Special Pathogens Preparedness

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NYC HEALTH + HOSPITALS

Background

- Largest municipal healthcare delivery system in the U.S.
  - 11 hospitals, 7 ambulatory care sites, 5 post acute care sites
  - Safely & successfully treated NYC's single confirmed Ebola patient at NYC Health + Hospitals / Bellevue
  - One-of-a-kind, emergency management-based system-wide Special Pathogens Program
  - Expanding reach via Center for Global Healthcare Preparedness for Special Pathogens

Ready or not, patients will present

- All hospitals must be prepared to ***identify*** and ***isolate*** a patient presenting with a suspected special pathogen infection and ***inform*** internal and external stakeholders.

Focus on the frontlines

- High-level planning guidance for frontline hospital multidisciplinary clinical, operational & financial teams
  - Emergency Management
  - Infection Prevention
  - Emergency Department
  - Inpatient Care
  - Public Relations

Planning Assumptions & Considerations

- The hospital has
  - All-hazards, CMS- and TJC-compliant emergency management program
  - Infection prevention & control program
  - Respiratory protection program, including use of N-95 respirators

Resources: Staff, Stuff, Space, Systems

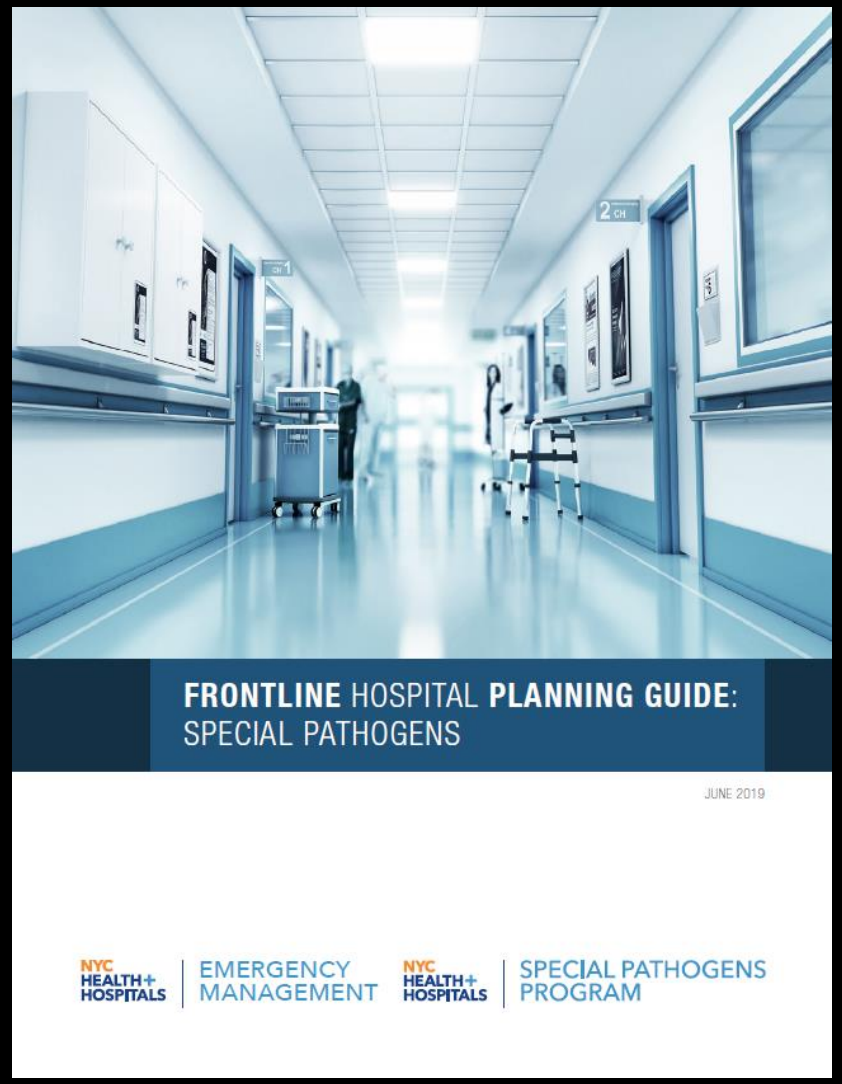
- Staff
  - Sufficient numbers & demonstrated competencies
- Stuff
  - PPE; durable equipment & expendable supplies
- Space
  - Negative airflow rooms; donning / doffing locations
- Systems
  - Notifications; EHR integration; Hospital Incident Command System (HICS)

Conducting the Orchestra: Partnering in the Healthcare Emergency Management Context

- Hospital Incident Command System (HICS)
  - Clinical, operational & financial leads
    - CEO, COO, CMO, CNO, CFO
- Local partners
  - Healthcare coalition, emergency management, EMS, law enforcement, medical examiner
  - State health department

Maintaining Readiness for Special Pathogens

- Frontline Hospital Planning Guide for Special Pathogens
- Continuous drills and exercises with varying scope and complexity centered on special pathogens
- Frontline Facility Special Pathogens Training
- NYC Health + Hospitals Center for Global Healthcare Preparedness for Special Pathogens



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2018-2019 DRC Ebola Outbreak

DRC Ebola Situation Report

- 8/1/2018: DRC declared new EVD outbreak in North Kivu Province
- 2816 EVD cases (8/10/19)
  - 1888 deaths (67% mortality)
  - 28% < 18 yo
  - ~40% new cases are community deaths each week
- 149 HCWs with EVD, 41 deaths
- >200,000 vaccines given
- Cases identified in Uganda and near borders of Rwanda & South Sudan
- Declared Public Health Emergency of International Concern on July 17th

Current studies in DRC

- 4 arm, randomized clinical trial
- Zmapp™ (MappBio)
  - 3 anti-Ebola antibodies
- Remdesivir (Gilead Sciences)
  - antiviral nucleotide analog prodrug
- MAb114 (Merck)
  - Human IgG1 MAb targeted to the Zaire ebolavirus (EBOV) glycoprotein (GP)
- REGN-EB3 (Regeneron)
  - 3 anti-Ebola antibodies
- All arms receive standard of care

Ring Vaccination strategy (rVSV*Δ*G-ZEBOV-GP)

- Vaccinating people that have been in contact with confirmed cases
- Vaccinating health care workers that will likely have contact with Ebola infected patients
- Then vaccinating people around these groups
- This creates a protective ring, or buffer zone, to prevent spread of the the infection

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NIH National Institute of Allergy and Infectious Diseases

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Independent Monitoring Board Recommends Early Termination of Ebola Therapeutics Trial in DRC Because of Favorable Results with Two of Four Candidates

August 12, 2019

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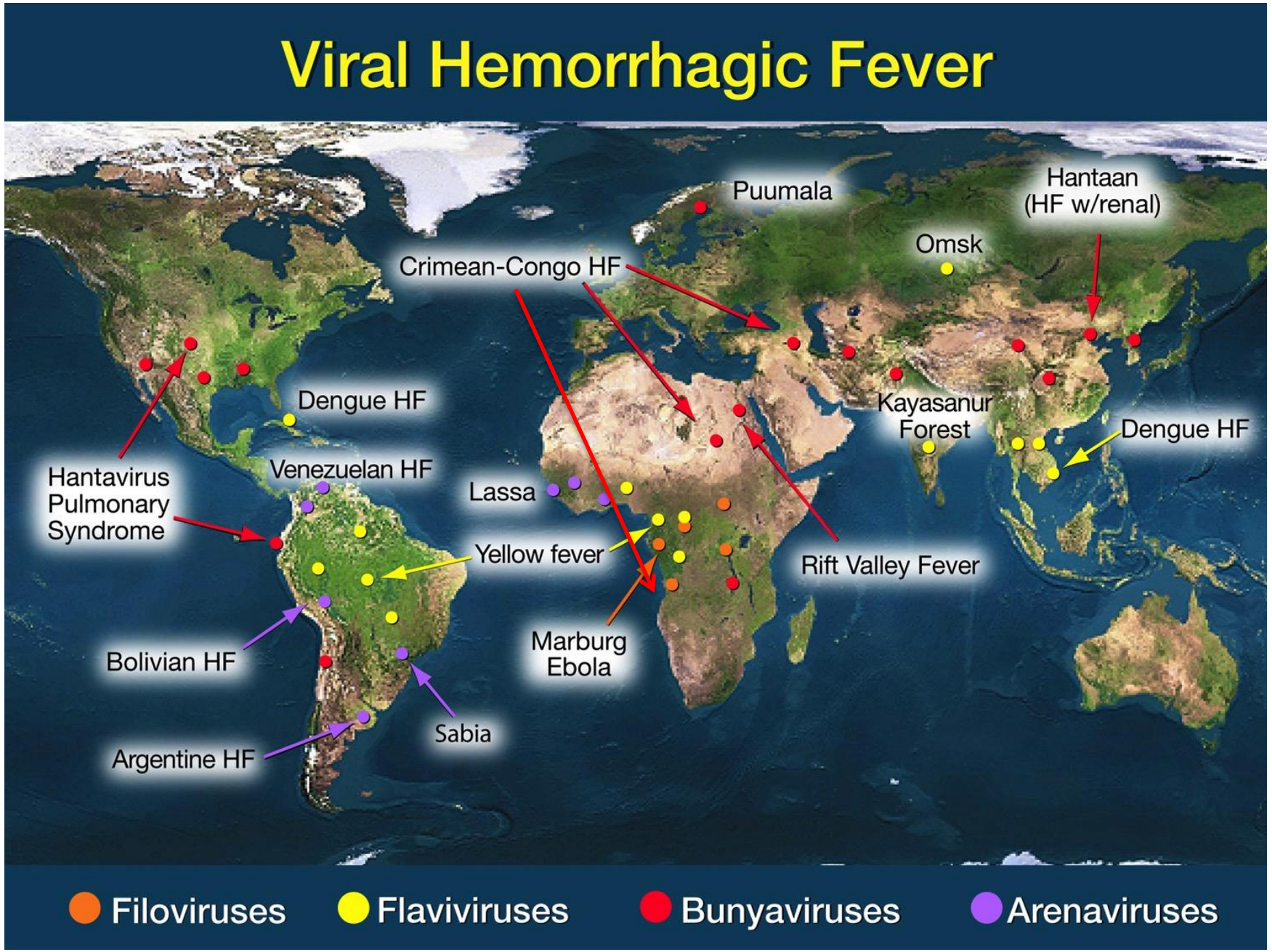
Lassa fever

