Cutaneous Anthrax in NYC: Expect the Unexpected

New York City Department of Health
and
Centers for Disease Control

September 11, 2001

NYCDOH Enhanced BT Surveillance in Response to 9/11

- Sept 12: Enhanced surveillance for any BT event
  - Active surveillance at 15 sentinel E.R.s
  - Frequent broadcast alerts to prompt reporting of unusual clusters or disease manifestations

- Oct 4: Began active surveillance for inhalational anthrax after index case in Florida reported
  - Outreach to all ICUs, micro labs, ICP and ID MDs


ATTENTION..WE INTERRUPT THIS EMERGENCY BREAKING NEWS BULLETIN WITH AN EVEN SCARIER EMERGENCY BREAKING NEWS BULLETIN..
MIKE PETERS
BULLETIN
grimmy.com

CELEBRATING 200 YEARS
NEW YORK POST
LATE CITY FINAL

ANTHRAX THIS

Stricken New York Post girl's message to the terrorists

My battle with Anthrax: Pages 4 & 5


TOM BROKAW
NBC TV
30 ROCKEFELLER PLAZA
NEW YORK NY 10112
10112-0002


4TH GRADE
GREENDALE SCHOOL
FRANKLIN PARK NJ 08852
SENATOR DASCHLE
509 HART SENATE OFFICE
BUILDING
WASHINGTON D.C. 20510-4103

Index Case in New York City

- 38 year old female employee at NBC
- Sept 25th: Onset ulcerative chest lesion
- Oct 1st: Seen by Infectious Disease MD
  - Contacted NYCDOH as patient recalled handling a threat letter with powder (*postmarked* 9/25)
    - This letter retrieved by FBI and tested (-) for anthrax
  - Bacterial cultures of wound (-) for *B. anthracis*
  - Primary diagnosis was infected spider bite and patient responded to oral ciprofloxacin

Index Case in NYC (continued)

- Oct 8th: Patient contacts FBI\DOH after hearing of Florida anthrax case
- Oct 9th: ID/dermatology consults; biopsy and the 9/25 letter sent to CDC
- Oct 9-11th: NYCDOH develops contingency plan with NBC's employee health
- Oct 12th
  - 12AM: (-) PCR tests on biopsy/letter
  - 3AM: CDC reports (+) IHC result
  - 12PM: On-site investigation begun
  - 11PM: 2nd letter (*dated 9/18)* found by FBI and tests (+) for anthrax

When it rains it pours….

- By the evening of October 12th, 3 additional highly suspect cutaneous cases were reported (all associated with major media outlets)
- As each case confirmed, multidisciplinary teams mobilized for on-site investigations and response:
  - NBC: Oct 12-17
  - ABC: Oct 15-19
  - CBS: Oct 18-20
  - NY Post: Oct 19-25

NYCDOH Response at Media Sites

- Epidemiologic:
  - Active surveillance (*referrals to pre-identified clinics*)
  - Interviews for suspicious letters (*conducted with PD/FBI*)
- Environmental testing: Focused on case's floor and "mail trail"
- Clinical: Decision re: NP swabs for epi purposes and antibiotic prophylaxis for those "at-risk"
- Educational outreach and mental health counseling

Media Investigations

Site	Interviews	Nasal swabs	Prophylaxis initiated	Total Cases
NBC	1283	1360	1283	2
ABC	732	757	None	1
CBS	357	352	None	1
NY Post	175	111	23	3

NYCDOH Citywide Response to Anthrax Threat

- Enhanced surveillance for additional cases
- Laboratory testing for >3000 powder events
- Rapid development of clinical guidelines
- Prioritized communication, esp. to providers:
  - Broadcast alerts
  - Speakers Bureau
  - MD hotline
  - Website
- Environmental testing/clean-up at affected sites

Enhanced Surveillance for Anthrax

- Needed to modify efforts to detect cutaneous cases
  - Purchased digital cameras to help triage cases
  - Targeted outreach to dermatologists
  - Set up formal dermatology referral system
- Continued to send frequent broadcast alerts with outbreak updates/clinical protocols
- Expanded ED syndromic system to 29 hospitals
- Employee health surveillance (USPS)
- Veterinary surveillance for animal cases

