



# 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





# 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

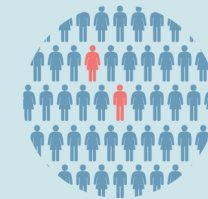
## Measles Can Be Serious



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.



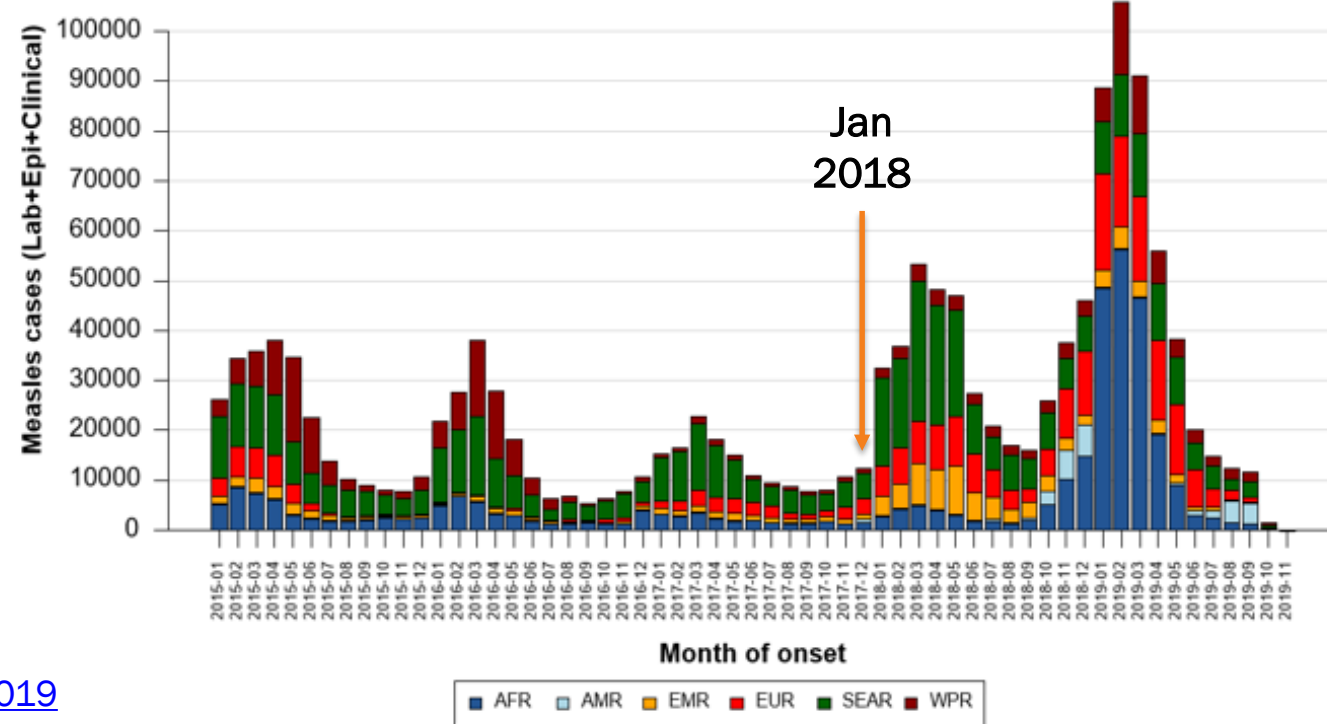
June 13, 2019



# 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





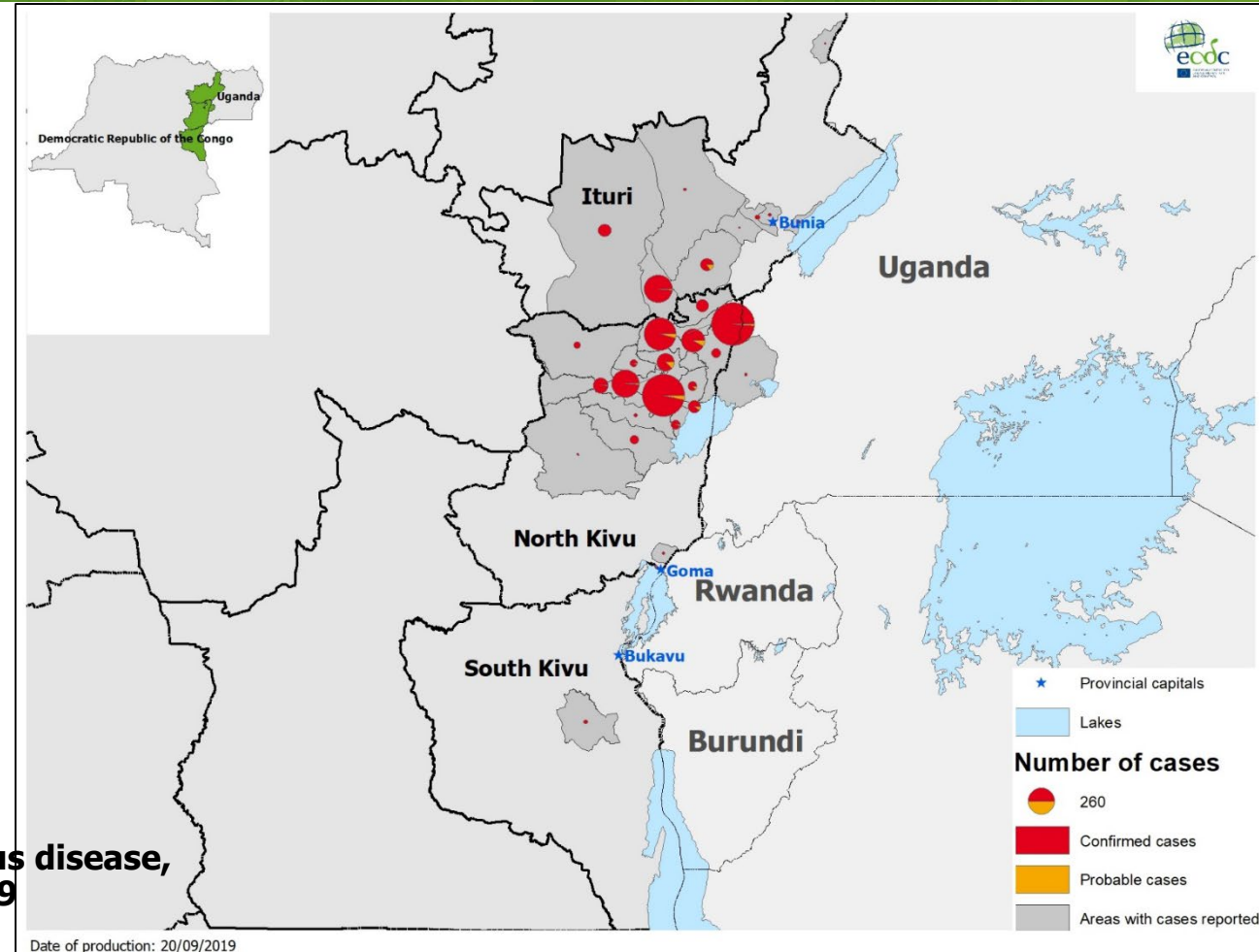


# Ebola Updates

# 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

Geographical distribution of confirmed