MOST URGENT

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

In the wake of high disease transmission risk due to likely increased human-animals interaction during upcoming Eid-ul-Azha, it is imperative to be vigilant about the situation and take certain steps to interrupt transmission of CCHF. This advisory sensitizes human and animal healthcare authorities to further strengthen and improve the level of preparedness in prevention and control of CCHF.

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

Although Baluchistan remains the most affected province, yet cases have been reported from almost all geographical regions of the country. During 2017, out of 372 total cases, 51 cases were found positive and out of positive cases 16 died (CFR = 31%). During 2018 till date, a total of 59 suspected cases have been submitted for testing, out of which 8 have been found positive for CCHF; 3 died (CFR = 38%).

Clinical presentation: In animals, transient fever is the only sign which often goes undiagnosed and un-noticed. In humans the onset of CCHF is sudden and initial symptoms are fever, headache, back pain, joint pain and vomiting. As the illness progresses, large areas of severe bruising, severe bleeding from nose and gums, and uncontrolled bleeding at injection sites can be seen, beginning on about the fourth day of illness and lasting for about two weeks.

Mode of Transmission: Animals become infected by infected tick bite. The virus remains in bloodstream of the animals for about 1 week after infection allowing the tick-animal-tick cycle to continue when another tick bites. 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. The majority of cases have occurred in people involved in the livestock industry, animal handlers, such as agricultural workers, slaughterhouse workers and veterinarians.

Transmission to humans occurs through contact with infected ticks or animal blood. CCHF can be transmitted from one infected human to another by contact with infectious blood, secretions, organs or body fluids of infected person. Hospital-acquired CCHF infections can also occur due to poor infection control practices.

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.

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High Risk Groups: Healthcare workers along with animal herders, veterinarians, para-veterinary staff, livestock workers, animal merchants, butchers and slaughterhouse workers are at higher risk of CCHF. Apart from them the close contacts caring the suspected case and person involved in burial practices are also at risk of getting infection.

Treatment: General supportive care with treatment of symptoms is the main approach to managing CCHF in people. The antiviral drug ribavirin has been used to treat CCHF infection with apparent benefit. Both oral and intravenous formulations seem to be effective.

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 several aspects:

1. **Reducing the risk of infection transmission from tick-to-human**: Wear protective clothing (long sleeves, long trousers)/ light colored clothing during visit to animal market/ mandi to allow easy detection of ticks on the clothes and regularly examine clothing and skin for ticks; if found, remove them safely and use approved acaricides/ repellents on clothing and skin.
2. **Reducing the risk of infection transmission from animal-to-human:** Monitoring of sacrificial animal at various entry points/markets by the authorities and making sure that every animal is treated with acaricides a week before reaching animal market/ mandi. Wear gloves and other protective clothing while handling animals or their tissues, notably during slaughtering, butchering and culling procedures in slaughterhouses or at home. Handle the hides/ skin of slaughter animals after wearing protective clothing. Routinely treat animals with acaricides prior to slaughter and quarantine for at least for 1 week before the slaughter.
3. **Reducing the risk of infection transmission from human-to-human in community:** Avoid close physical contact with CCHF-suspected patients, wear gloves and protective equipment when taking care of ill people, wash hands frequently after caring or visiting ill people and insect repellents are the most effective in warding off ticks in human populations. 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 for patients with suspected/ confirmed CCHF or their specimens should implement standard plus contact infection control precautions. Samples of suspected CCHF cases should be handled 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 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. Never handle ticks with bare hands. Frequent hand wash practice should be adopted. Make sure to avoid children contact with the animals. Never handle raw meat bare-handed.

Using acaricides:

- Liquid formulation of acaricides should be sprayed to animal herds for prevention of tick infestation and can 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).

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- The use of injectable Avermectin/Ivertek/ Eumectin (Ivermectins) 1ml/50kg body weight is recommended. Whereas the spray of Womictin (Ivermectins) on topical application is available and it should be applied as drops along the vertebral column of animals (10-15 ml per animal).
- Lime powder or acaricides can be applied on farm premises, which reduce the tick population and prevents to re-infect the animals.

Laboratory Diagnosis and NIH Support: Physicians should provide maximum clinical information especially dates of onset of symptoms and sample collection when requesting for lab testing. Lab tests for CCHF should be recommended to those who fulfill criteria of suspected case definition available at NIH website (www.nih.org.pk).Safe disposal of lab waste should be followed strictly. Sample from suspected CCHF case should be collected by trained phlebotomist with full preventive measures using appropriate personal protective equipments. 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 and Enzyme-linked immunosorbent assay (ELISA). Suspected human CCHF samples must be immediately transported to NIH as per guidelines to Department of Virology, Public Health Laboratories Division, NIH, Islamabad.

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.

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

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