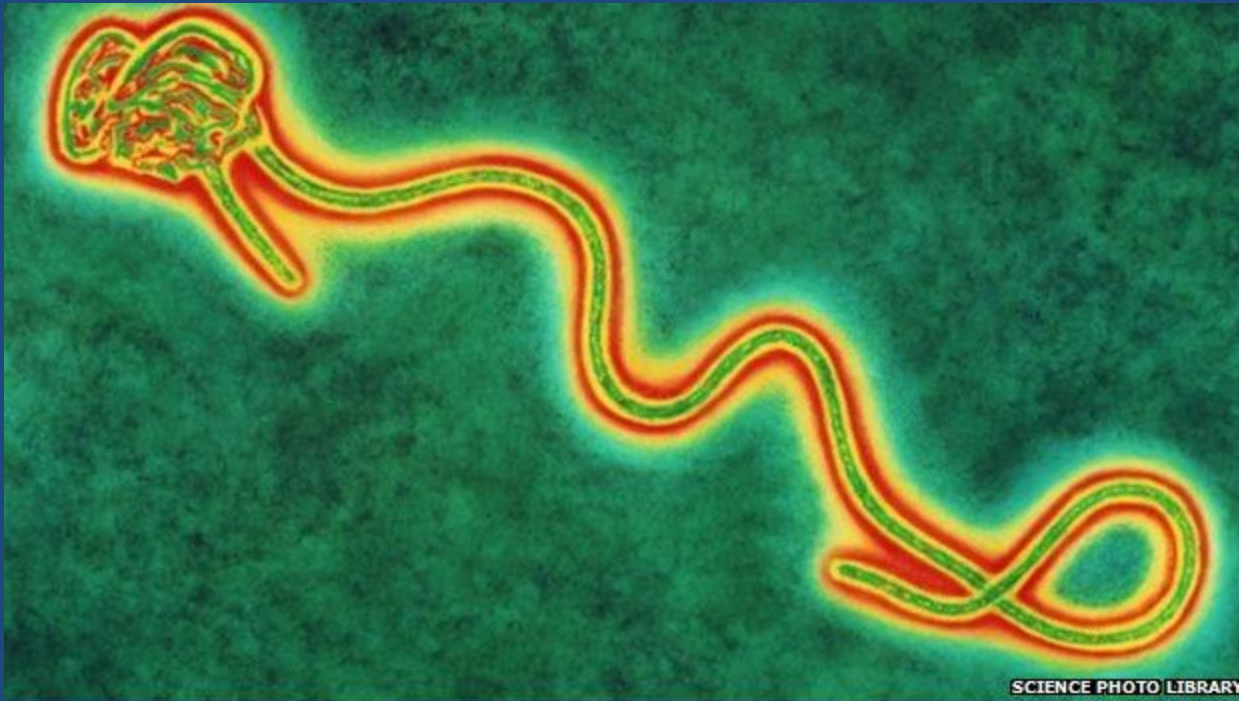


Ebola: What Staff Need to Know



Department of Epidemiology & Infection Control
Rhode Island Hospital

Ebola Virus Disease

- **Ebola virus causes infection in humans and other primates**
- **Presenting symptoms are non-specific and can be mistaken for other infections such as malaria**

CDC Case Definition for Person Under Investigation for Ebola Virus Infection

- A person who has consistent symptoms and risk factors:
- Symptoms: fever $> 101.5^{\circ}\text{F}$ and any of the following: severe headache, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage; AND
- Epidemiologic risk factors: w/i past 21 d before symptom onset (eg, contact with blood or other body fluids or human remains of a patient known to have or suspected to have EVI; residence in, or travel to, an area where EVI transmission is active; or direct handling of bats or non-human primates from disease-endemic areas.

Initial Lab Findings

- Leukopenia
- Lymphopenia
- Thrombocytopenia
- Transaminitis
- Proteinuria
- Prolonged PT/PTT

