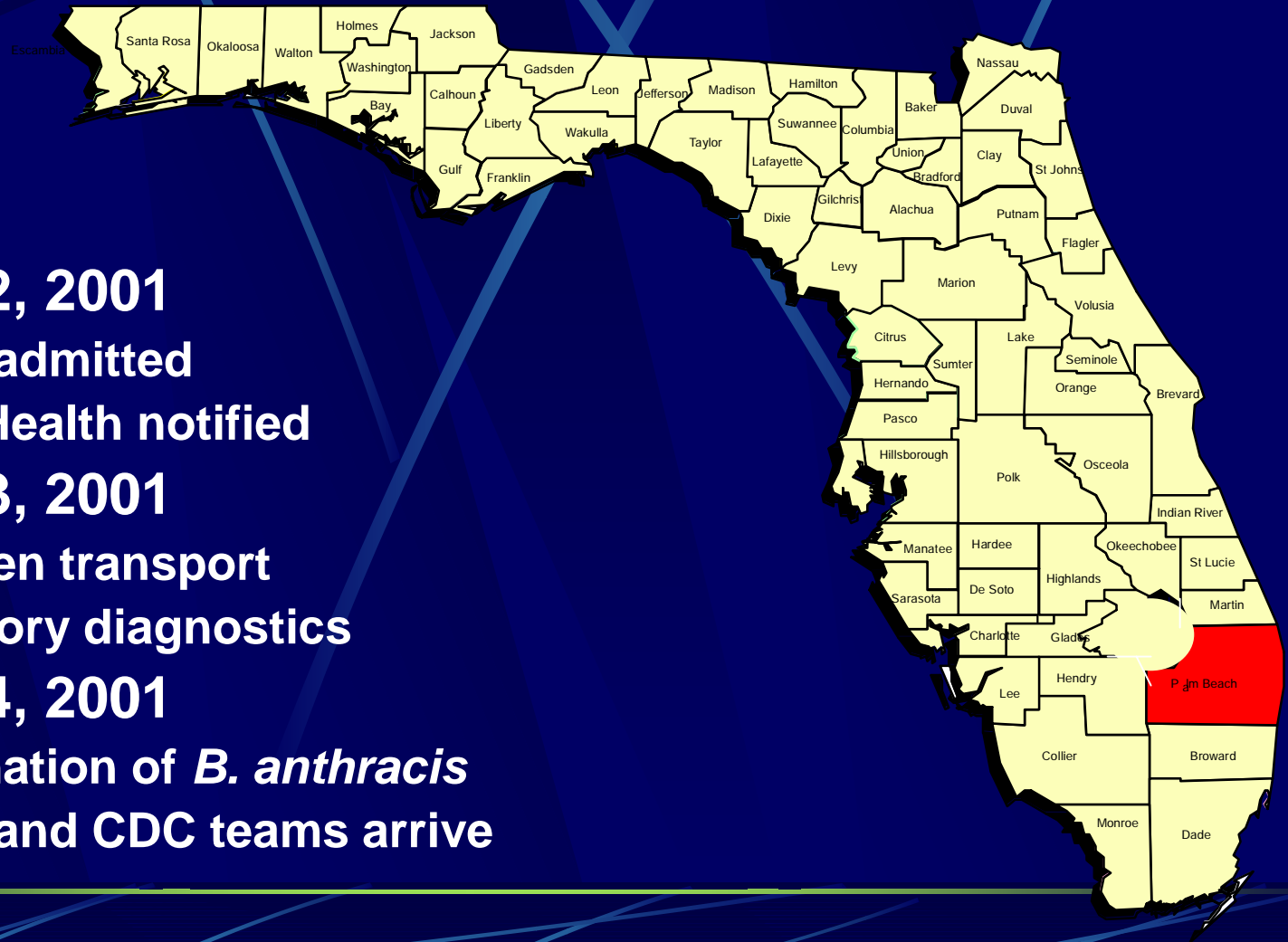


Inhalational Anthrax in Florida: The First Intentional Cases in US History

Steven Wiersma, M.D., M.P.H.
ICEID, March, 2002



Palm Beach County



- **October 2, 2001**
 - Patient admitted
 - Public Health notified
- **October 3, 2001**
 - Specimen transport
 - Laboratory diagnostics
- **October 4, 2001**
 - Confirmation of *B. anthracis*
 - Florida and CDC teams arrive

