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National Focal Point for International Health Regulations

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**Subject: Advisory for Prevention and Control of Crimean Congo Hemorrhagic Fever (CCHF)**

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**Background:**

Crimean-Congo hemorrhagic fever (CCHF) is caused by a tick-borne virus (*Nairovirus*) of the Bunyaviridae family. The virus causes severe viral hemorrhagic fever outbreaks in humans, with a case fatality rate of 10–40%. Globally, three billion people are at risk of CCHF, with 10,000 to 15,000 infections and five hundred fatalities reported annually. Since the diagnosis of the first human case of CCHF in Pakistan in 1976, sporadic cases have continued to occur in various geographical regions of the country. Though Balochistan remains the most affected province due to unregulated/ unchecked cross-border animal transportation, but cases have been reported from other parts of the country every year. During the year 2023, a total of 101 confirmed cases of CCHF have been reported across the country with 25% case fatality.

**Purpose:** In the wake of high disease transmission and risk due to anticipated increased human-animals interaction during upcoming Eid-ul-Azha, it is imperative to be vigilant about the situation and take necessary steps to interrupt the transmission of CCHF. The objective of this advisory is to sensitize human and animal health care authorities and other relevant stakeholders to further strengthen and improve the level of preparedness for the prevention and control of CCHF.

**Case Definition:**

**Suspected:** Any person with sudden onset of fever over 38°C or more for > 3 days and less than 10 days, especially in CCHF endemic area and with a contact history (History of contact with confirmed patient, animal, raw meat, tick bite, or visit to cattle markets).

**Probable:** Suspected case with history of febrile illness of 10 days or less with epidemiological link to CCHF endemic areas and ANY two of the following: thrombocytopenia less than 50,000/mm<sup>3</sup>, petechial or purpuric rash, epistaxis, hematemesis, hemoptysis, blood in urine and/or stool, ecchymosis, and gum bleeding.

**Confirmed:** Suspected/probable case with laboratory confirmation of CCHF (PCR)

**Reservoir:** Ticks, especially of the *Hyalomma* genus are both reservoir and vector for the CCHF virus. Numerous wild and domestic animals, such as cattle, goats, sheep, rats, and hares, serve as amplifying hosts for the virus. Birds are generally resistant except for ostriches.

**Mode of Transmission:** The CCHF virus is transmitted to people either by tick bites or through contact with infected animal blood or tissues during and immediately after slaughter. Transmission to humans occurs through contact with infected ticks or animal blood. CCHF can be transmitted from an infected person to another person by contact with infectious blood, secretions, aerosol, or body fluids. Hospital-acquired CCHF infections can also occur due to poor IPC practices, improper sterilization of medical equipment, reuse of injection needles, and use of contaminated medical supplies.

**Incubation period:** Following infection by a tick bite, the incubation period is usually 1-3 days, with a maximum of 9 days. The incubation period following contact with infected blood or tissues is usually 5-6 days, with a documented maximum of 13 days.

**Risk Groups:** Animal herders, livestock workers, and slaughterhouse workers, veterinarians in endemic areas are at risk of CCHF. Healthcare workers in hospitals and endemic areas are at risk of infection due to unprotected contact with infectious blood and body fluids.

**Clinical presentation:** The onset of CCHF is sudden with initial signs and symptoms including headache, high-grade fever, back pain, joint pain, abdominal pain, diarrhea, and vomiting. Red eyes, flushed face, red throat, and petechiae (red spots) on the palate with bleeding from gums are common. Symptoms may also include jaundice and in severe cases, changes in mood and altered sensorium which may be replaced by drowsiness and lethargy after two to four days of illness. As the disease progresses, large areas of severe bruising, severe nosebleeds, and uncontrolled bleeding at injection sites can be seen, beginning on about the fourth day of illness and lasting for about two weeks. In patients who recover, improvement generally begins on the ninth or tenth day after the onset of illness.

The presenting complaints, signs, and symptoms of CCHF cases may mimic Dengue Hemorrhagic Fever (DHF). Considering its transmission dynamics (human-to-human) and high mortality, it is imperative to exclude CCHF through a careful epidemiological history/ clinical examination of the patient while strictly observing infection control measures.

**Treatment:** General supportive care with treatment of symptoms is the main approach for managing CCHF patients. Early initiation of treatment with antiviral drug ribavirin has apparent benefits, both oral and intravenous formulations seem to be effective.

**Preventive and Control measures:**

There is currently no safe and effective vaccine available for human use. In the absence of vaccine, the only way to reduce infection in people is by reducing risk factors and educating community on preventive measures. Public health advice should focus on several aspects.

**A) Reducing the risk of infection in community:**

- I. Reducing the risk of infection transmission from **tick-to-human** while visiting high risk areas:
  - o Wear protective clothing (long sleeves, long trousers).
  - o Wear light colored clothing to allow easy detection of ticks on the clothes.
  - o Regularly examine clothing and skin for ticks; if found, remove them safely.
  - o Use approved acaricides on clothing.
  - o Use approved insect repellent on the skin. Insect repellents are the most effective in warding off ticks in human populations.
  - o Avoid visiting areas where ticks are abundant and seasons (warmer temperatures) when they are most active.
  
