



Initial Management of Infectious Diseases of Public Health Concern

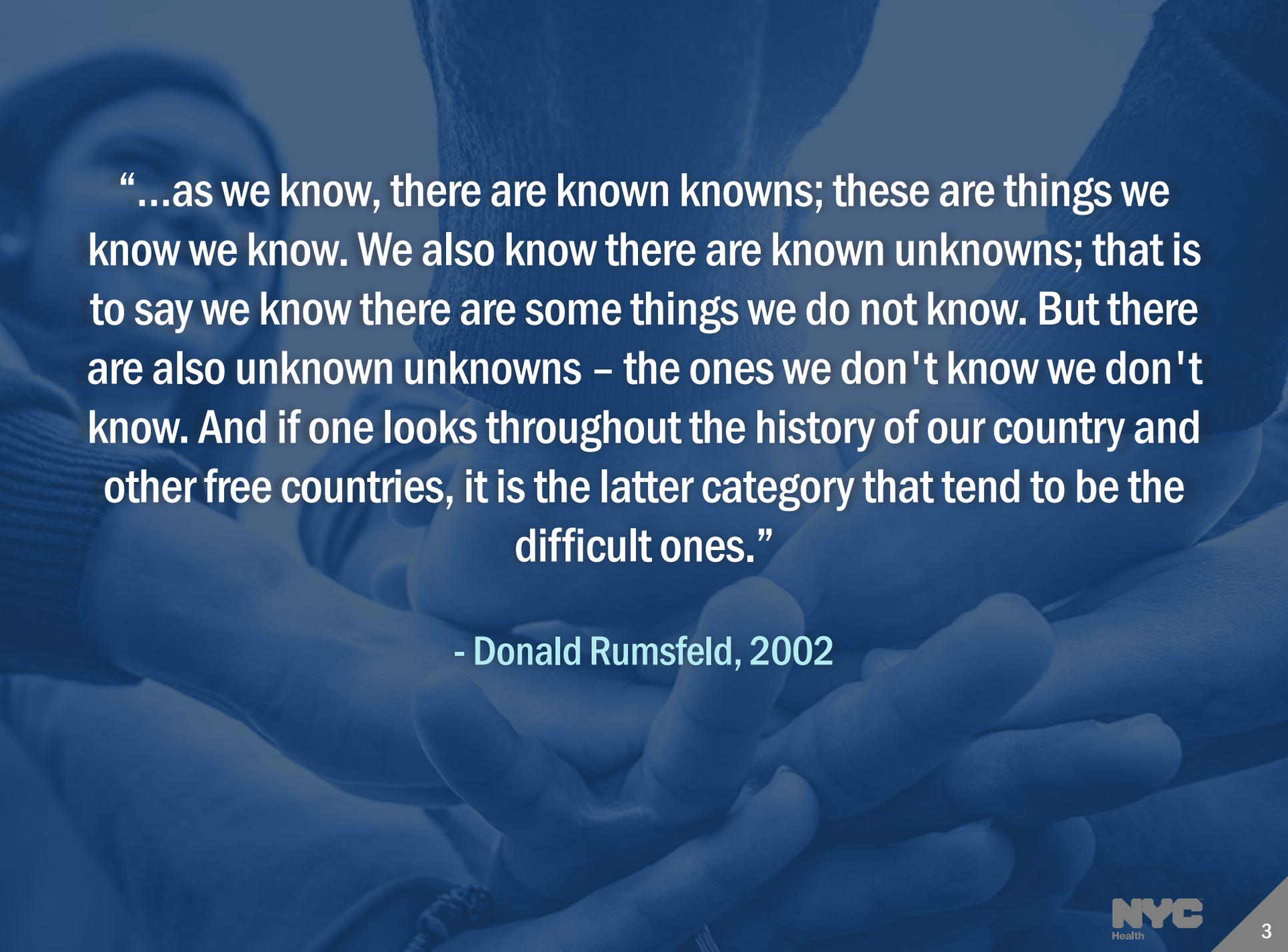
EBOLA AND OTHER INFECTIOUS BADNESS

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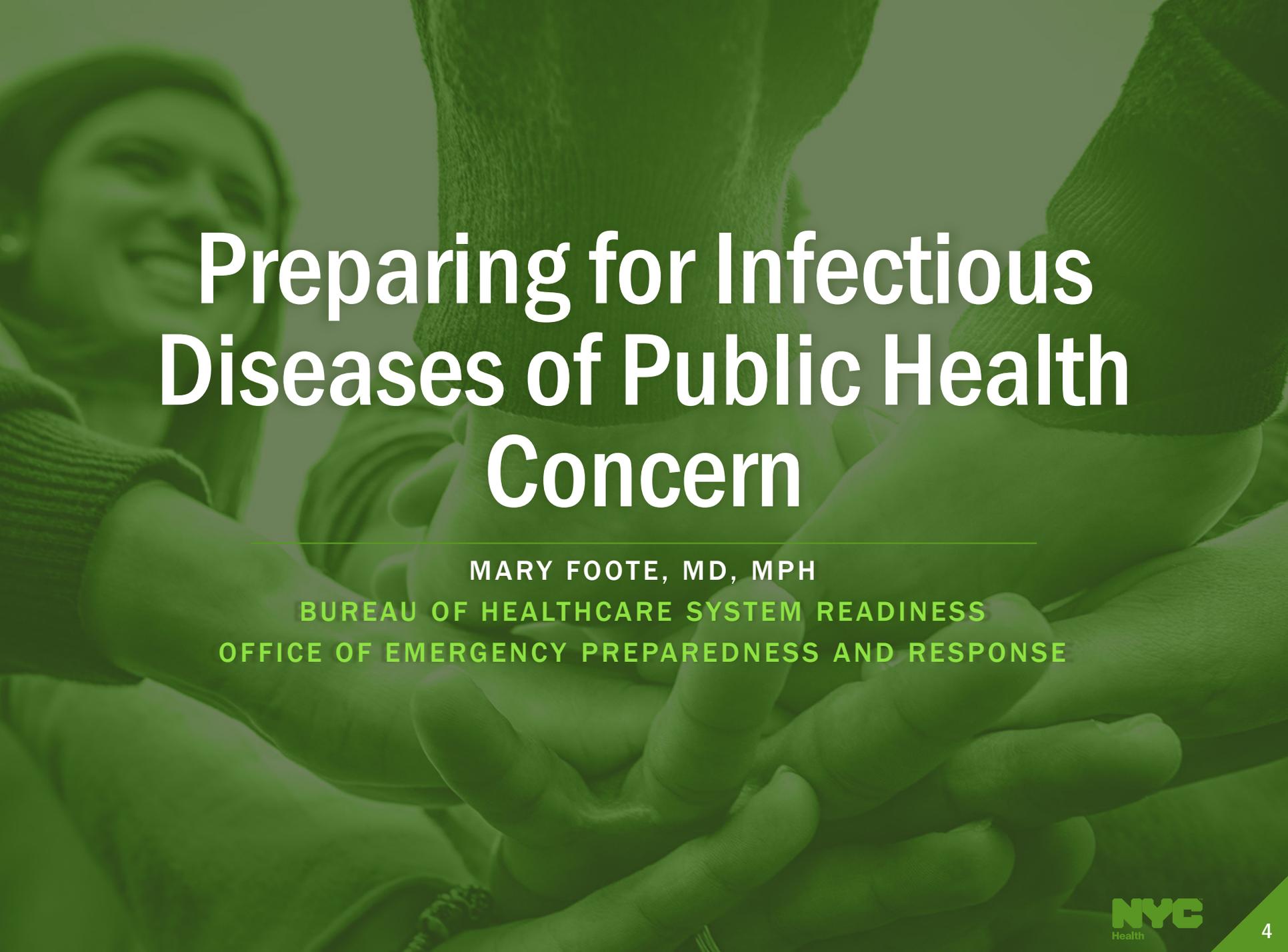
Outline

- ▶ **Recent infectious disease responses**
 - Lessons learned
- ▶ **Infection control and healthcare preparedness**
- ▶ **Patient screening and isolation**
- ▶ **Management of other “special pathogens”**



“...as we know, there are known knowns; these are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.”

- Donald Rumsfeld, 2002



Preparing for Infectious Diseases of Public Health Concern

MARY FOOTE, MD, MPH

BUREAU OF HEALTHCARE SYSTEM READINESS
OFFICE OF EMERGENCY PREPAREDNESS AND RESPONSE

New York City = High Risk

Regional Transportation Hub

- ▶ 1.4M people commute into Manhattan
- ▶ 4.9M ride the subway each work day

International Transportation Hub

- ▶ 2 international airports
- ▶ 100 million travelers annually

International Icons/Landmarks

- ▶ Statue of Liberty, United Nations, Empire State Building, World Trade Center, etc.

Large Planned Events

- ▶ United National General Assembly, New Year's Eve, Thanksgiving Day Parade, 2014 Super Bowl, other sporting events.



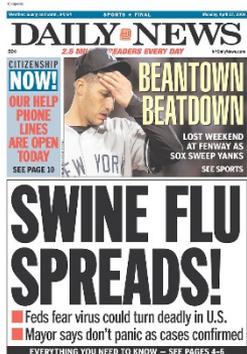
What have we worked on?



