

Texas 2014 Ebola Response: Lessons Learned

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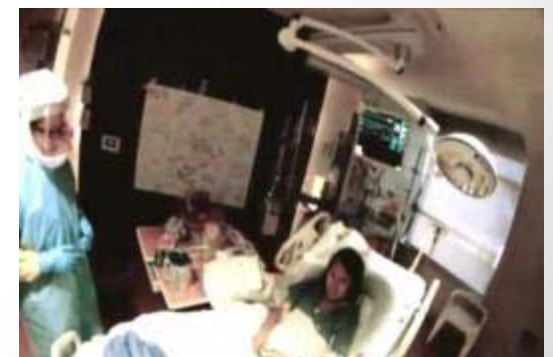
First Diagnosed Ebola Case in North America

- Thomas Eric Duncan, 42 years old
- September 19, Departs Liberia
- September 20, Arrives in Dallas, Texas
- September 24, Onset of symptoms
- September 25, Seeks care
 - Receives antibiotics
- September 28, Admitted to ICU
- September 30, Confirmed Ebola Virus Disease (EVD)
- October 8, Duncan dies
- Diverse contacts



First Nurse Diagnosed

- 26 year old nurse
- Cared for Mr. Duncan
- October 8, Duncan dies
- October 11, Nurse tests EVD positive
- October 16, Transferred to NIH facility in Bethesda, Maryland
- October 24, Discharged
- Limited contacts



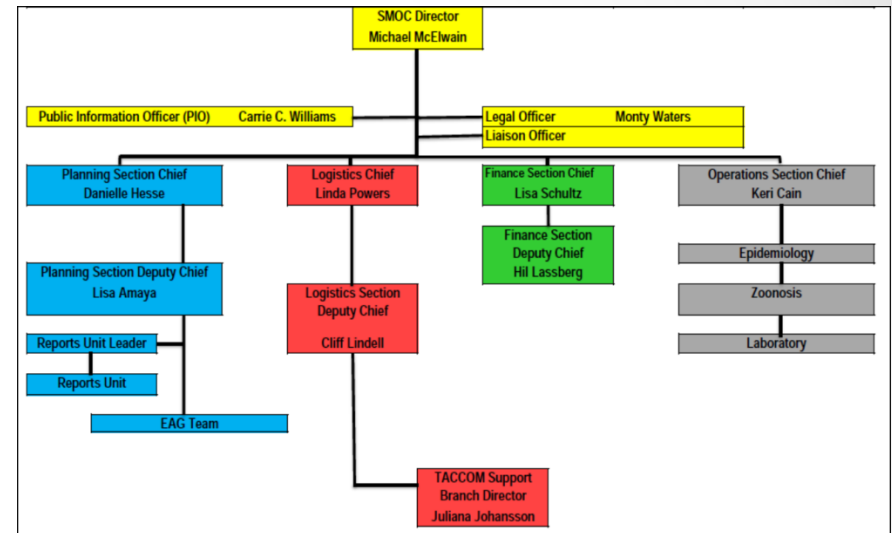
Second Nurse Diagnosed

- 29 year old nurse
- Cared for Mr. Duncan
- October 8, Duncan died
- October 10, nurse flew to Cleveland
- October 13, Flew back to Dallas
 - Was self-monitoring and reporting her temperature
 - Called the CDC, Temp 99.5F (37.5C)
 - CDC testing criteria is 100.4F (38C)
- October 15, Tests positive for EVD and transferred to Emory in Atlanta
- October 28, Discharged
- Large number of contacts



Situational Awareness

- Response operations in Dallas
- Rapidly changing
- State Medical Operations Center (SMOC)
 - Response Operations
 - Programmatic Operations
- Emergency Management
 - State Operations Center (SOC)
 - Disaster District Committee (DDC)
- WebEOC



PPE Debate

“In western Africa now there is a need for rational and efficient use of protective equipment... achieved by communicating a consistent message that the disease is essentially transmitted through direct contact. In control of infectious diseases, more is not necessarily better and, very often, the simplest answer is the best.”

Martin-Moreno, JM, Llinás, G, and Martínez Hernández, J. Is respiratory protection appropriate in the Ebola response?. Lancet. 2014; 384: 856



PPE Debate

The scientific community must argue for the most conservative infection control responses that make sense in light of the present data. I believe the authors (Previous Slide) and the Centers for Disease Control and Prevention have failed to do that and in so doing, have imperiled individuals unnecessarily.

