



Infectious Disease Updates

RECENT OUTBREAKS AND WHAT THEY MEAN FOR OUR REGION

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Measles and the Epidemic of Misinformation

New York City, 2018-2019



CNN Health » Food | Fitness | Wellness | Parenting | Live Longer Live TV • U.S. Edition +

New York City declares a public health emergency amid Brooklyn measles outbreak



BACKGROUND: 2018-2019 MEASLES OUTBREAK

- ▶ Large measles outbreaks in Israel
 - >4,100 cases from March 2018 through April 2019
 - Orthodox Jewish community
- ▶ Outbreak in NYC
 - **649** cases, as of September 3, 2019
 - 74% unvaccinated, 38% in children 1-4 yrs
 - Began in October 2018 with an unvaccinated child from Brooklyn who acquired measles in Israel
 - **Ended Sept 3, 2019**
 - Multiple importations from Israel, UK, Ukraine, Rockland County, NY and NJ
 - Largest U.S. outbreak since 1992*

*CDC. Measles—United States, 1992. MMWR 1993

Exposures

- ▶ >21,000 exposed persons*
 - Mainly in medical facilities
 - Highlights importance of screening
- ▶ Factors associated with these exposures
 - Lack of negative pressure rooms
 - Exposures before rash onset
 - Inadequate isolation and delays in case reporting
- ▶ At least 21 cases acquired in healthcare facilities



*As of June 10, 2019

Complications

*As of July 29, 2019

- ▶ Hospitalizations: 52
 - ICU admissions: 19
- ▶ Pneumonia: 34
- ▶ Otitis media: 62
- ▶ Diarrhea: 94
- ▶ No deaths occurred in NYC

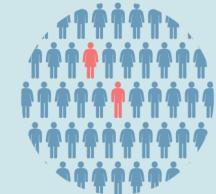
Measles Can Be Serious



About 1 out of 4 people who get measles will be hospitalized.



1 out of every 1,000 people with measles will develop brain swelling due to infection (encephalitis), which may lead to brain damage.



1 or 2 out of 1,000 people with measles will die, even with the best care.



Post Measles Complications

- ▶ Subacute sclerosing panencephalitis (SSPE)
 - Rare but fatal complication
 - Develops 7-10 years after measles infection
- ▶ Impact on immune response
- ▶ Immune-amnesia
 - Knocks out cells that produce antibodies
 - Your immune system can't recognize and fight off infections it's already been exposed to (or vaccinated against)
 - Effect can last up to 2-3 years



Lessons Learned

- ▶ **Risk communication and Community Engagement**
 - Don't underestimate the power of misinformation
 - Provide swift and culturally appropriate counter messaging
 - Meet affected communities where they are
 - Be mindful of stigma risks
- ▶ **The role of social sciences in preparedness and response**
 - Provide healthcare workers with communication tools to discuss vaccines
 - Countering vaccine hesitancy
- ▶ **Infection control, infection control, infection control!!!**



The New York Times

Measles Outbreak: N.Y. Eliminates Religious Exemptions for Vaccinations

New York, where measles has spread in ultra-Orthodox Jewish communities, joins California and a handful of other states in revoking religious exemptions.