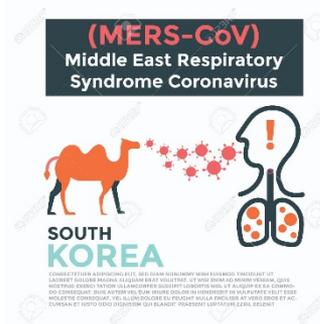
Bioterrorism
2001



SARS 2003



“Swine Flu”
(H1N1) 2009



MERS-CoV
2012—present



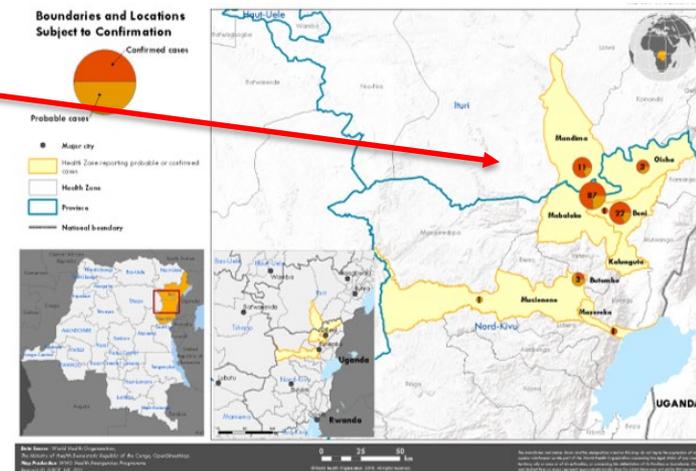
Ebola 2014



Zika 2015

Ebola hasn't gone away

- ▶ **2 recent outbreaks in DRC**
 - one ongoing in northeast
- ▶ **Robust international response but significant challenges**
 - **Conflict zones, porous border region,** community resistance, healthcare transmission (19 HCW cases)
- ▶ **Cases (likely + confirmed) = 216**
 - Deaths = 139 (64% CFR)
- ▶ **WHO meeting today to assess**



Confirmed and probable Ebola virus disease cases by health zone in North Kivu and Ituri provinces, DRC

Measles

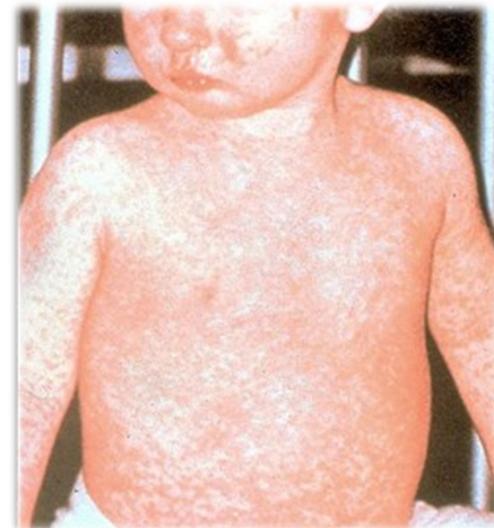
▶ Current outbreak in NYC/NYS

- Travel to Israel or contacts
- NYC = 6 cases (orthodox community)
- NYS = 7 cases

▶ 1st NYC cased not initially recognized

- Was not isolated in ED for ~12 hrs
- Significant efforts required to manage exposures

▶ Highlights importance of **screening for fever + rash at points of entry**





What Other Outbreaks Have Been Reported?

- ▶ **NYC:** WNV, Legionnaires' disease, r/o MERS
- ▶ **US:** Salmonellosis, hepatitis A, murine typhus, acute flaccid myelitis, listeriosis
- ▶ **Central/South America and Caribbean:** dengue, chikungunya, malaria, cholera, diphtheria
- ▶ **Europe:** WNV, Legionnaires' disease, tick-borne encephalitis
- ▶ **Mideast:** Leptospirosis, MERS, cholera, diphtheria
- ▶ **Asia:** dengue, chikungunya, malaria, leptospirosis, CCHF, Japanese encephalitis, diphtheria, avian influenza (H5N6)
- ▶ **Africa:** cholera, monkeypox, lassa fever, EVD, YF, chikungunya, typhoid



The Landscape has Changed

- ▶ **2014 Ebola Outbreak was a harbinger of thing to come**
- ▶ **Disease patterns are changing**
 - Increased likelihood of previously isolated outbreaks to have wider impact
 - Travel much easier
 - World economy reliant on import/export
 - More human interface with the natural world



Ongoing health system Preparedness

EBOLA AND BEYOND

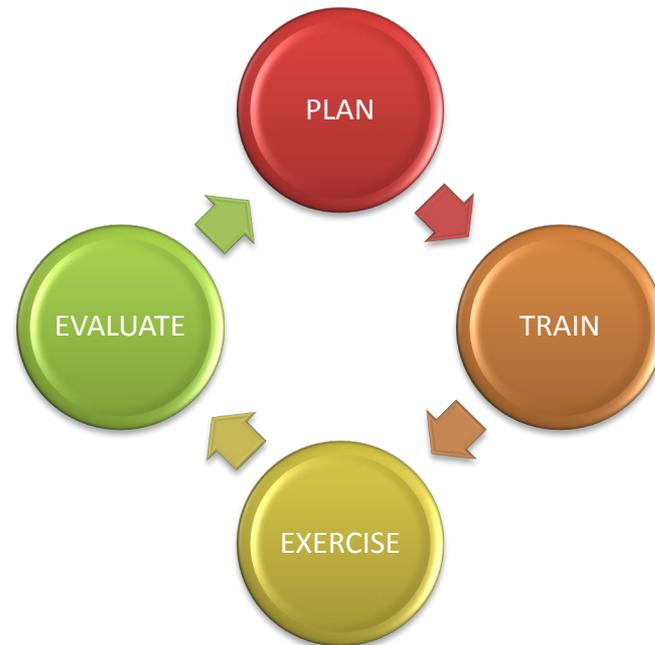


Healthcare System Preparedness Goals

- ▶ Prepare to **detect** in hospitals or clinics
 - Surveillance
 - Laboratory Reporting
 - Screening protocols
- ▶ Prepare to **protect** the public, patients and healthcare workers
 - Guidance, Plans and Protocol Development
- ▶ Prepare to **respond** → **Communicate – Coordinate – Collaborate**
- Train & Exercise
- Coordination between public health and healthcare is critical

How do you get ready and stay ready?

