





Massachusetts Water Resources Authority

Presentation to

MWRA Board of Directors

DITP Fire Alarm System Update



October 15, 2014



Fire Alarm System Overview

- **System is 17-22 years old**
- **One of the largest systems in New England**
- **System is comprised of:**
 - Graphic annunciation panels
 - 43 local Fire Alarm Control Panels
 - Over 3000 signaling devices (i.e. smoke and heat detectors, strobes horns, pull stations, etc.)
 - Over 6 miles of fiber optic cable

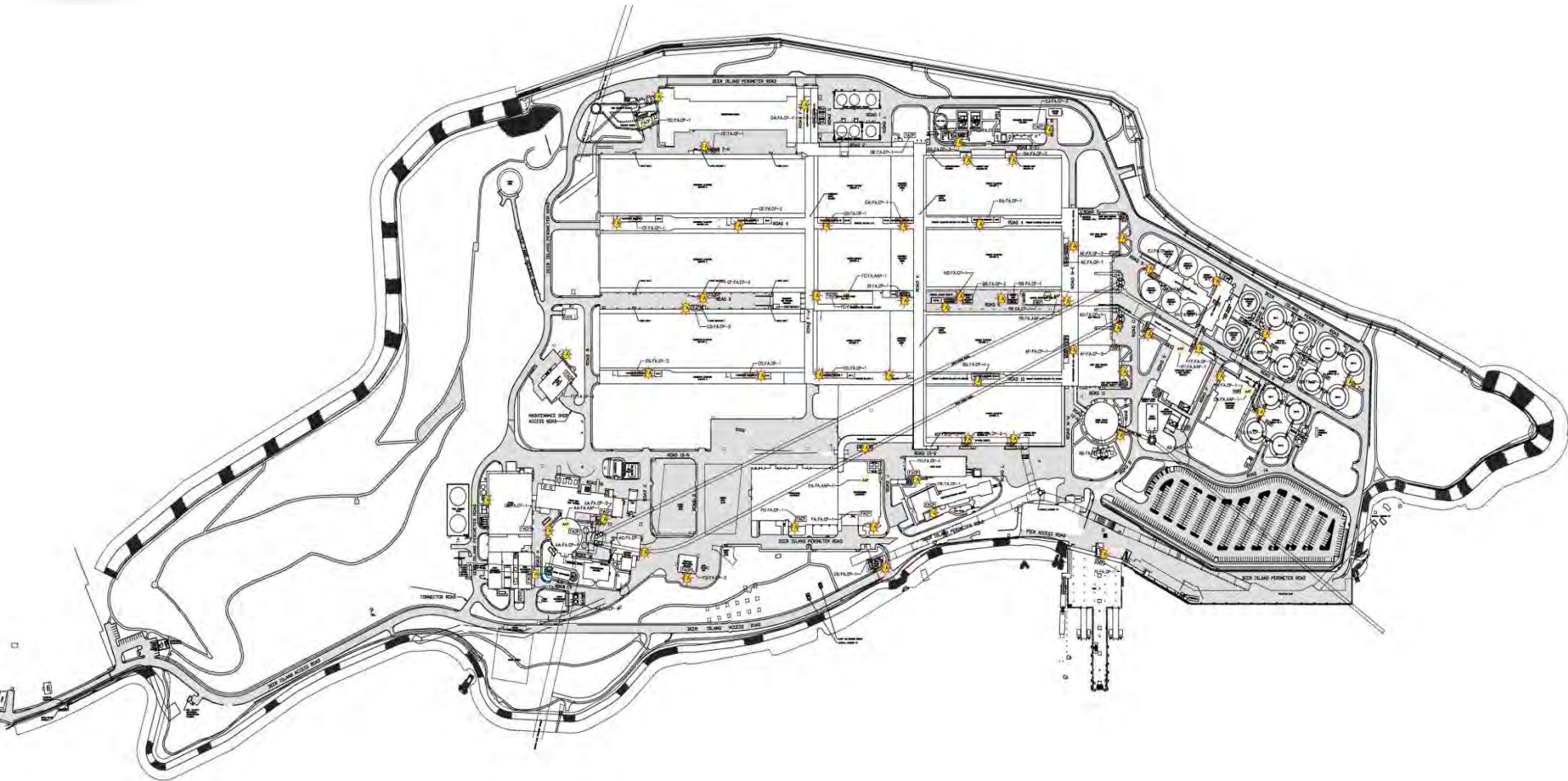


Project Specific Issues

- Parts are no longer available.
- Fiber optic communication highway 20 years old + may need to be replaced.
- Regularly scheduled meetings with Winthrop and Boston Fire Departments
- Replace existing Halon systems
- Eliminate some fire pumps?
- Upgraded to existing applicable codes