- Large ongoing outbreak in Nigeria
- 622 cases since Jan
- 140 deaths

CCHF

- Pakistan, Iran, Afghanistan, South Africa, Uganda



MERS-CoV

- 2449 cases since 2012; 84% in Saudi Arabia
- 219 cases in 4 countries since June 2018: Saudi Arabia (204), Oman (13), South Korea (1), UK (1)
- 97 secondary cases reported:
  - 52 linked to transmission in hospitals
  - 23 infections in healthcare workers

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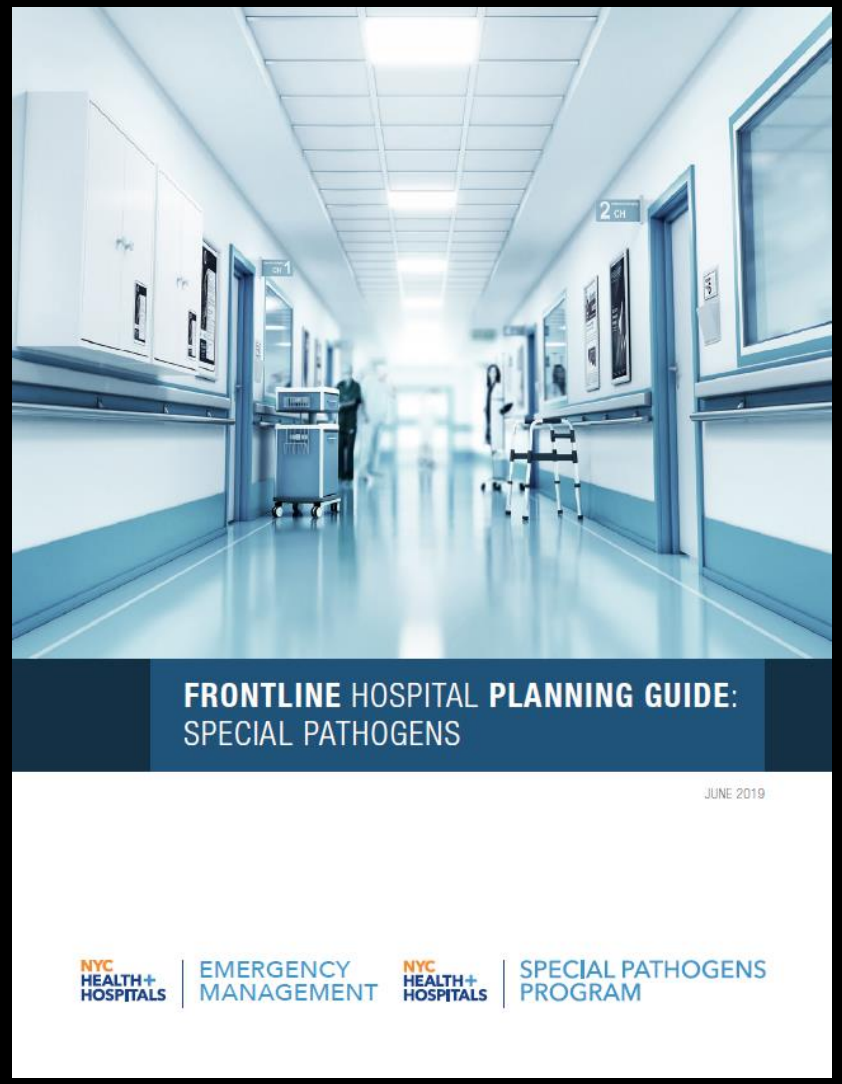
Frontline Hospital Planning Guide: Special Pathogens

- Planning resource for multidisciplinary hospital team
- Focus is viral hemorrhagic fever (e.g., Ebola) and special respiratory pathogens (e.g., MERS, novel influenza)
- User-friendly format with “need to know” information and extensive hyperlinks to source documents for additional details



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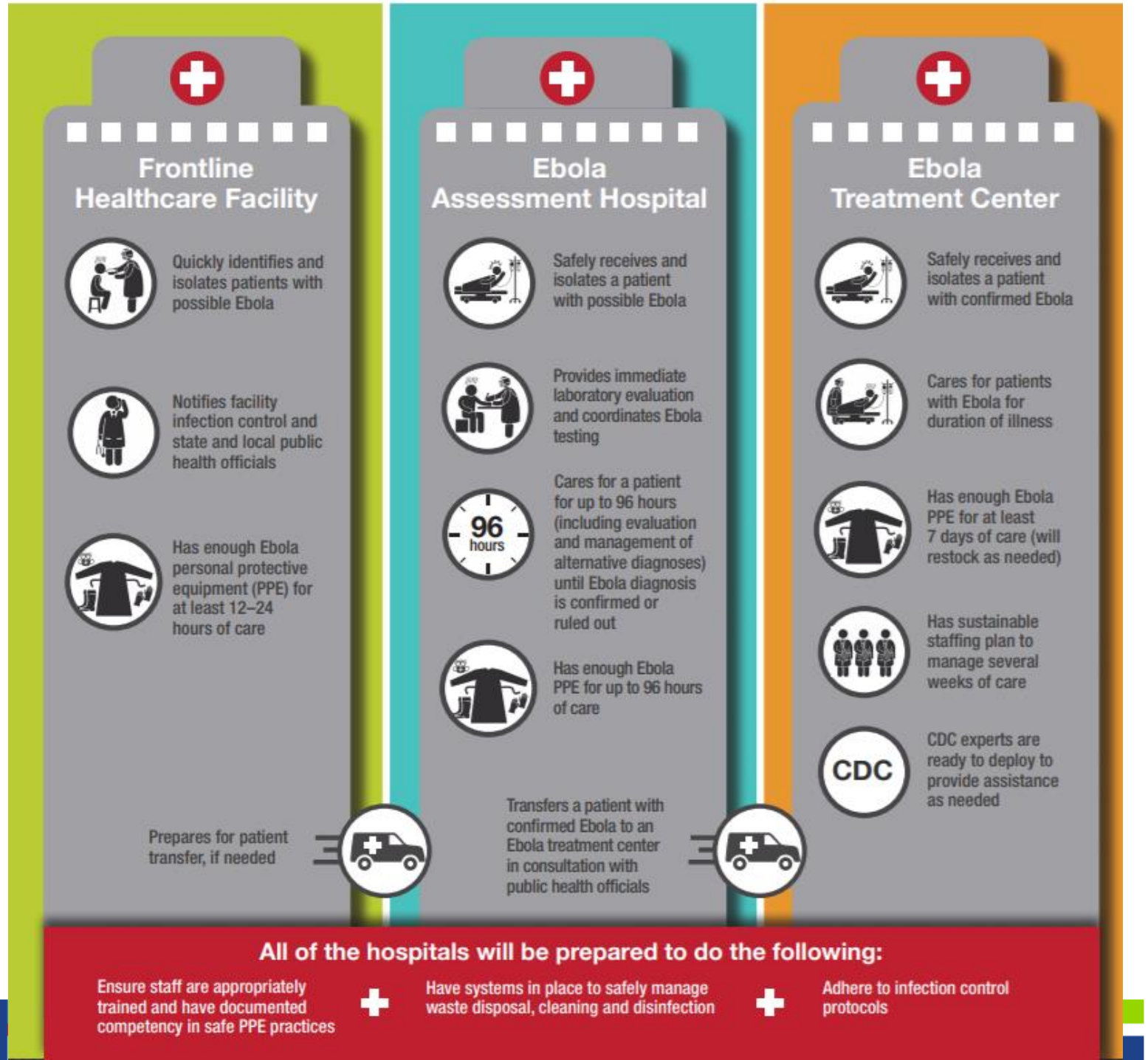

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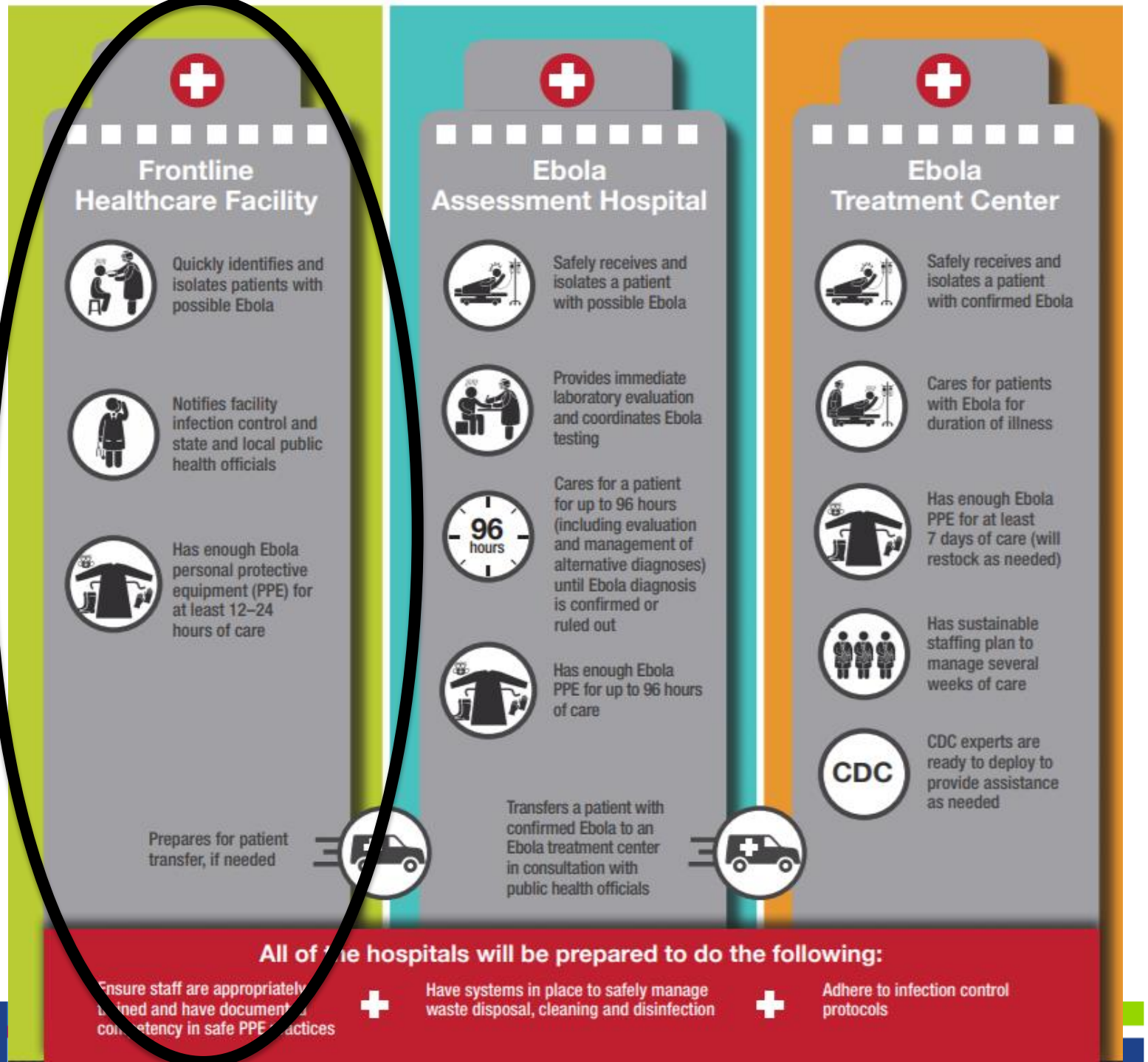

Goal of the Front Hospital Planning Guide for Special Pathogens

- To help hospitals prepare to Identify, Isolate, and Inform regarding a person with a High Consequence Infectious Disease (HCID) / Special Pathogens.