THE CITY OF NEW YORK
DEPARTMENT OF HEALTH

Rudolph W. Giuliani
Mayor

Neal L. Cohen, M.D.
Commissioner

October 25, 2001

ALERT #5: Inhalational Anthrax among Postal Workers in Washington, D.C. and New Jersey

1 - Update on the multi-state outbreak of intentional anthrax
- **Recent cases of inhalational anthrax in 4 postal workers in Washington, D.C. and 1 postal worker in New Jersey**
- **In NYC, there are now 5 cases of cutaneous anthrax; NO cases of inhalational anthrax**

2 - Updated information on how to report a suspect case of anthrax to the NYCDOH and arrange laboratory testing (*See Appendix*)

3 – INTERIM GUIDELINES for medical management of milder illness among patients in NYC at higher risk for exposure to letters contaminated with anthrax spores

4 - Revised guidelines on prescribing prophylactic antibiotics and nasal swab testing

5 - The NYCDOH is now posting all medical information on anthrax on our website at http://www.nyc.gov/html/doh/html/cd/wtc1hcp.html

6 – Reminder of the importance of starting influenza vaccinations for patients at higher risk for complications

High Risk Groups for Anthrax

- Employee of high profile organization (*e.g., media, government)*
- Employee of US Postal Service
- Anyone with recent exposure to powder in a letter deemed to be a credible threat

Clinical Criteria for a Suspect Cutaneous Case

- Painless vesicular or ulcerative lesion with surrounding edema, with development of blackened eschar within 3-7 days, or
- Less suspicious lesion occurring in risk group and/or with Gram stain/culture suggesting a *Bacillus species*

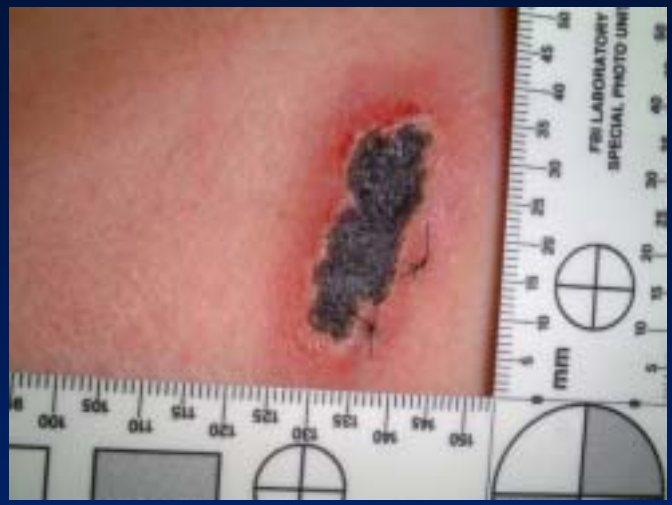
Clinical Work-Up for Cutaneous Anthrax

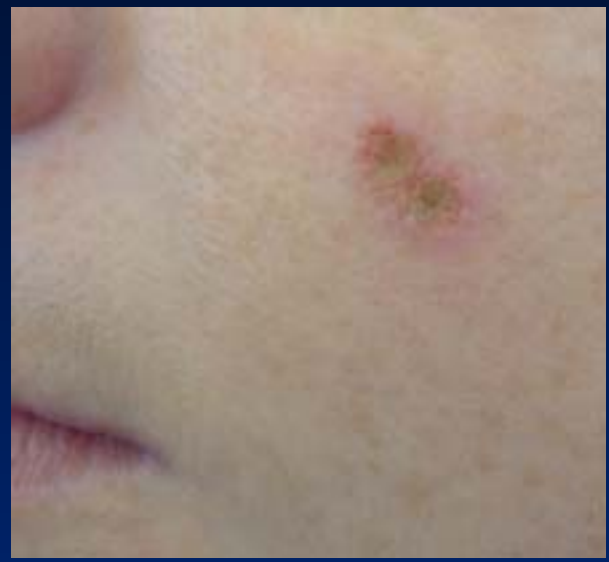
- Culture of vesicular fluid/ulcer base
- Fresh frozen biopsy for PCR and culture
- * Formalin-fixed biopsy for immunohistochemical staining
- Acute and convalescent serology (ELISA)
- Whole blood for PCR