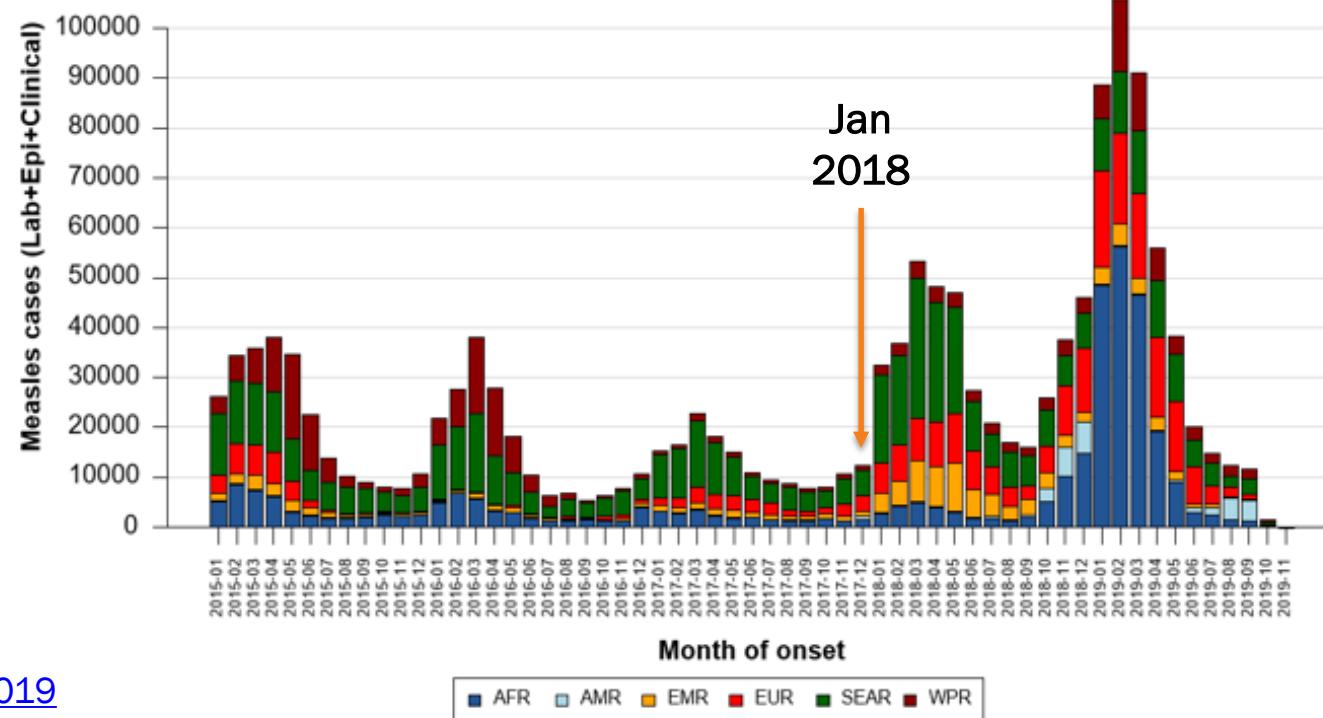


June 13, 2019

Ongoing Concern

- ▶ There has been a global surge in measles since 2018
 - Epidemic of vaccine hesitancy
 - Breakdown of health systems
- ▶ DRC
- ▶ Samoa

Figure 1: Measles case distribution by month and WHO Region (2015-2019), Data as of 8 November 2019*





Pox Viruses

Monkeypox Virus

Nigeria (ongoing)

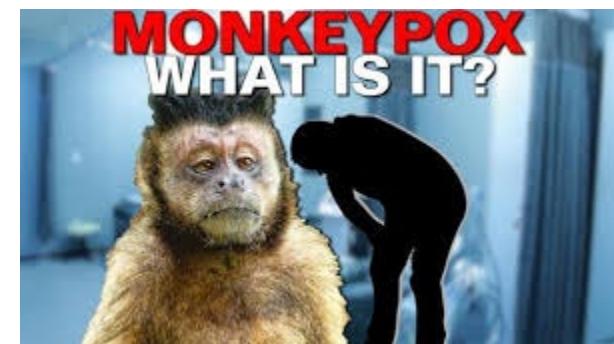
- ▶ Re-emerged September 2017, found in 18 states
- ▶ 181 confirmed cases → **9 deaths this yr**

United Kingdom (September 2018, December 2019)

- ▶ Current case being treated in London
- ▶ Two previous cases in 2018

New vaccine and FDA approved treatments

- ▶ Availability very limited





Monkeypox Virus

- ▶ Milder cousin of smallpox
 - Case fatality rates up to 10%
- ▶ First discovered in DRC (1958) → endemic to central/west Africa
 - USA outbreak in 2003 with 47 likely cases
- ▶ Symptoms → fever, chills headache, muscle aches, backache, large **swollen lymph nodes**
 - Rash 1-3 days later; starts on face then spreads to other parts of the body
- ▶ Requires very close contact to spread person to person
- ▶ Infection control → **airborne, contact, standard precautions**
 - Smallpox vaccination 85% effective

