

## European Monitoring Plans for the management of Outbreak of Crimean Congo Haemorrhagic Fever (CCHF)

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The Crimean Congo Haemorrhagic Fever (CCHF) is a viral infection caused by the CCHF virus (CCHFV), a member of the family *Bunyaviridae*, genus *Nairovirus*. This virus is transmitted by ticks of the genus *Hyalomma* and has been reported in more than 30 countries in Africa, Asia, South-East Europe and the Middle East [1] arising considerable public health concern in many regions of the world. The first case of CCHF was probably described by a Physician in Tajikistan in 1110 DC in a patient with hemorrhagic manifestations [2]. More recently, CCHF was described - for the first time as a proper clinical entity - in 1944-45 when about 200 Soviet soldiers were infected while providing assistance to farmers in the Crimea during the Second World War [3]. However the virus was first isolated from a Patient in the Democratic Republic of the Congo only in 1956 [4]. The disease is currently reported in Asia (China, Kazakhstan, Tajikistan, Pakistan, Afghanistan, Iraq, Iran, UAE, Oman, Yemen, southern Saudi Arabia), Africa (Mauritania, Senegal, Burkina Faso, Congo, Uganda, Kenya, Tanzania, Namibia, South Africa) [5] and Europe [6]. *H. marginatum*, the main vector of CCHF virus in Europe, is located in Albania, Bulgaria, Cyprus, France, Greece, Italy, Kosovo, Moldova, Portugal, Romania, Russia, Serbia, Spain, Turkey and Ukraine. In 2006 it was isolated for the first time in the Netherlands and in southern Germany [7,8]. As evidenced by a recent study (Estrada-Pena, 2012), favorable climate and ecological conditions present in several European countries bordering the Mediterranean Sea, could ensure a CCHFV expansion in the near future. The risk of infection is particularly high in Italy due to the presence of concomitant factors such as the wild ecological heterogeneity that characterizes its territory, and the peculiar position - in the middle of the Mediterranean area. Besides, the recent raising of the average seasonal temperatures in south European countries could increase the colonization by vector populations that were not naive [9]. Typically CCHF's clinical manifestations are high fever, malaise, severe headache and gastrointestinal symptoms. Extensive bleeding may occur in an advanced stage of the disease, with mortality rates ranging from 5% to 50%. CCHF is a disease of immediate communication to the public health authorities [4]. During the last decade the CCHFV has emerged and / or re-emerged in several countries of the Balkans, Turkey, in the regions of the south-west of the Russian Federation and Ukraine, with a significantly high mortality rates. The reasons for the re-emergence of CCHFV include climate and anthropogenic factors such as changes in agricultural practices or hunting activities and cattle movement. These factors can influence the dynamics of host-tick-virus. In the light of the dangerousness of this disease an International surveillance for the management of an outbreak of CCHF is needed. This should be carry out with an integrated approach among the countries at risk of infection in the Mediterranean area in order to design measures for prevention and control of this disease, mapping of endemic areas and assessing risk of CCHF transmission. In addition, the areas at risk of further expansion of CCHF should be identified also oversight [6]. Different elements concerning diagnosis, monitoring and treatment of CCHF should be considered in order to increase the surveillance in Europe defining appropriate measures for prevention and control. Currently there are no standard definitions regarding how

to notify CCHF infection and how "contact tracing" must be carry out in different European countries. Recent cases of nosocomial infection of health care workers infected by CCHFV have been documented. These cases stress the needing for a focused education, with particular regard to transmission pathways and to preventive measures; it is also crucial providing adequate resources on contrasting the diffusion of this disease [6]. Besides, in many countries at risk of infection, standard collaboration procedures and protocols for data exchange are not settled between human and animal health services. Therefore designing and creating a surveillance system for these vector-transmitted diseases should be aimed to develop common procedures and protocols for data exchange.

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