- ▶ **Back to the basics...Infection Control!**
- ▶ **Preparedness cycle**
 - Plan
 - Train
 - Test/Exercise
 - Evaluate





Strengthening Infection Control



Even strong healthcare systems are vulnerable
16% of MERS cases occurred in healthcare workers

Ebola was a story about Infection Prevention and Control

S. Korea MERS outbreak: 2nd hospital closed, interest rate cut

By Tim Hume, KJ Kwon, Sol Han and Jung-eun Kim, CNN
Updated 11:58 PM ET, Thu June 11, 2015



Top stories

- Woman kills herself over sex tape
- Clinton slams Trump's demagogic rhetoric

PRESIDENTIAL TOWN HALL:
AMERICA'S MILITARY AND THE COMMANDER IN CHIEF

WEDNESDAY 8P



Infection Control as a Tool for Preparedness

Elevating everyday infection control practices

- ✓ Reduce risk of outbreaks
- ✓ Protect patients and staff
- ✓ Decrease spread of infections between healthcare settings and community
- ✓ Support ‘all infectious hazard’ preparedness
 - Pandemic-flu vs. seasonal flu
 - *tools are the same!*



Planning

- ▶ **Plans don't need to be pathogen specific**
 - Can focus on groups with common characteristics
 - E.g Ebola-like, airborne transmission, droplet transmission, etc.
- ▶ **Planning should be interdisciplinary**
 - Infection control, medical, admin, environmental, facilities, emergency management, etc.
- ▶ **Utilize quick reference tools**
 - Checklists, algorithms, job action sheets, etc.



Ebola Virus Disease (EVD) Evaluation Algorithm

(Last updated September 3, 2014)

FEVER ($\geq 101.5^{\circ}\text{F}$) *and* compatible symptoms* for EVD in patient who has traveled to an Ebola affected area** in the 21 days before illness onset.

* Severe headache, myalgias, vomiting, diarrhea, abdominal pain or unexplained hemorrhage

No

No need to call NYC DOMH. Advise patient to continue to check temperature daily until 21 days after return from Africa. Consult with a physician at the first sign of illness

Yes

1. Isolate patient in single room with private bathroom.
2. Implement standard, contact and droplet precautions.
3. Identify any risk exposures for EVD
4. Notify appropriate hospital staff, including Infection Control Program
5. IMMEDIATELY report to New York City Department of Health (NYC DOH) at 1-866-692-3641

HIGH-RISK EXPOSURE

- Percutaneous, mucous membrane or direct skin contact with blood or body fluids from a confirmed or suspected EVD patient without appropriate PPE

OR

- Laboratory handling of body fluids from a confirmed or suspected EVD patient without appropriate PPE or biosafety precautions

OR

- Participation in funeral rites which include direct exposure to human remains in the geographic area where outbreak is occurring without appropriate PPE

LOW-RISK EXPOSURE

- Healthcare workers in facilities that have treated confirmed or suspected EVD patients

OR

- Household members or others with direct contact to confirmed or suspected EVD patient

NO KNOWN EXPOSURE

- Residence or travel to affected areas** without HIGH or LOW-risk exposure

Review Case with NYC DOHMH Using Additional Evaluation Criteria:

- Severity of illness
- Abnormal blood work:
 - Platelet count $< 150,000/\mu\text{L}$
 - Elevated hepatic transaminases
 - Abnormal coagulation studies
- Possible or likely alternative diagnosis

EVD SUSPECTED-TESTING INDICATED

- NYC DOHMH will arrange specimen transport and testing at Public Health Laboratory and CDC
- NYC DOHMH, in consultation with New York State DOH and CDC, will provide guidance to hospital on all aspects of patient care and management,

EVD Unlikely, Testing Not Currently Indicated

If patient requires in hospital management:

- Admit to single patient room with private bathroom
- Implement standard, contact, and droplet infection control precautions
- Evaluate for other likely illnesses, e.g., malaria and typhoid fever
- Observe clinical course for 24-48 hours and if patient has improved or an alternate diagnosis is made then EVD ruled out
- If patient's symptoms progress, re-assess need for testing with NYC DOH

If patient does not require in hospital management

- Alert NYC DOHMH prior to discharge to arrange home isolation and monitoring by NYC DOMH to ensure symptoms improve.