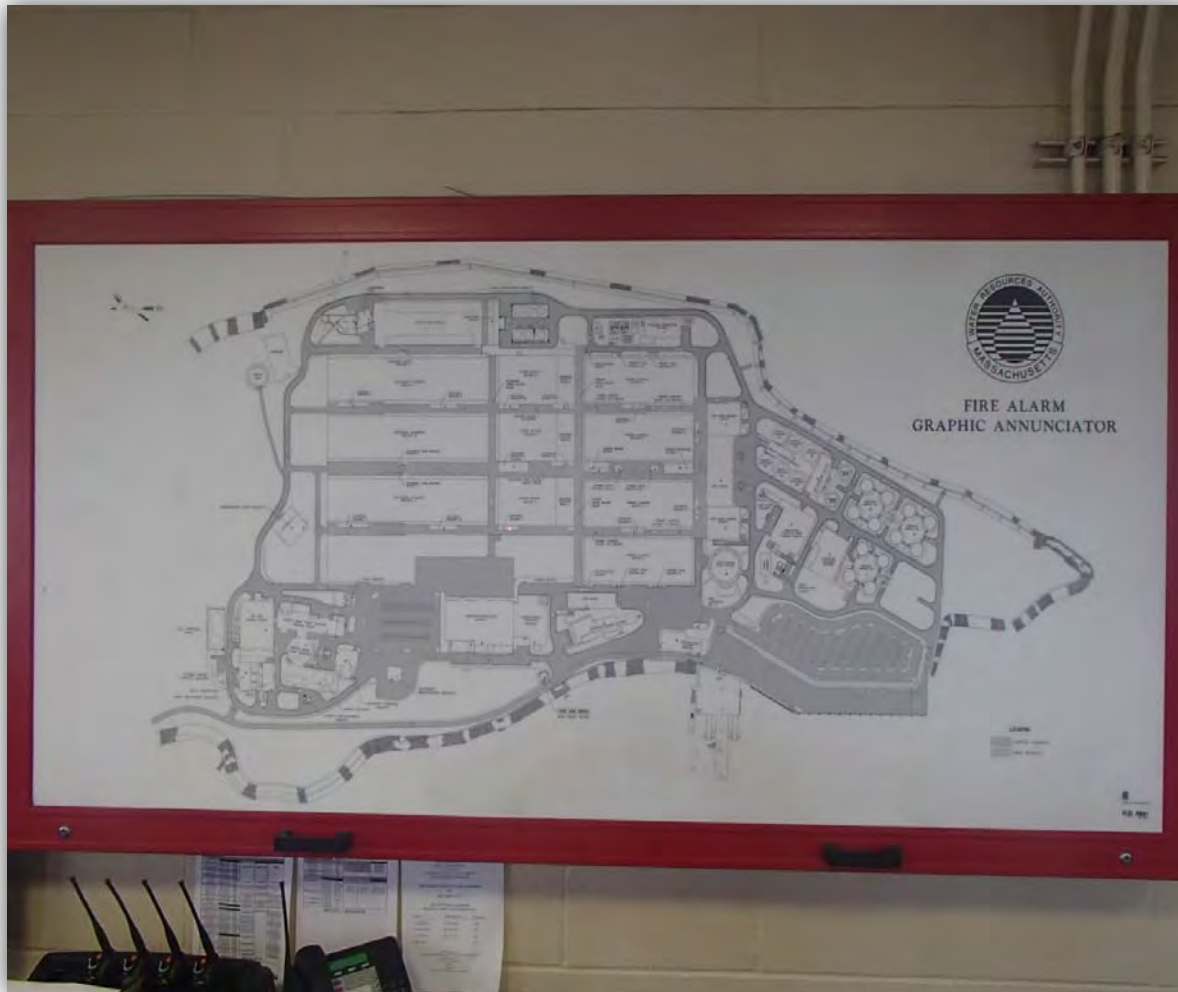


DITP Active Fire Alarm Systems





Graphic Annunciation Panel





Typical Halon Tank system





Fire Alarm Control Panel





Fire Alarm Control Panel (inside of panel)





Fire Alarm Pumping system





Next Steps

- Design to commence Spring 2015
- Construction to commence Spring 2017

- Original system construction cost (1992 dollars): \$13M
- New system construction cost: \$16M; Design and Construction oversight services \$3.9M





***Thermal/Power Plant Boiler Management
System Upgrade***

October 15, 2014



System Overview

- Two high pressure boilers installed in 1995
- Produce steam for plant hot water system and electrical generation
- BMS controls gas, oil and combustion air to the boiler burners
- Control system parts are obsolete can no longer attain replacement parts



Gas Control Valves (Qty: 4)

- Existing 6" gas valves (green)
- New actuators will have better range ability at low flows
- Currently, low flow stability is an issue





FD Fan Outlet Damper Drives (Qty:2)