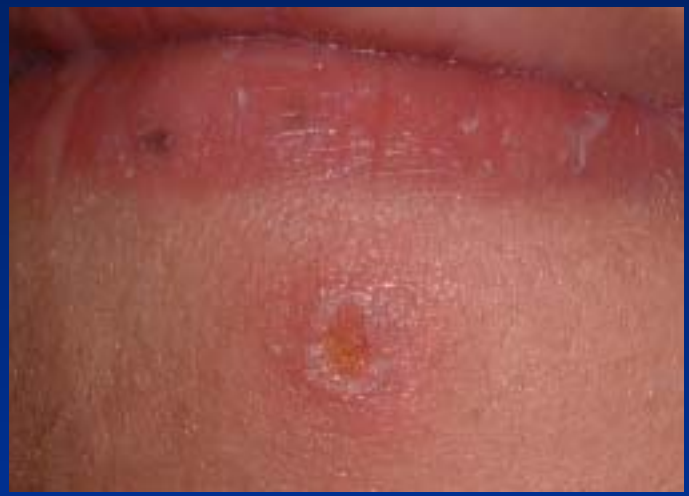
Case Management of Suspect Cases

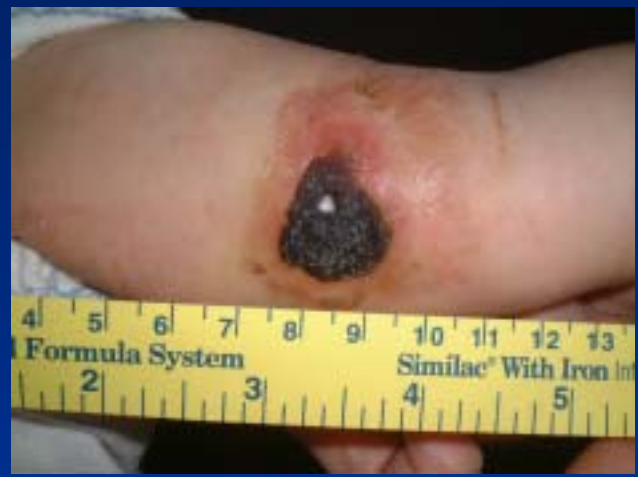
- Suspicious cases reported to the NYC Medical Provider hotline (24-7 coverage)
- DOH/CDC on-call physician determined if met criteria for further testing
- Highly suspect cutaneous cases met at MD office to facilitate collection of specimens and to take digital photos
- Lab testing arranged at DOH/CDC with same day transports to Atlanta for priority cases