Index Case--RS

- **63-year-old male**
- **Illness onset September 30**
- **Unexplained, non-localizing severe illness**
 - shaking chills, fever
 - vomiting
 - altered mental status
- **Hospital admission October 2**

History

- **Social/Occupational**

- London native; in U.S. since 1974
- Photo editor, American Media Inc (AMI)

- **Exposure**

- Cyclist, fisherman
- Travel: North Carolina only
- No livestock exposure

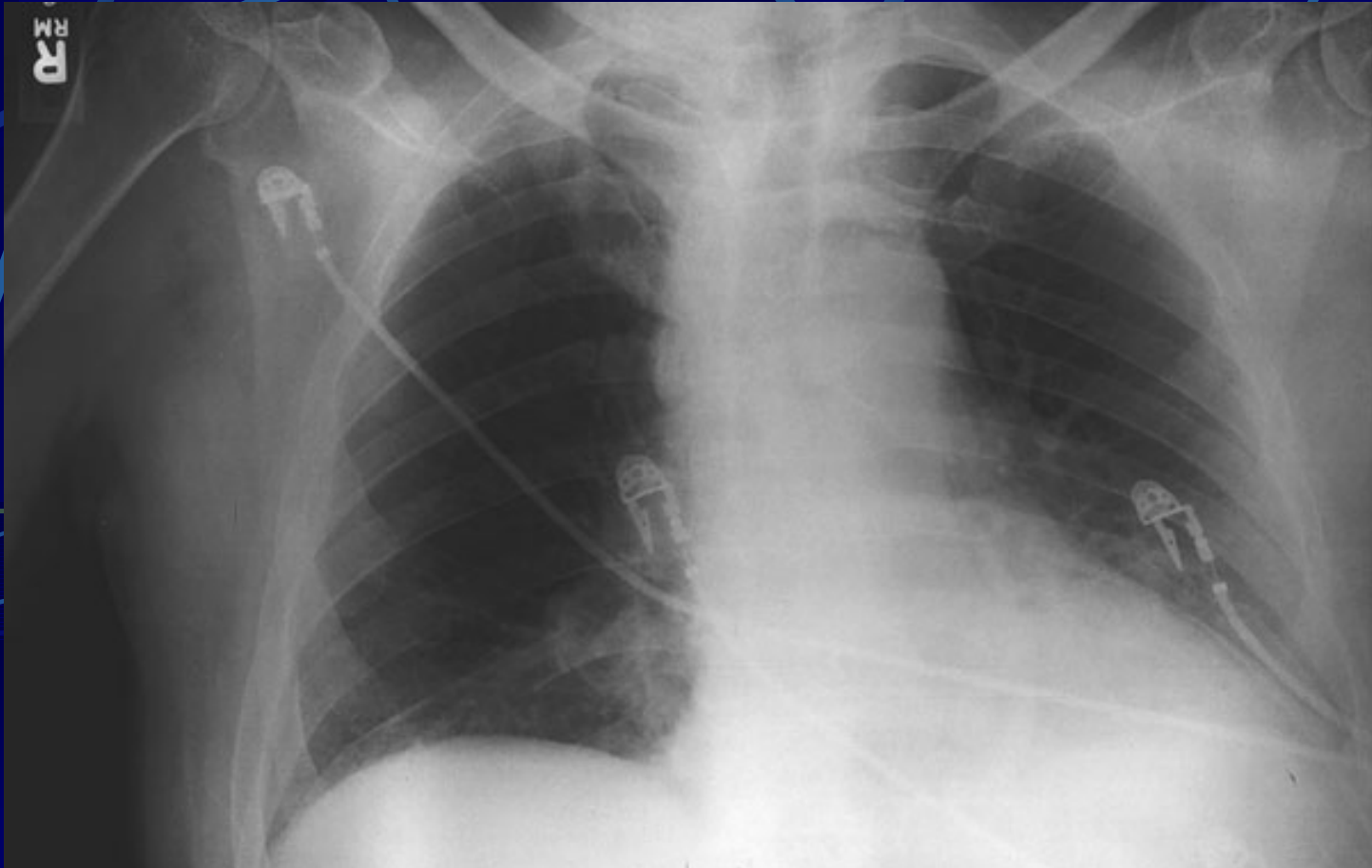
Clinical Findings

- Incoherent
- Fever
- Supple neck
- Clear lung sounds
- Hypotensive
- Seizures

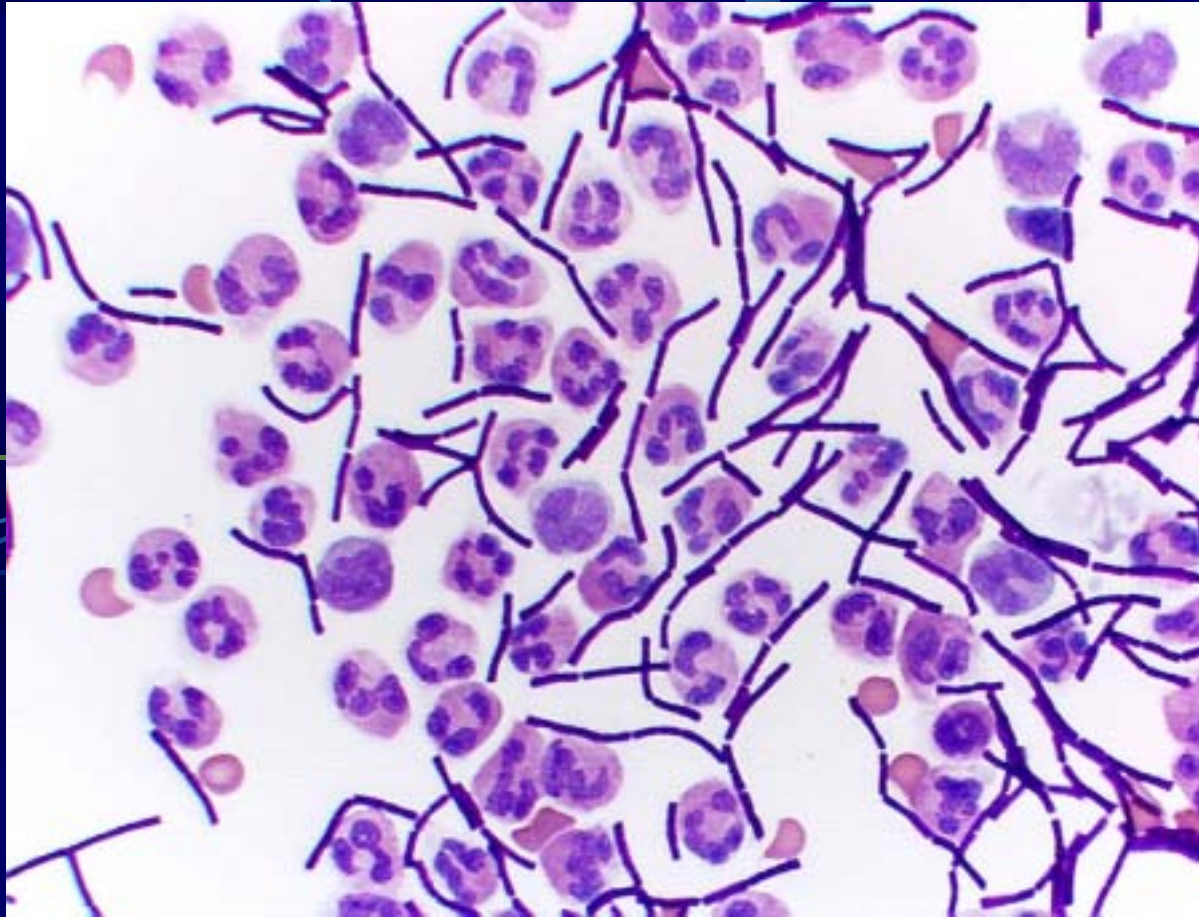
Laboratory/Imaging

- **WBC count: 9400 mm³**
- **Chest X-ray: increased perihilar density**
- **Head CT: normal**
- **Cerebrospinal fluid:**
 - **4570 WBC mm³, 1375 RBC mm³**
 - **glucose 57 mg/dl; protein 666 mg/dl**

