

This content was published before guidance to change "monkeypox" to "mpox" was delivered to CDC programs in December 2022

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State Hygienic Laboratory

Perceived Risks to Laboratory Personnel and Impact on Testing

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Objectives

1. Planning to test for an emerging pathogen
2. Meeting the mission of the laboratory
3. Protecting employees



CBS EVENING NEWS

Ebola panic spreading much faster than disease in U.S.

BY CARTER EVANS
OCTOBER 18, 2014 / 10:23 PM / CBS NEWS

@CBS EVENING NEWS

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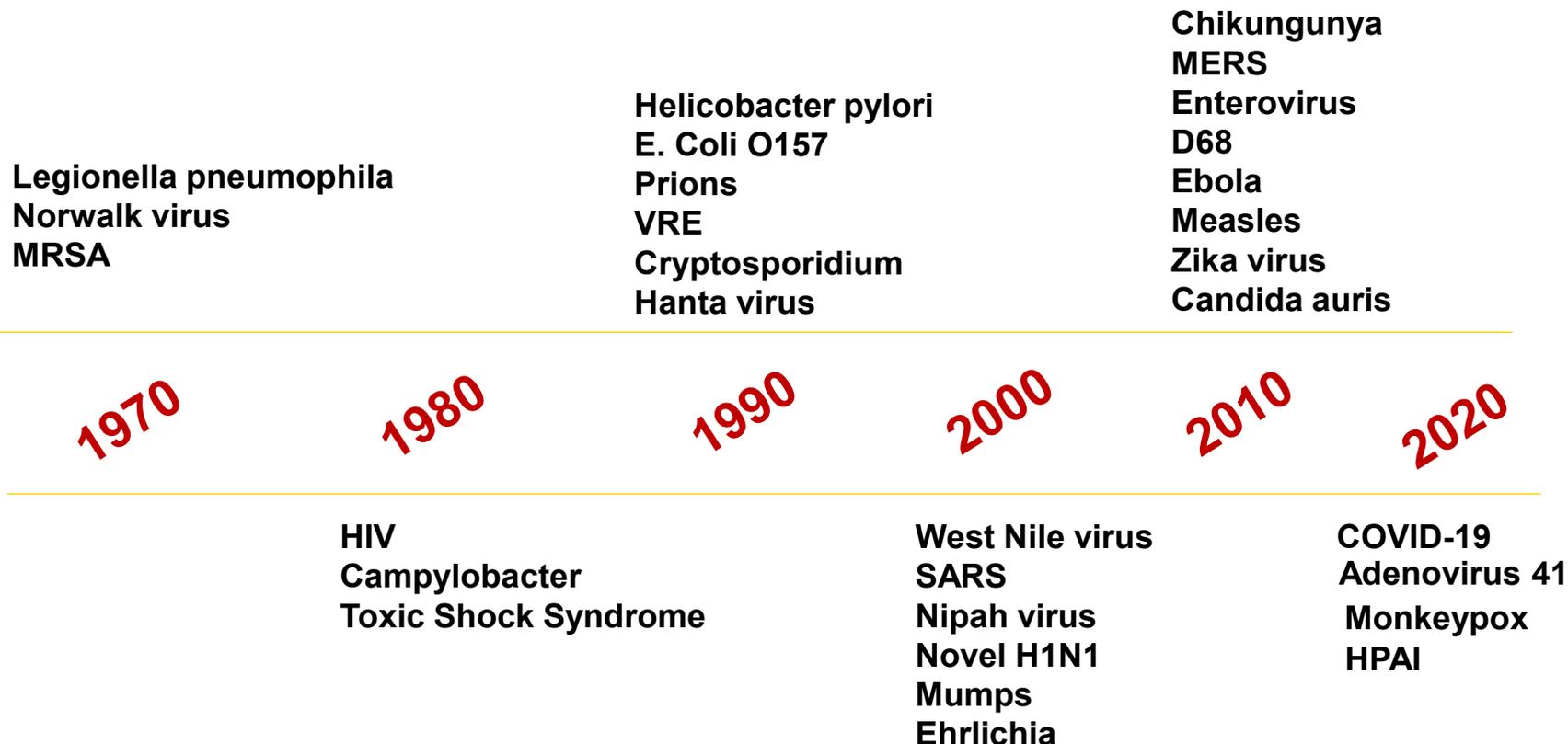
Deadliest outbreak of Ebola virus: What you need to know

Susannah Cullinane and Nick Thompson, CNN
Updated 6:51 AM EDT, Thu September 18, 2014

NOW PLAYING
The facts about Ebola
Source: CNN

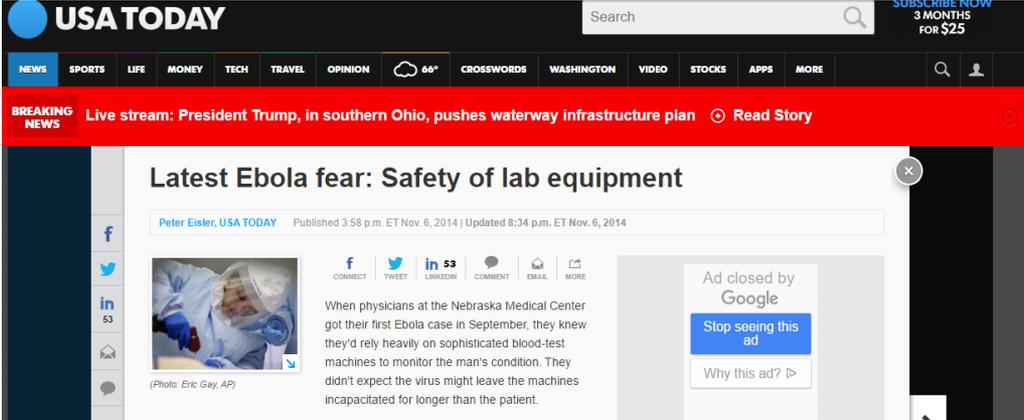
CNN'S Dr. Sanjay Gupta Explains Ebola

Emerging Pathogens by Decade



Ebola and Safety: Remember that In Labs across the country

- Some clinical labs refused to test any samples from suspect ebola patients
- A major commercial lab refused to accept specimens
- Some instrument manufacturers refuse to service instruments used to test patients suspected of having ebola



