Sarcouncil Journal of Internal Medicine and Public Health

ISSN(Online): 2945-3674

Volume- 05| Issue- 04| 2026

Research Article **Received:** 20-05-2026 | **Accepted:** 15-06-2026 | **Published:** 04-07-2026

Evaluation of Knowledge and Attitude of Hcp at Hospitals and Phc Centers about Hemorrhagic Fever

Dr. Ikhlass Younis Mohammed[1], Dr. Nawras Abbas Hadi[2] and Dr. Redhab Ismail[3]

[1]M.B.Ch.B., F.I.B.M.S. \ (Family Medicine) Iraqi Ministry of Health, Al-Karkh Health Directorate, Al-Kadhimiya Primary Health Care Sector, Baghdad, Iraq.

[2,3]M.B.Ch.B., F.I.C.M. \ (Family Medicine), Family Medicine Specialists, Iraqi Ministry of Health, Al-Karkh Health Directorate, Al-Kadhimiya Primary Health Care Sector, Baghdad, Iraq.

Abstract: Crimean-Congo hemorrhagic fever (CCHF) is an acute hemorrhagic fever that is caused by a segmented negative-stranded RNA virus from a family known as Bunyaviridae, a genus of viruses known as Nairovirus, the second most distributed of the medically important arboviruses, following the DENV. This study wanted to assess the knowledge and attitude of health care providers (HCPs) of hospitals and primary health care PHC) centers about hemorrhagic fever**.** This study area covered two main health care centers (Alzahraa and Abd al-Sahib Dakheel) and two hospitals (Alkarkh Hospital and Al-Shaheed Baqure Al-Hakeem Hospital). These centers were provided in an opportune manner. All clients attending these centers during the study period (15/7/2025 to 1/11/2025) and meeting the eligibility criteria were asked to participate, and those who gave informed consent to participate were enrolled in this study. The sample size was 100 HCP and were chosen by a convenient sampling technique**.** The highest ratio was 78% cause of HF; the lowest ratio is 2% on the parasite and others. Those who scored the highest about the cause of HF were 58% on all of the above, and the lowest score was 1% on contact with human infected blood or tissue, or contact with animal infected blood or tissue. The percentages of the sample's scores were as follows: all of them 47%, and the highest score was all about clinical features, while the lowest was 1 (nausea), and I don't know. The incubation period is 50% 5-6 days, 15% don't know, and 1-3 days**.** Good comprehension and attitudes by health workers regarding etiology, precautions, counseling, mode of transmission, and immunization in areas with VHF virus exposures regarding the infection among themselves. In this study—conducted at PHC centers and hospitals—HCPs possess a good knowledge of VHF but maintain some deficiencies in practices regarding the complications, diagnosis, and clinical features of VHF.

Keywords: Crimean-Congo hemorrhagic fever (CCHF), Bunyaviridae, Dengue virus, and Genus Nairo virus.

INTRODUCTION

Viral hemorrhagic fevers (VHF) are diseases characterized by frank bleeding, fever, and associated by four separate families of RNA viruses [Cobo, F. 2016]. The major vhef include Ebola virus disease (EVD), Marburg virus disease (MVD), yellow fever (YF), dengue, Lassa fever (LF), Crimean-Congo hemorrhagic fever (CCHF) and Rift Valley fever (RVF) [Kortepeter, M. G. et al., 2011]. Crimean-Congo haemorrhagic fever (CCHF) disease is an acute haemorrhagic fever caused by a segmented, - appearing RNA virus of the family Bunyaviridae, genus Nairovirus, and is the second most widely distributed of all the medically relevant arboviruses, after dengue [World Health Organization. 2016].

Selection of climate has also been associated with risk of CCHF, with regions with frequent months of low rainfall and humidity found to have a high chance of CCHF occurrence in Iran and Senegal, and high temperatures resulting in high occurrence of CCHF in Turkey, Bulgaria, and Iran. The transmission of infection to humans happens by the vector of animals or spreading through human-to-human contact. VHF can produce a wide variety of symptoms, but generally high fever, gastrointestinal symptoms, and sometimes bleeding [Selvaraj, S. A. *et al* 2018; World Health Organization, 2016].

The clinical impact will depend on the nature of the viral infection; some VHF are only associated with a mild illness, whereas others are life-threatening. Many VHF are highly contagious starting with the onset of symptoms and after an incubation period of up to 21 days. Therefore, outbreaks of VHF infections are associated with the potential risk of nosocomial and occupational infections [World Health Organization, 2015].

The health authorities of the Republic of Iraq have reported 212 suspected (54%) and laboratory-confirmed (46%) cases of Crimean-Congo Hemorrhagic Fever (CCHF) and 27 deaths to WHO between 1 January 2022 and 22 May 2022. The increase in the number of reported cases in the first 5 months of 2022 is significantly higher than the 2021 numbers of 33 laboratory-confirmed [World Health Organization, 2019]. Cases have been reported in several areas (governorates) in Iraq, and the outbreak may pose additional pressure to an already overstretched health care

***Corresponding Author:** Dr. Ikhlass Younis Mohammed

DOI- https://doi.org/10.5281/zenodo.21196263

system. Knowledge and attitudes (KAP) of health care providers (HCP) play a core supporting role in outbreak preparation and infection prevention and control (IPC) and are a significant priority, especially because HCPs are on the frontlines of outbreaks [Greiner, A. L. et al., 2016].