- To incorporate basic infection prevention principles of standard precautions, transmission based isolation, respiratory etiquette, personal protective equipment, health care provider safety and ultimately integrate screening of special pathogens into routine workflows across the continuum of care

Special Pathogens: Defined

- Associated with high morbidity and/or mortality
- High likelihood of secondary cases (person-to-person spread);
- Lack an effective vaccine, prophylaxis, or treatment
- May prompt the use of a biocontainment unit due to clinical or public health concerns

Frontline Hospital Planning Guide: Organization

- Contents page
- Sections
- Interactive

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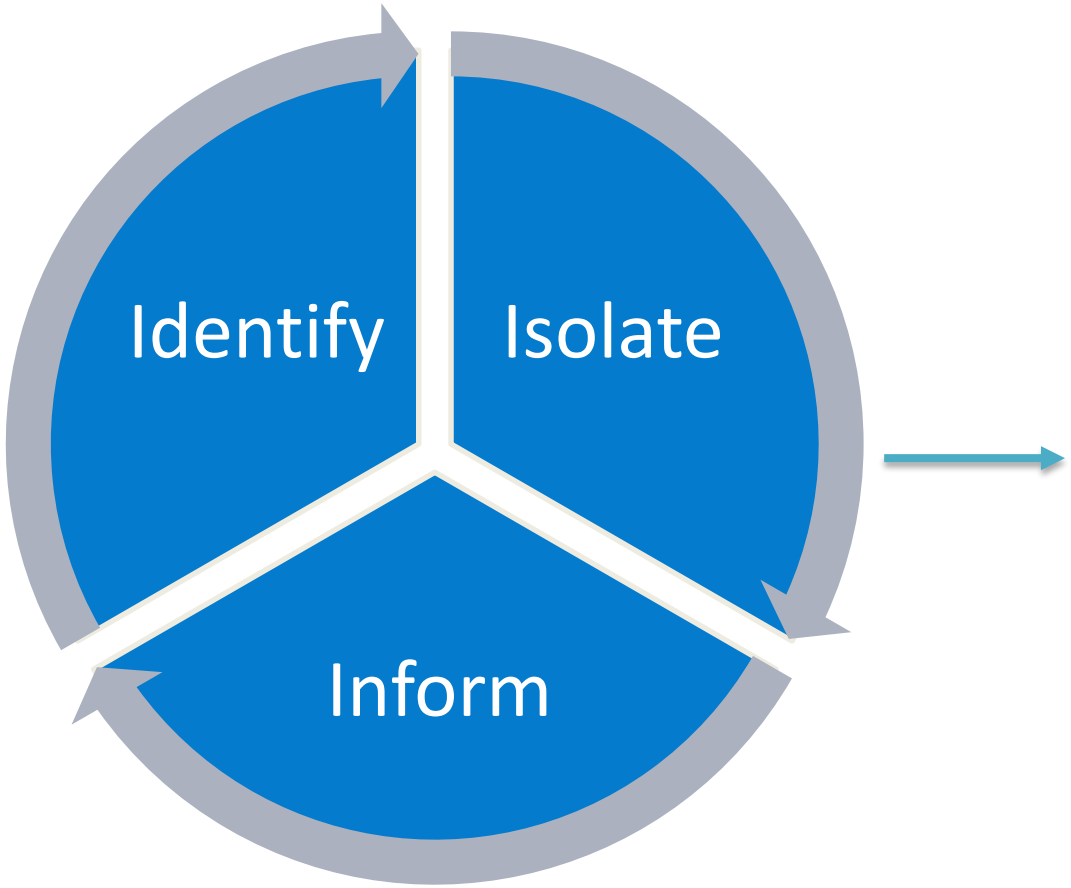

Applies to an All-Infectious Disease Approach

Initial Patient Screening Algorithm for Infectious Diseases for EDs

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LOCATION	ROLE	ACTIVITY	NOTES
Registration Desk	Greeter/ Triage RN	1. Ask patient: In the past week have you had fever, have you had a rash? YES → Give patient surgical mask and ask to use alcohol-based hand sanitizer 2. Ask patient: have you traveled outside the country within the past 30 days OR had contact with someone that has traveled and is sick within the past 30 days? YES → 3. Notify Triage RN to report travel/symptoms NO → Stop screening process, and proceed with patient registration	Instruct patient how to put on mask If patient has yes to fever + cough or fever + rash, escort patient to private room if available and continue patient assessment
Triage/Clinic	RN/ Provider	4. Conduct initial assessment and travel history: ask what country(s) patient has traveled to OR had contact with someone that has traveled and is sick in the past 30 days? YES → 5. Go to Infectious Disease Dashboard (found on special pathogen intranet page). Type disease or country(s) traveled. If positive for travel areas with active highly infectious disease transmission YES → 6. Escort patient with surgical mask on to isolation room keeping a distance of 3 feet away of patient. 7. Post "Screening in Progress" sign on door, place Special Pathogen Cart outside room and, notify provider of travel/symptom(s) NO → Stop screening process and continue patient assessment per appropriate procedures NO	Recommended triage PPE: mask & gloves Special Pathogen Intranet page: http://hhcinsider.nychhc.org/corpoffices/Special-Pathogens/Pages/Index.aspx Note: highly infectious diseases may be considered even in the absence of specific travel alerts and consider domestic infectious disease outbreaks. If available, contact your facility infectious disease/ infection control department(s) for guidance. Recommended escort PPE: mask & gloves
Patient Room	Provider	8. Provider to put on appropriate PPE ensemble if entering patient's room or perform evaluation remotely 9. Conduct patient assessment and determine exposure risk. Is there a concern for a highly infectious disease? YES → 10. Notify infection control to discuss case 11. Document evaluation in EMR 12. Call NYCDOHMH Provider Access Line: 866-692-3641 to discuss case. After consultation with NYCDOHMH if patient is suspected to have a special pathogen and is classified as a person under investigation (PUI) Immediately notify Facility's Medical Director & Central Office Special Pathogens Program: 646-864-5442 NO → Stop screening process and continue patient assessment per appropriate procedures	Special Pathogen Level 1 PPE: N95, 2 pairs of gloves, impermeable gown, face shield Special Pathogen Level 2 Viral Hemorrhagic Fever (VHF) : N95, face shield, coverall, 2 pairs of gloves, hood, shoe cover, apron (level 2 for all VHF suspected cases) Refer to special pathogen intranet page for additional guidance Call to NYCDOHMH Be prepared to provide patient demographic information, travel and symptom information (e.g., dates and locations of travel, date of symptom onset), comorbidities, and any additional epidemiological linkages

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LOCATION	ROLE	ACTIVITY	NOTES
Registration Desk	Greeter/ Triage RN	**1.** Ask patient: in the past week have you had fever, have you had a cough, have you had a rash? **YES** → Give patient surgical mask and ask to use alcohol-based hand sanitizer **2.** Ask patient: have you traveled outside the country within the past 30 days OR had contact with someone that has traveled and is sick within the past 30 days? **YES** → **3.** Notify Triage RN to report travel/symptoms **NO** → Stop screening process, and proceed with patient registration	Instruct patient how to put on mask If patient has yes to fever + cough or fever + rash, escort patient to private room if available and continue patient assessment

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Pathogens That are Everyday Threats

Syndrome	Fever	Respiratory Symptoms	Rash
Influenza	+	+	
Measles	+	+	+
Chickenpox	+		+
Tuberculosis	+	+	
Pertussis – whooping cough	+	+	
Meningitis	+		+

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	SARS	MERS	Avian Influenza
Fever	100%	98%	100%
Cough	66%	83%	90%
Myalgias	49%	32%	
Dyspnea	46%	72%	
Diarrhea/vomiting	20%	26%	14%

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Triage/Clinic	RN/ Provider

4. Conduct initial assessment and travel history: ask what country(s) patient has traveled to OR had contact with someone that has traveled and is sick in the past 30 days?

YES

5. Go to Infectious Disease Dashboard (found on special pathogen intranet page). Type disease or country(s) traveled. If positive for travel areas with active highly infectious disease transmission

YES

6. Escort patient with surgical mask on to isolation room keeping a distance of 3 feet away of patient.

7. Post "Screening in Progress" sign on door, place Special Pathogen Cart outside room and, notify provider of travel/symptom(s)

NO

NO

Stop screening process and continue patient assessment per appropriate procedures

Recommended triage PPE: mask & gloves

Special Pathogen Intranet page: http://hhcinsider.nychhc.org/corpoffices/Special-Pathogens/Pages/Index.aspx

Note: highly infectious diseases may be considered even in the absence of specific travel alerts and consider domestic infectious disease outbreaks.

If available, contact your facility infectious disease/ infection control department(s) for guidance.