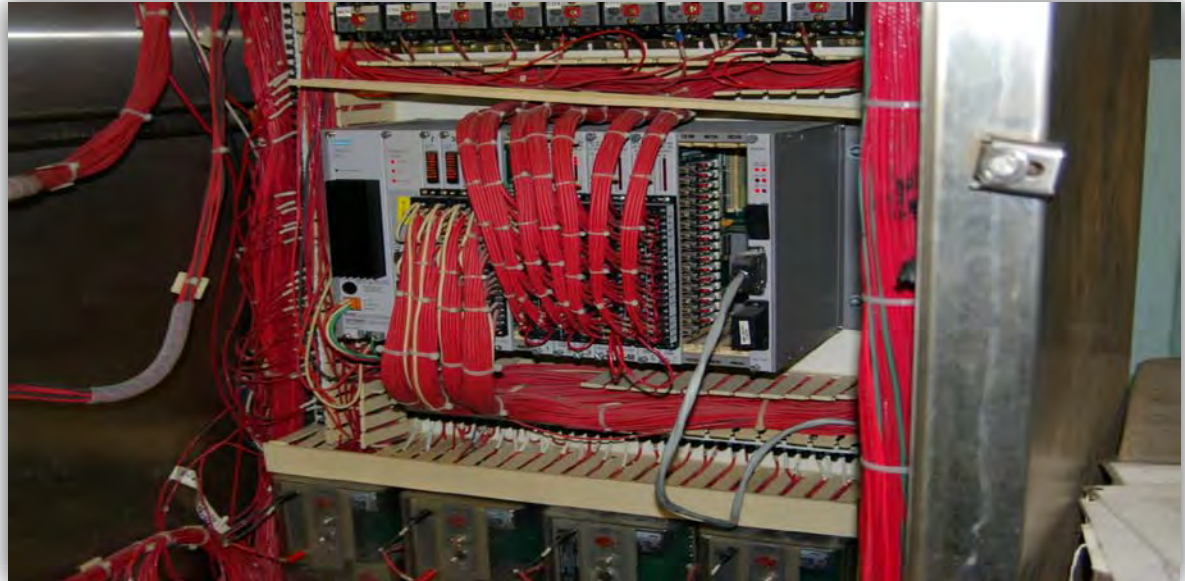
- Existing damper drive (grey box)
- New dampers will be more precise control which will increase boiler performance





Boiler Management System & Programmable Logic Controllers

- Programmable logic controllers (PLC) and flame monitors
- The PLCs are obsolete and flame monitors are approaching end of life