PATIENTS AND METHODS

A cross-section was conducted from 15/7/2025 to 1/11/2025. The study area was two main health care centers (Alzahraa and Abd al-Sahib Dakheel) and two hospitals (Alkarkh Hospital and Al-Shaheed Baqure AL Hakeem Hospital). Convenient selection of these centers. The centers were identified, and all clients attending during the study period (from 15/7/2025 to 1/11/2025) who met the inclusion criteria for this study were asked to participate, and informed consent to participate was accepted to ensure inclusion in this study.

Our data collection is on a two-day-a-week schedule, and our time is spent at the center for 4 hours a day. Inclusion criteria were as follows: Adult age groups 20-59 years old, males and females - health care providers, participation by all were accepted in the study. Exclusion criteria were children (not research participants), not health care providers, HCPs who declined study participation, and less than 1 year of HCPS service.

A convenient sampling technique was used to select 100 HCP as the sample. 10 people refused to participate in this study research, and 10 of the HCPs, who were included with the questionnaire, were excluded from the sample size, which was refined, so eventually the sample size was 100. Data was collected using a questionnaire format and sequence of questions with HCPs attending hospitals and PHCs. To help mature the research questionnaire format and sequence, a pilot survey was conducted with 10 respondents. The questionnaire was reviewed by two experts in the fields of community and medicine.

Information was collected through interviews by the questionnaire made up of two parts with HCP. The interview was done by Dr. Nawras Abbas. The first part was on socio-demographic information. The second part was a set of 9 questions about hemorrhagic fever and vaccination. Some of the questions were in the form of "Yes" or "No," and others were in the form of multiple choice; they selected what they were in a condition to choose.

For this research study, we evaluate the knowledge of HCP regarding HF, which is assessed by using a questionnaire and data entry and analysis by using the (SPSS) Statistical Package for the Social Sciences Version 23.0. A P value of < 0.05 was deemed to be statistically significant. These tests were used to apply the Chi-square test.

RESULTS

Table 1: Baseline demographic and clinical features.

Variables	Number=100	Percent%
Age group		
29-20	39	39%
39-30	24	24%
49-40	19	19%
59-50	18	18%
Gender		
Male	56	56%
Female	44	44%
Occupation		
Doctor	17	17%
Dentist	2	2%
Pharmacist	11	11%
Nurse	21	21%
Physician assistant	16	16%
Administrative assistant	3	3%
Cleaner	13	13%
Others	17	17%
Study level		
Illiterate	4	4%

Publisher: SARC Publisher

Primary	8	8%
Secondary	20	20%
College	6	6%
Institute	22	22%
Postgraduate	29	29%
Specialist	11	11%

Table 2: Determining the true knowledge of the HF cause.

Cause of HF	frequency	percent
viral	78	78%
Bacterial	8	8%
Parasite	2	2%
Others	2	2%
Don't know	10	10%
Total	100%	100%

Table 3: The mode of transmission of HF.

Mode of transmission	frequency	percent
Insect bite	13	13%
Contact with infected animal blood or tissue	18	18%
Contact with human infected blood or tissue	1	1%
All of the above	58	58%
Don't know	6	6%
Contact with human or animal infected blood or tissue	1	1%
Insect bite or contact with infected animal blood or tissue	3	3%
Total	100	100%

Table 4: Demonstrates the knowledge about the clinical features of hemorrhagic fever.

Clinical features	frequency	Percent%
Fever	9	9%
Nausea	1	1%
Diarrhea	5	5%
Hemorrhagic spots	9	9%
Bleeding from different sites	8	8%
All of the above	47	47%
Don't know	1	1%
Fever, headache, nausea, diarrhea, muscle pain	4	4%
Fever, headache, muscle pain, hemorrhagic spots	9	9%
Fever, bleeding, hemorrhagic spots	7	7%
Total	100	100%

Table 5: Demonstrates the knowledge about the incubation period of hemorrhagic fever.

Incubation period	frequency	Percent%
1-3	15	15%
5-6	50	50%
All of the above	20	20%
Don't know	15	15%
Total	100	100%

Table 6: Demonstrates the knowledge about precautions from HF.

precaution	Frequency	Percent%
Wear protective clothing	3	3%
Slaughter in municipal slaughterhouses	4	4%
Disposal of slaughter waste	5	5%
Washing hands constantly	3	3%

Publisher: SARC Publisher

avoid places where ticks are	1	1%
All of the above	71	71%
Hand wash and slaughter in municipal slaughterhouses	11	11%
Hand wash, disposal of slaughter waste, avoid places where ticks are, and make sure that sheep have no ticks	2	2%
Total	100	100%

Table 7: Demonstrates the knowledge about the hemorrhagic fever vaccine.