Varying Presentations of Cutaneous Anthrax



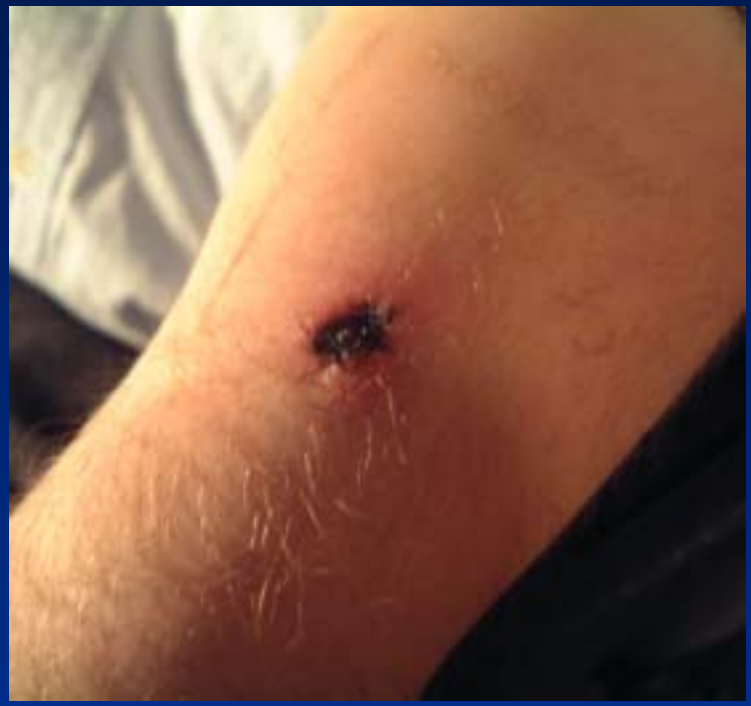




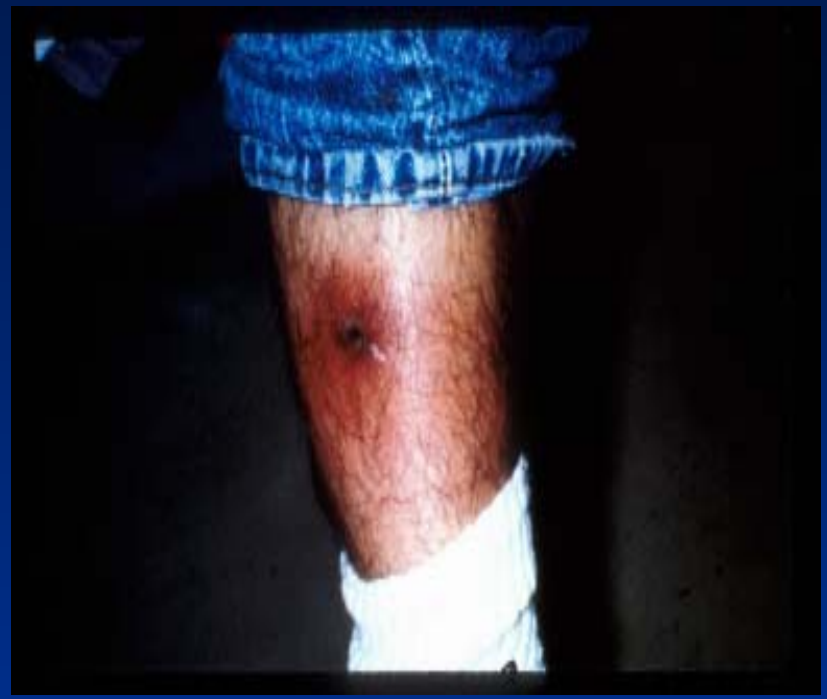


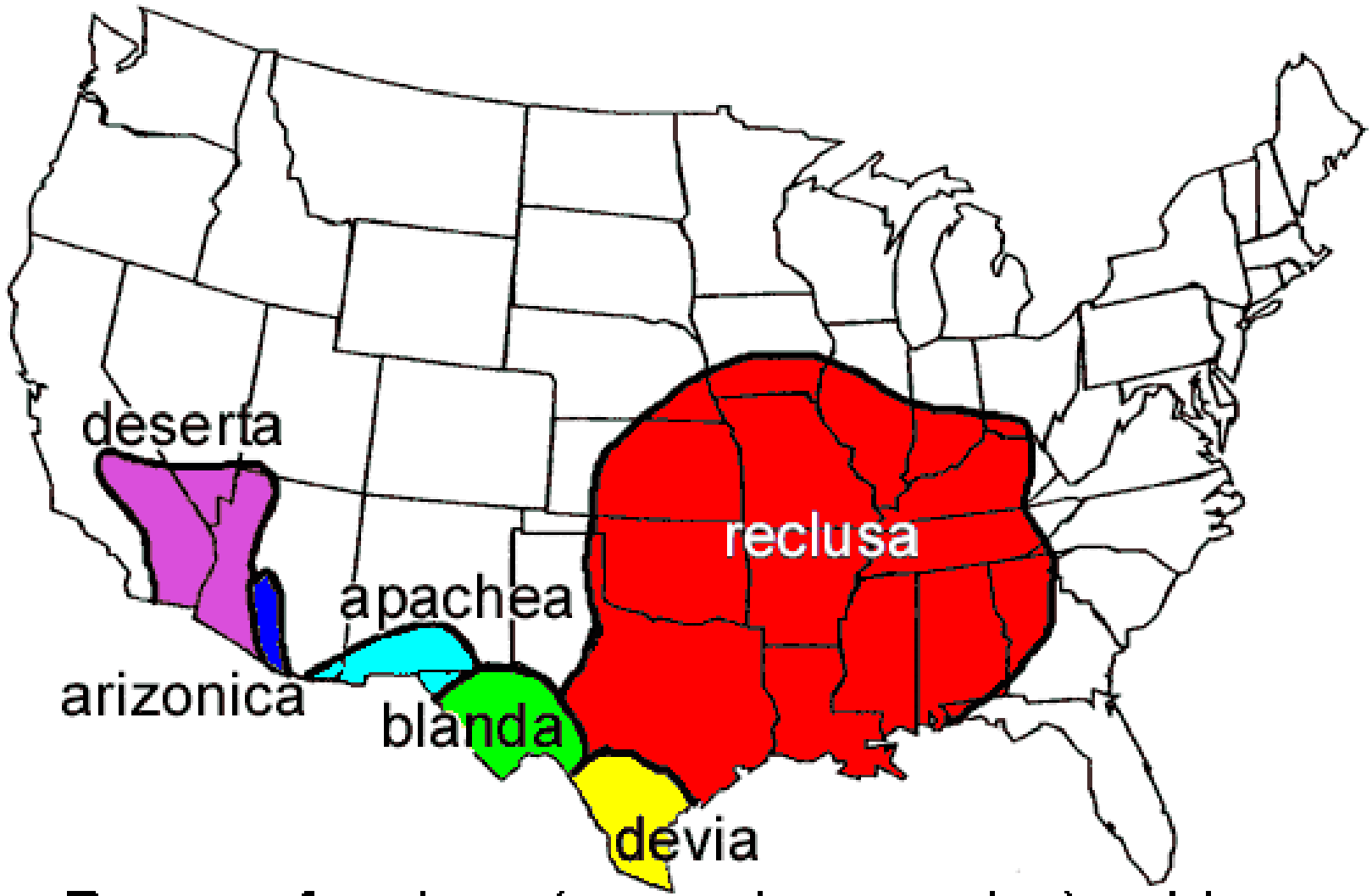
Differential Diagnosis of Eschar-Like Lesions

Rickettsialpox



Brown recluse spider





Range of recluse (genus Loxosceles) spiders in the United States

Summary of Cutaneous Anthrax Investigations in NYC

- ~ 700 cases reported: ~ 100 met “suspect” criteria
- What we found:
  - 7 cutaneous cases; All linked with major media outlet
    - 6 routinely handled mail or involved in evidence collection
  - 3 of >2,500 nasal swabs positive
  - Only 2 (50%) contaminated threat letters found
  - (+) environmental contamination at all media sites
  - ~ 30 persons received longterm antibiotic prophylaxis

