



Define

What is Ebola?

- Severe, often fatal viral disease in humans and nonhuman primates
- Transmitted by direct contact with body fluids of infected persons or animals (or contact with objects contaminated by these fluids)

Current outbreak (as of March 2015):

- Over 23,900 reported cases of Ebola Virus Disease (EVD) in West Africa, with over 9,800 reported deaths
- Mortality rate was 70% in 2014 and today is approximately 41%
- United States: 4 cases diagnosed, 1 death (CDC, 2015; WHO, 2015)

Mayo Clinic in Arizona preparedness for EVD:

- EVD preparedness activities were underway, but when a patient presented to Emergency Department with suspicion of EVD on October 5, 2014 (subsequently ruled out)
 - Major gaps in organizational readiness were identified:
 - Supplies
 - Policies
 - Specific workflows
 - Education and training
- Infection Prevention and Control and Nursing Administration met with key stakeholders to develop a comprehensive EVD preparedness plan

Measure

Mayo Clinic in Arizona preparedness measurements – Baseline (October 5, 2014):

- EVD workflows = 1
- Personal protective equipment (PPE) competencies = 0
- Staff competent in Ebola PPE = 0
- Ebola PPE policies = 0
- Supplies = 1 EVD modified droplet precaution cart

Ebola: Education Challenge for Patient and Staff Safety

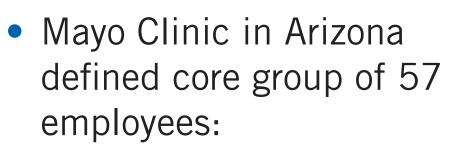
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Control

Enormous education effort at Mayo Clinic in Arizona

- Hundreds of hours spent developing workflows, competencies, education plans
- Additionally, over 1,700 staff hours spent on education
- No FTE specifically designated for this effort; more sustainable plan developed going forward



- Core group will receive bi-monthly education through 2015:
 - Continue practice with PPE
 - Additional workflows and policy education

• Nursing education specialist will be hired for one year limited tenure to coordinate education for infection prevention

 Drills planned to identify remaining gaps/ improvement opportunities



Workflows:

- Developed and updated according to staff feedback, creation

PPE equipment and supplies:

- Several evolutions at Mayo Clinic in Arizona: 1. Initial CDC guidelines: isolation gown, gloves, face mask with eye shield
 - Staff did not feel this provided adequate protection
 - Workgroup formed to increase the
 - level of staff safety
 - Glo Germ™

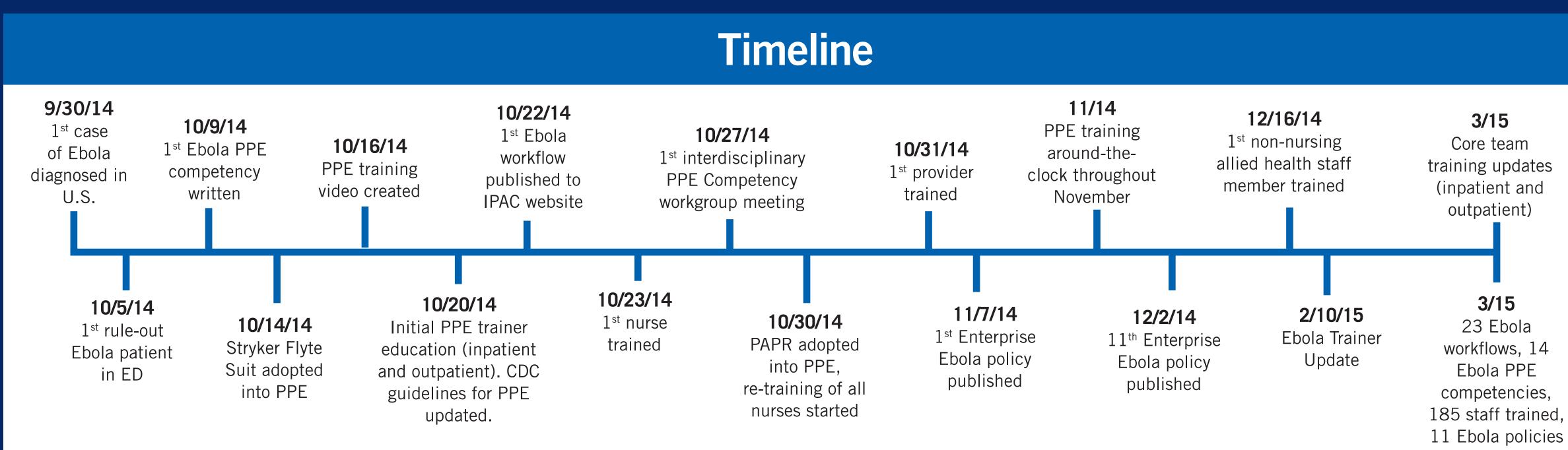
 - 3. Incorporated Stryker Flyte[™] Suit