and probable cases of Ebola virus disease, Democratic Republic of the Congo and Uganda as of 18 September 2019





# 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

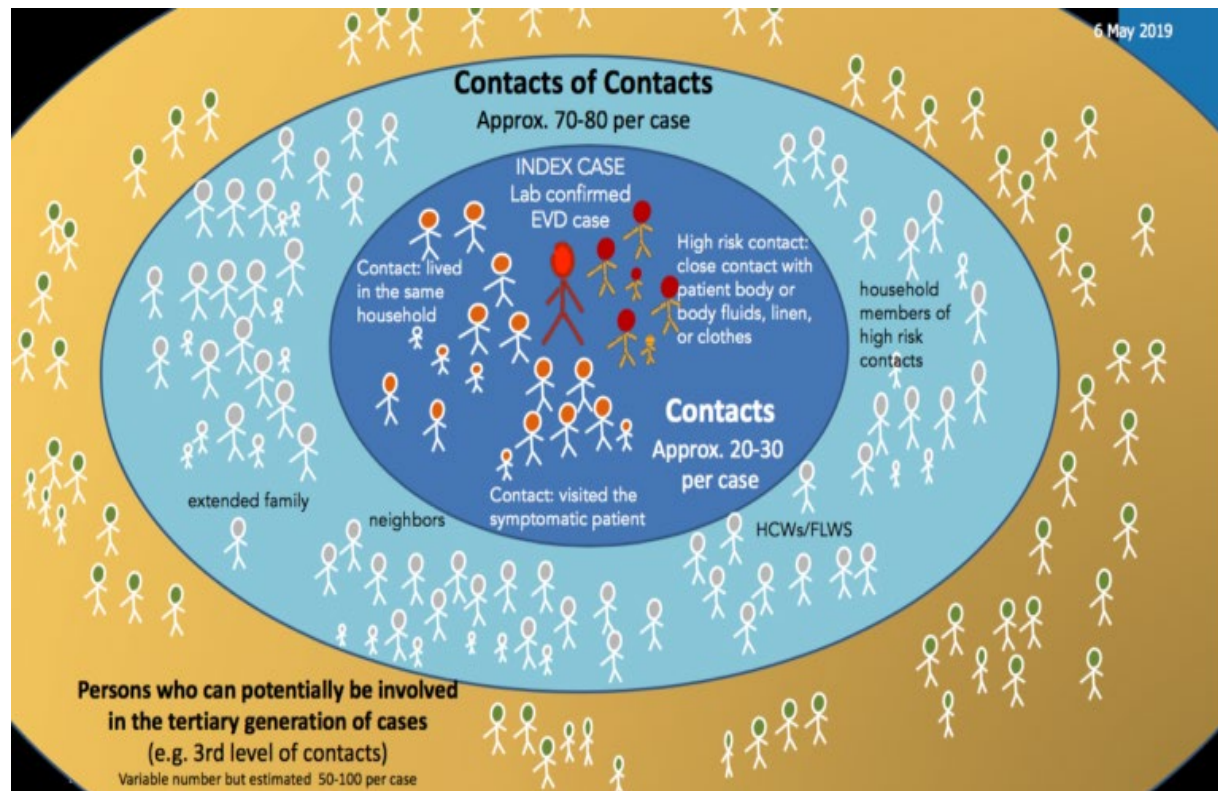
- ▶ Significant breakdown in public health systems
  - Measles immunization rate of 57% in 2018
- ▶ Now the worlds largest outbreak of measles
- ▶ Has caused >5,600 deaths → **more than Ebola**
  - 88% in children <5
- ▶ Symptoms can be confused with Ebola
- ▶ Possible increase in susceptibility to Ebola??