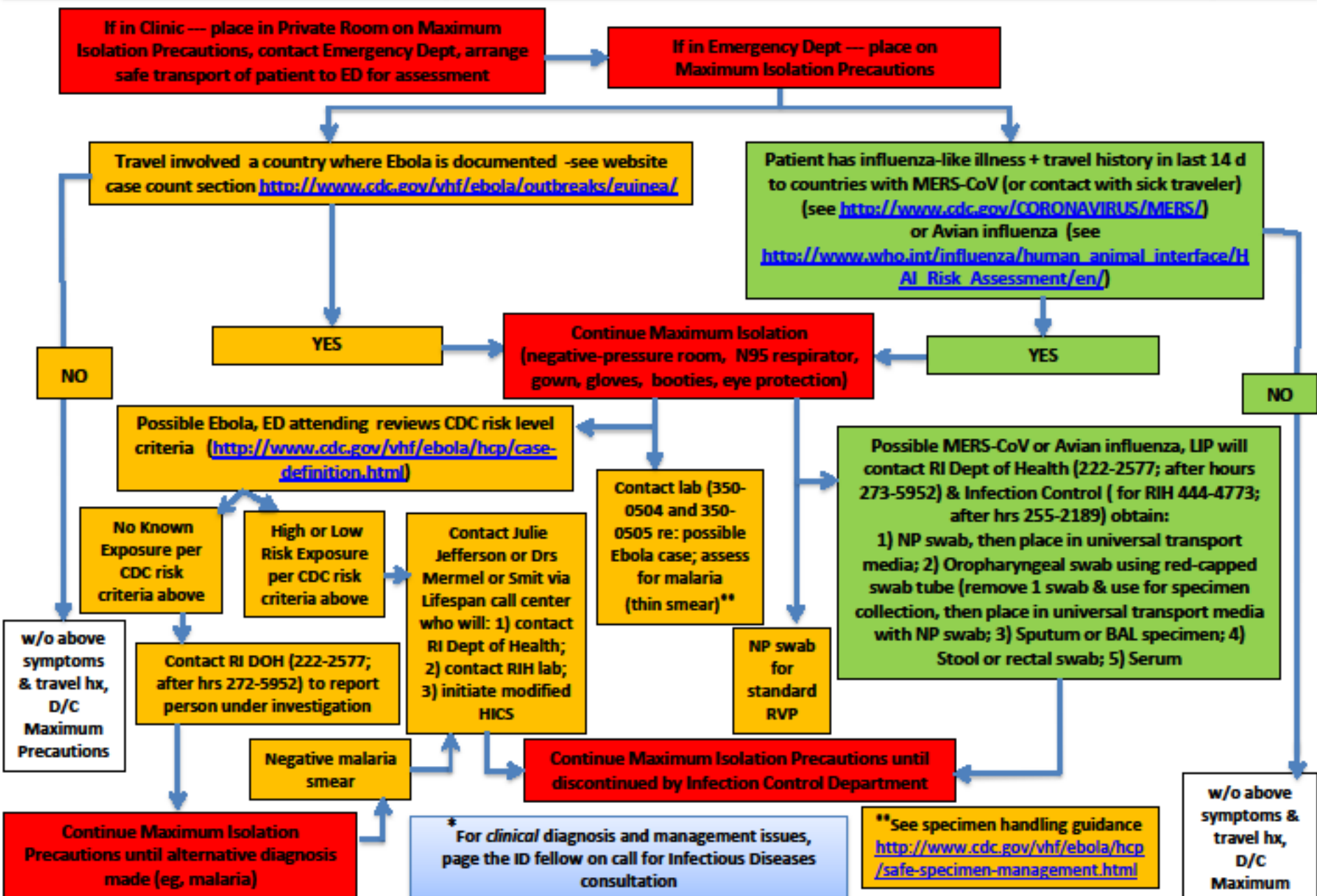
Transmission

- **CONTACT with bodily fluids**
 - Blood
 - Saliva
 - Sweat
 - Tears
 - Urine
 - Semen
- **NOT AIRBORNE!!!**

Supportive Care is Essential

- **No current FDA- approved or proven effective treatment or vaccine**
- **Fluid and electrolyte balance**
- **Hemodynamic monitoring, etc**

**RIH/HCH Decision Tree for Adult & Pediatric Patients Presenting with Some of the Following:
Fever, Headache, Myalgias/Arthralgias, N/V/D, Sore Throat, or Unexpected Bleeding
AND Travel Outside the US in Last 21 Days or Contact with Someone Who is Sick and Traveled Outside the US in the Last 21 Days***



Infection Control Measures

- Isolate the patient in a negative pressure room on **MAXIMUM** Isolation
- Contact Infection Control
- Retrieve Ebola PPE cart
- Obtain specimens as clinically indicated
 - Double bag specimens in biohazard bags, after wiping them with a bleach wipe and notify lab that they being hand carried to the lab in a special leak-proof container
 - **Dp NOT USE THE PNEUMATIC TUBE SYSTEM**
- Rule/out malaria
 - Obtain blood in lavender tube and double bag as above



MAXIMUM ISOLATION

**Visitors - Report to Nurses' Station
Before Entering Room**

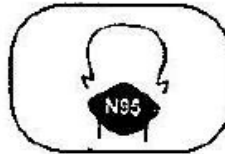
The following PPE is required to enter room:



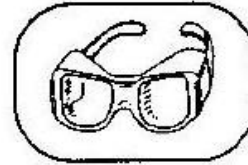
Gloves



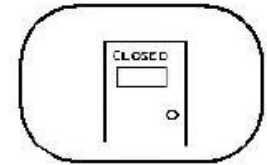
Gowns



N95Respirator



Eye Protection



Negative Pressure
Room

IN ADDITION TO STANDARD PRECAUTIONS:

PRIVATE NEGATIVE PRESSURE ROOM is REQUIRED. Keep door closed.