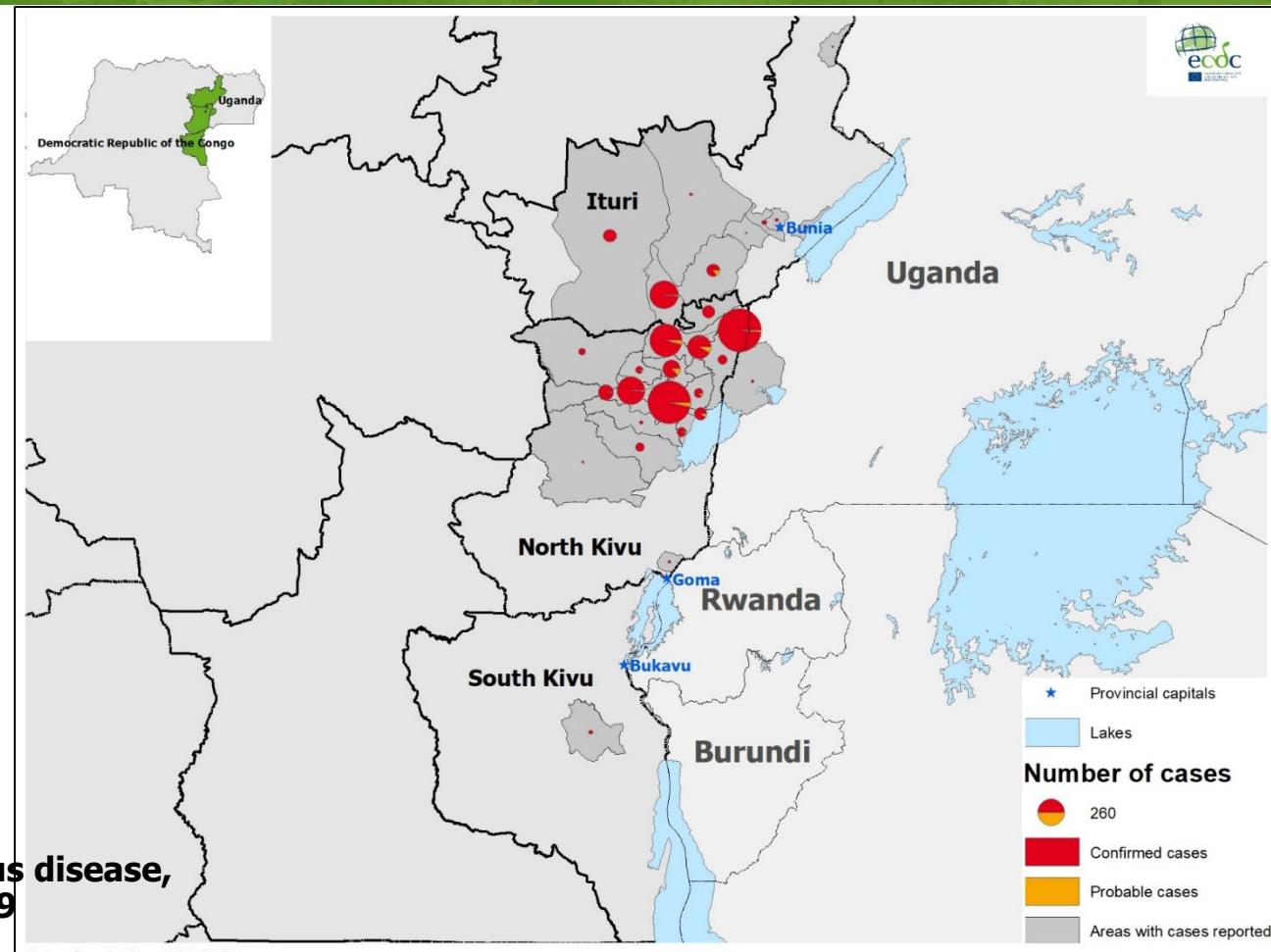




Ebola Updates

Ebola in the Democratic Republic of the Congo (DRC)

- ▶ August 2018 → outbreak declared
- ▶ Outbreak near **international borders**
- ▶ July 2019 → **Declared Public Health Emergency of International Concern**
- ▶ Not considered as global threat
- ▶ Total cases = **3,324**, Deaths = **2,209**, CRF = **66%**
 - 5% cases in HCWs