Recommended escort PPE: mask & gloves

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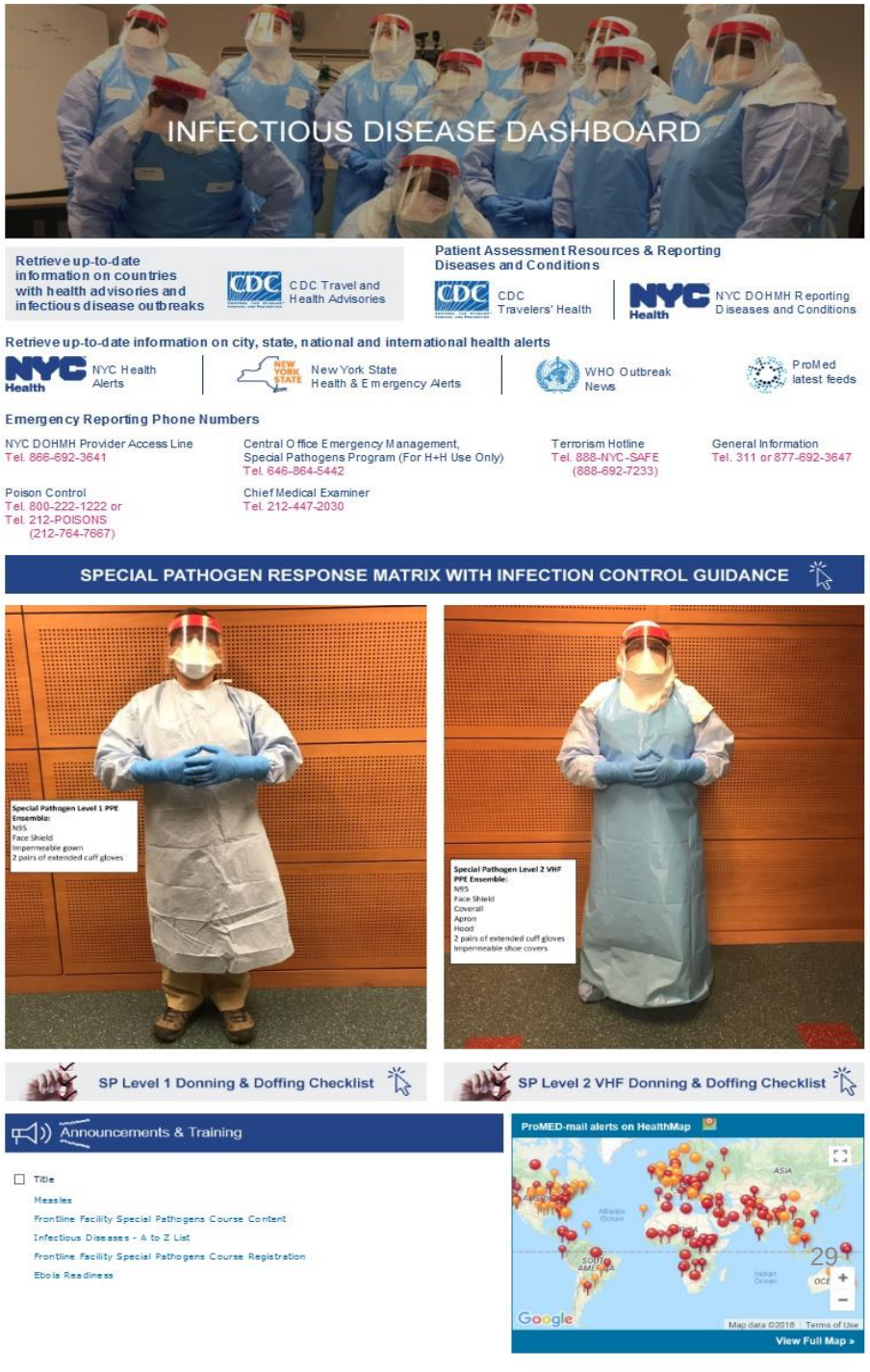
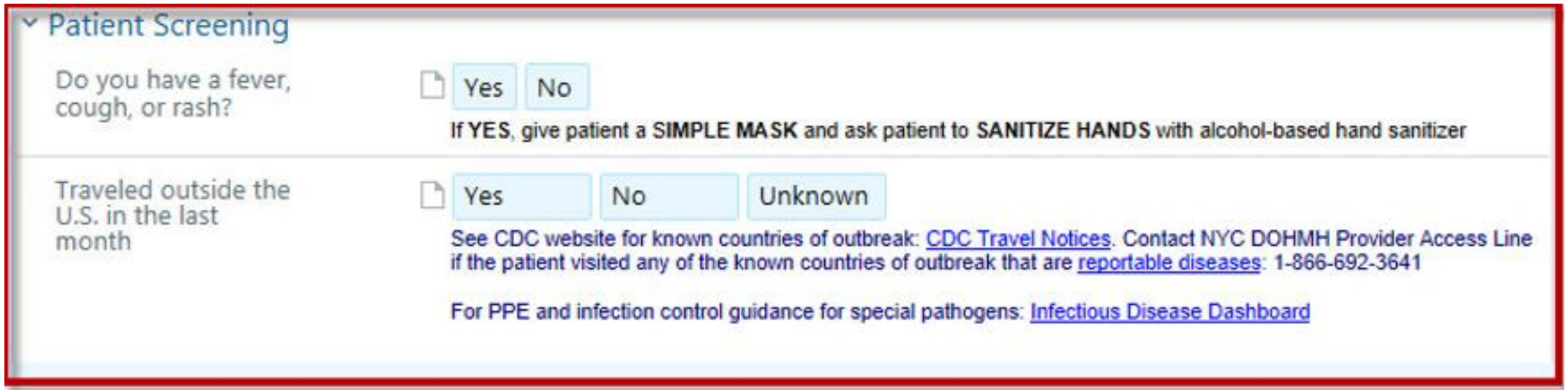
Decision Support Tool to Aide in Travel Screening

- 4 main issues:
  1. Where are these outbreaks occurring (internationally and domestically)?
  2. Case Definition
  3. Infection Control Strategies (e.g., PPE)
  4. Internal and External Contacts (e.g., public health)



Decision Support Tool to Aide in Travel Screening Integrated into EMR



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Patient Room	Provider

8. **Provider to put on appropriate PPE ensemble if entering patient's room or perform evaluation remotely**

9. **Conduct patient assessment and determine exposure risk. Is there a concern for a highly infectious disease?**

YES

NO

Stop screening process and continue patient assessment per appropriate procedures

10. **Notify infection control to discuss case**

11. **Document evaluation in EMR**

12. **Call NYCDOHMH Provider Access Line: 866-692-3641 to discuss case.**

After consultation with NYCDOHMH if patient is suspected to have a special pathogen and is classified as a person under investigation (PUI) immediately notify Facility's Medical Director & Central Office Special Pathogens Program: 646-864-5442

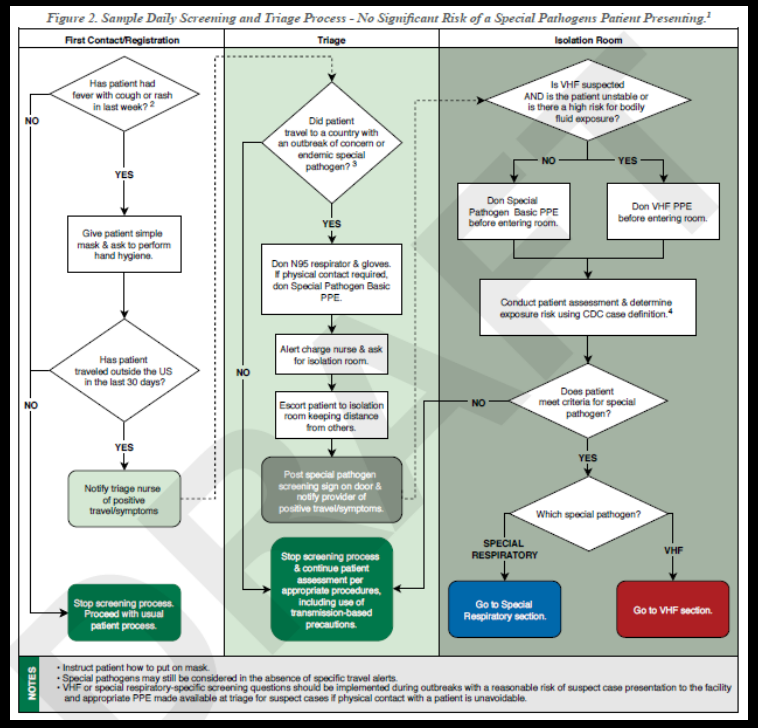
Special Pathogen Level 1 PPE: N95, 2 pairs of gloves, impermeable gown, face shield

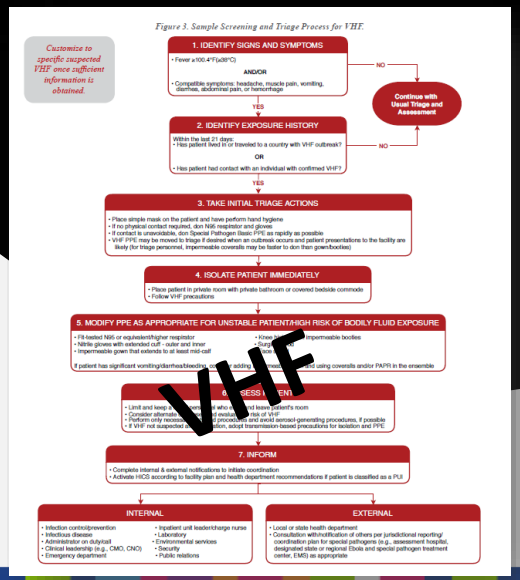
Special Pathogen Level 2 Viral Hemorrhagic Fever (VHF) : N95, face shield, coverall, 2 pairs of gloves, hood, shoe cover, apron (level 2 for all VHF suspected cases)

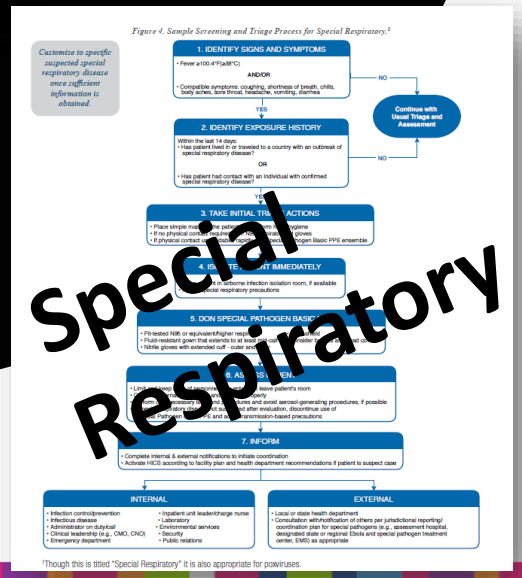
Refer to special pathogen intranet page for additional guidance

