DEPARTMENT OF DEFENSE (AFHSC)

Detecting and Reporting DoD Cases of Chikungunya Infection: Guidance as of 9 JUL 2015

1. **Case Diagnosis**:

   - Consider chikungunya virus infection in patients with acute onset of fever and polyarthralgia, especially travelers who have returned within two weeks from areas with virus transmission (CDC). Preliminary diagnosis should be based on the patient's clinical features, activities, as well as places and dates of travel. Order other appropriate lab tests on suspect patients (see below for confirmed case criteria).

   - Consider dengue and Zika virus infection, including co-infections. Proper treatment of dengue (WHO guidelines) can improve outcomes. Dengue, chikungunya, and Zika viruses are transmitted by the same mosquitoes and have similar clinical features. These viruses often circulate in the same area and can cause occasional co-infections in the same patient. Chikungunya virus infection is more likely to cause high fever, severe arthralgia, arthritis, rash, and lymphopenia, while dengue more likely to present with fever, myalgia, neutropenia, thrombocytopenia. Rarer, more severe forms – dengue shock syndrome and hemorrhagic fever – can result in death. Zika causes a self-limited disease similar to a mild case of dengue fever. Co-infections may include any of these symptoms.

   - Differential diagnoses include leptospirosis, malaria, rickettsia, group A streptococcus, rubella, measles, parvovirus, enteroviruses, adenoviruses, other alphaviruses (e.g. Mayaro, Ross River, and o'nyong'nyong), post-infection arthritis, and rheumatologic conditions.

   - Consider the possibility that some patients may present without a diagnosis of chikungunya fever for the first time with a relapse of rheumatologic symptoms (e.g., polyarthralgia, polyarthritis, tenosynovitis) in the months following acute illness and that some patients may have persistent joint pain for months to years after infection.

2. **Clinical Diagnostic Testing:**

   - USAMRIID Special Pathogens Laboratory (SPL)
     usarmy.detrick.medcom-usamriid.mbx.special-pathogens-lab@mail.mil
     301-619-3318 (DSN 343)
     For sample submission please use the SPL Form.

   - NMRC Navy Infectious Disease Diagnostic Laboratory (NIDDL)
     LCDR Todd Myers
     todd.e.myers.mil@mail.mil
     301-319-3113
     The Composite Health Care System (CHCS) can be used for sample submission in the National Capital Region
     For all others, the request form can be found on http://www.med.navy.mil/sites/nmrc/Pages/niddl.htm.

   - Chikungunya testing is also performed at CDC, several state health departments, and one commercial laboratory. If a non-DoD lab is used, saving an aliquot of refrigerated serum for DoD lab characterization is highly recommended.

3. Reporting:

- Report confirmed cases of chikungunya infection – not probable or suspect cases – through the Disease Reporting System Internet (DRSi) as "Chikungunya Fever", and include in the report clinical presentation, travel history, and hospital admission status/dates. The "Any Other Unusual Event" screen is no longer be used for chikungunya.

    - A confirmed case of chikungunya is defined as (CDC / PAHO):
    - History of acute onset of fever of >102°F and severe arthralgia/arthritis not explained by other conditions, AND
    - Travel to an area with reported transmission within 15 days prior to symptom onset (Consider the possibility that the patient may have travel to or lives in an area with unrecognized transmission), AND
    - At least one positive lab test
        - Virus culture (first 3 days of illness)
        - RT-PCR (first 8 days of illness)
        - Detection of IgM in a single serum sample (collected during acute or convalescent phase)
        - Four-fold increase in chikungunya-specific IgG or NA antibody titers (samples collected at least two weeks apart; first sample collected after seven days)
    - Cases are considered suspect cases until laboratory confirmed.

- Direct questions on reporting to the appropriate Service-specific public health POCs:

    - Navy - Contact your cognizant Navy Environmental and Preventive Medicine Unit (NEPMU) and the DRSi helpdesk:

        - Navy Environmental and Preventive Medicine Unit Two
          Naval Station Norfolk, VA
          COMM: (757) 953-6600; DSN: (312) 377-6600

        - Navy Environmental and Preventive Medicine Unit Five
          Naval Base San Diego, CA
          COMM: (619) 556-7070; DSN (312) 526-7070

        - Navy Environmental and Preventive Medicine Unit Six
          Joint Base Pearl Harbor-Hickam, HI
          COMM: (808) 471-0237; DSN: (315) 471-0237

        - Navy Environmental and Preventive Medicine Unit Seven
          Naval Station, Rota
          COMM (international): 011-34-956-82-2230 (local: 727-2230); DSN: 94-314-727-2230

        - Navy and Marine Corps Public Health Center DRSi Helpdesk
          usn.hampton-roads.navmcpubhlthcenpors.list.nmcphc-ndrs@mail.mil
          757-953-0700 (DSN 377-0700)

    - U.S. Air Force School of Aerospace Medicine
      Epidemiology Consult Service
      episervices@wpafb.af.mil
      937-938-3207 (DSN 798-3207)

    - Army Institute of Public Health
      Disease Epidemiology Program

usarmy.apg.medcom-phc.mbx.disease-epidemiologyprogram13@mail.mil
410-417-2377 (DSN 867-2377)

- Be aware of local civilian reporting requirements in order to improve cross communication, facilitate diagnosis, and mitigate the risk of local transmission (e.g., Florida requires state reporting).

