



Incidence of Crimean-Congo Hemorrhagic Fever (CCHF) in Al_Diwanyah Province during 2025

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Abstract

Crimean-Congo Hemorrhagic Fever (CCHF) is a severe viral illness caused by the CCHF virus (CCHFV). It is a zoonosis, meaning it can be transmitted from animals to humans. The primary vector is the Hyalomma tick, though the virus can also spread through direct contact with the blood or other bodily fluids of an infected person or animal. The disease is particularly alarming because of its high fatality rate, and the lack of an approved vaccine or specific antiviral treatment. The incubation period for CCHF varies; symptoms can appear within a few days of a tick bite or longer after exposure to infected blood. Early clinical signs often include a sudden onset of high fever, intense headaches that can feel like migraines, and severe fatigue. Ultimately, this study serves to raise awareness among medical and veterinary professionals about the critical importance of taking precautions to prevent exposure to and transmission of this dangerous virus. The current study start from 2025/4/30 – 2025/8/17

Key words : CCHF , Crimean-Congo Hemorrhagic Fever , Crimean-Congo Hemorrhagic Fever virus

معدل الإصابة بحمى القرم الكونغو النزفية (CCHF) في محافظة الديوانية خلال عام 2025

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الملخص

حمى القرم-الكونغو النزفية (CCHF) مرض فيروسي حاد يسببه فيروس CCHF (CCHFV) وهو مرض حيواني المنشأ، أي أنه يمكن أن ينتقل من الحيوانات إلى البشر. الناقل الرئيسي هو قراد هيلوما، مع أن الفيروس يمكن أن ينتشر أيضاً عن طريق الاتصال المباشر بدم أو سوائل جسم شخص أو حيوان مصاب. يُعد هذا المرض مثيراً للقلق بشكل خاص نظراً لارتفاع معدل الوفيات، وعدم وجود لقاح معتمد أو علاج محدد مضاد للفيروسات. تختلف فترة حضانة CCHF ؛ فقد تظهر الأعراض في غضون أيام قليلة من لدغة القراد أو لفترة أطول بعد التعرض لدم ملوث. غالباً ما تشمل العلامات السريرية المبكرة ارتفاعاً مفاجئاً في درجة الحرارة، وصداعاً شديداً يشبه الصداع النصفي، وإرهاقاً شديداً. في نهاية المطاف، تهدف هذه الدراسة إلى رفع مستوى الوعي بين المهنيين الطبيين والبيطريين حول الأهمية الحاسمة لاتخاذ الاحتياطات اللازمة لمنع التعرض لهذا الفيروس الخطير وانتقاله. تبدأ الدراسة الحالية من 17/8/2025 – 30/4/2025

Introduction

Crimean-Congo hemorrhagic fever (CCHF) is a zoonotic disease with a High fatality rate caused by the tick-borne CCHF virus (CCHFV)1–3. Isolated Human cases and sometimes local outbreaks have been reported throughout Africa, the Middle East, Asia and southern and eastern Europe, and associated with principal tick vectors, Hyalomma spp. These ticks also cause Substantial economic losses and health concerns in livestock with detrimental consequences



for the environment. The CCHFV is expected to Become endemic in new geographies with rise in disease incidence, vector Distribution extent and local abundances in response to climate changes, Environment and human (inter)actions. Accordingly, CCHF is included in The World Health Organization's list of prioritized diseases due to its high Fatality rate, global distribution, and the absence of an approved vaccine or Effective treatment (Kouhpayeh 2019) . Crimean-Congo hemorrhagic fever (CCHF) is a viral zoonotic disease with a high mortality rate in humans. CCHF is caused by genus *Nairovirus*, in family of *Bunyaviridae*, and is transmitted to humans through the bite of ticks *Hyalomma* spp or contact with blood or tissues of CCHF patients or infected livestock.(Emad S. Abul-Eis 2012)

CCHFV is a global tickborne infection with a high death rate (30% or more in certain cases) and a broad geographic range. Cases of CCHF, which is caused by CCHFV, have been recorded from Africa to Middle East Asia to Southern and Eastern Europe. No licensed vaccines or specialized antivirals exist to treat CCHF, and as the *Hyalomma* tick's distribution expands, so do the people at risk. Additionally, despite yearly reports of CCHF, knowledge of the host and viral drivers of CCHFV pathogenesis is limited. CCHFV's relationship with both creatures and humans is dichotomous. Although CCHFV can infect a wide variety of domesticated and feral mammalian species, including ovines and bovines, as well as specific avian species like ostriches, it does not induce substantial morbidity in these organisms (Hawman , et al ,2023)