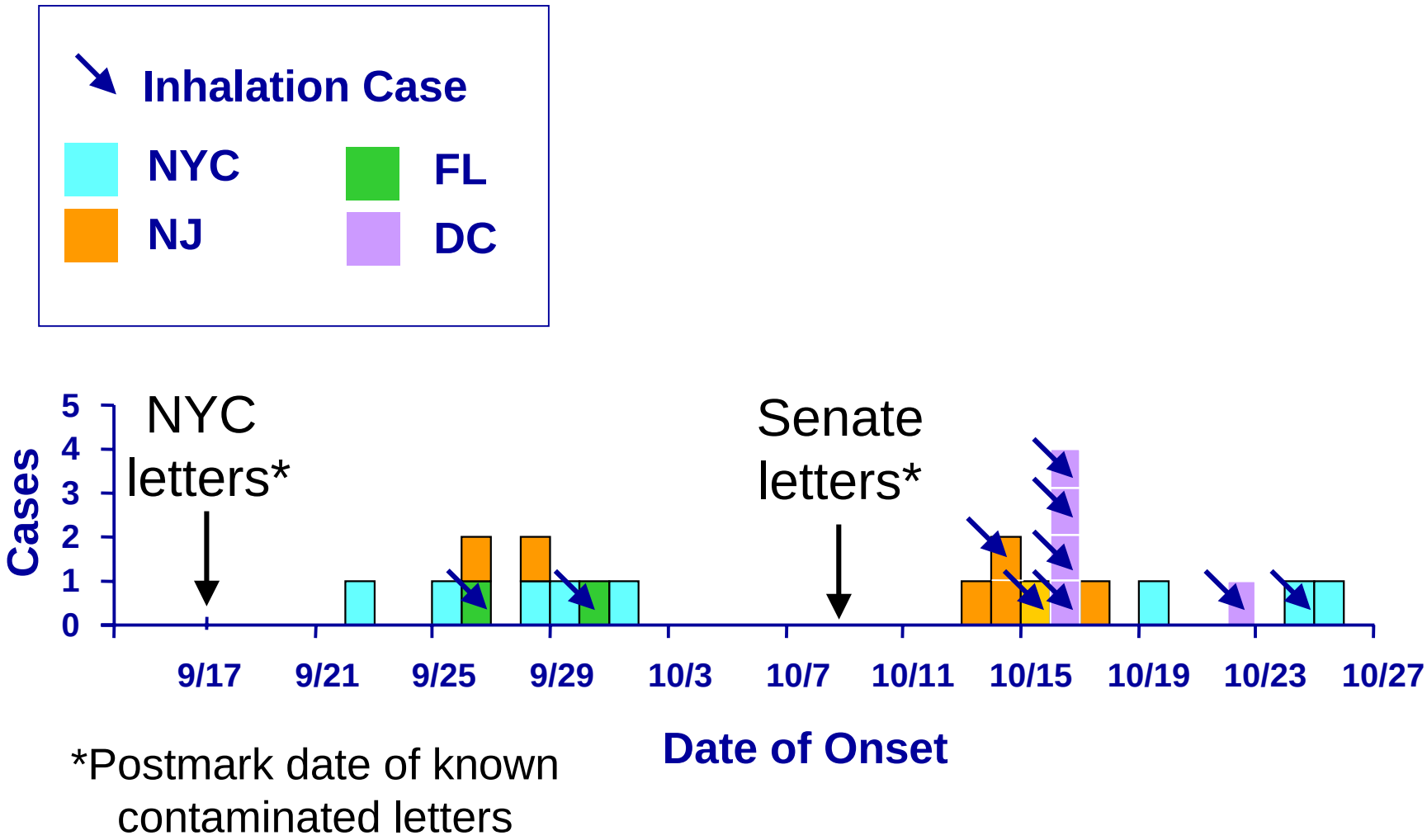
Cutaneous Anthrax, 2001
New York and New Jersey (N=11)

- Median Age 35 years (7 m – 51 yr)
- Fever 36%
- Erythema/Edema 91%
- Ulcer 55%
- **Eschar on exam 18%**
- **Multiple lesions 18%**

Cutaneous Anthrax, 2001 (N=11)

- Blood cultures — 1 (+) of 4
- Wound cultures — 1 (+) of 9
- Serology — 67%
- IHC — 80%
- Incubation period — Median 6 d (1-12 d)
- Time to diagnosis — Median 10 d (*before 10/12)*
- Median # MDs seen — 2 (1-4)