** CDC Website to check current affected areas: www.cdc.gov/ebola



Training

- ▶ **Job-specific** based on expected roles during response
- ▶ **Competency-based training** is ‘gold standard’
 - Allows learner to demonstrate knowledge and/or ability
 - Aided by checklists, job-action sheets, etc.
- ▶ **Skills-based**
 - Hands-on training with demonstration of competency
- ▶ **Knowledge-based**
 - Can utilize quizzes, scenario-based discussions, etc.
- ▶ **Annual competencies vs. just-in time**



Infectious Disease Exercises

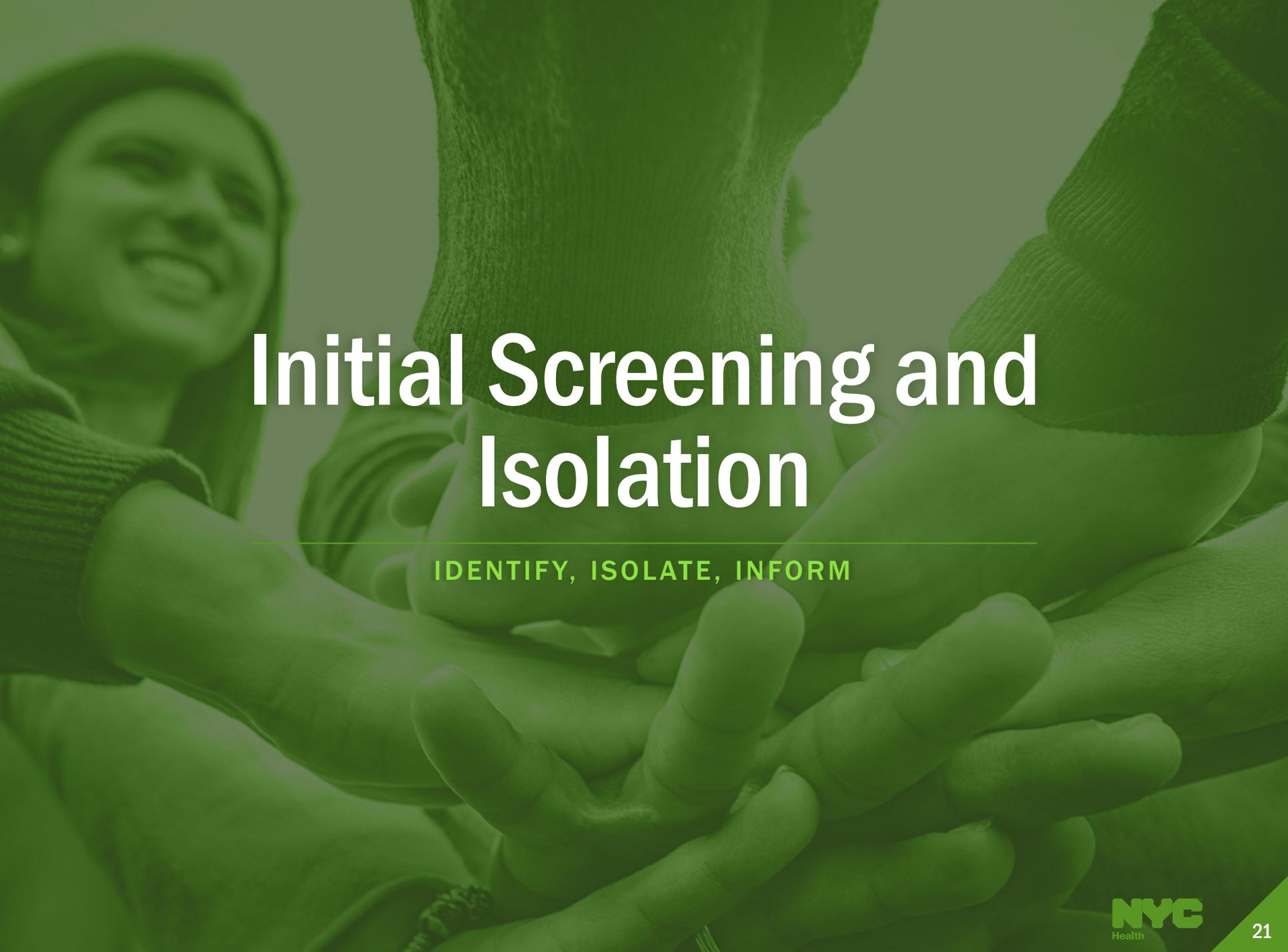


- ▶ Opportunity to test protocols and staff competencies
- ▶ Often led by emergency management → **Infection control involvement is crucial**
- ▶ All NYC hospital networks have required annual exercises
 - Have tested VHF, coronaviruses, avian influenza
- ▶ DOHMH programs supports **primary care** and **long-term care** exercise programs
 - Often have ID focus



Mystery Patient Drills

- ▶ Test screening and isolation protocols and capabilities
- ▶ DOHMH conducted unannounced “mystery patient drills” (MPD) (2016)
 - 98 drills in 50 NYC Emergency Departments
- ▶ Two scenarios
 - Fever + travel + respiratory = **MERS**
 - Fever + travel + rash = **measles**
- ▶ MPD Toolkit (<http://on.nyc.gov/IDPrep>)
- ▶ Commissioner’s Order still in effect **requiring annual ID drills**
 - <https://www.health.ny.gov/diseases/communicable/ebola/>



Initial Screening and Isolation

IDENTIFY, ISOLATE, INFORM



“Identify, Isolate and Inform”

Consequences when there is a “miss”

- ▶ SARS in Toronto
- ▶ Ebola in W. Africa
- ▶ Ebola in Dallas
- ▶ MERS in KSA and S. Korea

***Early screening and rapid implementation of infection control measures are key**



Screening in Acute Care Settings

- ▶ Aim to quickly identify potentially infectious patients
 - implement source control
 - reduce transmission to staff and patients
 - “Mask first, ask questions later”
- ▶ Start with identifying
 - Points of entry into your facility/system
 - Staff most likely to have initial contact with patients
 - Best screening tool (e.g. electronic medical record, paper, etc.)