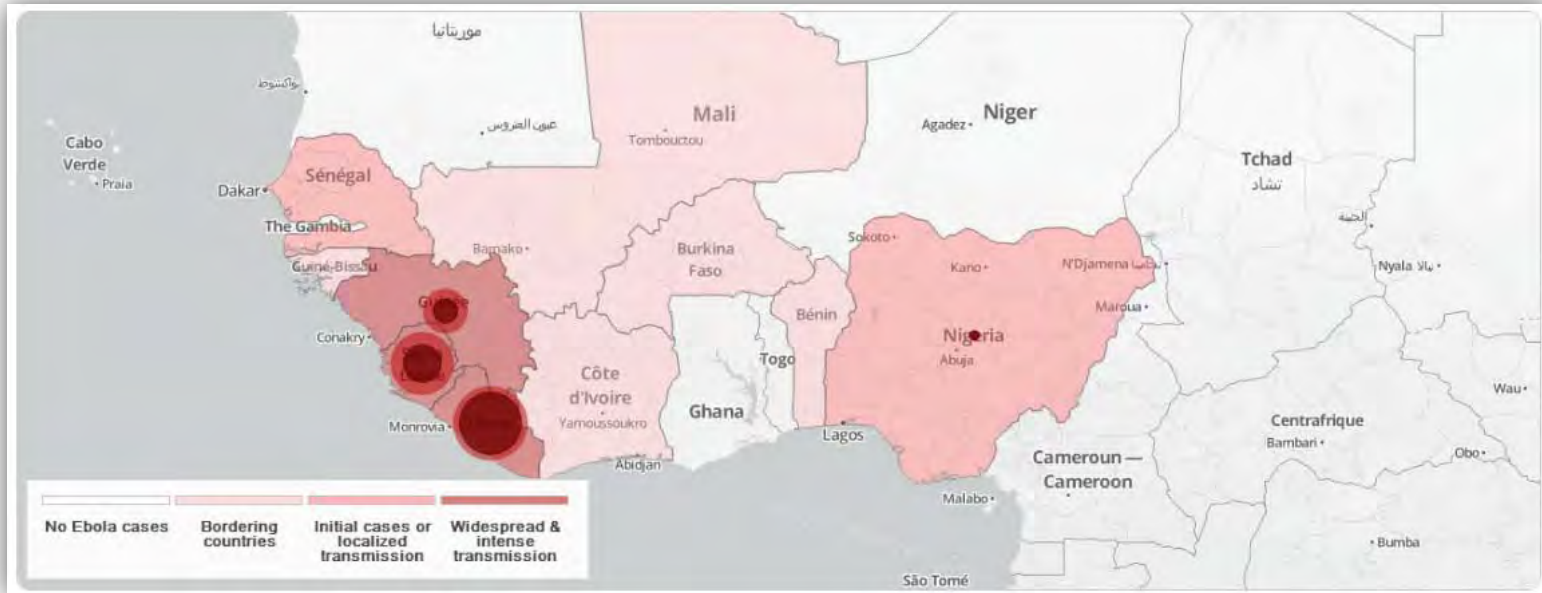


Pandemic Preparedness Update

October 15, 2014



Ebola In West Africa

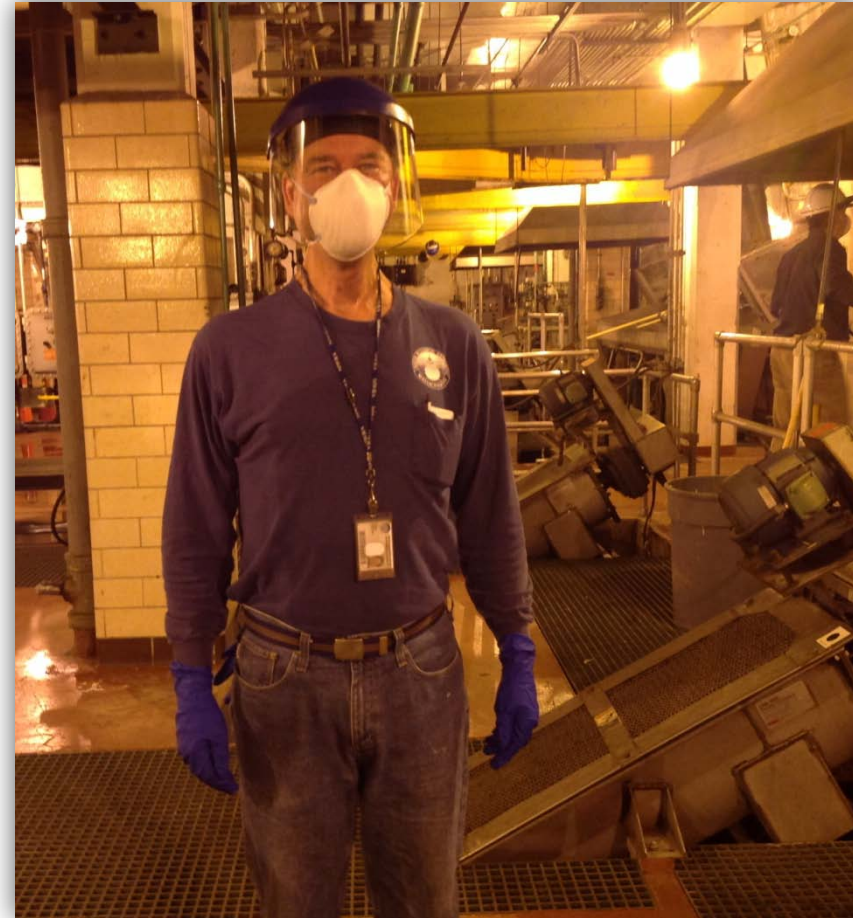


- Ebola - >8300 cases, >4000 deaths in West Africa
 - large scale outbreaks in developed countries are still highly unlikely
 - Additional imported cases and occasional secondary cases are very likely



Why We Are Presenting Today

- Staff Safety
 - Wastewater flushed at BIDMC reaches Ward St in 20-30 minutes
 - From MGH even faster in wet weather
- Making sure we are prepared to continue to perform core functions