Chest Film—Case 1



Cerebrospinal Fluid Gram Stain



Questions

- **Inhalational disease?**
- **Natural or intentional acquired?**
- **Florida or North Carolina exposure?**
- **Others at risk?**

Public Health Response

- **Surveillance Team**
- **Case Investigation Team**
- **Environmental Team**
- **Intervention Team**
- **Other Functions:**
 - **Coordination**
 - **Communications**

Surveillance

Palm Beach County

- **Hospital intensive care units (14)**
 - Blood or CSF cultures within 24 hours of admission
 - Retrospective to September 11
 - Continuing prospectively
- **Laboratory**
 - Gram-positive organisms from sterile sites
- **Medical examiner**
 - Unexplained deaths consistent with anthrax

Expanded Surveillance

- **Surrounding Counties**
 - ED, ICU, laboratory, ME
- **Statewide**
 - Laboratory
 - Veterinary
- **North Carolina**
 - Similar to Palm Beach County

Case Investigation

- Key informant interviews
- Investigation of suspect cases
- Interface with clinicians

Environmental Investigation

- **Inspection**
- **Sampling**
- **Locations**
 - **Home**
 - **Worksite**
 - **Recreation & travel destinations**
 - **Retail businesses patronized**

Suspect Case--EB

- **73-year-old male**
- **AMI employee**
- **Respiratory illness onset Sep 28**
- **Non-ICU hospital admission Oct 1**
- **Clinical course: moderate disease with pulmonary infiltrates/effusions, no mediastinal lymphadenopathy**

October 7: Pivotal Findings

- ***B. anthracis* isolated from**
 - Office keyboard used by index case
 - Nasal swab of ill AMI employee (EB)
- **Conclusions**
 - Source AMI building
 - Mechanism: intentional release

Work Site







Strategy Change

- **FBI takes leadership role**
 - Building secured
 - Collected work site samples
 - NIOSH, NCEH consulted
 - Swabs, vacuum & air samples
- **Environmental team**
 - Assisted, processed samples
 - Unable to enter building

Oct 7: Intervention Planning

- **Define exposed group**
 - Anyone in AMI building >1 hour
 - In past 60 days
- **Assess exposure**
 - Questionnaire
 - Nasal cultures
 - Serology testing
- **Deliver PEP**