4. Surveillance:

- Use the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) or Medical Situational Awareness in Theater (MSAT) to monitor febrile illnesses in the population for any increases. An ESSENCE account can be created here. Create an ESSENCE or MSAT syndrome group with ICD-9 codes and investigate upticks for potential chikungunya risk factors.

    - ICD-9-CM 066.3 "Other mosquito-borne fever" (includes chikungunya fever)
    - ICD-9-CM 065.4 "Mosquito-borne hemorrhagic fever" (includes chikungunya hemorrhagic fever)
    - ICD-9-CM 062.8 "Other specified mosquito-borne viral encephalitis" (chikungunya encephalitis)

- Since ESSENCE captures only outpatient data, evaluate hospitalized individuals with acute febrile disease, polyarthralgia, and travel to endemic areas. For theater medical data, MSAT can be used to monitor both outpatient and inpatient populations.

5. Mosquito Surveillance, Entomology, and Environmental Lab Support Points of Contact:

- U.S. Army Public Health Command has five regional commands, all of which have Entomological Sciences Divisions that perform mosquito-borne disease surveillance. Four of the five regional commands have laboratories capable of PCR testing for chikungunya in mosquito pools (the fifth lab can quickly set up capability).

    - For environmental laboratory support:
      LTC Robert Richards
      robert.s.richards.mil@mail.mil
      410-436-5060 (DSN 584-5060)

    - Tom Burroughs
      Manager, Entomological Sciences Program
      thomas.m.burroughs.civ@mail.mil
      410-436-3613 (DSN 584-3613)

- The U.S. Air Force School of Aerospace Medicine identifies and tests mosquitoes worldwide for many arboviruses including chikungunya and dengue. In addition USAFSAM provides expertise for operational disease vector surveillance, control, and training.

    - Dr. Will K. Reeves
      Entomologist, U.S. Air Force School of Aerospace Medicine (USAFSAM)
      will.reeves@us.af.mil
      Epidemiology Consult Services
      937-938-3071 (DSN 798-3071)

- Navy and Marine Corps Public Health Center has the above four regional NEPMUs which provide operational services in entomology. Additionally, the Navy Entomology Center of Excellence provides expertise for operational disease vector surveillance, control, and training.
    - CDR Darryl Arfsten

Officer in Charge, Navy Entomology Center of Excellence
Darryl.p.arfsten.mil@mail.mil
904-542-4626

6. Other Resources:

- Navy-specific information can be found at NMCPHC's web site.
- The Armed Forces Pest Management Board has a chikungunya preparation page on their website providing up-to-date guidance on insect repellents, as well as chikungunya and dengue control.
- The U.S. Air Force School of Aerospace Medicine has facts sheets on their epidemiology consult service website.
- U.S. Army Public Health Command has a fact sheet on chikungunya available on their website.
- U.S. Naval Medical Research Unit 6 (NAMRU6) in Peru has diagnostic capabilities, can support outbreak investigations, and has contacts in numerous regional ministries of health in Central and South America.
- CDC guidelines for health professionals on the evaluation of infections with chikungunya are found on their website. CDC guidelines for laboratory diagnosis involve testing serum or plasma samples to detect virus, viral nucleic acid, or virus-specific immunoglobulin M and neutralizing antibodies.
- Please see the WHO Global Alert and Response chikungunya website for worldwide chikungunya outbreak information.

7. Risk communication and preparation considerations:

- Beneficiaries living in or traveling to higher risk areas should know prevention methods for chikungunya virus, which is transmitted by mosquitoes. See CDC prevention guidelines.
- There is no antiviral treatment or vaccine currently available for chikungunya. Prevention relies on effective mosquito control and avoidance of vectors. Use insect repellent containing DEET or picaridin; wear long sleeves and long pants treated with permethrin for added protection; and limit outdoor activities in order to prevent mosquito bites, decreasing the risk of dengue and chikungunya infection.
- DoD health care providers in higher risk areas and areas that receive travelers from chikungunya-endemic areas should know the clinical manifestations of chikungunya, how to obtain confirmatory laboratory testing, and how to treat the disease.
- Historical data suggests 5-10% of affected patients may develop chronic rheumatological complications underscoring the importance of preventative measures.
- Installations should be prepared to carry out necessary mosquito surveillance programs and to execute any appropriate mosquito control operations to reduce the size of vector populations and prevent spread of the virus.

8. AFHSC POCs:

- Contact the AFHSC's Division of Integrated Biosurveillance (AFHSC/DIB) or the Division of Global Emerging Infections Surveillance & Response Systems (AFHSC/GEIS), email: usarmy.ncr.medcom-afhsc.list.dib.alert-response@mail.mil.
    - Dr. Rohit A. Chitale, Director, (AFHSC/DIB): 443-253-0525; desk: 301-319-3241; BB: 240-507-7492
    - Dr. Stic Harris, Team Lead, Alert & Response Operations (AFHSC/DIB): 301-319-3297
    - Maj Kevin Haines, USAF, Assistant Director (AFHSC/DIB): 301-319-3288
    - Dr. Brett Forshey, Lead, Vector Borne Disease Surveillance (AFHSC/GEIS): 301-319-3267