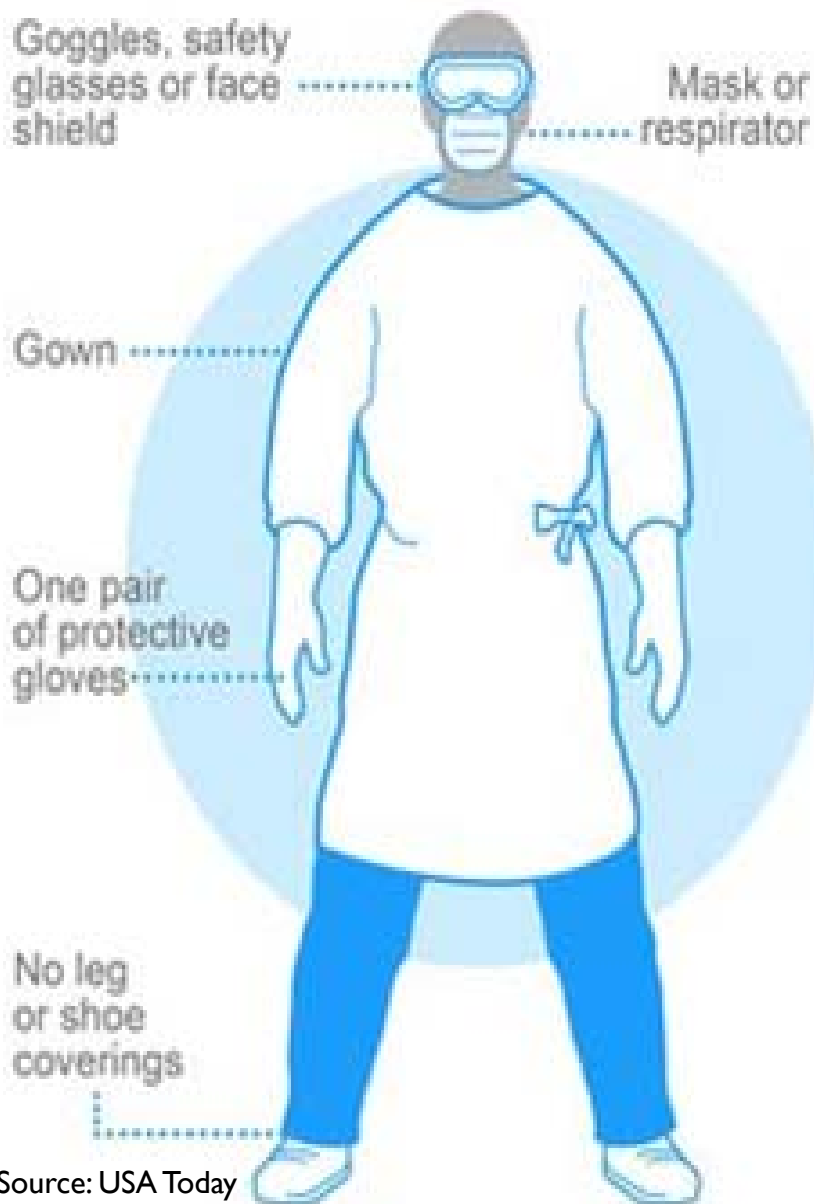
Ryschon TW. Ebola control measures and inadequate responses. Lancet. 2014; 384 (9949): 1181-1182, 27

Published September 27, 2014, Three days before Thomas Duncan was confirmed EVD positive.



CDC'S PROTECTIVE GEAR CHANGES FOR HEALTH WORKERS

PREVIOUS GUIDELINES



NEW GUIDELINES



Source: USA Today

Response Challenges: Ground Transportation

- Requires pre-planning and advanced training
- 911 Public Safety Answering Points
- Index patient transport not informed
- Must establish:
 - Appropriate PPE
 - Appropriate competency to utilize PPE
- Known vs unknown risk
- Risk stratified
 - Head to toe impermeable barriers with the powered air purified respirators
 - N95, goggles, and Tychem full body fluid impermeable suit



Response Challenges: Air Transportation

- Requires pre-planning and advanced training
- Establish infection control protocols in advance and implement throughout the process
- Training must include
 - Clinical management
 - Infection control
 - Personal protective equipment (PPE)
- Portable Isolation unit recommended



Waste Management

Category A infectious waste treatment methods:

- **Autoclave:** Pressurized steam
- **Incineration:** Extremely high temperatures