Oct 8: Intervention



Suspect Cases

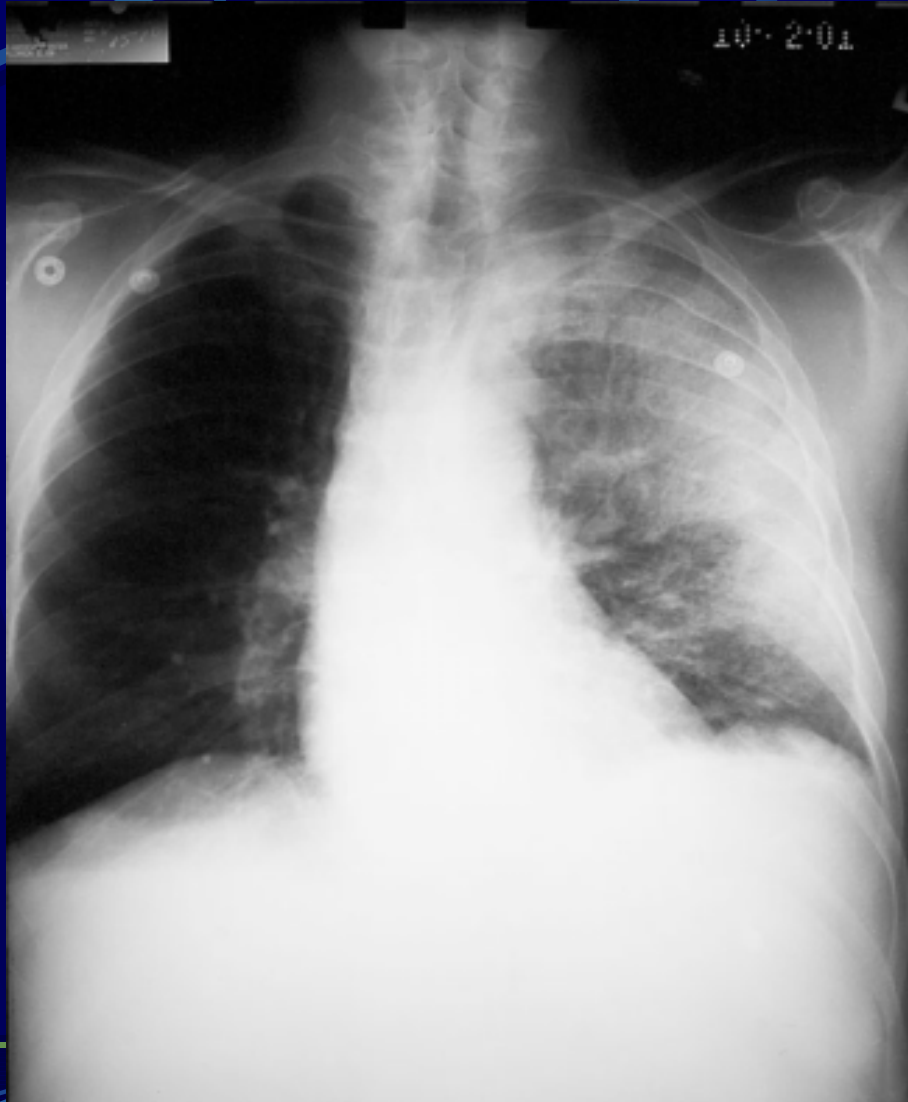
- **EB:**

- Clinical improvement
- PCR and IHC staining positive on pleural fluid
- Serology with 4-fold rising titer

- **Other suspect cases hospitalized:**

- 2 AMI employees
- Several non-AMI employees
- No preliminary evidence of anthrax

Chest Film—Case 2



CT—Case 2



Oct 10: Preliminary Results

- **Nasal cultures**
 - 1 of 1051 positive
- **AMI building environmental cultures**
 - 10 of 14 (71%) mail room positive
- **Serology**
- **Antibiotic side effects data pending**

Exposure Assessment Positive Nasal Culture

- **SD: 36-year-old female**
- **AMI employee**
- **Asymptomatic**
- **Handles, opens mail**
- **Opened letter containing powder ~9/25**
- **Office cultures positive**

Exposure Assessment Index Case

- Observed viewing suspicious mail (9/19)
 - Contained fine white powder
 - Also contained “Jewish star”
- Office cultures positive

Anthrax Links With Mail

- **Index case: handled “suspicious” mail**
- **EB: AMI mail distributor**
- **SD: mail sorter--opened letter with white powder**
- **Evidence for multiple suspect letters**

AMI mailroom



Change in Focus

- Focus on postal service and express mail
- Concern with waste management staff
- National events confirmed postal link
- Additional exposed mail handlers and waste managers given PEP

Environmental Testing Issues

- Guide to epidemiological investigation
- May indicate possible risk
- Positive environment \neq Risk
- No quantification of risk
- Can rule-out risk groups
 - Housekeeping staff
 - Waste management staff

Florida Specific Issues

- No letter(s)—Why?
 - No index of suspicion
 - Multiple letters
- No postal worker cases—Why?
 - Different physical properties of powder
 - Different packaging
 - Different environmental conditions
 - Different quantity of powder

General Issues

- Local/State/Federal cooperation
 - Public Health
 - Law enforcement
 - Communications
- Public Health Capacity
 - Informatics
 - Laboratory Support
 - Staffing levels
- Logistics
 - Command and control
 - Intervention

Further Information

- <http://myflorida.com> then “health and human services” then “diseases and conditions” then ***anthrax***
- Bureau of Epidemiology (850) 245-4401