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





# 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

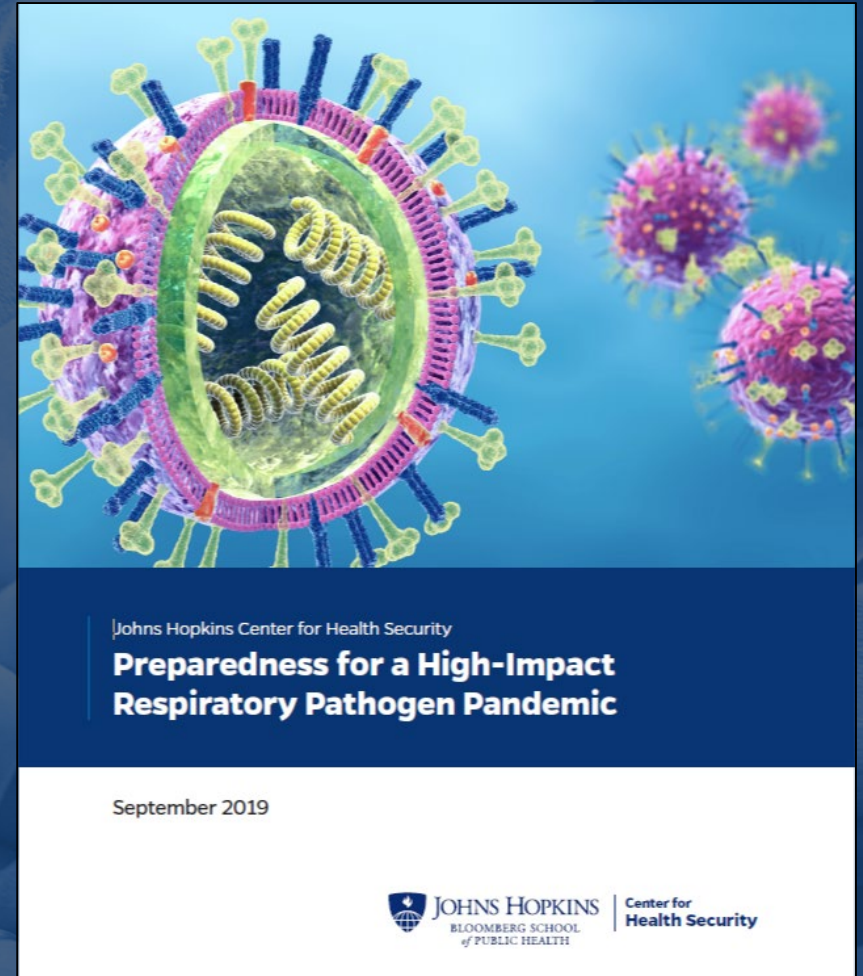
## Mortality rates from 499 patients

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

*\*Mortality 6% with early initiation*



# Influenza

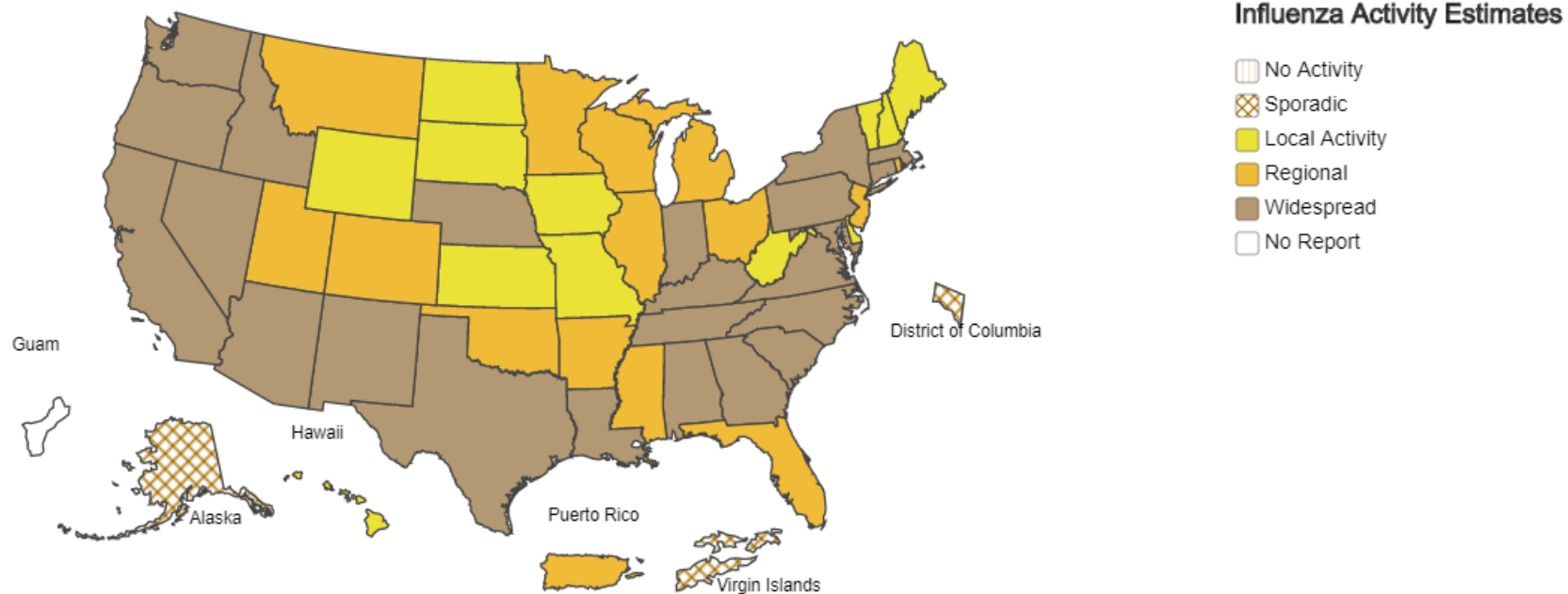




## A Weekly Influenza Surveillance Report Prepared by the Influenza Division

Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists\*

Week Ending Dec 07, 2019 - Week 49



## 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 9/11/13<sup>th</sup> 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



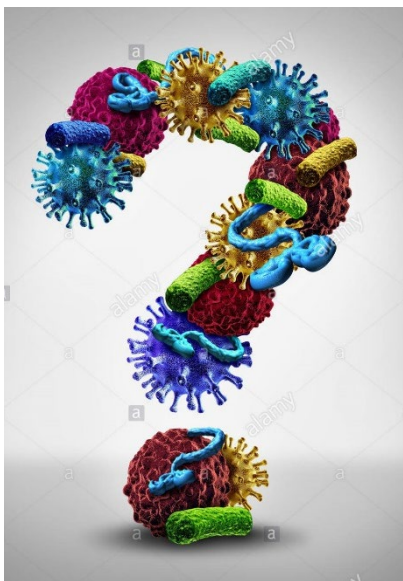


# Resources for outbreaks and travel-related illnesses

- ▶ 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](http://dph.georgia.gov/TravelClinicalAssistant)
- ▶ CDC Travel Health Notices: [www.cdc.gov/travel/notices](http://www.cdc.gov/travel/notices)
- ▶ HealthMap (search for outbreaks by region, state or country): [healthmap.org](http://healthmap.org)
- ▶ ProMED: [promedmail.org](http://promedmail.org)
- ▶ NYS Influenza Surveillance: <https://www.health.ny.gov/diseases/communicable/influenza/surveillance/>



# Questions?



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