Call to NYCDOHMH

Be prepared to provide patient demographic information, travel and symptom information (e.g., dates and locations of travel, date of symptom onset), comorbidities, and any additional epidemiological linkages







Special Respiratory

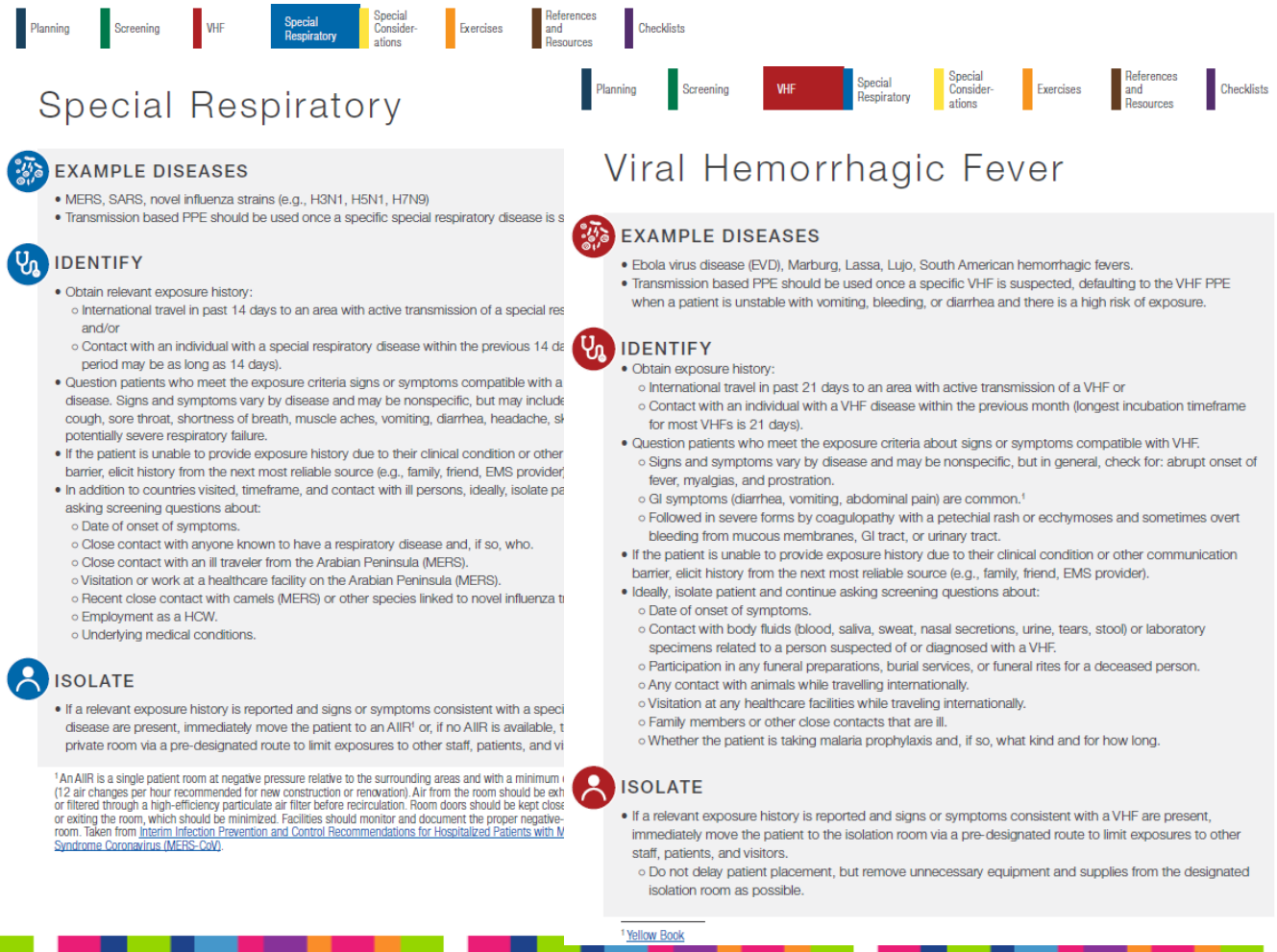
VHF

Outbreak-Specific Changes to Screening

- Algorithms
  - Daily screening & triage process
  - Screening & triage for VHF
  - Screening & triage for Special Respiratory

Special Pathogen Sections

- VHF and Special Respiratory
  - Example diseases
  - Identify, Isolate, Inform
  - PPE
  - Initial clinical care
  - Patient movement
  - Waste management



Planning | Screening | VHF | Special Respiratory | Special Consider-ations | Exercises | References and Resources | Checklists

Special Respiratory

EXAMPLE DISEASES

- MERS, SARS, novel influenza strains (e.g., H3N1, H5N1, H7N9)
- Transmission based PPE should be used once a specific special respiratory disease is s

IDENTIFY

- Obtain relevant exposure history:
  - International travel in past 14 days to an area with active transmission of a special res
  - and/or
  - Contact with an individual with a special respiratory disease within the previous 14 da
  - period may be as long as 14 days).
- Question patients who meet the exposure criteria signs or symptoms compatible with a
- disease. Signs and symptoms vary by disease and may be nonspecific, but may includ
- cough, sore throat, shortness of breath, muscle aches, vomiting, diarrhea, headache, sl
- potentially severe respiratory failure.
- If the patient is unable to provide exposure history due to their clinical condition or other
- barrier, elicit history from the next most reliable source (e.g., family, friend, EMS provider)
- In addition to countries visited, timeframe, and contact with ill persons, ideally, isolate pa
- asking screening questions about:
  - Date of onset of symptoms.
  - Close contact with anyone known to have a respiratory disease and, if so, who.
  - Close contact with an ill traveler from the Arabian Peninsula (MERS).
  - Visitation or work at a healthcare facility on the Arabian Peninsula (MERS).
  - Recent close contact with camels (MERS) or other species linked to novel influenza t
  - Employment as a HCW.
  - Underlying medical conditions.

ISOLATE

- If a relevant exposure history is reported and signs or symptoms consistent with a speci
- disease are present, immediately move the patient to an AIIR[1] or, if no AIIR is available, t
- private room via a pre-designated route to limit exposures to other staff, patients, and vi

[1] An AIIR is a single patient room at negative pressure relative to the surrounding areas and with a minimum
(12 air changes per hour recommended for new construction or renovation). Air from the room should be exh
or filtered through a high-efficiency particulate air filter before recirculation. Room doors should be kept close
or exiting the room, which should be minimized. Facilities should monitor and document the proper negative-
room. Taken from Interim Infection Prevention and Control Recommendations for Hospitalized Patients with M
Syndrome Coronavirus (MERS-CoV).

Planning | Screening | VHF | Special Respiratory | Special Consider-ations | Exercises | References and Resources | Checklists

Viral Hemorrhagic Fever

EXAMPLE DISEASES

- Ebola virus disease (EVD), Marburg, Lassa, Lujo, South American hemorrhagic fevers.
- Transmission based PPE should be used once a specific VHF is suspected, defaulting to the VHF PPE when a patient is unstable with vomiting, bleeding, or diarrhea and there is a high risk of exposure.

IDENTIFY

- Obtain exposure history:
  - International travel in past 21 days to an area with active transmission of a VHF or
  - Contact with an individual with a VHF disease within the previous month (longest incubation timeframe for most VHFs is 21 days).
- Question patients who meet the exposure criteria about signs or symptoms compatible with VHF.
  - Signs and symptoms vary by disease and may be nonspecific, but in general, check for: abrupt onset of fever, myalgias, and prostration.
  - GI symptoms (diarrhea, vomiting, abdominal pain) are common.[1]
  - Followed in severe forms by coagulopathy with a petechial rash or ecchymoses and sometimes overt bleeding from mucous membranes, GI tract, or urinary tract.
- If the patient is unable to provide exposure history due to their clinical condition or other communication barrier, elicit history from the next most reliable source (e.g., family, friend, EMS provider).
- Ideally, isolate patient and continue asking screening questions about:
  - Date of onset of symptoms.
  - Contact with body fluids (blood, saliva, sweat, nasal secretions, urine, tears, stool) or laboratory specimens related to a person suspected of or diagnosed with a VHF.
  - Participation in any funeral preparations, burial services, or funeral rites for a deceased person.
  - Any contact with animals while travelling internationally.
  - Visitation at any healthcare facilities while traveling internationally.
  - Family members or other close contacts that are ill.
  - Whether the patient is taking malaria prophylaxis and, if so, what kind and for how long.

ISOLATE

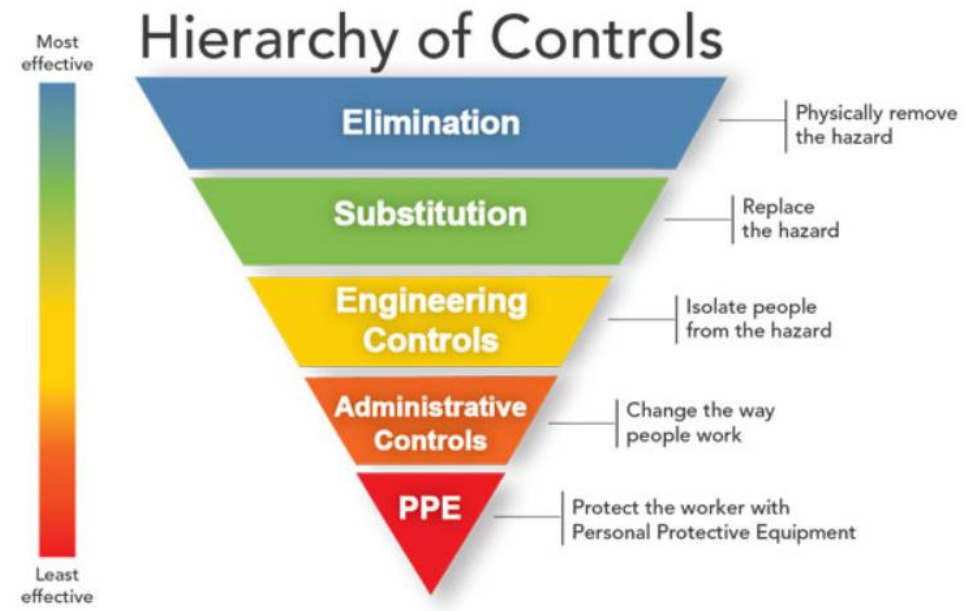
- If a relevant exposure history is reported and signs or symptoms consistent with a VHF are present, immediately move the patient to the isolation room via a pre-designated route to limit exposures to other staff, patients, and visitors.
  - Do not delay patient placement, but remove unnecessary equipment and supplies from the designated isolation room as possible.