Screening and Isolation Protocols

- ▶ Develop **simple algorithms** with clear **triggers** and **actions**
- ▶ Screen based on febrile syndromes
 - fever + respiratory, fever + rash
 - Don't forget travel history
 - **Keep staff informed of significant outbreaks and where they can look for more information**
- ▶ **Ensure supplies are available to staff and patients**
 - Masks, hand sanitizer, disinfectant wipes, trash bins
- ▶ **Easily visible signage**

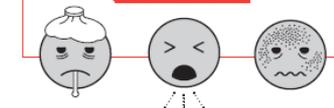
ATTENTION ALL PATIENTS

IF YOU

recently traveled internationally or had close contact with someone who recently traveled internationally and was ill,



AND YOU HAVE



fever, cough, trouble breathing, rash, vomiting or diarrhea,

PLEASE TELL STAFF IMMEDIATELY!

NYC

High Consequence Infectious Disease (HCID) Screening Guidance

All patients should be screened for cough, respiratory symptoms, fever, rash, and travel

Symptom questions: ^a

1. New cough, other respiratory symptoms?
2. Recent fever or fever documented at the health care facility?
3. New rash?

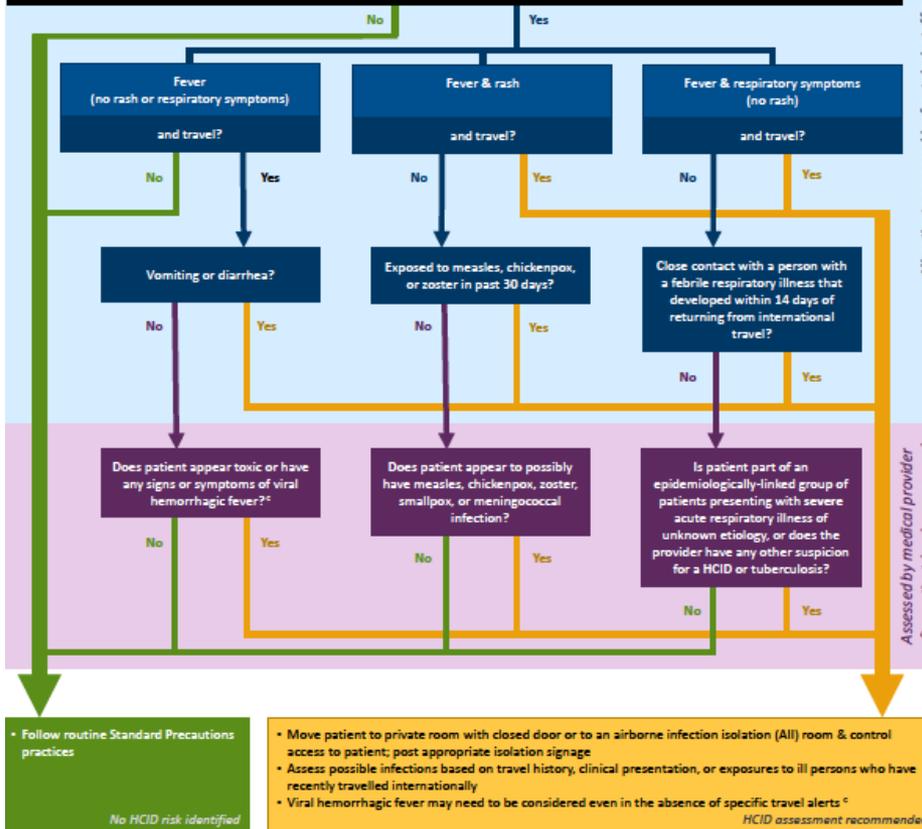
Travel question: ^a

Did patient travel internationally during the past 30 days?

Determine need for respiratory etiquette: Implement and maintain respiratory etiquette ^b measures throughout remainder of health care encounter for all patients with either:
1) cough or other respiratory symptoms, or 2 & 3) fever & rash

Record presence or absence of travel, including destinations and dates in chart

Subjective or documented fever?



All patients assessed by front desk staff or triage nurse

Assessed by medical provider after patient has been roomed



651-201-5414 | 1-877-676-5414
www.health.state.mn.us

- For patients with recent travel, check for travel health notices:
- Travel Clinical Assistant (TCA): dph.georgia.gov/TravelClinicalAssistant
 - CDC Travel Health Notices: wwwnc.cdc.gov/travel/notices
 - WHO Disease Outbreak News: www.who.int/csr/don/en/

Suspect HCID or other highly infectious disease?