NOTE: Chemical treatment methods in the US not yet standardized for Category A waste



Waste Management

Category A Infectious Waste

- From a healthcare setting:
 - Regulated medical waste
 - Properly packaged and labeled
 - State-registered transporters
 - Authorized disposal facilities
- From a non healthcare setting (e.g. residential, hotel, etc.)
 - Classified as special waste and managed as medical waste



Waste Management

- Not a public health area of expertise
- Cleaning the apartment
 - How to clean
 - Identifying waste
- Packaging waste
 - Procedures
 - Supplies & equipment
- Transportation
 - Federal DOT Permit Category A Infectious Substance
- Destruction
 - Incineration & ash



Contact Tracing

- **Index patient & nurse contacts**
 - 177 healthcare worker and community contacts
 - 43 index patient contacts prior to hospitalization
 - 165 contacts on flights with Nurse #2
 - Texas, Ohio, and New York
 - All cleared by November 7th, after 21 day monitoring period
- **Highlighted the need for:**
 - More epidemiologists
 - More field epidemiology expertise
 - Better information sharing systems



Dallas County chief epidemiologist Dr. Wendy Chung, far right, and members of her team—from left, Sonya Hughes, Emily Hall, and Sibeso Joyner

Pets and Ebola

- Pet issues in recent disasters
- Outcry - Spanish nurse's dog
- Poorly understood Ebola risk
- Protocols were non-existent
- Dallas Nurse's small dog
 - Transported to Hensley Field, Decommissioned Naval Air Station
 - 21 day quarantine
 - Texas A&M vet providers
- Recommendation: Those being monitored for EVD should avoid pets



Control Orders

Control orders issued for:

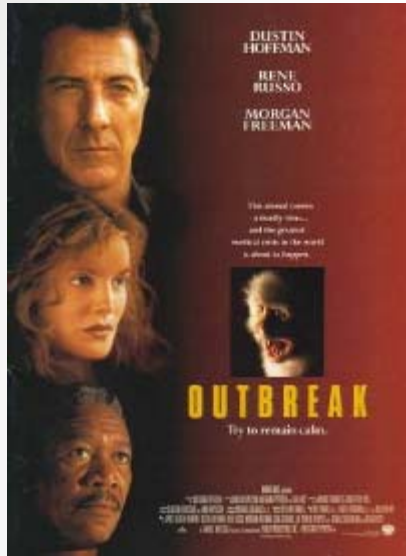
- People
- Places
- Pets
- Possessions

Challenges include:

- Resistance
- Frustration
- Housing, food and other basic needs



Public Perception



Erroneous Public Perceptions

- Inflated Ebola risk
- Conspiracy Theories
- Racism Accusations
- Overreactions

News Headline, "Schools in Ohio, Texas closed over Ebola fears"



In Belton, Tex., on Friday, environmental workers prepared to disinfect North Belton Middle School, which had been closed because of the Ebola scare.

Credit Rusty Schramm/The Temple Daily Telegram, via Associated Press

Behavioral Health Interventions



Issues

- Diverse psych needs of the public, infected patients, family members, healthcare workers, and other responders
- Distress with perceived or actual exposure (Psychological First Aid)
- Grief counseling
- Involuntary control orders
 - Including a homeless individual

Behavioral Health Interventions



Lessons Learned

- Early integration of a behavioral health response
- Consensus on sharing sensitive health information
- Recognition that infectious disease disasters can change the usual response framework and process
- Develop homeless population contingency plans
- Interagency collaboration to develop an overall behavioral health treatment plan

Fatality Management

- Post-mortem Notification Checklist
- Mr. Duncan's body was "double-bagged" in zippered bags (CDC Policy)
- Bioseal bag was added by Texas-based Global Mortuary Affairs (mortuary contractor)
 - Approved for air transport of un-embalmed remains
 - Assures no leaks are possible
 - Biosafety Level 4 (BSL-4) approved
 - Costs about \$65 per bag
- Cremation
 - Placed directly into the retort and incinerated
 - Duncan's cremains were sealed into a BioSeal pouch for presentation to the family.
- Legal issues of cremains possession



Conclusion

- Ebola posed unique challenges
- Lessons and practices inform future responses
- **What we knew October 2014 has changed**
 - Numerous protocols now exist
 - Expanded planning, training, and exercise activities
 - Enhanced infrastructure for high consequence infectious disease management
- **Core public health practices were effective in controlling the spread of Ebola Virus in the U.S.**

