EBOLA IN NEW YORK CITY: FDNY LESSONS LEARNED

David J. Prezant, MD
Special Advisor to the Fire Commissioner on Health Policy
Chief Medical Officer, Fire Dept. City of New York (FDNY)
Co-Director FDNY World Trade Center (WTC) Health Programs
Professor of Medicine, Albert Einstein College of Medicine
Montefiore Medical Center, Pulmonary Division
• Firehouses- 218
  • Engines- 205
  • Trucks- 143
  • Rescues- 5
• EMS Stations- 34
  • BLS Ambulances- 140
  • ALS Ambulances- 70
• HazTac Ambulances:
  • BLS- 15
  • ALS- 10
• Rescue Ambulances- 10
Ebola in the USA

U.S. Ebola Patients Over Time

While the outbreak of Ebola in West Africa began in December 2013, an Ebola patient was not brought over to the United States until August of this year. Here is a timeline of hospital stays and outcomes for the nine people who have been treated for Ebola in the U.S.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Admittance Date</th>
<th>Survived</th>
<th>Died</th>
<th>Hospital Stay</th>
<th>Transferred</th>
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<tbody>
<tr>
<td>Emory University Hospital</td>
<td>October 11, 2014</td>
<td>Kent Brantly</td>
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<td></td>
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<td>Nancy Writebol</td>
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<td>Nebraska Medical Center</td>
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<td>Rick Sacra</td>
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<td>NIH Clinical Center</td>
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<td>St. Patrick Hospital</td>
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<td>Texas Health Presbyterian</td>
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<td>Thomas Eric Duncan</td>
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<td>Bellevue Hospital</td>
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**Game Changer:**
- October 11, 2014 - 1\(^{st}\) Dallas nurse with EVD
- October 15, 2014 - 2\(^{nd}\) Dallas nurse with EVD

Rapid evolution over only about 2 months
FDNY Actions 2014

- In August, FDNY Commissioner directed FDNY to assess & increase our level of preparedness
- In October, immediately after the first case of Ebola was diagnosed in the US, FDNY Commissioner formed a task force to prepare for all contingencies. EVD Task Force
  - Leadership roles clearly designated
  - Highest levels within FDNY represented along with full participation by subject matter experts.
  - Close coordination with NYC DOHMH, NYS DOH, OEM, Mayors Office, HHC, GNYHA
  - Protocols for JFK Airport
  - Protocols for designating Emergency Depts and Hospitals as equipped and trained to receive and treat suspected patients
Lessons Learned
Re-visitation of existing SARS / Flu / Smallpox protocols (F/C and F/R)
FDNY Actions 2014

• In October, the taskforce made the following recommendations, each immediately approved:
  • EMS dispatch to ask every patient with fever if traveled to West Africa in the last month.
  • If history consistent then designate call-type = FT (fever/travel)
  • If call-type = FT, restrict 911 response to specially trained units
  • NYC DOHMH and Receiving Hospitals Contacted by FDNY OMA
Lessons Learned

NYC 911 / FDNY “Fever / Travel”

(F/T call type)

Effective October 3, 2014, EMD is introducing new call-types with a “Fever/Travel” suffix. These will be indicated by the letters “F/T” at the end of standard EMS call types.
FDNY Actions 2014

• In October, the taskforce made the following recommendations, each immediately approved:
  • FDNY EMS HAZTAC units with FDNY Fire HAZMAT support.
    • PPE = Tychem F Suits with PAPR
      • Alternative = full APR/SCBA full face shield & P-100 or P-95 cartridge
    • Fire SOC units respond only if patient carry assistance is needed
      • Similar PPE to HAZMAT
    • Regular EMS only responds to provide non-patient assistance
    • Fire CFR does NOT respond
Lessons Learned

“Reserve” 10 HazTac ambulances (2 / Boro) specifically for F/T calls

Message from Fire Commissioner Daniel Nigro

PROTOCOLS/GUIDELINES FOR HANDLING SUSPECTED EBOLA INCIDENTS

Effective immediately, the following dispatch, response and decontamination protocols are to be used for emergency calls that may involve potential cases of the Ebola virus.

DISPATCH
Dispatchers (EMD) will inquire of callers if the patient is presenting with symptoms of fever. If “yes”, the caller is asked if the patient has traveled in the last month to West Africa. If the response is “yes”, the EMD attempts to confirm that travel involved the countries of concern (Liberia, Guinea or Sierra Leone), and, if response is “yes” or unclear, the call is coded in EMS CAD with F/T suffix (fever/travel).