[1] Yellow Book

PPE Assumptions

- Safe Systems of Work
- Transmission-based Precautions
- Other factors that influence PPE selection:
  - Anticipated exposure
  - Durability and appropriateness of task
  - Fit

Type of Precautions	PPE
Standard	gloves, gown, simple mask[1], goggles or face shield (exact ensemble determined by the type of clinical interaction with the patient and patient signs and symptoms)[2,3]
Contact	fluid-resistant gown, gloves[2]
Droplet	simple mask, eye protection (eye protection not required but recommended by most sources)[2]
Airborne	fit-tested N95 or equivalent/higher respirator or powered air-purifying respirator (PAPR)[2,4]



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Screening PPE for Special Pathogens

Special Pathogen Basic PPE

Precautions are to be initiated and PPE donned as soon as a suspect case is recognized and sufficient for novel influenza, MERS, SARS, and similar suspected diseases as well as stable patients with suspect VHF.

Consists of[1]:

- Fit-tested N95 or equivalent/higher respirator[2]
- Fluid-resistant gown that extends to at least mid-calf (may substitute impermeable, though heavier, hotter, and costlier)
- Nitrile gloves with extended cuff - 2 pairs
- Face shield
- Consider booties and head cover (Note: not required by CDC but recommended by Occupational Safety and Health Administration (OSHA))

Note: The first four items should be available at triage and routinely applied for any suspected special pathogen patient requiring physical contact and during initial assessment. Just-in-time training should reinforce the specific hazards of VHF patients during outbreaks that may result in patients presenting to the facility.

VHF PPE

Precautions are to be initiated and PPE donned when suspicion for EVD or another VHF is high based on current outbreak epidemiology and the patient is either unstable, exhibits vomiting, diarrhea, or bleeding, or such conditions are judged reasonably likely. The facility should select its VHF PPE depending on what the providers are used to and have available. For the purposes of this document, we assume that gowns and N95 respirators are used since these are more routinely available. The option for coveralls with overboots/shoes is appropriate and may offer additional protection from bodily fluid exposures and the use of PAPRs offers an additional level of respiratory protection. All skin should be covered.

Consists of:

- Fit-tested N95 or equivalent/higher respirator[2]
- Nitrile gloves with extended cuff - 2 pairs
- Impermeable gown that extends to at least mid-calf
- Knee high pull-on impermeable booties
- Surgical hood (full head coverage draping onto shoulders)
- Face shield
- Impermeable apron should be added for patients with significant body fluid losses/exposure risk

Guidance on doffing/donning and use of PAPRs is available from the CDC.

Special Pathogen Basic Personal Protective Equipment Donning Checklist Example

Step #	Task	Criteria	Completed
1§	Gather PPE in proper sizes	• Fluid resistant gown • N95 respirator • Nitrile gloves, extended cuff (2 pairs – inner and outer) • Face shield • Booties (optional) • Head cover (optional)	❑ Yes ❑ No

2§	Prepare to don PPE	• Trained observer present with checklist
		• OUTSIDE of the patient's room in designated donning area
		  • Remove watches, jewelry, and dangling items that could interfere with integrity of PPE
		  • Secure eyeglasses with a tie
		  • Hydrate and attend to personal hygiene
		  • Consider medical screening if entering for shift per facility policy
			❑ Yes
			❑ No

3§	Inspect PPE	• Inspect PPE for serviceability (e.g., not torn or ripped) and proper size	❑ Yes ❑ No
4§	Perform hand hygiene	• Perform hand hygiene with alcohol-based hand sanitizer	❑ Yes ❑ No
5§	Don nitrile gloves	• Don inner gloves and extend cuffs up arms	❑ Yes ❑ No
6§	Don booties, if wearing	• Sit down and pull on booties	❑ Yes ❑ No
7§	Don fluid resistant gown	• Fully cover torso from neck to knees and arms to end of wrists; leave no skin exposed • Fasten at the back of neck; tie at waist • Do not tie inside ties • Ensure no trip hazard exists	❑ Yes ❑ No
8§	Don N95 respirator	• Don N95 respirator and check for seal	❑ Yes ❑ No
9§	Don head cover, if wearing	• Contain hair and cover ears	❑ Yes ❑ No
10§	Don face shield	• Position shield above eyebrows and mid-forehead to cover eyes	❑ Yes ❑ No
11§	Don nitrile gloves	• Don outer gloves • Extend to cover the sleeves or cuffs of the gown • Tuck excess material at sleeve into cuff	❑ Yes ❑ No

12§	Inspection	• Extend arms and verify integrity of PPE with observer:
		  • Bend at waist
		  • Squat and return to standing position
		  • Slowly turn in circle for final inspection
		  • Observer marks suit with wearer's name and time donned
			❑ Yes
			❑ No

13§	Reminder	• Keep hands away from all mucous membranes • Review hand signals for "OK," "not OK," and "coming out"	❑ Yes ❑ No

VHF Personal Protective Equipment Doffing Checklist Example

Step #	Task	Criteria	Completed
1‡	Trained Observer	• Engage the trained observer outside patient room with the checklist • Determine contact time requirement for disinfectant wipe per product label	❑ Yes ❑ No
2†	Inspect PPE	In patient room:† • Inspect PPE for soiling or breaches • If PPE is visibly contaminated, disinfect by using an EPA-registered disinfectant wipe (allow contact time per product label)	❑ Yes ❑ No
3†	Perform hand hygiene	• Perform hand hygiene by using an EPA-registered disinfectant wipe (allow contact time per product label) or with alcohol-based hand sanitizer	❑ Yes ❑ No
4†	Doff apron (if wearing)	• Use care not to spread contamination if apron is soiled • Remove (e.g., by breaking or untying neck strap and releasing waist ties) • Touch inside of apron only to remove by folding and rolling into a bundle and discard into an infectious waste container • Re-inspect PPE that was under apron and disinfect with wipes as needed	❑ Yes ❑ No
5†	Doff outer gloves	• Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe (allow contact time per product label) or alcohol-based hand sanitizer • Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove • Hold the removed glove in the opposite, gloved hand • Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove • Discard both outer gloves in the infectious waste container	❑ Yes ❑ No

6†	Disinfect inner gloves	• **Inspect** the inner gloves' outer surfaces for visible contamination, cuts, or tears
		• If **no visible contamination** is identified on the inner gloves
		  • Disinfect the inner-gloved hands with either an EPA-registered disinfectant wipe (allow contact time per product label) or alcohol-based hand sanitizer
		• If an **inner glove is visibly soiled**
		  • Disinfect the glove with an EPA-registered disinfectant wipe (allow contact time per product label)
		  • Remove the inner gloves
		  • Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove	

14‡	Perform hand hygiene	• Disinfect inner-gloved hands with alcohol-based hand sanitizer	❑ Yes ❑ No
15‡	Doff inner gloves	• Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove • Hold the removed glove in the opposite, gloved hand • Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove • Discard both inner gloves in the infectious waste container	❑ Yes ❑ No
16‡	Perform hand hygiene	• Perform hand hygiene and disinfect inner-gloved hands with alcohol-based hand sanitizer	❑ Yes ❑ No
17‡	Don new pair of gloves	• Clean bare hands with alcohol-based hand sanitizer • Cover cleaned hands with clean gloves	❑ Yes ❑ No
18‡	Remove N95 respirator	• Remove N95 respirator from the back to front and discard in the infectious waste container	❑ Yes ❑ No
19‡	Perform hand hygiene and doff final gloves	• Disinfect gloved hands with alcohol-based hand sanitizer • Remove gloves using same procedure as first two pairs	❑ Yes ❑ No
20‡	Perform hand hygiene	• Clean bare hands with alcohol-based hand sanitizer • Ensure hands are completely dry before exiting the area	❑ Yes ❑ No
21‡	Inspect	• Perform a final inspection for contamination of the surgical scrubs or disposable garments • If contamination is identified, carefully remove the garments and shower immediately	❑ Yes ❑ No
22§	Follow up	• Perform staff rehab, medical monitoring, documentation, and behavioral wellness check as indicated	❑ Yes ❑ No

Colored steps indicate location: Red (†) =In patient room; Yellow (‡) =In designated decontamination area; Green (§) =In cold/clean zone outside decontamination area

Reference: Guidance on Personal Protective Equipment (PPE) To Be Used By Healthcare Workers during Management of Patients with Confirmed Ebola or Persons under Investigation (PUIs) for Ebola who are Clinically Unstable or Have Bleeding, Vomiting, or Diarrhea in U.S. Hospitals

PPE Donning and Doffing Checklists

Sean Studer, MD

Chief of Medicine, NYC Health + Hospitals/Kings County

Initial Clinical Care Considerations

- General guiding principles are described for:
  - Airway and intravenous access management
  - Diagnostic testing (imaging labs)
  - Intensive therapies
  - Staffing recommendations
  - Mental health/anxiety/patient dignity

Initial Clinical Care Considerations

Viral hemorrhagic fevers (VHF)

- Aim of minimizing body fluid exposure (e.g. oral rehydration)
- POC testing preferred to minimize intra-facility transport
- Staff should be experienced and adequate to tasks: trainees inadvisable & often ≥1:1 ratio

