



16th July 2019

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

Purpose:

The extensive movement of sacrificial animals ahead of Eid-ul-Azha significantly enhances the risk of CCHF disease transmission due to increased human-animals interaction. The advisory aims to alert different stakeholders including the human and animal healthcare authorities for ensuring timely steps for the prevention and control of CCHF during next few months.

Background:

CCHF is caused by a tick-borne virus (*Nairovirus*) of the Bunyaviridae family with the case fatality rate ranging from 10- 40%. Ticks, especially of the *Hyalomma* genus serve as both the reservoir and vector for the virus. Numerous wild and domestic animals, such as cattle, buffaloes, goats and sheep are silent carriers of this virus and the adult ticks get infected by feeding on these animals.

CCHF have been reported from almost all geographical regions of Pakistan. Since 2015, a total of 643 laboratory confirmed cases have been reported to NIH across Pakistan with a mortality rate of around 25%. Over these years, over 70% of the cases (n=460) were reported from Balochistan followed by Sindh (n=63), Sindh (n=51) and Punjab (n=47) respectively.

Clinical presentation:

In animals, transient fever is the only sign which often goes un-noticed. In humans, the onset is sudden with initial symptoms of fever, headache, back pain, joint pain and vomiting. As the illness progresses, large areas of severe bruising, bleeding from nose and gums, and injection sites may be observed beginning on about the fourth day of illness and lasting for about two weeks.

Mode of Transmission:

Animals get virus through infected tick bite that remains in their bloodstream for about 1 week letting the tick-animal-tick cycle to continue. The CCHF virus is transmitted to humans either by tick bites or through direct contact with infested animal blood or tissues during and immediately after slaughter. CCHF can also be transmitted from patient to its contacts through infectious blood, secretions, organs or body fluids. Hospital-acquired CCHF infections can also occur due to poor infection control practices.

High Risk Groups:

Healthcare workers along with animal herders, veterinarians, para-veterinary staff, livestock workers, agriculture workers, animal merchants, butchers and slaughterhouse workers are at higher risk of CCHF. Apart from them the close contacts caring the patients and persons involved in burial practices are also at risk of getting infection.

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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 tissues is usually 5-6 days, with a documented maximum of 13 days.

Treatment:

General supportive care with treatment of symptoms is the main approach to managing CCHF. The antiviral drug Ribavirin (oral and IV) has been used to treat CCHF infection with apparent benefit.

Preventive measures:

There is currently no vaccine available for human and the only way to reduce infection is by raising awareness. Public health advice should focus on following aspects:

1. **Reducing the risk of infestation from tick-to-human:** Wear protective light colored clothing (long sleeves, long trousers) during visit to animal market / mandi to allow easy detection of ticks; and if found, remove them safely.
2. **Reducing the risk of infection transmission from animal-to-human:** Monitoring of sacrificial animal at entry points / markets by the authorities and making sure that every animal is treated with approved acaricides body sprays at least a week ahead of scheduled slaughtering. Wearing gloves and other protective clothing while handling animals or their tissues, notably during slaughtering, butchering and culling procedures in slaughterhouses or at home.
3. **Reducing the risk of human-to-human transmission:** Avoid close contact with suspected patients, wear gloves and protective equipment when taking care, wash hands frequently after caring or visiting ill people. Safe burial practices include spraying the dead body with 1:10 liquid bleach solution and then wrapping in winding sheet. The winding sheet should be sprayed with bleach solution, then the body be placed in a plastic bag, which should be sealed with adhesive tape. Disinfect the transport vehicle and burn all clothing of the deceased.
4. **Controlling infection in health-care settings:** Health-care workers caring suspected patients or handling their specimens should exercise standard plus contact infection control precautions. Suspected samples must be processed by trained staff working in suitably equipped labs.
5. **Controlling CCHF in livestock:** Always examine the animals for ticks especially on ears, arm pits, axilla, abdominal region, teats/udder and region below the tail. Tick control with approved acaricides (chemicals intended to kill ticks) is an important option. Ticks should never be crushed with fingers. Always use gloves and forceps for the removal and collection of ticks.

Using acaricides:

- Liquid formulation should be sprayed to animal herds for prevention of tick infestation and can also be injected in cracks and crevices of the area. Use Ecofleece (cypermethrin) spray on animals (1cc in 2 liter water) and for ground spray (1cc in 1 liter water).
- Use Tagofoin (cypermethrin) powder on live animals (1g in 1 liter water) and for ground spray (2g in 1 liter water).
- Use of injectable Avermectin 1ml/50kg body weight is recommended at least 3 weeks ahead of planned slaughtering. Whereas the spray of Ivermectins/topical application may be applied as drops along the vertebral column of animals (10-15 ml per animal) till one week ahead of scheduled slaughtering.
- Lime powder can also be applied on farm premises to reduce the tick population.

Precaution for General Public while visiting cattle markets:

- i. During visit to cattle markets, use full sleeves and light colored cloths, gloves and face mask.
- ii. Use insect repellents to save yourself from ticks.
- iii. Check clothes and skin carefully for presence of ticks while visiting the cattle market.
- iv. Use recommended tick sprays or showers for your purchased animals.
- v. Butchers should use appropriate gloves and long plastic shoes (gum boots) during slaughtering.
- vi. Wash your hands thoroughly with soap after coming in contact with animal or its blood.
- vii. Animals should be kept in clean and ventilated places in homes or in mohallahs (in case of combined slaughtering / ijtaimai qurbani) before slaughtering.
- viii. The water for animals should be stored properly and kept covered after use.
- ix. The blood, skin, intestines and other remnants of animals must be disposed off properly.
- x. The sanitation should be maintained at animal keeping places / sites. It is preferable to perform fogging / fumigation at animal keeping sites, in homes or in mohallahs (in case of combined slaughtering / ijtaimai qurbani), where animals were present before and during EID days.

Laboratory Diagnosis and NIH Support:

- Physicians should exercise high degree of suspicion while examining patients with likely symptoms. While requesting lab. testing, maximum clinical information must be provided especially dates of onset of symptoms, and sample collection.
- Lab tests for CCHF should only be recommended to those who fulfill criteria of suspected case definition available at NIH website (www.nih.org.pk).
- Sample from suspected CCHF case should be collected by trained phlebotomist with full preventive measures using appropriate personal protective equipment's. Recommended samples for testing are 3-5 cc venous blood in vacutainer or serum separator vial.
- Suspected human CCHF samples must be immediately transported to NIH as per guidelines to Department of Virology, Public Health Laboratories Division. NIH, Islamabad.
- CCHF can be diagnosed by Reverse transcriptase polymerase chain reaction (RT-PCR) assay and Enzyme-linked immunosorbent assay (ELISA).

For any further assistance in this context, the Field Epidemiology & Disease Surveillance Division (FE&DSD) (051 - 9255237 and Fax No. 051-9255575) and Virology Department of Public Health Laboratories Division (051-9255082), NIH may be contacted.