CCHFV is a negative-sense single-stranded-RNA virus with a negative Sense (CCHFV; family *Nairoviridae*, genus *Orthonairovirus*) (Negredo A et al.2021)

Among arboviruses, CCHFV has the largest Genetic diversity; isolates differ in nucleotide sequences By 20% for the viral S segment and 31% for the viral M Segment (Suschak JJ, et al.2021)

The virus is mainly spread to humans through the bite Of infected *Hyalomma* spp. Ticks. Humans can contract CCHFV through contact with the blood, secretions, Organs, or other bodily fluids of infected individuals and Livestock during slaughter, in addition to infection via Mosquito bites. Tis increases the susceptibility of individuals in intimate contact with animals, such as pastoralists, veterinarians, and abattoir staff, to CCHFV Infections. The villagers, butcher, hospital staff, rancher, Veterinarian, and others susceptible to tick bites are all At risk (Lombe BP, et al.2022) Crimean–Congo hemorrhagic fever virus (CCHFV) evidence was first recorded in the former Soviet Union's Crimean region in 1944, and numerous other infected Persons were documented in other southern Soviet Republics, South Africa, and Bulgaria over the next Years. Because the same disease was discovered in the Congo area in 1969, CCHFV was labeled “CrimeanCongo hemorrhagic fever” (Wahid B, et al.2019) In Iraq the Crimean-Congo hemorrhagic fever was unknown in Iraq till September 1979, when 24 years old lady admitted to AL- yarmok hospital in Baghdad with bleeding Tendency at 7.Sep.1979, after 2 days she died. After 4



days the physician and one of the health Workers who were in close contact with the patient they developed fever, headache, with Bleeding from GI tract. Unfortunately they died too. During that year 10 cases were reported (8 were female and 2 were male). Seven out of ten were died. All the cases were in contact With animal except the physician and the health worker , Between Sept. and Nov./1979 ,925 randomly selected persons living in different areas were checked for serological evidence of C.C.H.F. 4.54 % were positive (Tantawi HH , et al , 1980) , In experimental infection virus appear in the blood stream in 1 – 5 days of inoculation, three isolates had been recovered from sheep in patients houses and two isolates from adult ticks of *Hyalomma marginatum* in Aziziya district (Shony .M. Odisho , 1981).Nosocomial infection in Iraq were reported three times at 1979 (2 cases Were died) , 1992 (2 cases) , and 1996 (1case) (Abul-Eis , E. S.). Nosocomial infection has been Reported from Turkey (Ergonul O.2006), South Africa, (van Eeden PJ , et al , 1985) United Arab Emirates (Suleiman MN et al , 1980), Pakistan (Burney MI, et al , 1976), and Iran . The objective of this paper is to increase awareness of the workers in the field of Veterinary medicine and medicine to avoid direct contact with potential infectious materials.(Mardani M., (2002)

Clinical Features

Incubation Period

The typical incubation period for CCHF is 3–7 days (range 1–13 days); incubation period is shorter (1–5 Days) after a tick bite and longer (5–13 days) after Exposure to infected blood or tissues . The accelerated viral dissemination after a tick bite is thought To be caused by a tick saliva–enabling effect, known As saliva-activated transmission, related to bioactive Molecules in tick saliva causing antihemostatic, antiinflammatory, and immunomodulatory effects on the Vertebrate host (Bente DA, et al 2013)Clinical Course CCHF is characterized by an incubation period, as described, followed by prehemorrhagic, hemorrhagic, And convalescent phases . Most patients will recover and transition to the convalescent Period; patients who die typically succumb to the disease by day 10. The prehemorrhagic phase frequently lasts 1–5 Days and is usually characterized by nonspecific Symptoms. Those symptoms include sudden onset of Fever, which lasts for an average of 4–5 days, and nonspecific signs and symptoms such as diarrhea, dizziness, headache, myalgia, nausea, vomiting, and weakness. Headache occurs in almost 70% of patients and Tends to be severe. Two thirds of patients describe the pain as mimicking a migraine crisis, including throbbing and being accompanied by nausea, vomiting, Photophobia, and phonophobia (Aksoy D, et al 2018)