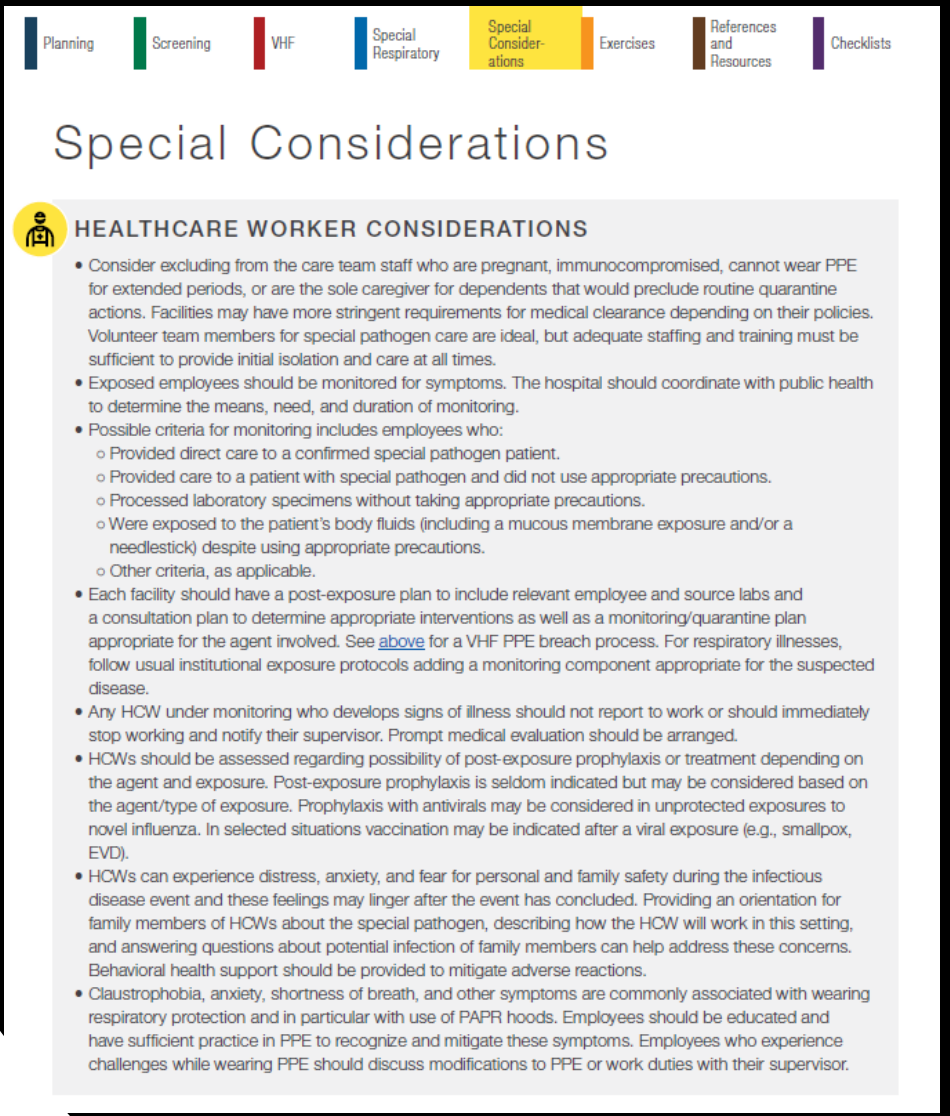
Special Respiratory Pathogens

- Noninvasive ventilation relatively contraindicated
- Semi-elective intubation preferred to allow for PPE donning
- Minimize staffing during aerosol-generating procedures

NYC HEALTH+ HOSPITALS

Special Considerations

- Healthcare worker
- Pediatric
- Visitor/family
- Public relations/information
- Security
- Deteriorating patients
- Interfacility transfer



Planning | Screening | VHF | Special Respiratory | Special Consider-ations | Exercises | References and Resources | Checklists

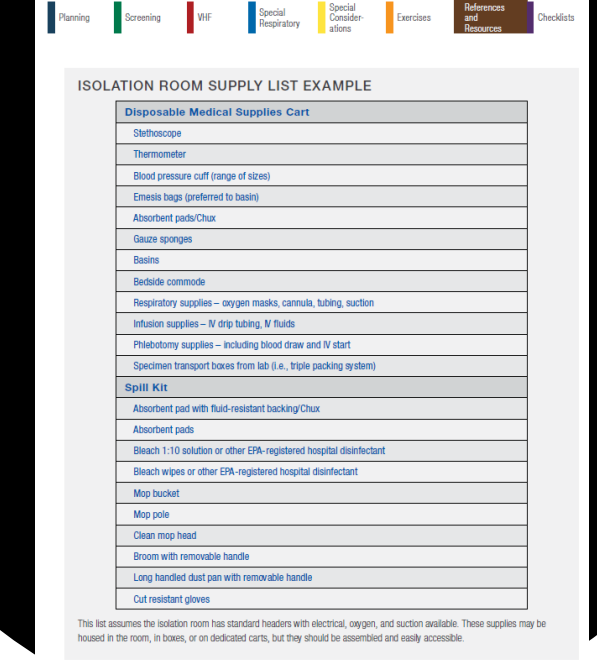
Special Considerations

HEALTHCARE WORKER CONSIDERATIONS

- Consider excluding from the care team staff who are pregnant, immunocompromised, cannot wear PPE for extended periods, or are the sole caregiver for dependents that would preclude routine quarantine actions. Facilities may have more stringent requirements for medical clearance depending on their policies. Volunteer team members for special pathogen care are ideal, but adequate staffing and training must be sufficient to provide initial isolation and care at all times.
- Exposed employees should be monitored for symptoms. The hospital should coordinate with public health to determine the means, need, and duration of monitoring.
- Possible criteria for monitoring includes employees who:
  - Provided direct care to a confirmed special pathogen patient.
  - Provided care to a patient with special pathogen and did not use appropriate precautions.
  - Processed laboratory specimens without taking appropriate precautions.
  - Were exposed to the patient's body fluids (including a mucous membrane exposure and/or a needlestick) despite using appropriate precautions.
  - Other criteria, as applicable.
- Each facility should have a post-exposure plan to include relevant employee and source labs and a consultation plan to determine appropriate interventions as well as a monitoring/quarantine plan appropriate for the agent involved. See above for a VHF PPE breach process. For respiratory illnesses, follow usual institutional exposure protocols adding a monitoring component appropriate for the suspected disease.
- Any HCW under monitoring who develops signs of illness should not report to work or should immediately stop working and notify their supervisor. Prompt medical evaluation should be arranged.
- HCWs should be assessed regarding possibility of post-exposure prophylaxis or treatment depending on the agent and exposure. Post-exposure prophylaxis is seldom indicated but may be considered based on the agent/type of exposure. Prophylaxis with antivirals may be considered in unprotected exposures to novel influenza. In selected situations vaccination may be indicated after a viral exposure (e.g., smallpox, EVD).
- HCWs can experience distress, anxiety, and fear for personal and family safety during the infectious disease event and these feelings may linger after the event has concluded. Providing an orientation for family members of HCWs about the special pathogen, describing how the HCW will work in this setting, and answering questions about potential infection of family members can help address these concerns. Behavioral health support should be provided to mitigate adverse reactions.
- Claustrophobia, anxiety, shortness of breath, and other symptoms are commonly associated with wearing respiratory protection and in particular with use of PAPR hoods. Employees should be educated and have sufficient practice in PPE to recognize and mitigate these symptoms. Employees who experience challenges while wearing PPE should discuss modifications to PPE or work duties with their supervisor.

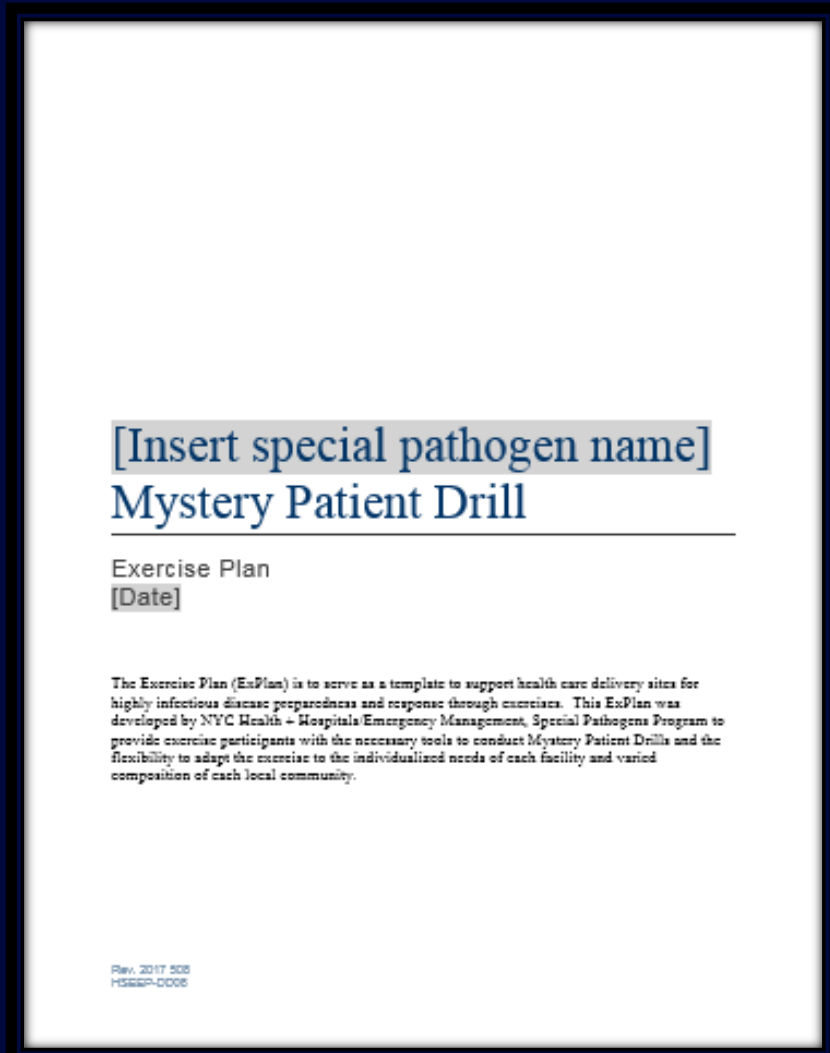
References and Resources

- Annotated references
- Index of abbreviations
- Sample electronic health record screening questions
- Isolation room supply list
- Signs
  - Universal screening
  - Isolation room door signs



Maintaining Readiness

- Updated plans
- Training and education
- Drills and exercises
- Improvement planning
- Restocking