Ebola in DRC: Challenges

▶ Insecurity +++

- Community distrust of authorities
- Violence against health workers, resistance to vaccination and treatment, Infection of health care workers
- Healthcare transmissions, unregulated/informal care

▶ Unknown chains of transmission

- 30-40% of cases are known contacts
- Community deaths

▶ Women and children disproportionately affected

- 62% female (caregivers, funeral attendance)
- Children accounting for 40% of deaths





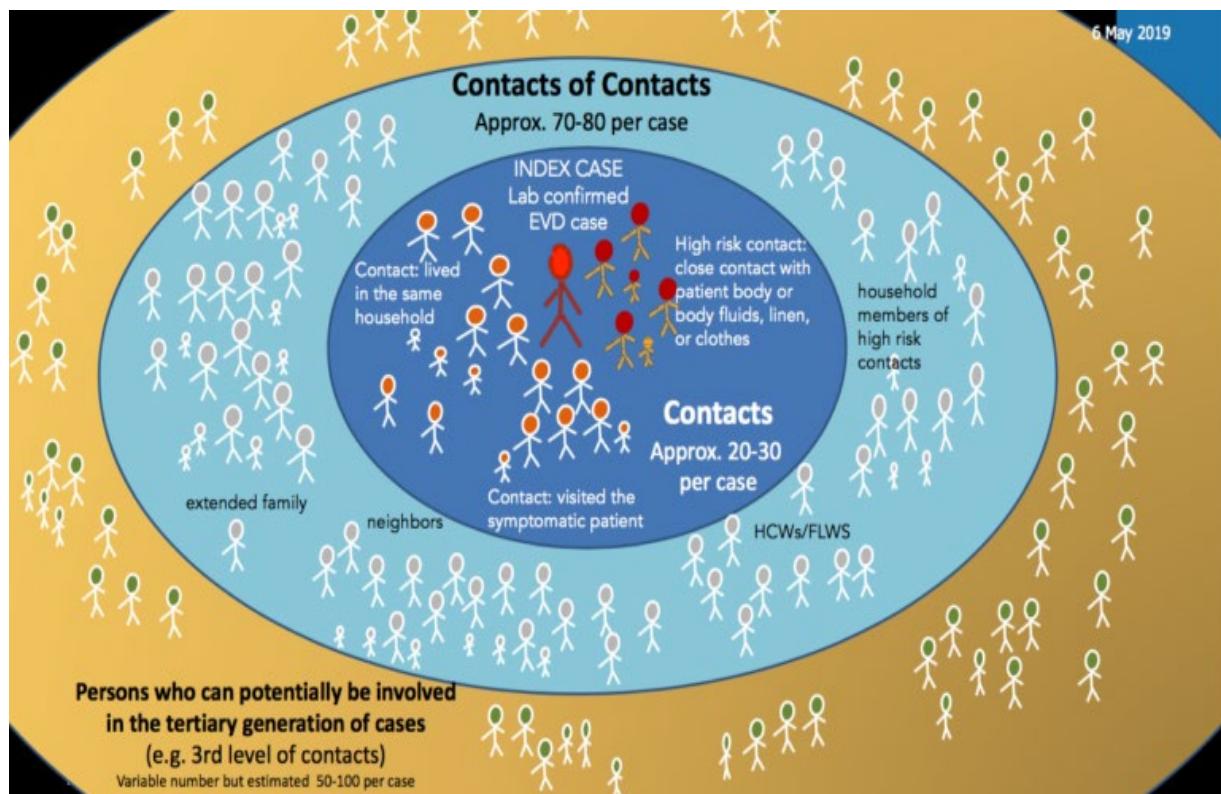
Measles in DRC

- ▶ Significant breakdown in public health systems
 - Measles immunization rate of 57% in 2018
- ▶ Now the worlds largest outbreak of measles
- ▶ Has caused >5,600 deaths → **more than Ebola**
 - 88% in children <5
- ▶ Symptoms can be confused with Ebola
- ▶ Possible increase in susceptibility to Ebola??