Table 1 : The total numbers of positive persons to CCHF virus

Districts	Infected person
Al-shamiya	7
Al-shafiiya	2
Al-mahnawiya	1



Al-hamza	1
Al-daghara	1
Afak	2
sumer	3
Al-siniya	2

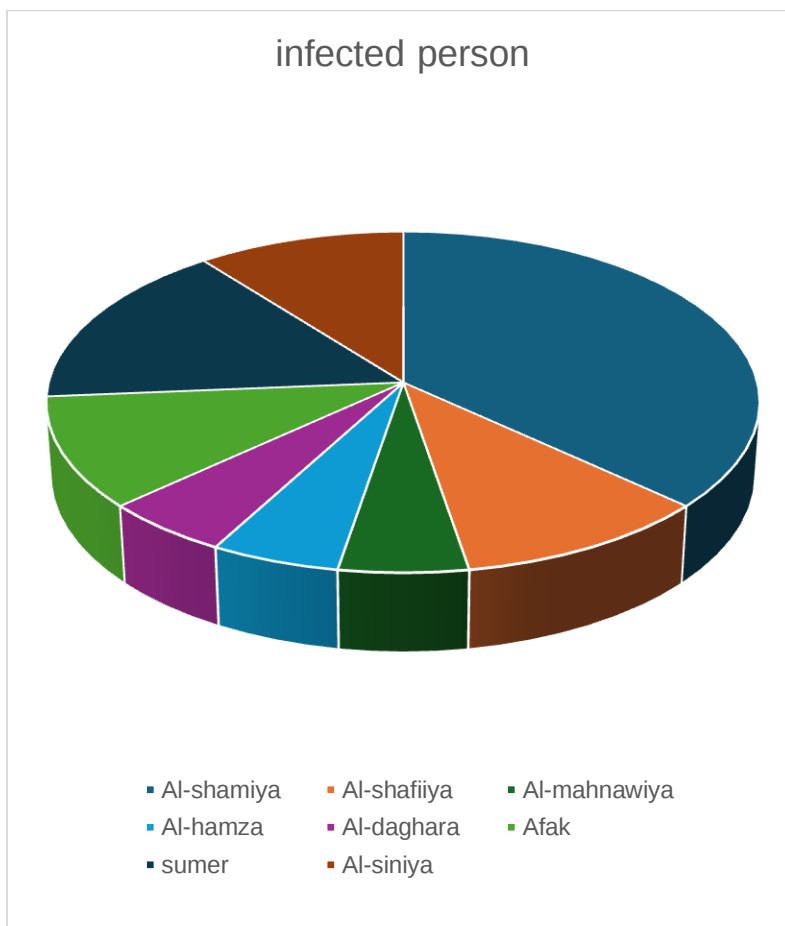


Table 2: CCHF Infection Incidence Rate by District

District	Infected Persons	Estimated Population	Incidence Rate per 100,000 Population
Al-shamiya	7	400,000	1.75
Al-shafiiya	2	50,000	4.00
Al-mahnawiya	1	50,000	2.00
Al-hamza	1	190,000	0.53
Al-daghara	1	50,000	2.00



Afak	2	165,000	1.21
Sumer	3	110,147	2.72
Al-siniya	2	441,449	0.45
Total	19		

Table 3: Percentage Distribution of Positive CCHF Virus Cases Across Districts

Districts	Percentage
Al-shamiya	36.84%
Al-shafiiya	10.53%
Al-mahnawiya	5.26%
Al-hamza	5.26%
Al-daghara	5.26%
Afak	10.53%
Sumer	15.79%
Al-siniya	10.53%
Total 100.00%	100.00%

Discussion

Prevalence Discrepancy: The district of Al-Shamiya exhibits the highest recorded number of infected patients, with a total of seven cases. This count is significantly higher than that of all other listed districts, suggesting a disproportionately higher prevalence in this region. **Moderate Case Clusters:** Districts such as Al-Shafi'iya, Afak, and Al-Siniya each report two cases,



indicating localized clusters of infection. Similarly, Sumer records three cases, further highlighting areas with moderate disease activity. Low-Level Incidence: Al-Mahnawiya, Al-Hamza, and Al-Daghara each show a single case. This suggests a lower disease incidence or isolated cases within these areas during the observed period. The observed distribution of infected patients necessitates further epidemiological investigation to understand the underlying causes of this spatial variation. The high count in Al-Shamiya, for instance, could be attributed to several factors. These might include a higher population density, specific socio-demographic characteristics that facilitate transmission, or the presence of a super-spreader event within the community. Furthermore, the data is limited to a single snapshot in time. A comprehensive epidemiological assessment would require a temporal analysis to determine if the number of cases is increasing, decreasing, or stable over time. This longitudinal data would provide critical insights into the disease's transmission dynamics and the effectiveness of any public health interventions.

Recommendation

- 1- In conclusion, while the provided statistics highlight a clear geographic variation in patient numbers, particularly the high count in Al-Shamiya, they underscore the need for more detailed epidemiological research.
- 2- Future studies should aim to correlate these numbers with demographic, environmental, and temporal variables to develop targeted public health strategies and interventions.

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