[Insert special pathogen name]
Mystery Patient Drill

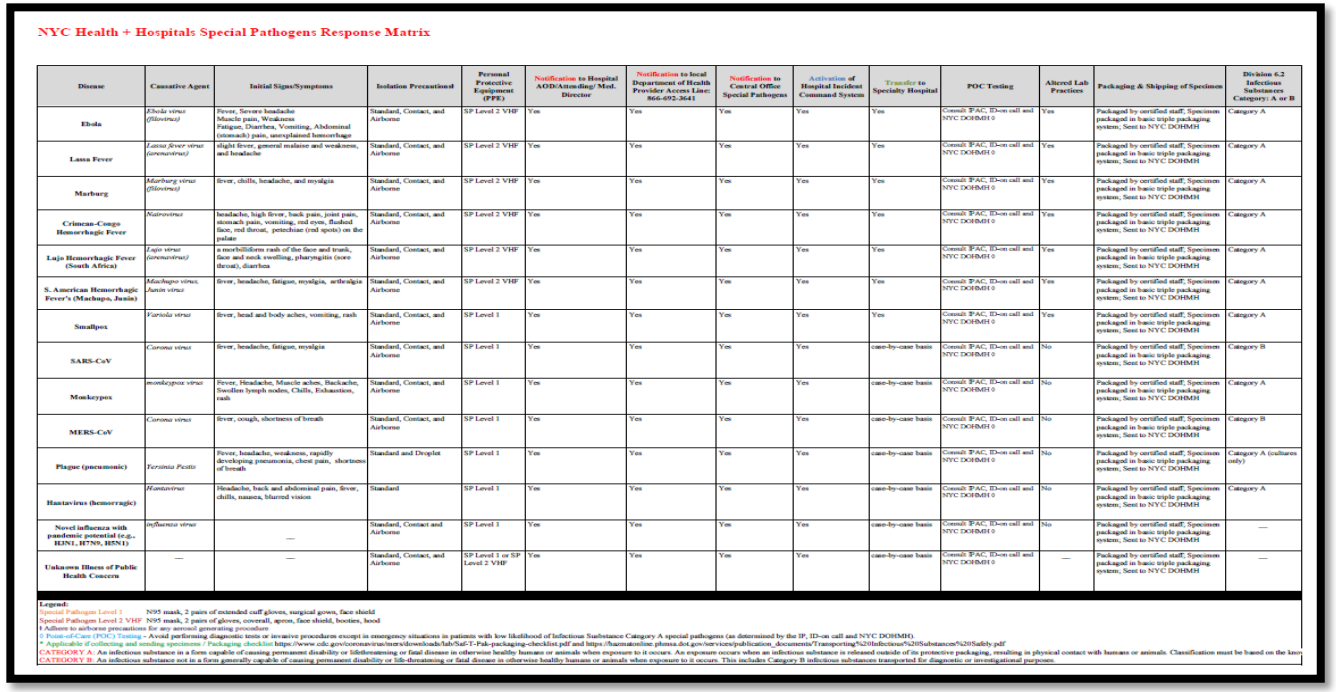
Exercise Plan
[Date]

The Exercise Plan (ExPlan) is to serve as a template to support health care delivery sites for highly infectious disease preparedness and response through exercises. This ExPlan was developed by NYC Health + Hospitals/Emergency Management, Special Pathogens Program to provide exercise participants with the necessary tools to conduct Mystery Patient Drills and the flexibility to adapt the exercise to the individualized needs of each facility and varied composition of each local community.

Rev. 2017 508
HSEEP-DDDB

Special Pathogens Response Matrix

- Special pathogens grid with select special pathogens
  - Initial signs/symptoms
  - Infection Control (isolation precautions & PPE)
  - Notification (internal & external)
  - POC Testing
  - Altered Lab Practices
  - Transfer to RESPTC
  - Waste category A/B



NYC Health + Hospitals Special Pathogens Response Matrix

Disease	Causative Agent	Initial Signs/Symptoms	Isolation Precautions‡	Personal Protective Equipment (PPE)	Notification to Hospital AOD/Attending/ Med. Director	Notification to local Department of Health Provider Access Line: 866-692-3641	Notification to Central Office Special Pathogens	Activation of Hospital Incident Command System	Transfer to Specialty Hospital	POC Testing	Altered Lab Practices	Packaging & Shipping of Specimen	Division 6.2 Infectious Substances Category: A or B
Ebola	*Ebola virus (filovirus)*	Fever, Severe headache Muscle pain, Weakness Fatigue, Diarrhea, Vomiting, Abdominal (stomach) pain, unexplained hemorrhage	Standard, Contact, and Airborne	SP Level 2 VHF	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
Lassa Fever	*Lassa fever virus (arenavirus)*	slight fever, general malaise and weakness, and headache	Standard, Contact, and Airborne	SP Level 2 VHF	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
Marburg	*Marburg virus (filovirus)*	fever, chills, headache, and myalgia	Standard, Contact, and Airborne	SP Level 2 VHF	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
Crimean-Congo Hemorrhagic Fever	*Nairovirus*	headache, high fever, back pain, joint pain, stomach pain, vomiting, red eyes, flushed face, red throat, petechiae (red spots) on the palate	Standard, Contact, and Airborne	SP Level 2 VHF	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
Lujo Hemorrhagic Fever (South Africa)	*Lujo virus (arenavirus)*	a morbilliform rash of the face and trunk, face and neck swelling, pharyngitis (sore throat), diarrhea	Standard, Contact, and Airborne	SP Level 2 VHF	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
S. American Hemorrhagic Fever's (Machupo, Junin)	*Machupo virus, Junin virus*	fever, headache, fatigue, myalgia, arthralgia	Standard, Contact, and Airborne	SP Level 2 VHF	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
Smallpox	*Variola virus*	fever, head and body aches, vomiting, rash	Standard, Contact, and Airborne	SP Level 1	Yes	Yes	Yes	Yes	Yes	Consult IPAC, ID-on call and NYC DOHMH ◊	Yes	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
SARS-CoV	*Corona virus*	fever, headache, fatigue, myalgia	Standard, Contact, and Airborne	SP Level 1	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	No	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category B
Monkeypox	*monkeypox virus*	Fever, Headache, Muscle aches, Backache, Swollen lymph nodes, Chills, Exhaustion, rash	Standard, Contact, and Airborne	SP Level 1	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	No	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
MERS-CoV	*Corona virus*	fever, cough, shortness of breath	Standard, Contact, and Airborne	SP Level 1	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	No	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category B
Plague (pneumonic)	*Yersinia Pestis*	Fever, headache, weakness, rapidly developing pneumonia, chest pain, shortness of breath	Standard and Droplet	SP Level 1	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	No	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A (cultures only)
Hantavirus (hemorragic)	*Hantavirus*	Headache, back and abdominal pain, fever, chills, nausea, blurred vision	Standard	SP Level 1	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	No	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	Category A
Novel influenza with pandemic potential (e.g., H3N1, H7N9, H5N1)	*influenza virus*	—	Standard, Contact and Airborne	SP Level 1	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	No	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	—
Unknown Illness of Public Health Concern	—	—	Standard, Contact, and Airborne	SP Level 1 or SP Level 2 VHF	Yes	Yes	Yes	Yes	case-by-case basis	Consult IPAC, ID-on call and NYC DOHMH ◊	—	Packaged by certified staff; Specimen packaged in basic triple packaging system; Sent to NYC DOHMH	—

Legend:
Special Pathogen Level 1 — N95 mask, 2 pairs of extended cuff gloves, surgical gown, face shield
Special Pathogen Level 2 VHF — N95 mask, 2 pairs of gloves, coverall, apron, face shield, booties, hood
‡ Adhere to airborne precautions for any aerosol generating procedure
§ Point-of-Care (POC) Testing - Avoid performing diagnostic tests or invasive procedures except in emergency situations in patients with low likelihood of Infectious Susbstance Category A special pathogens (as determined by the IP, ID-on call and NYC DOHMH).
* Applicable if collecting and sending specimens / Packaging checklist https://www.cdc.gov/coronavirus/mers/downloads/lab/Saf-T-Pak-packaging-checklist.pdf and https://hazmatonline.phmsa.dot.gov/services/publication_documents/Transporting%20Infectious%20Substances%20Safely.pdf
CATEGORY A: An infectious substance in a form capable of causing permanent disability or lifethreatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs. An exposure occurs when an infectious substance is released outside of its protective packaging, resulting in physical contact with humans or animals. Classification must be based on the kno
CATEGORY B: An infectious substance not in a form generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs. This includes Category B infectious substances transported for diagnostic or investigational purposes.

Training Opportunities

- Frontline Facility Special Pathogens Training (Sponsor: NYC H+H)

NYC HEALTH+ HOSPITALS | EMERGENCY MANAGEMENT

NYC HEALTH+ HOSPITALS | SPECIAL PATHOGENS PROGRAM

Frontline Facility Special Pathogens Training Course

- Identify/Isolate/Inform of suspected special pathogen disease cases
  - Viral Hemorrhagic Fevers (e.g., Ebola, Lassa Fever)
  - Severe Respiratory Special Pathogens (e.g., MERS-CoV, SARS-CoV)
- Live donning and doffing Special Pathogen Level 1 & Special Pathogen Level 2 VHF with considerations for airborne and non-airborne special pathogens
- Hands-on clinical simulations with focus on safety precautions while in PPE
- Special considerations for pediatric, geriatric, behavioral health

Attendance
The course is open to all frontline healthcare workers/covered personnel in frontline hospitals, ambulatory/outpatient care sites and long-term facilities in NY, NJ, PR, VI (Region 2)

Registration
There is no cost for this course. Please register for the course date that suits your schedule. Do not book travel until a registration confirmation email is received

Course Materials
All course materials will be provided on the day of the course

Course Type
Didactic, immersive simulation with equipment, live donning/doffing technique and exercise on patient transfer and transport scenarios

Course Location: TBD

Course Time: 8am - 4pm

*Note: Students will be in PPE for a minimum of 4 hours during the course.

For more information, please contact Dr. Syra Madad, Director, System-wide Special Pathogens Program, NYC Health + Hospitals / Office: 212-323-2521 / Syra.Madad@nychhc.org

- Emerging Infectious Disease Workshop & Biopreparedness Course (Sponsor: NETEC)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