RESPIRATOR REQUIRED: N95 respirator or PAPR

CLEAN HANDS with an alcohol hand gel or an antimicrobial soap before leaving the room.

DEDICATE non-critical items

CLEAN AND DISINFECT ALL EQUIPMENT before it leaves room

SPECIAL CLEANING PROCEDURES ARE REQUIRED*

SPECIAL HANDLING OF MEDICAL WASTE AND LINEN IS REQUIRED*

VISITORS are restricted

RESTRICT MOVEMENT OF PATIENT: Transport only if absolutely necessary after consultation with Infection Control Department

DO NOT REMOVE SIGN UNTIL ROOM HAS BEEN CLEANED

Personal Protective Equipment

- All persons entering the room will wear at minimum:
 - Gown: fluid resistant yellow cloth isolation gown
 - Double Gloves: longer cuffed purple nitrile gloves
 - Masks: N95 respirator or PAPR
 - Eye Protection: faceshield
 - Knee High booties
- Additional PPE may be required in certain situations (copious blood or other body fluids or for aerosol-generating procedures)
 - Double gloving
 - PAPR
 - Tychem suits-contact infection control

Doffing (removal) of PPE

- The removal of PPE will be done with a “Buddy”
- The Buddy is another healthcare worker who will watch the PPE removal to ensure that it is done correctly
- As of this time, PPE will be removed inside the patient’s room, close to the doorway

Patient Care Equipment

- **Dedicated medical equipment will be used and remain in the patient's room**
 - **Stethoscope**
 - **BP cuff and sphygmomanometer**
 - **Disposable thermometer**
 - **Tourniquet**
- **Disposable equipment as much as possible (eg, meal trays)**
- **Non-disposable equipment will be thoroughly cleaned & disinfected with Infection Control guidance**

Patient Care Considerations

- Limit phlebotomy, procedures and laboratory testing to the minimum required for patient care
- Room entry will be restricted
 - Only staff caring for patient and necessary cleaning
 - No visitation – exceptions by Infection Control
 - A log will be kept of everyone entering the room
 - A checkbox will list proper removal of PPE and Hand Hygiene
- No aerosol-generating procedures will be performed unless a life-threatening situation exists; contact Infection Control beforehand if possible

Laboratory Specimens

- All specimens will be labeled “SUSPECTED HFV”
- Double bag specimens in biohazard bags after wiping specimen containers with a bleach wipe
- Place in rigid transport container and hand carry to Microbiology on APC 11



Testing Available

- Tests Available in i-STAT Panels
 - ACT*
 - Glucose*
 - Hematocrit*
 - Hemoglobin*
 - Ionized Calcium*
 - Potassium*
 - Sodium*
 - Lactate
- Arterial Blood gas
- Micro
 - Rapid HIV
 - Rapid Strep
 - Blood Culture
- Hematology
 - Smear for parasites
 - Hgb
 - Hct
- Coags
 - PT
 - PTT
- PregCheck
 - hCG
- DrugCheck
- UrinCheck

Respiratory Therapy

- **Contact Infection Control re: cleaning and disinfection of non-disposable RT equipment**

Patient Transport-Ebola



“Mummy-wrapping” Place patient on a clean opened sheet. Remove PPE, perform hand hygiene, cover patient with clean sheet being careful to keep hands on clean side of the sheet. Perform hand hygiene. Drape a clean sheet over patient as seen below

A second person will accompany transporter to push buttons/open doors. PPE may be worn DO NOT WEAR GLOVES (that have touched the patient) WHILE TRANSPORTING THE PATIENT.

Touch only the clean sheet. You may carry clean gloves with you in case of emergency. Put a gown and gloves on to move the patient off the stretcher



Environmental Cleaning/Control

- **EVS staff will wear PPE for cleaning isolation rooms**
- **Dispatch will be used for cleaning**
- **Linens will be disposed of as medical regulated waste**
- **Upholstered or difficult to clean furniture will be removed before the patient enters the room**
- **Regulated medical waste will remain in the room and will be double-bagged at the time of removal**
- **Staff member holding outer bag will wear gloves and perform Hand Hygiene**

Occupational Health

- **Any possible exposure blood or body fluids should follow standard hospital protocol for such exposure**
- **Report any possible occupational exposures to blood or body fluids to Employee and Occupational Health ASAP**

Diagnostic Imaging

- If an x-ray is absolutely required for the patient's care, then a portable x-rays will be obtained using isolation technique and two radiology techs



Estimating the Future Number of Cases
in the Ebola Epidemic —
Liberia and Sierra Leone, 2014–2015



- CDC model estimates the ~21,000 total cases will have occurred in Liberia and Sierra Leone by Sept 30, 2014
- Without interventions there will be a doubling of cases every 20 days...