Headworks Channel





Raking The Screens





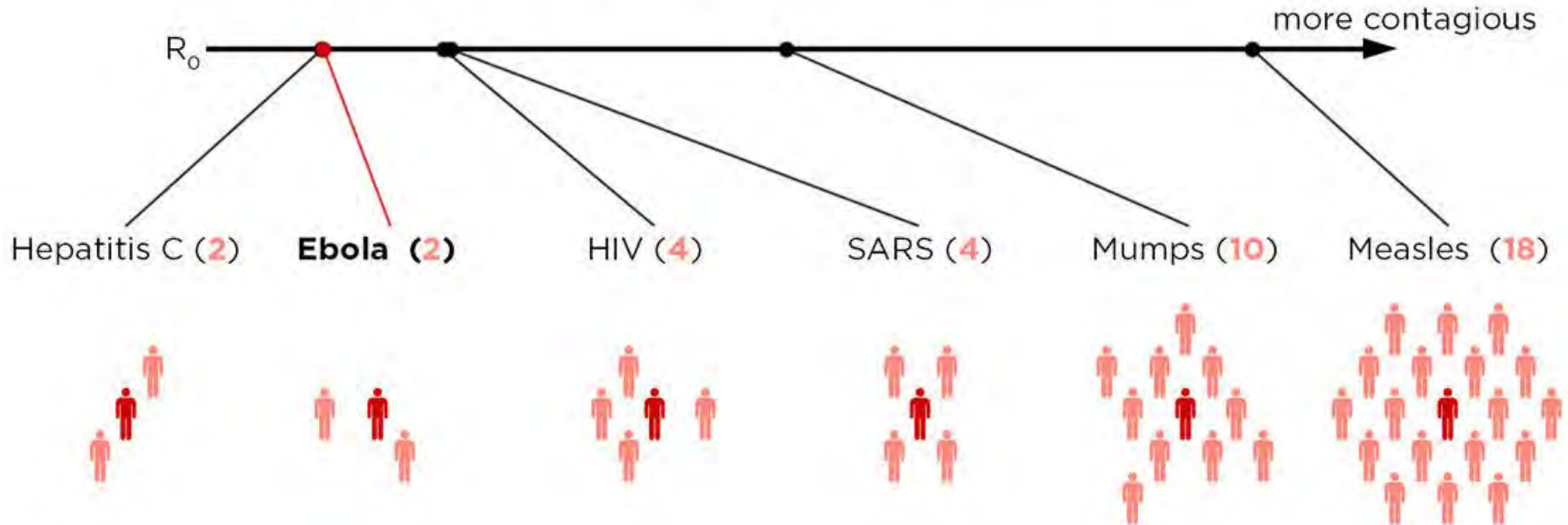
What We Know About Ebola In Wastewater

- “Sanitary sewers may be used for the safe disposal of patient waste.” – CDC
- “Although obviously very dangerous, Ebola is a very fragile virus that does not survive very long once shed into the environment. The virus would be unlikely to survive very long in sewage...”
- “Ebola virus ... is much more fragile in the environment than the usual non-enveloped viruses we know to be the enteric virus pathogens found in human fecal wastes and sewage.”



How Contagious Is It?

The number of **people** that **one sick person** will infect (on average) is called R_0 . Here are the maximum R_0 values for a few viruses.





What We Are Doing

- Refreshed staff on safe wastewater practices
- Briefed transport staff and union leadership on what we know about the risk
- Maintaining warehouse supplies of PPE
- Reached out to DPH and outside experts to confirm that our approach is appropriate
- Working with hospitals to agree on sanitary waste disposal practices
- Continued monitoring of situation around the world



Facts *about* **Ebola** in the U.S.

You can't get Ebola
through air



You can't get Ebola
through water



You can't get Ebola
through food



You can only get Ebola from:

- Touching the blood or body fluids of a person who is sick with or has died from Ebola.
- Touching contaminated objects, like needles.
- Touching infected animals, their blood or other body fluids, or their meat.

**Ebola poses no significant risk to the
United States.**

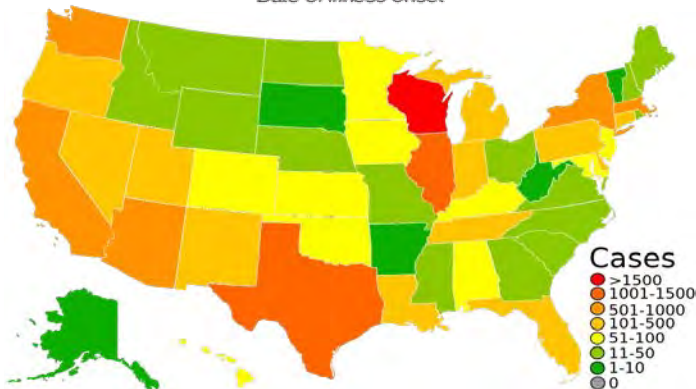
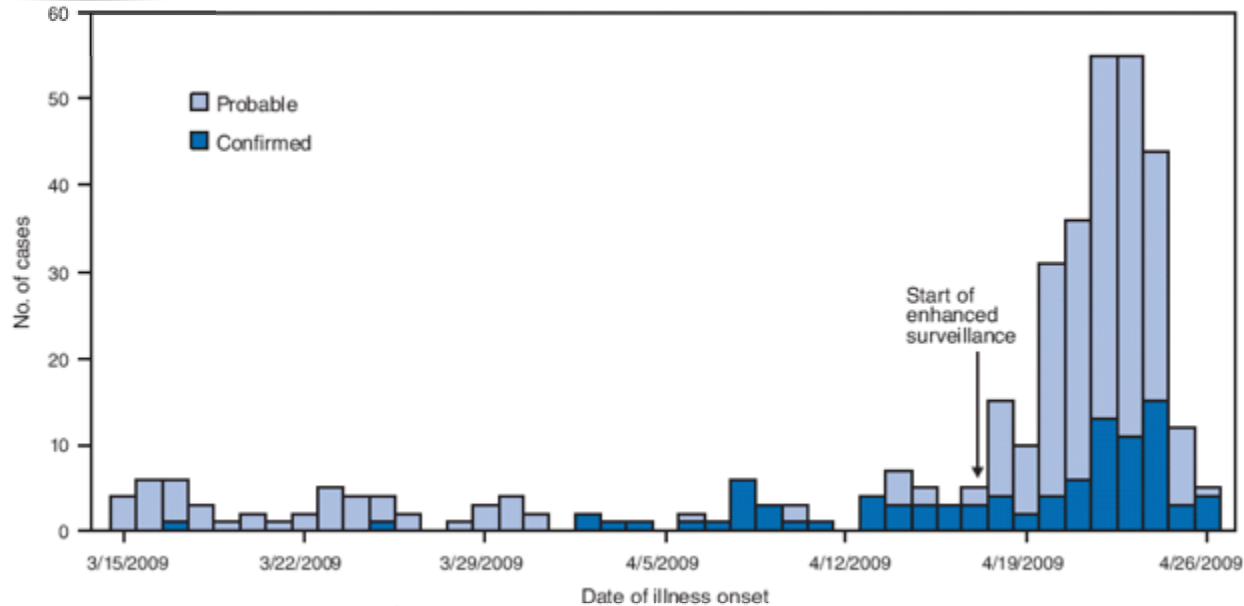




- **BAD NEWS**
 - There is a virus beginning to spread in the US
 - Expected to cause 20,000 – 50,000 deaths in the next 6 months
- **GOOD NEWS**
 - There is already a vaccine available
- It is the seasonal flu!