The image is a screenshot of a USA Today news article. At the top, the USA Today logo is on the left, and a search bar is on the right. Below the logo is a navigation menu with categories: NEWS, SPORTS, LIFE, MONEY, TECH, TRAVEL, OPINION, 66°, CROSSWORDS, WASHINGTON, VIDEO, STOCKS, APPS, MORE. A red banner below the menu reads "BREAKING NEWS Live stream: President Trump, in southern Ohio, pushes waterway infrastructure plan Read Story". The main article title is "Latest Ebola fear: Safety of lab equipment" by Peter Eisler, published on Nov. 6, 2014. The article includes a photo of a person in a full-body protective suit and a text snippet: "When physicians at the Nebraska Medical Center got their first Ebola case in September, they knew they'd rely heavily on sophisticated blood-test machines to monitor the man's condition. They didn't expect the virus might leave the machines incapacitated for longer than the patient." A "Google Ad closed" notification is visible on the right side of the article.

Fear can slow test results...



CDC/APHL

February 2018

BIO SAFETY AND BIOSECURITY PROGRAM

MAKING LABS SAFER FOR SCIENTISTS AND COMMUNITIES

During the Ebola virus outbreak in 2014, a four-year-old girl who had recently returned from West Africa arrived in the emergency room of a hospital in the US Northeast suffering from a high fever and severe dehydration. Out of concern that their young patient might be infected with Ebola, the hospital staff sought the advice of the state epidemiologist who informed them that the girl's illness was most likely malaria. But this information did not allay their concerns. Fearing exposure to the virus, they refused to insert an IV or perform other laboratory tests until they had test results from the state public health laboratory.

So for over 10 hours the girl waited, receiving only popsicles, while a specimen was transported to the laboratory and analyses conducted. And the result? The girl was positive for malaria. With this diagnosis, the hospital finally initiated treatment.

The girl was fortunate—she lived—but others were not so lucky; at least two others died in similar cases.¹ Had the US Ebola outbreak been widespread, there would have been more such deaths. Yet staff at these hospitals could have protected themselves against infection while still providing time-sensitive evaluation and treatment if they had been trained in the biosafety risk assessment process.

BIO SAFETY SAVES LIVES.

Delays in Laboratory Testing for Fear of Ebola

- *At least two persons who tested negative for Ebola died from other causes. Based on reports from health departments and healthcare providers, in several instances efforts to establish alternative diagnoses were reported to have been hampered or delayed because of infection control concerns. For example, laboratory tests to guide diagnosis or management (e.g., complete blood counts, liver function tests, serum chemistries, and malaria tests) were reportedly deferred in some cases until there were assurances of a negative Ebola virus test result.*

Karwowski et al. Clinical Inquiries Regarding Ebola Virus Disease Received by CDC — United States, July 9–November 15, 2014. MMWR Morbidity and Mortality Weekly Report. December 5, 2014. 63(49);1175-1179

Specific Laboratory Concerns Observed Related to Ebola

- Insufficient certified staff and supplies available to pack and ship specimens to nearest Laboratory Response Network
- Risk assessments not being performed
- Biosafety cabinet practices
- Confusion about PPE (specimen transport vs. lab testing)
- Confusion about how to handle liquid waste from instruments
- Confusion about how to decontaminate equipment
- Gaps in communication among clinical care staff, infection prevention/control and laboratory
- Open tube systems



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Clinical Microbiology
Reviews

REVIEW
July 2021 Volume 34 Issue 3 e00126-18
<https://doi.org/10.1128/CMR.00126-18>

Clinical Laboratory Biosafety Gaps: Lessons Learned from Past Outbreaks Reveal a Path to a Safer Future

Nancy E. Cornish ^a, Nancy L. Anderson^a, Diego G. Arambula^a, Matthew J. Arduino ^b, Andrew Bryan^c, Nancy C. Burton^d, Bin Chen^a, Beverly A. Dickson^e, Judith G. Giri^f, Natasha K. Griffith^g, Michael A. Pentella^h, Reynolds M. Salerno^a, Paramjit Sandhu^a, James W. Snyder ⁱ, Christopher A. Tormey^{j,k}, Elizabeth A. Wagar^l, Elizabeth G. Weirich^a, and Sheldon Campbell^{j,k}

When to perform a risk assessment

- Consider performing a risk assessment when:
- Validating a new assay or method
 - Equipment is moved that causes a change in processes
 - New equipment is considered for purchase
 - There is an exposure to a sample or organism
 - A laboratory moves to a new location
 - An emerging pathogen is identified
 - There are significant staffing changes

Selecting new instruments during COVID pandemic

→ Situation

- Pressure to improve TAT
- Shortages of supplies and reagents
- Recognition during validation and risk assessment that staff were at risk

→ Resolution

- Add inactivation chemical to each tube before testing
- Resulted in an additional step and more cost



How We Look At Disease

Long Term Consequence
– can be debilitating and expensive

Short Term Consequence –
often serious and expensive

Acute Disease – treat the
cases and prevent spread



New School



Old School

Questions?