Bioterrorism-associated Anthrax: Inhalation and Cutaneous Cases



*Postmark date of known contaminated letters

Lessons Learned: Detection and Surveillance

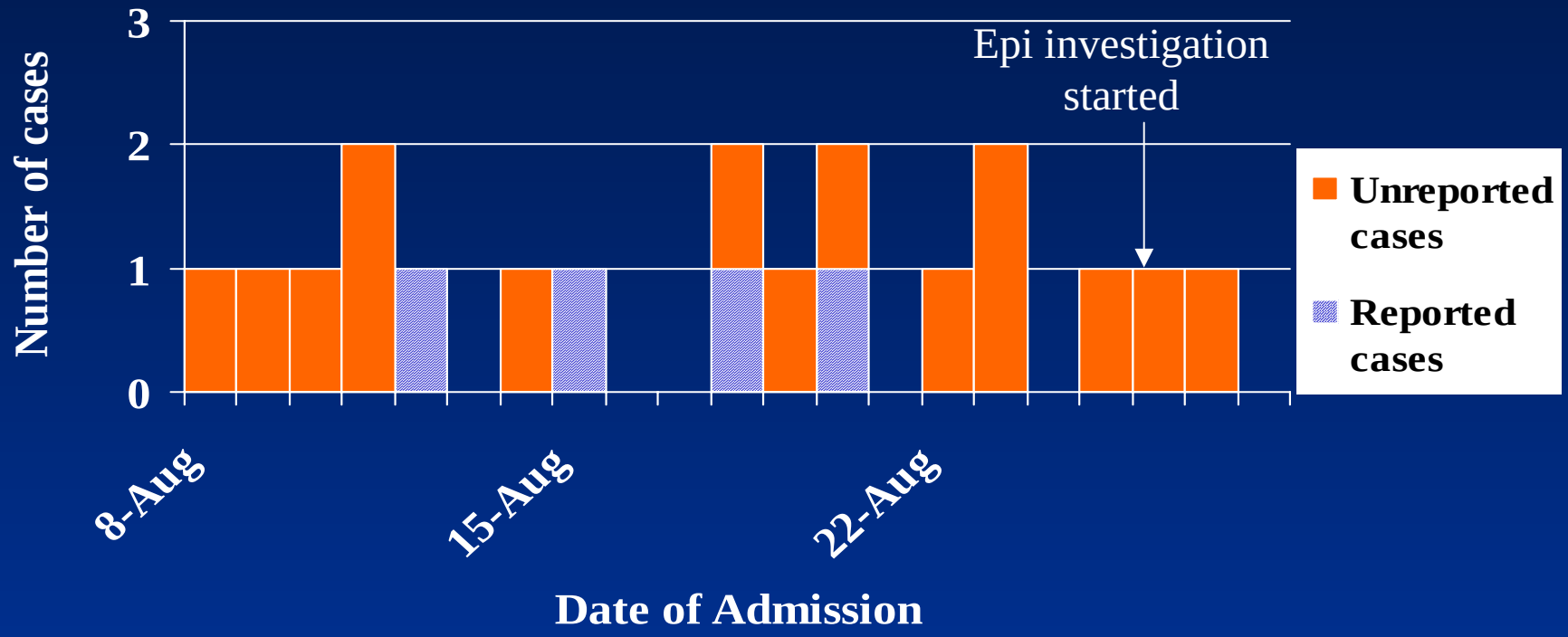
Detection: Delayed Recognition

- Most MDs did not "think" of anthrax
- Lab confirmation 1^{o} dependent on IHC staining

Surveillance: Need to rapidly "Ramp Up" Surveillance

- Prioritize active communication with providers
  - Detailed guidelines on what/how to report and how to test
- Surge capacity with 24-7 coverage *(staff hotlines, conduct case investigations, laboratory tracking)*
- Challenges in triaging cutaneous diseases by phone

West Nile Virus 1999: The Power of Physician Reporting of Unusual Disease Manifestations



Take Home Points

- All 2001 cutaneous cases with direct or indirect exposure to contaminated mail
- Intentional BT diseases may not always fit the textbook clinical description for natural diseases
- Need to improve surveillance for dermatologic manifestations of bioterrorist diseases
  - Active outreach to primary care providers/dermatologists
  - Value of digital cameras for triaging suspect cases

- **EXPECT THE UNEXPECTED!!**

Acknowledgements

- NYC's Medical and Laboratory Community
- New York City Department of Health
- NYPD and FBI
- CDC with special thanks to the EIS Officers and CDC Staff who came to help, as well as the CDC-based NYC support team, DBMD Staff and Dr. Sherif Zaki's lab for diagnosing the index case
- National Coffee Chain "SB"

Anthrax Then and Now

Woolsorters Disease → **Mailsorters Disease**