RESPONSE/PPE
F/T calls will prompt the following response: a HAZ TAC EMS unit and supervisor will be dispatched for patient care and transport. HAZ TAC members will wear TyChem F suit (rated to protect against blood borne pathogens as well as chemical protection) and PAPR breathing system (Power Air Puriﬁed Respiration), which is being recommended NOT for respiratory protection – as Ebola virus is not airborne - but because it allows for full face protection from any bodily ﬂuids.

Upon arriving at the scene and confirming the F/T circumstances, the supervisor or HAZ TAC unit will request a second EMS unit to assist with driving the ambulance back so they can remain in full PPE during transport. They will also request Fire Operations HAZ MAT resources be sent to the destination hospital.

To: All Borough Commands and SOC
From: James E. Esposito Chief of Operations
Date: October 20, 2014
Subject: Ebola Virus Disease

Effective immediately, the following information shall supersede all previously issued material pertaining to the Ebola Virus.

1. CFR Unit Response Policy:

CFR units will no longer be assigned to any known “F/T” (Fever Travel) incident; this includes segment 1, 2, and 3 incidents. Patient care and transport for known “F/T” incidents will be managed by EMS HAZ-TAC ambulances only at this time. CFR units who are inadvertently directed to respond on an “F/T” call type response shall notify the dispatcher of this and remain in service or discontinue response. However, units should be aware of the possibility of confronting a potential Ebola infectious disease case while responding to any CFR incident not previously coded as “F/T” by EMD.
• Even before the CDC changed their recommendations, the level of PPE required during care of a suspected Ebola patient was increased to protect skin and mucous membranes from exposure
  • Protocol and training adjusted to pay careful attention to proper donning and doffing techniques so as to avoid self-contamination.
  • Buddy system or a valet to assist in donning and doffing.
  • Supervisor to provide direct oversight
  • Disinfection of PPE prior to taking off by decon spraying (Blue Bleach).

• Reinforce PPE and Training for all infectious calls as may become FT call-type only after response and on-scene evaluation
Lessons Learned
Focus on PPE for “evolving threat”
Lessons Learned

Reinforce standard isolation kit use for all members

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**Lessons Learned**

**Reinforce standard isolation kit use for all members**

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**Fire Department of the City of New York**

**Isolation Kit for Standard Universal Precautions**

**Donning Procedure**

1. Put on the first pair of gloves (i.e., inner gloves).
2. Slide both arms into the sleeves and adjust them for a proper fit.
3. Tie the strings of the gown in a shoelace bow to ensure easy removal.
4. Insert your entire foot into shoe coverings.
5. Push your foot forward until shoe is snug.
6. Don an appropriate size N95 respirator mask ensuring a proper seal.
7. Don your goggles.
8. Don the supplied head covering.
9. Put on a second pair of gloves over the first pair and over the sleeves of the gown (i.e., outer gloves).

**Key Points**

- If appropriate, change the Isolation Kit garments and your gloves as often as you feel it is necessary in order to avoid contamination.
- Keep hands away from face.
- Limit surfaces touched.
- Change gloves when torn or heavily contaminated.
- Perform hand hygiene.

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**Fire Department of the City of New York**

**Isolation Kit for Standard Universal Precautions**

**Doffing Procedure**

1. Unite the strings of the gown.
2. With your right hand grab the gown by the left shoulder (avoid touching your uniform), pull down the gown by inverting the sleeve, grasp the wrist area of both the garment and outer glove simultaneously and remove your left hand. On the right side put your gloved left hand inside the gown and roll downward. Your inner gloves should still be on.
3. Roll the gown and outer gloves together inward in order to minimize splash and place into the biohazard bag. Your inner gloves should still be on.
4. Remove the shoe coverings by placing gloved fingers inside and roll the boot covers outward. Then place into the biohazard bag.
5. If bunker pants came into contact with bodily fluids, remove at this time and send for decontamination.
6. Remove the head covering and place into the biohazard bag.
7. Remove gloves and put on a fresh pair.
8. Remove the goggles by grabbing the straps from the back to avoid touching your face. If necessary, decontaminate.
9. Remove the N95 respirator mask by grabbing the straps from the back to avoid touching your face and place into the biohazard bag.
10. Wash your hands and face upon completion.
Lesson Learned