Credit: WHO Africa

Ebola Vaccines



- ▶ Merck's V920 vaccine being used for ring vaccination (aka: rVSV-ZEBOV-GP)
- ▶ Protection in ~10 days
- ▶ Has been **>97% effective**
- ▶ Recently received E.U. approval
 - FDA approval expected early 2020
- ▶ 2-step Johnson & Johnson vaccine deployed for “at-risk” populations

<https://www.who.int/csr/resources/publications/ebola/ebola-ring-vaccination-results-12-april-2019.pdf>



Promising Ebola Therapeutics

PALM Trial (November 2018)

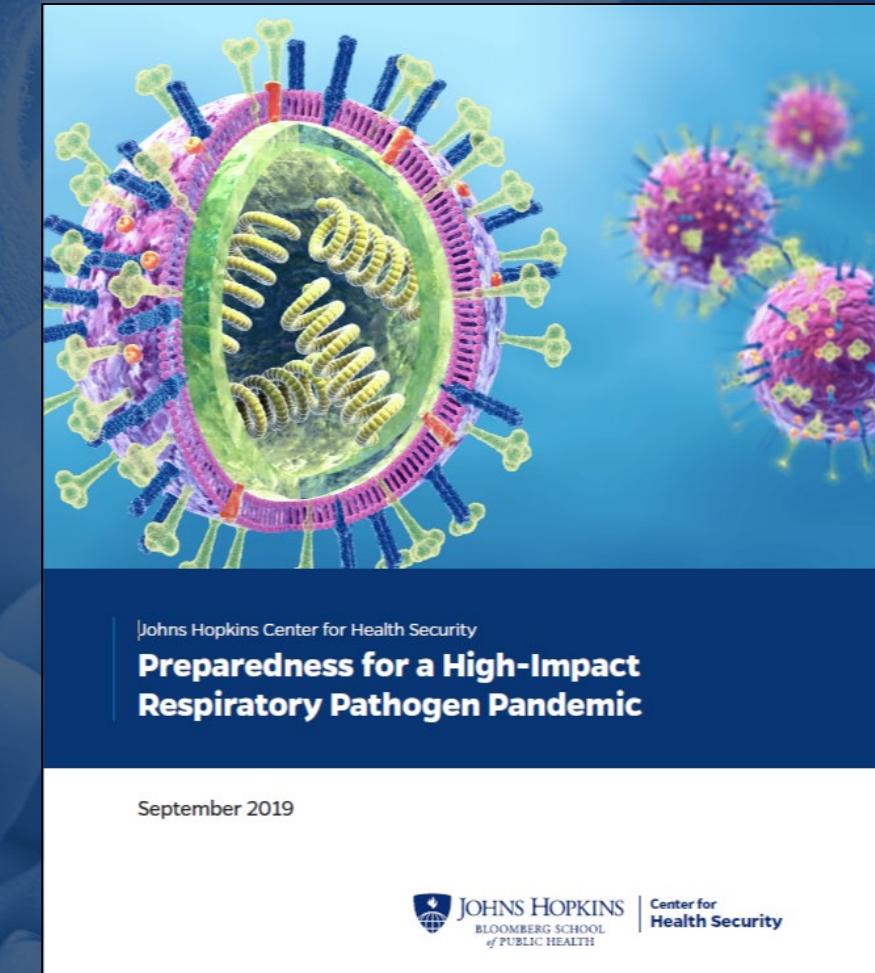
- ▶ Randomized control trial at 4 Ebola treatment centers (ETCs)
- ▶ 4 experimental treatments
 - 3 Ebola antibodies + 1 antiviral medication
- ▶ August 2019 → study halted
 - Two treatments will continue in expanded trial at all ETCs

Mortality rates from 499 patients

- ▶ **REGN-EB3 = 29%***
- ▶ **mAb114 = 34%**
- ▶ **Zmapp = 49%**
- ▶ **Remdesivir = 53%**