2009 Flu Pandemic - Timeline

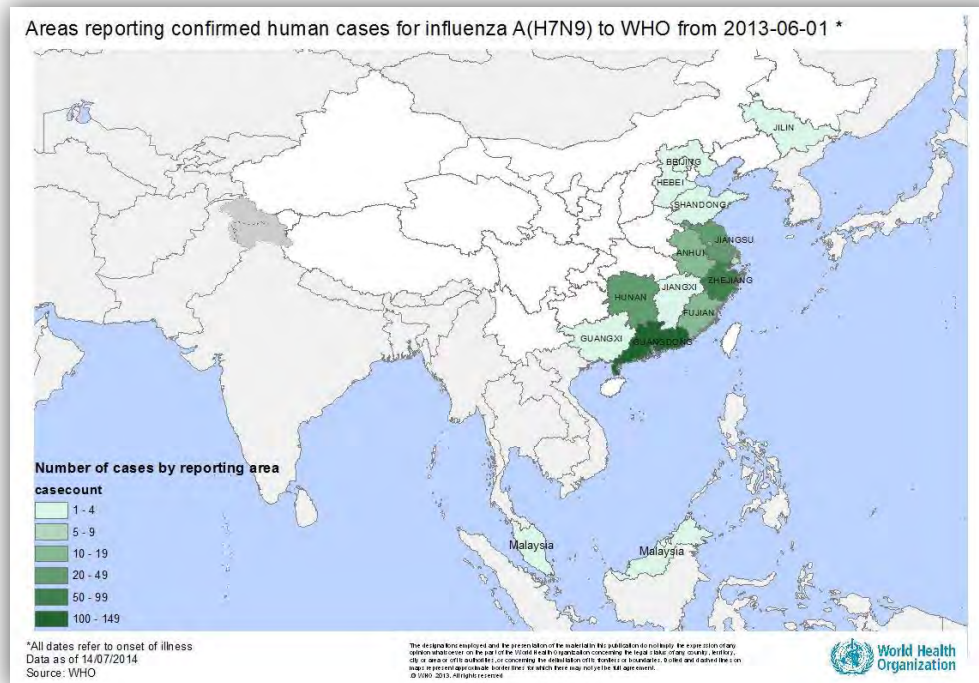


- 3/17/2009 – earliest onset of a confirmed case
- 4/27/2009 – WHO declares pandemic
- June 2009 – 18,000 US cases, 73 other countries affected



Current Status – Emerging Flu Subtypes

- **H5N1 avian flu** - since 2003 - 667 cases across Asia
- **H7N9** - since 2012 - 454 cases, 126 deaths



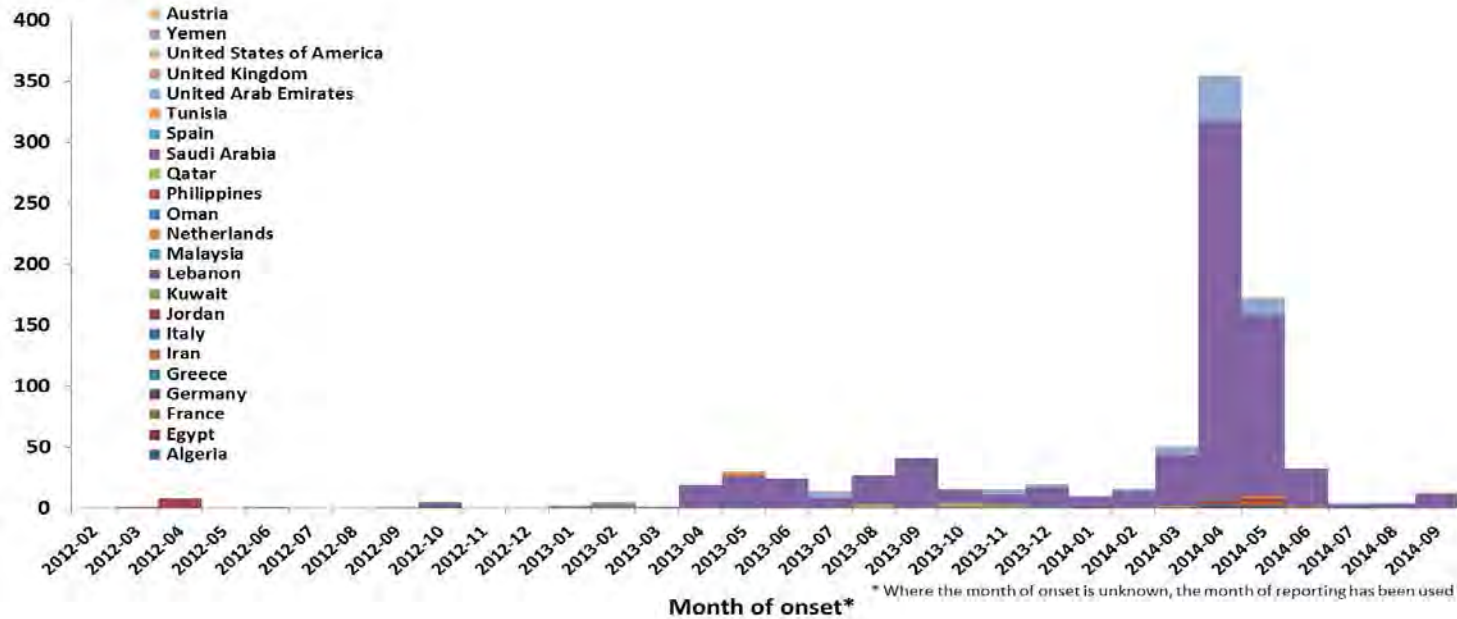
- **Other swine/avian flu strains have infected people**
 - H3N2v, H7N7, H6N1, H10N8, H5N6