 - Enterprise level decision

 - N95 mask
- precautions

PPE competencies:

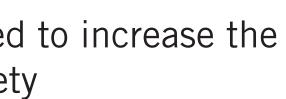
- PPE processes





Analyze

 Specific to entry points, patient care areas, and personnel simulations, supply availability, and Enterprise-level policy



• Experimented with PPE application and removal using

2. Enhanced PPE: two pairs of gloves, hospital scrubs, N95 mask, bouffant hat, fluid impervious surgical gown, face shield, shoe covers

Whole body coverage and climate control

4. Changed to powered air purifying respirator (PAPR) based on

• Fluid-impervious head coverage, elimination of

Updated CDC guidelines later validated these enhanced

 Proper donning (application) and doffing (removal) of PPE is essential, requiring extensive practice and attention to detail Sentry monitors access to room and ensures exact adherence to

- experimentation, and equipment availability Varying degrees of PPE developed for specific care areas and situations:

Competencies modified frequently based on staff feedback,

- Level 1A: Interviewing patient in ambulatory areas (low exposure risk)
- Level 1B: Doffing assistant (moderate exposure risk)
- Level 2: Direct patient care in hospital (high exposure risk)

Staff competent in PPE for Ebola:

 7 nurses selected from the ED and ICU along with selected nursing educators became trainers. Essentia interdisciplinary personnel were trained:



- Nurses, attending ED and ICU consultants, interventional radiologists, respiratory therapists, radiology and ultrasound technicians, environmental services
- Education took from 2 to 6 hours depending on responsibilities the individual needed to learn

Ebola policies:

- Enterprise-level policies developed for screening, identification, isolation, and care for patients with suspected or confirmed EVD
- Policies also address visitors, cleaning and decontamination of patient care areas, and support for involved staff



Improvement

Mayo Clinic in Arizona preparedness measurements (March, 2015):

- EVD workflows = 23
- Personal protective equipment (PPE) competencies = 14
- Staff competent in Ebola PPE = 185
- Ebola PPE policies = 11
- Supplies = 2 fully equipped EVD carts in hospital, PPE kits in all ambulatory areas
- The Department of Nursing led planning and education, departing from traditional hierarchical patterns
- Strong collaborative interdisciplinary relationships developed

References

Centers for Disease Control and Prevention (CDC). (2015, March 23). Ebola (*Ebola Virus Disease*). Retrieved from http:// www.cdc.gov/vhf/ebola/

World Health Organization (WHO). (2015, March 6). Ebola Situation Report. Retrieved from http://apps.who.int/ebola/ current-situation/ebola-situation-report-4-march-2015

Acknowledgements

Michelle Alore, RN; Sandra Batchelor, RN; Stephanie Blakeman, RN; Belinda Curtis, RN; Amber Drake, RN; Christopher Farmer, MD; Karen Fontes, RN; Meagan Gruwell, RN; Brian Herlitzka, EVS; Amy Heydenreich, RN; Dean Kotwica, RN; Kathy Matson, RN; Brenda McGriff, RN; Charles Peworski, RN; Michelle Quinonez, RN; Julie Rose, RN; Jen Sabyan, RN; Christina Stathakis, RN; Terri Thuotte, RN; Stephen Traub, MD; Susan Weinhold, RN; Judy Whitman, RN