Cedars-Sinai
Special Pathogens Program

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Cedars-Sinai

- 886-bed tertiary care, academic, community not-for-profit medical center in Los Angeles
- ~50,000 admissions per year
- ~14,000 full-time employees
- >500 residents and fellows in graduate medical programs
- Magnet Excellence in Nursing designation four consecutive times
- CS designated as the Region IX Ebola Treatment Center in June 2016 (through mid-2020)
Clinical Management of Ebola Virus Disease in the United States and Europe

• 27 patients cared for in the US/Europe:
  – Hospital stay 20 days (median)
  – 85% received investigation therapy
  – Mortality 18.5%

• Take Away for Ebola Treatment Centers:
  – Long hospitalization
  – Be prepared to use investigational agents
  – High quality care can improve outcomes

Uyeki TM et al, NEJM 2016; 374: 636-46
Regional Special Pathogens Center: Key Responsibilities

- Be prepared to receive a patient within 8 hours of notification
- Capacity to care for 2 simultaneous patients (including 1 child)
- Maintain a trained response team
- Maintain adequate supplies of personal protective equipment (PPE)
- Capacity to handle a high volume of infectious waste
- Annual NETEC onsite assessment
Cedars-Sinai Special Pathogens Program

• Special Pathogens Program Coordinator

• Special Pathogen Response Team (SPRT) Multi-disciplinary Task Force

• SPRT Clinical Response Team (voluntary)
  – Nurses
  – Physicians
  – Respiratory therapy
  – Laboratory
  – Environmental Services
  – Imaging

• Quarterly Training and Exercises
Treatment Areas

• Ambulance bay to accept EMS ground transport
  • Secured, private bay
  • Separate from ED ambulance bay
  • Direct and controlled access to medical ICU

• Emergency Department
  • Dedicated ED room adjacent to trauma elevator
  • Direct and controlled access to medical ICU
  • Commode accessible

• Medical ICU
  • Two (2) adjacent negative-pressure isolation rooms
  • Large shared anteroom
  • Secured access
Emergency Department Preparation

**IF** you have recently traveled out of the U.S.

**OR** had close contact with someone who recently traveled out of the U.S. and is ill...

**AND** now you have: fever, cough, trouble breathing, rash, vomiting or diarrhea

**PLEASE TELL STAFF IMMEDIATELY**

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**CSMC Emergency Department – Triage Tier 1 Travel Screen**

For patients with the following symptoms:
- fever
- cough
- SOB
- sore throat
- abdominal pain
- vomiting
- diarrhea
- headache
- muscle pain
- weakness

Assess for international travel within the last 30 days

- If No Travel
  - Proceed with routine triage. Mask all patients with respiratory symptoms.
- If YES
  - If: fever OR respiratory symptoms
    - AND: travel to countries in and around the Arabian Peninsula in the last 14 days:
      - Immediately notify Hospital Epidemiology (3-5574) of potential special pathogens. Speak directly with an Epi RN or use the on-call pager
      - Immediately place mask on pt and move to room 21 (or any private room with HEPA filter)
      - Place pt on Contact and Airborne precautions with use of faceshield
      - Notify ED physician and charge nurse of MERS risk
    - If: fever OR headache, muscle pain, abdominal pain, vomiting or diarrhea
      - AND: travel to the Democratic Republic of the Congo in the last 21 days:

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**Identify → Isolate → Inform**
Emergency Department Preparation

- Incorporated Special Pathogens education into annual ED training

- No-notice walk-in drills
  - Assess time to isolation and notification
  - Also “no-notice” training

- PPE supplies stored in ED

- Rapid Activation Protocol
  - Goal: Maximize safety while determining if patient may be a PUI
  - Get trained “safety monitor”/IP on site ASAP
  - PPE at door/ensure appropriate use
  - Minimize traffic/patient contact
  - Maintain access log
  - Initiate Special Pathogen team activation if determined to meet PUI criteria

- Focus preparation on the most likely scenarios, not the most extreme

- Learn from real world events
Special Pathogen Team/Unit Activation

• Immediate local health department notification

• Special Pathogen clinical response team activation (Everbridge notification)

• Hospital Incident Command Center activation
  – Internal/External communication (templates prepared)

• Treatment Unit Set-up (unit activation checklist)

• Just-In-Time training for response team

• Experimental Therapy (Zmapp) protocol activation (requires patient weight)
Membership is voluntary.
- Must be able to tolerate PPE for 4 consecutive hours and commit to quarterly training

Initial training includes:
- Activation Protocols
- Infection Control practices
- Member roles and responsibilities
- Personal Protective Equipment
- Behavioral health

Refresher training (quarterly)
- PPE donning/doffing
- Skills while in PPE (i.e., PIV placement, intubation)

“Just-in-Time” training

Dedicated training for Safety Monitors, Security

Physician consultants (e.g., nephrologists) to utilize telemedicine equipment for patient care
Portable Laboratory (Neighboring Patient Room)

- Portable Class 2 Biosafety cabinet setup in adjacent room
- Lab techs will work in pairs (both in full PPE)
- Specimen handoff protocols
- Category A Specimen packaging
- No labs performed in main laboratory
- Testing capabilities include:
  - Electrolytes, CBC with differential, LFT, coagulation studies, urinalysis, malaria, rapid influenza, HIV, pregnancy test
Waste Management

• Waste Streams
  – EMS/Ambulance waste
  – ED
  – Treatment area (ICU)

• Liquid waste
  – Pretreatment with disinfectant
  – Applies to toilet, sink, dialysate

• Solid waste
  – Dedicated transport pathway
  – Four large-capacity onsite autoclaves
  – Contracted third-party waste transport vendor (backup)
Special Pathogens Exercises

• Conducted quarterly
• Often involve multiple external agencies (e.g., health department, EMS)
• Always include a previously untested skill

• April 2018: “Tranquil Terminus”
  – Largest patient movement exercise in DHHS history
  – Cedars-Sinai accepted 2 patients flown to LAX from Idaho (via Washington)
  – Command Center activation; team notification and staffing plan
  – Experimental therapy (Zmapp); drug received within 24 hours and appropriately dosed
Other Recent Exercises

• Admission of a patient with viral hemorrhagic fever (VHF)
  – Lab draw and reporting, remote clinical consultation, dialysis initiation, intubation

• Inpatient with confirmed VHF
  – Portable CXR, spill management, waste transport

• Management of two VHF patients simultaneously
  – Informed Consent for experimental therapy

• Management of a cluster of patients with Middle East Respiratory Syndrome (MERS)
• As the regional Ebola/Special Pathogen Treatment Center, Cedars-Sinai remains prepared to manage up to two patients with “special pathogens” within 8 hours of notification

• Cedars-Sinai conducts quarterly training and exercises to continue to expand our treatment capabilities

• Considerations for hospitals preparing to manage a patients suspected of having Ebola:
  – Emphasize readiness for the *likely* presentation of a PUI
  – Unannounced “walk-in” exercises can be an effective tool to reinforce the concept of “Identify, Isolate, Inform” with front line staff
  – Consider “rapid activation” checklists to promote healthcare worker and patient safety while assessing a patient as a possible PUI
  – Close collaboration with your local health department is essential
Thank you