Current Status – MERS-CoV

- MERS – coronavirus related to SARS
 - since 2012 - >850 cases, >300 deaths

Number of cases





- EV-D68 (Enterovirus)
 - one of ~100 known enteroviruses
 - usually <2% of those tested, 2014 ~50%
 - genetic change in last decade may allow more spread

Measles Cases and Outbreaks

January 1 to August 29, 2014*†

592

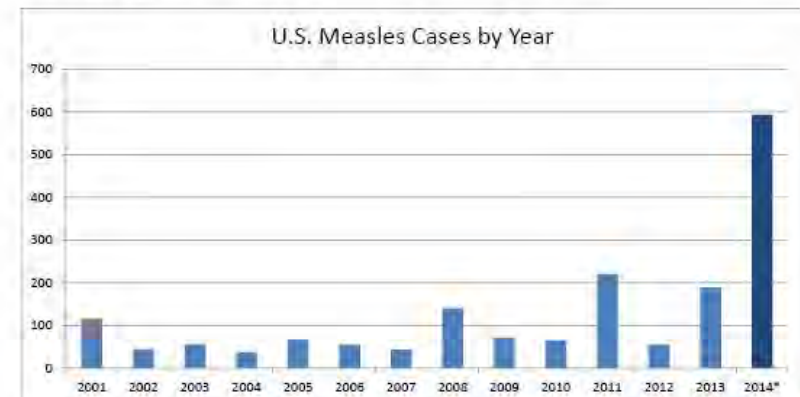
Cases

reported in 21 states: Alabama, California, Connecticut, Hawaii, Illinois, Indiana, Kansas, Massachusetts, Minnesota, Missouri, New Jersey, New York, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Washington, Wisconsin

18

Outbreaks

representing 89% of reported cases this year



*Provisional data reported to CDC's National Center for Immunization and Respiratory Diseases

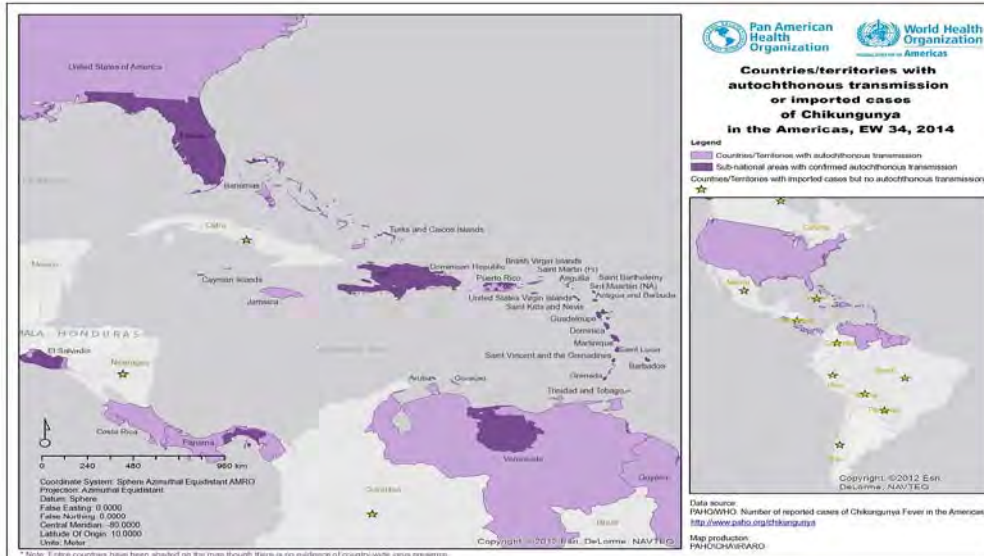
†Updated once a month





In The News – Non-Human Vectors

- Chikungunya (that which bends up)
 - >700,000 cases in this hemisphere **since December**
 - Mosquito borne (human → mosquito → human)
 - Day-biting mosquito species – not common in MA