Yes

1. Implement airborne (or droplet for meningococcal disease or plague) and contact precautions & control access to patient
2. Consider additional precautions: PPE for front desk staff, triage nurse, etc.

Outpatient

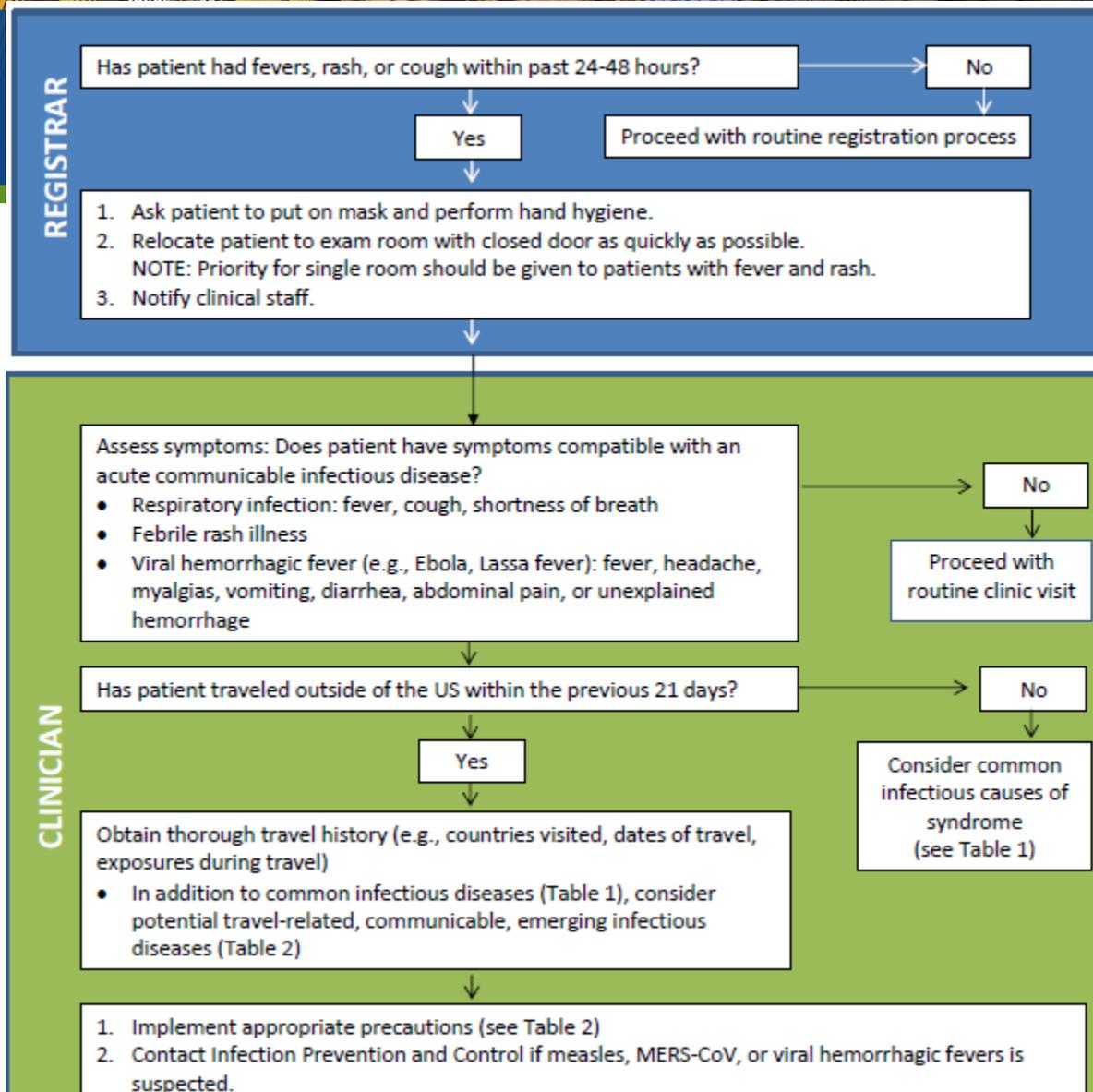




Table 2: Examples of travel-related communicable diseases

Recent travel destination	Symptoms, signs	Emerging Infectious Disease(s) to Consider	Infection Control Precautions
China, Southeast Asia	Respiratory infection	Avian or other novel influenza virus <i>(risk factor: exposure to poultry and/or live animal markets)</i>	Airborne, ¹ contact, and droplet isolation
Middle East/Arabian Peninsula	Respiratory infection	MERS-CoV	Airborne, ¹ contact, and droplet isolation
West or Central Africa	Symptoms and/or signs compatible with viral hemorrhagic fever	Ebola, Lassa Fever, other viral hemorrhagic fever (e.g., Marburg)	Implement Ebola protocol ²
Any foreign travel	Febrile rash illness	Measles	Airborne isolation ¹