- II. Reducing the risk of infection transmission from **animal-to-human**:
  - o Wear gloves and other protective clothing while handling animals or their tissues in endemic areas, notably during slaughtering, butchering and culling procedures in slaughterhouses or at home.
  - o Quarantine animals (Possibly 30 days) before they enter slaughterhouses or routinely treat animals with acaricides prior to slaughter.
  - o Inject Ivermectin to animals with ticks, 24-30 days before slaughtering.
  
- III. Reducing the risk of infection transmission from **human-to-human** in community:
  - o Avoid close physical contact with CCHF-infected people.
  - o Wear gloves and protective equipment when taking care of ill people.
  - o Wash hands with soap regularly after caring for or visiting ill people.
  - o Observe safe burial practices by avoiding contact with mucus membranes & body fluids of deceased patient and use of appropriate PPEs while touching deceased person.

## **B) Controlling infection in health-care settings:**

- Health-care workers caring for patients should adopt standard precautions regardless of diagnosis. These include basic hand hygiene, use of personal protective equipment, safe injection practices and environmental cleaning & disinfection.
- Samples of suspected CCHF cases should be collected, triple packaged and transported by a trained health staff and handled in suitably equipped labs.

## **C) Controlling vector in livestock:**

- CCHF infections are usually asymptomatic in animals and no vaccines is available for use in animals.
- Furthermore, tick vectors are numerous and widespread, so tick control with acaricides (chemicals intended to kill ticks) is an important option for well-managed livestock production facilities.
- The bird Lalli/Mynah (important in picking and eating ticks from skin of animals is a natural method which could help control populations of ticks) must not be shot or killed and be put under endangered species.
- Liquid formulation of acaricides should be sprayed on animal herds for prevention of tick infestation and can be injected in cracks and crevices of the area.
- Lime powder or acaricides can be applied on farm premises to reduce the tick population and prevent re-infection of the animals.

## **Laboratory Diagnosis and NIH Support:**

- Physicians should provide maximum clinical information especially possible contact history, date of onset of symptoms and sample collection when requesting for lab testing. Clinical summary must accompany the sample and packaged in a separate plastic zipper bag in the second layer of triple package.
- Lab tests for CCHF should be recommended to those who fulfill criteria of suspected case definition, details are also available at NIH website ([www.nih.org.pk](http://www.nih.org.pk)).
- Testing suspected patient samples presents an extreme biohazard risk and should only be conducted under maximum biological containment conditions. Safe disposal of lab waste should be followed strictly.
- Sample from suspected CCHF patients should be collected by trained phlebotomist with full preventive measures using appropriate personal protective equipment (PPEs).
- Recommended samples for testing are 3-5 cc venous blood in vacutainer or serum separator vial.
- CCHF can be diagnosed by:
  - Reverse transcriptase polymerase chain reaction (RT-PCR) assay
  - Enzyme-linked immunosorbent assay (ELISA)
- Suspected human CCHF samples must immediately be transported in triple package maintaining cold chain to Provincial Public Health Reference Laboratories (PPHRLs) or Department of Virology, Public Health Laboratories Division, NIH, Islamabad.
- For any further assistance in this context, the CDC (051 – 9255237 and Fax No. 051-9255099) and Virology Department of Public Health Laboratories Division (051-9255082), NIH may be contacted.

**The above 'Advisory' may please be circulated widely to all concerned.**

  
(Dr. Muhammad Salman)  
Chief Executive Officer

**Distribution Overleaf**

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38. Director, Nuclear Oncology & Radiotherapy Institute (NORI), Islamabad
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40. Commandant, Naval Complex Hospital, (PNS Hafeez), Islamabad
41. Medical Superintendent, Social Security Hospital, Islamabad
42. Director, Federal General Hospital, Park Road, Islamabad
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44. Executive Director, Qauid-e-Azam International Hospital, Islamabad
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53. Medical Superintendent, WAPDA Hospital, Rawalpindi
54. Medical Superintendent, Railway Hospital, Rawalpindi
55. Medical Superintendent, IHITC, Islamabad
56. In-charge, Federal Disease Surveillance Unit (FDSRU), NIH Islamabad
57. Officer In-charge, Provincial Disease Surveillance & Response Unit (PDSRU) at Provincial Health Directorates, Lahore, Hyderabad, Peshawar, Quetta, Gilgit and Muzaffarabad
58. Deputy Commissioners with the request to direct all concerned departments at district level.
59. Provincial Coordinator, EPI, Punjab, Sindh, KPK, Balochistan, GB and AJK

**C.c:**

1. Chief Secretary, Govt of Punjab, Sindh, KPK, Balochistan, GB and AJK.
2. Surgeon General Pakistan Army, GHQ Rawalpindi
3. Chief Commissioner, ICT Administration Islamabad
4. WHO Country Representative, Islamabad
5. SPS to Federal Minister of Health, M/o NHR&C, Islamabad
6. SPS to Secretary, M/o NHR&C, Islamabad
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