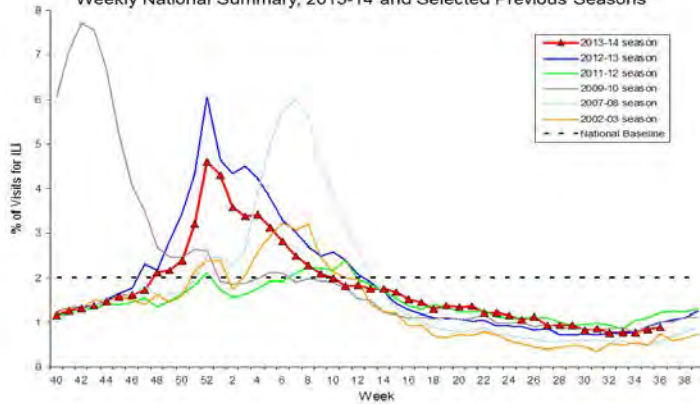




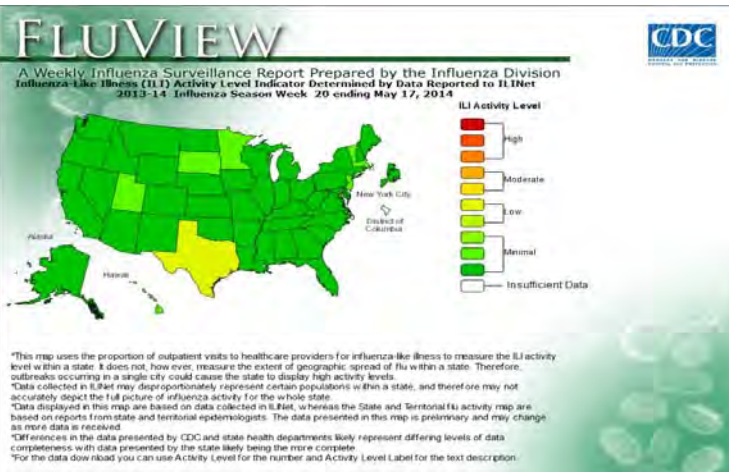
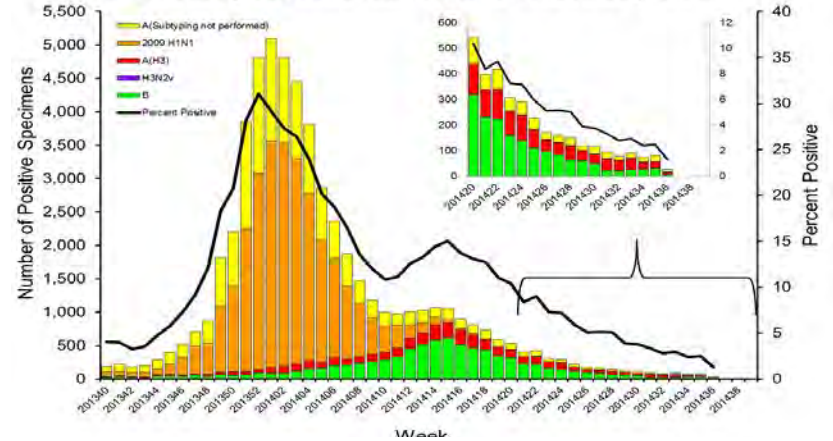
- Monitor current events
 - Staff get e-mail alerts from CDC, MA DPH, CIDRAP
 - News alerts for terms like pandemic, influenza, MERS, H7N9, coronavirus, EV-D68
- Regularly brief a wide range of staff
 - as received when important
 - e-mail updates ~weekly
 - additional updates at monthly Security Task Force



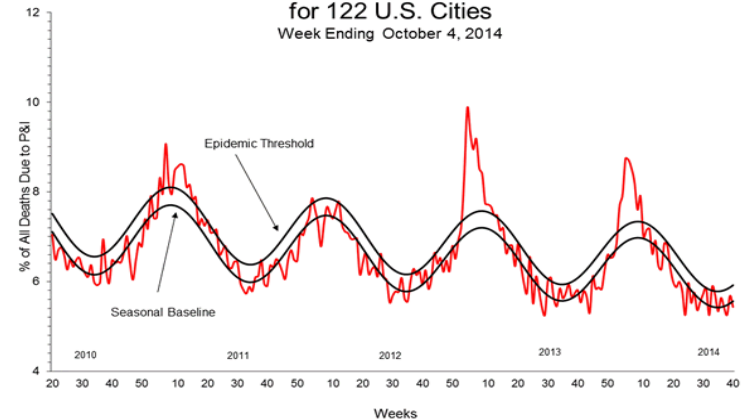
Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, 2013-14 and Selected Previous Seasons



Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2013-14



Pneumonia and Influenza Mortality for 122 U.S. Cities
Week Ending October 4, 2014





What We Are Doing

- Flu shots this month at all locations
- Review recently updated CDC guidance and update our plan as needed
- Include in community ERP training (9/25, 10/9, 10/23 and 11/23)
- Circulating and posting basic infection control reminders
- Refreshed staff on safe wastewater practices
- Monitoring warehouse supplies of PPE



MWRA Pandemic Emergency Action Plan

- Designed for
 - Any infectious disease with high morbidity and mortality
 - Peak absence of 40% of staff
 - 2 – 3 month primary duration
- Main components
 - Monitoring and triggering
 - Critical functions and staffing
 - Staff health
 - Interdependencies