**Mortality 6% with early initiation*

Influenza





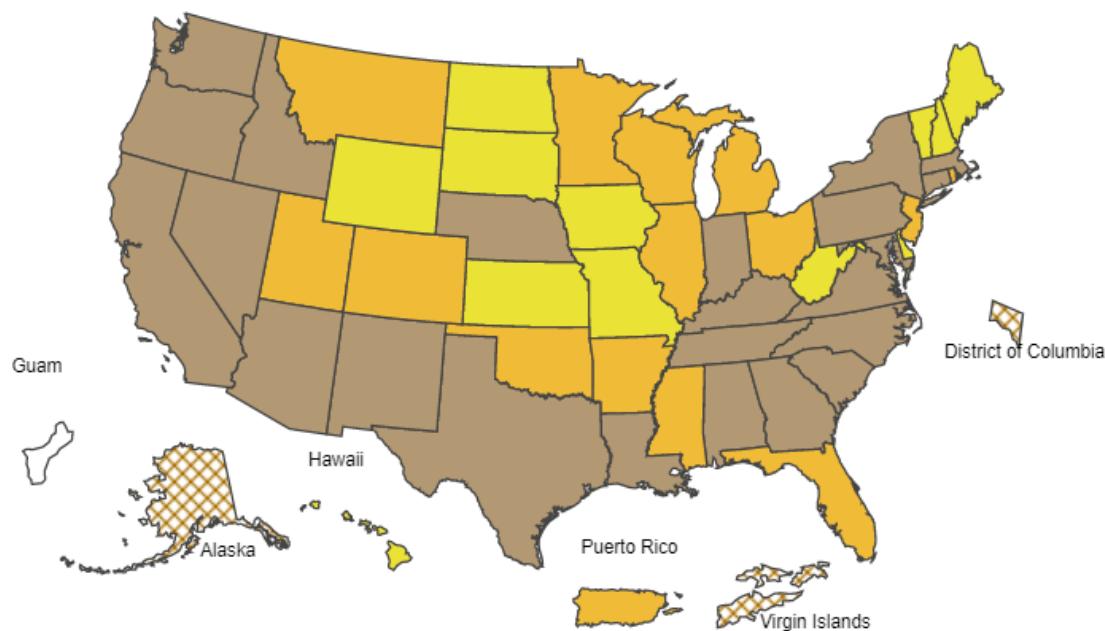
FLUVIEW

CDC

A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending Dec 07, 2019 - Week 49



Influenza Activity Estimates

- No Activity
- Sporadic
- Local Activity
- Regional
- Widespread
- No Report

Flu 2019-2020

- ▶ Early start to season
- ▶ Flu B dominant
- ▶ Current burden estimates an average season

*This map indicates geographic spread and does not measure the severity of influenza activity.



Upcoming exercises and Planning Updates



Upcoming Exercises and Planning Updates

Exercises

- ▶ Regional Ebola transport tabletop,
December 18, 2019
- ▶ DOHMH Full-Scale,
March 9/11/13th 2020
 - Will Include PANYNJ tabletop
- ▶ MPDs

Planning

- ▶ Regional Ebola and Special Pathogen Plan
- ▶ JFK Response planning- MCI infectious disease plan
- ▶ Pan Flu Operational Overview for Healthcare

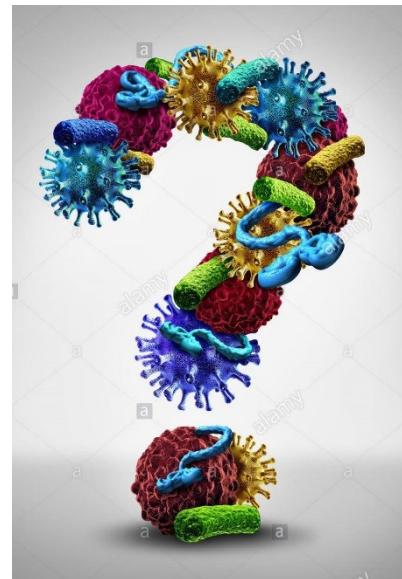


Resources for outbreaks and travel-related illnesses

- ▶ DOHMH *Current New York City, U.S., and International Infectious Disease Outbreaks:*
<https://www1.nyc.gov/site/doh/providers/reporting-and-services-main.page>
- ▶ Travel Clinical Assistant (TCA): dph.georgia.gov/TravelClinicalAssistant
- ▶ CDC Travel Health Notices: www.cdc.gov/travel/notices
- ▶ HealthMap (search for outbreaks by region, state or country): healthmap.org
- ▶ ProMED: promedmail.org
- ▶ NYS Influenza Surveillance:
<https://www.health.ny.gov/diseases/communicable/influenza/surveillance/>



Questions?



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