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To: Public Health and Healthcare Partners
From: New Jersey Department of Health (NJDOH), Communicable Disease Service (CDS)
Date: February, 2015
Subject: FAQs for Evaluating Fever in a Returning Traveler from West Africa

Fever is an extremely common presenting complaint. The differential diagnosis is extremely broad, with causes ranging from mild respiratory illnesses to life-threatening diseases. Because Ebola virus disease (Ebola) commonly starts with a fever (defined as subjective or a recorded temperature ≥100.4^{o}), it should be considered in the differential diagnosis for those patients who have had a potential exposure. This FAQ is designed to help the clinician when a patient presents for medical care and Ebola may be a consideration.

The most common causes of fever in a returning traveler from West Africa, independent of potential exposure to Ebola, include: malaria, respiratory infections (including influenza, bacterial pneumonia, and bronchitis), gastrointestinal infections, dengue fever, hepatitis, typhoid fever, urinary tract infection/pyelonephritis, rickettsial disease, tuberculosis, and meningitis. **In particular, malaria should be strongly considered in a traveler to West Africa with a non-specific febrile illness.**

1. **When should Ebola be a consideration in my patient?**
   For Ebola to be a consideration in your patient, the patient must have an epidemiologic risk factor for Ebola. Epidemiologic risk factors for Ebola include direct exposure to the blood or body fluids of a symptomatic person with Ebola or travel to a country which is experiencing widespread transmission of Ebola (currently Sierra Leone, Liberia, and Guinea – see CDC's Ebola website for a continually updated list of countries affected by the ongoing outbreak of Ebola in West Africa: www.cdc.gov/ebola/). The epidemiologic risk must have occurred in the 21 days before the onset of the patient's symptoms.

2. **What signs/symptoms are consistent with Ebola?**
   The following signs and symptoms are seen in patients with Ebola: fever, malaise, myalgias, abdominal pain, nausea, vomiting, diarrhea, unexplained bleeding or bruising, rash, and confusion. However, none of these signs or symptoms is specific for Ebola and may be seen in a variety of other conditions.

3. **If Ebola is a consideration in the patient I am evaluating (because the patient has an epidemiologic risk factor for Ebola and has signs and symptoms consistent with Ebola), what immediate steps should I take?**
   The patient should immediately be isolated. Standard, contact, and droplet isolation precautions

should be implemented. The local public health department for the area where the patient lives should **IMMEDIATELY** be notified about the patient (http://localhealth.nj.gov). If the patient is from out of state, notify the New Jersey Department of Health: 609-826-5964 (during normal business hours) or 609-392-2020 (outside of normal business hours).

4. **What questions should be asked in the history for a patient who is a recently returned traveler from a country currently experiencing widespread transmission of Ebola?**
   Questions should be asked regarding direct contact with symptomatic Ebola patients or their body fluids, contact with other ill individuals while abroad, attendance at any funerals in West Africa, the arrival and departure dates in West Africa, all locations the patient traveled to in Africa, the purpose of the patient's travel, use of prophylactic medication for malaria, status of vaccination for typhoid fever, recent illnesses, and current medication use, including over-the-counter medications such as antipyretics.

5. **If a patient's only epidemiologic risk factor for Ebola is travel to a country currently experiencing widespread transmission of the disease and the patient did not have any known direct contact with a symptomatic Ebola patient or their body fluids, how likely is Ebola?**
   In this case, the patient's epidemiologic risk for Ebola is considered to be low. It is much more likely that the patient has another illness causing fever other than Ebola.

6. **What is the most likely diagnosis in a febrile traveler returning to the United States whose only epidemiologic risk factor for Ebola is travel to a country currently experiencing widespread transmission of the disease?**
   Malaria is the most likely diagnosis in this situation. However, many other conditions are possible.

7. **After a complete physical examination, what basic laboratory work-up should be performed in a patient for whom Ebola is a consideration?**
   Complete blood count with differential, comprehensive metabolic profile, liver function tests, coagulation studies, thick and thin blood smears for malaria (or rapid antigen testing if a blood smear is not immediately available), rapid testing for influenza, and any other laboratory or radiographic studies indicated by the history and physical examination.

8. **What laboratory abnormalities can be consistent with Ebola?**
   Some of the lab abnormalities seen in Ebola include: thrombocytopenia, leukopenia (specifically lymphopenia), elevated transaminases, prolonged coagulation studies, elevated creatinine, and hyponatremia. However, none of these lab abnormalities is specific for the diagnosis of Ebola and may be seen in many other conditions.

9. **When should testing for Ebola be considered in my patient?**
   The specific decision regarding whether or not to test a patient for Ebola is made in consultation with the New Jersey Department of Health, which routinely consults with CDC about such cases. In the absence of specific contact with symptomatic Ebola patients or their body fluids, diagnoses other than Ebola are far more likely than Ebola. In certain situations (based upon epidemiologic risk, clinical presentation, and laboratory abnormalities), Ebola testing may be indicated. As a note, specific testing for Ebola that is done within 72 hours after the onset of symptoms may be

falsely negative. Currently, testing for Ebola in the state of New Jersey will occur at the state public health laboratory.

10. **In patients who had signs or symptoms of Ebola and an epidemiologic risk factor and were seen at hospitals in New Jersey, what were the final diagnoses?**
    As of the date of this document, among patients who have been evaluated in New Jersey for whom Ebola was a consideration, approximately 1/3 were ultimately diagnosed with malaria. Other diagnoses have been influenza and viral meningitis. Some patients did not have clear-cut diagnoses but improved symptomatically. No patients had Ebola. Only one patient has required testing for Ebola.

11. **Where can I find more information about the ongoing outbreak of Ebola?**
    www.cdc.gov/ebola/
    www.nj.gov/health/cd/vhf/index.shtml
    http://localhealth.nj.gov/