Donning and Doffing Procedure

**Infectious Control Ensemble: Doffing**

1. Disinfect your gloves using hand sanitizer, bleach spray or disinfectant wipes (Allow to air dry).
2. Remove the outer shroud: Hold APR/SCBA donning suit with one hand while pulling the shroud from the back and upward, the front with the other hand over P100 canister and tubing on the APR. Repeat steps 1 and disinfect your gloves.
3. Unseal the adhesive flap and unzip the suit (Making sure suit, pull the Chem tape carefully prior to unzipping)
4. Remove the hood by grabbing it from the top and pulling it toward the back.
5. Remove the Chem tape from your wrists.
6. Grasp the fingertips of the outer gloves in order to loosen the gloves.
7. Grab the sleeve and outer glove together and pull your arm out of the suit. Keep your clean hand over chest to avoid contact with the outside of suit.
8. Slide clean hand from the chest to the opposite side and from the inside of the suit, slide the sleeve off, only removing the outer glove.
9. Keep hands inside the suit, roll the suit down to the ankles. (Remove steps 1-8, critical removing down suit.
10. Sitting on a smooth surface, place hands inside suit and remove rubber boots and suit together.
11. Disinfect your inner gloves by repeating step 1. Add a clean pair of gloves over the inner gloves.
12. Carefully remove the APR or SCBA facepiece (Prescription canister in the red bag. APR or SCBA shall be placed in a clean bag for latter decontamination). Disinfect or wash hands.

**Important Points**
- If highly suspected Ebola patient encountered, HazMat will perform "ValD Off".
- Inspect the suit. If there is minimal contamination, wipe off and proceed with donning if directed by Officer.
- You must have a large clear bag and red bag ready.
- WASH OR DISINFECT HANDS IMMEDIATELY AFTER DOFFING.

**Infectious Control Ensemble: Donning**

1. Insert feet into legs of suit. Sitting on a smooth surface, don the rubber boots and pull up suit to waist.
2. Don first pair of Nitrile gloves.
3. Slip arms into the suit.
4. Don APR or SCBA gloves.
5. Put on the attached hood then zip up the suit.
6. Seal the adhesive flap over the zipper of the suit. (When using the Tian suit, use Chem tape to seal flap.
7. Don second pair of gloves ensuring the cuff of the glove is over the sleeve of the suit. Using Chem tape, seal the outer glove cuff to the sleeve of the suit. Make sure there is a tab at the end of the tape to allow for easy doffing.
8. Put on the outer shroud over the hood. Ensure that the elastic band of the outer shroud is properly fitted around the APR or SCBA facepiece so that no skin is exposed.
9. Inspect and attach the P100 canister to your APR or SCBA facepiece.

**Important Points**
- Inspect the APR at the start of each tour.
- Avoid or remove any sharp objects from your person as to not tear the suit or rubber boots.
- Inspect the suit before donning.
- Limit surfaces touched.
- Keep your hands away from your face.
- Remember to change gloves as often as necessary.
- Avoid stepping in or soiling the suit with the patient’s bodily fluids.
Transportation of Dr. Spencer to Bellevue Hospital
FDNY Actions 2014

• Developed post-exposure monitoring protocol
  • FDNY Bureau of Health Services phone contacts each member who responded to check on fever and symptoms twice daily for 21 days
  • Share data with NYC DOHMH daily

• Case confirmation:
  • FDNY Fire Marshals work with US Customs to confirm Travel
  • FDNY OMA & BHS work with NYCDOHMH on EVD test results

• If breach during care of confirmed case
  • Quarantine protocol
    • In member’s home
      • if member and family agrees and home is equipped
    • FDNY facility if member wishes or member’s home situation ill-equipped
FDNY Actions 2014 -> 2015

• FDNY prepares for worst case scenario
  • High FT call volume

• In October 2014 began purchasing additional PPE

• In November 2014 began accelerated training program for all EMS pre-hospital healthcare providers (EMTs & Paramedics)
  • Over 2,000 trained already
  • Only trained members, receive appropriate PPE ICE packages
  • Only EMS units with 2 trained members, will be able to treat
    • If call volume becomes excessive, & need more than HAZTAC to respond
    • If patient unstable and awaiting HAZTAC

• In February 2015 extend training to all Fire CFR
Lessons Learned

Practice Makes Perfect – Tabletops & Exercises
FDNY Actions 2014

How to Become a NYC 911 Receiving Emergency Department for FT Suspected Ebola Virus Patient

Multi-step Process:

• Step 1 – Follow all NYS and NYC DOH Guidelines
• Step 2 – Meet with FDNY EMS and FDNY HAZMAT to define Patient Drop Off location and Decon Location for EMS Crew
• Step 3 – Tabletop Exercise with FDNY EMS & HAZMAT
• Step 4 – Depending on Complexities, may benefit from a full-scale exercise with FDNY EMS and HAZMAT
Lessons Learned - Summary

Take care of your people
They are your most precious resource
No Care without Safe Care

Thank You