Screening Considerations in Long-Term Care

- ▶ **Screen patients for infectious diseases**
 - New patients and re-admissions after hospitalizations
 - Anticipate infection control or isolation needs
- ▶ **Standardize data collection/sharing processes**
 - E.g. Interfacility transfer forms
- ▶ **Focus on high-risk transmissible diseases and report**
 - Respiratory infections (e.g. influenza)
 - Antibiotic resistant infections (e.g. *c. auris*, carbapenem-resistant *Enterobacteriaceae*)
- ▶ **Visitor screening at points of entry**



Resources

- ▶ DOHMH now providing regular updates of current outbreaks in NYC and around the world: <https://www1.nyc.gov/site/doh/providers/reporting-and-services-main.page>
 - NYC Health Alerts: <https://www1.nyc.gov/site/doh/providers/resources/health-alert-network.page>
- ▶ You can also refer to the following sites for country specific outbreak information
 - ProMed: <https://www.promedmail.org/>
 - Travel Clinical Assistant: <https://dph.georgia.gov/TravelClinicalAssistant>
 - Healthmap: <http://www.healthmap.org/en/>
 - CDC: cdc.gov/outbreaks
- ▶ **DOHMH Provider Access Line: 1-866-692-3641**



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Reporting & Services | Health Topics | Resources | Emergency Prep

- NYCMED

- Reporting Diseases & Conditions

- Reporting Central

- Citywide Immunization Registry (CIR)

- Electronic Vital Events Registration (EVERS)

- Public Health Lab

Health Care Providers

The Health Department offers a wide variety of resources for health care providers. Learn about reporting platforms and services at both the city and federal level in this section. Call the **NYC Provider Access Line** at 1-866-692-3641 for immediate consultation on public health issues.

Current New York City, United States, and International Infectious Disease Outbreaks

- [Current Infectious Disease Outbreaks for NYC Providers](#) (PDF)
- [Infectious Disease Outbreaks for NYC Providers, August 24, 2018](#) (PDF)
- [Infectious Disease Outbreaks for NYC Providers, August 10, 2018](#) (PDF)

Sign-Up For a NYCMED Account

NYCMED provides members with current information about the City's ever-changing health landscape, including alerts, advisories and updates. It is the point of entry for providers to access many applications, including reporting portals such as Reporting Central, Citywide Immunization Registry (CIR), and Electronic Vital Events Registration System (EVERS).

<https://www1.nyc.gov/site/doh/providers/reporting-and-services-main.page>

Current Infectious Disease Outbreaks for NYC Providers

(The first and last items are in each section are, in our opinion, the most and least likely, respectively, to present in New York City)

New York City

West Nile Virus – As of September 6, more than 840 mosquito pool samples from over 90 locations have tested positive for West Nile virus (WNV). Most have been in Queens, followed by Staten Island, Bronx, Brooklyn, and Manhattan. Two and 9 cases of West Nile fever and West Nile neuroinvasive disease have been reported in 2018, respectively. Three blood donors also were found to be infected with West Nile virus.

[New York City Health Department Provider Webpage: West Nile virus reports, results, and summaries \(2018 positive results summary\)](#)

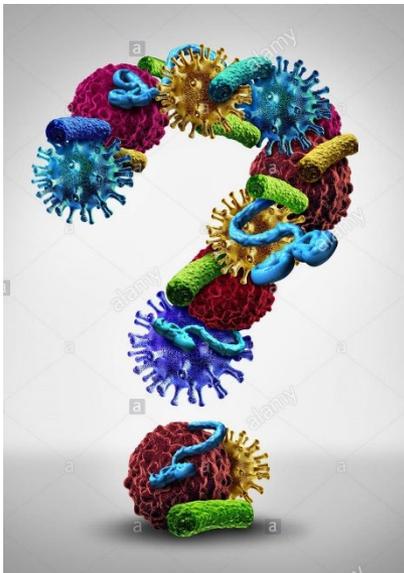
***Respiratory Disease in Travelers to Saudi Arabia** – From August 28 to September 6, DOHMH received a total of 20 calls, regarding 29 travelers who had been in Saudi Arabia for, in most cases, the Hajj. Most only traveled to the Jeddah-Mecca-Medina area where MERS infection has not been detected for months, though a few cases without known camel exposure have been reported from the central Qaseem Region between Riyadh and Median. Most patients had mild upper respiratory disease without respiratory difficulty. Often a family member also had similar symptoms. Influenza A and rhinovirus/enterovirus have been detected in multiple patients. Eleven persons have been tested for MERS-CoV, and all have been negative.

[Ministry of Health Portal: National Events – Epidemic Weeks of 2018](#)

United States

Cyclosporiasis (Multistate) – The Centers for Disease Control and Prevention (CDC) and state health departments are investigating an outbreak of cyclosporiasis linked to consumption of McDonald's salads. As of August 23, a total of 507 confirmed cases of *Cyclospora* infection have been reported from 15 states (Illinois, Iowa, Minnesota, Missouri, Nebraska, South Dakota, Wisconsin, Ohio, Indiana, Michigan, Kentucky, Florida, Virginia, Tennessee, and Connecticut) and in NYC (1), including 24

Questions?



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