Vaccine present	frequency	percent
yes	8	8%
no	67	67%
Don't know	25	25%
Total	100	100%

Table 8: Demonstrates the knowledge about the diagnosis of HF.

investigation	frequency	Percent%
Variable screening tests	9	9%
CBC	16	16%
ESR elevated	2	2%
prolonged prothrombin time	3	3%
All of the above	41	41%
Don't know	26	26%
prolonged prothrombin time, variable screening tests	1	1%
ESR elevated, variable screening tests	1	1%
Variable screening tests, elevated ESR, CBC	1	1%
Total	100	100%

Table 9: Demonstrates the knowledge about the advice of HF.

Advice	Frequency	Percent%
Special board for cutting meat	2	2%
Wearing gloves	7	7%
Leave meat 3 hours after slaughting	2	2%
Washing knives and boards with soap and water	2	2%
All of the above	78	78%
Don't know	1	1%
All except leaving meat for 3 hours	8	8%
Total	100	100%

Table 10: Demonstrates the complications of HF.

Complications	Frequency	Percent
Subcutaneous bleeding	20	20%
Loss of consciousness	1	1%
Renal failure	1	1%
Nervous system disturbance	1	1%
All of the above	49	49%
Don't know	20	20%
Loss of consciousness, Nervous system disturbance	5	5%
Subcutaneous bleeding, loss of consciousness, renal failure, liver failure, respiratory failure	3	3%
Total	100	100%

Table 11: Shows the correct answers of the participant in the study research.

Knowledge domains	Correct answers	Percent%
Cause of HF	78	78%
Mode of transmission	58	58%

Publisher: SARC Publisher

Clinical features	47	47%
Incubation period	20	20%
Precaution from HF	71	71%
Vaccination	67	67%
diagnosis	41	41%
advice	78	78%
complications	49	49%
Total	56,5	56,5%

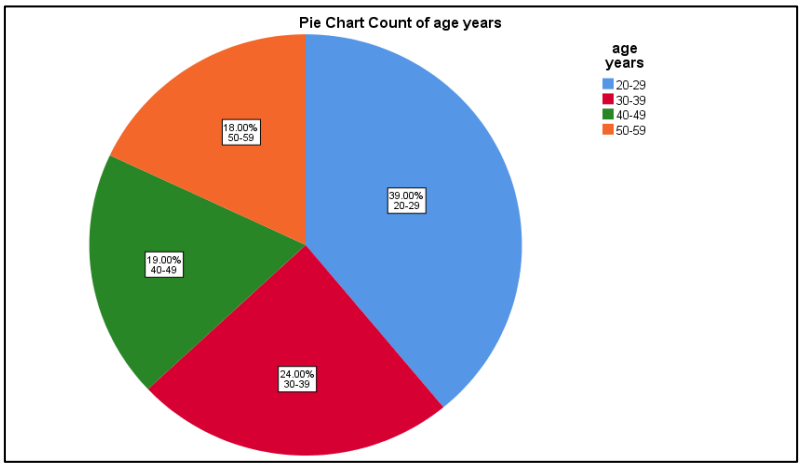

Figure 1: The Age group 20-29 has the highest number of participants, 39%, and the lowest number of participants from the age group 50-59, which was 18%.

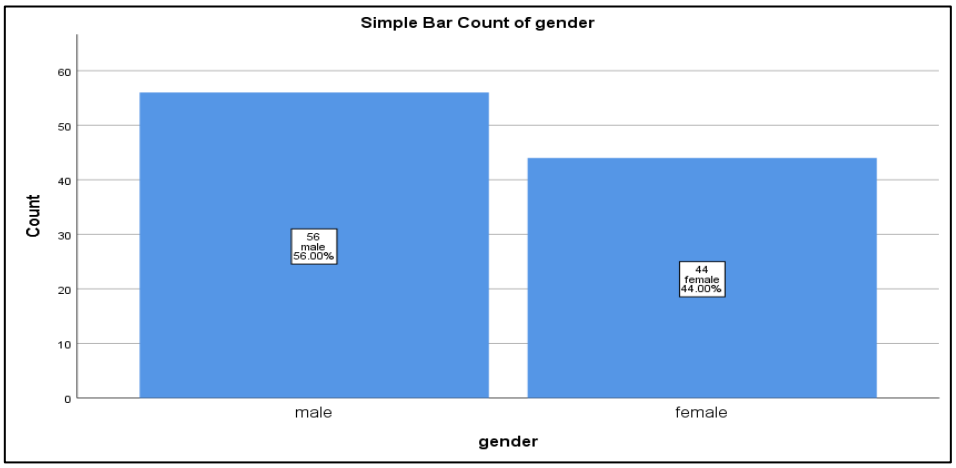

Figure 2: Males have the highest participant ratio, 56%, while females have 44%.

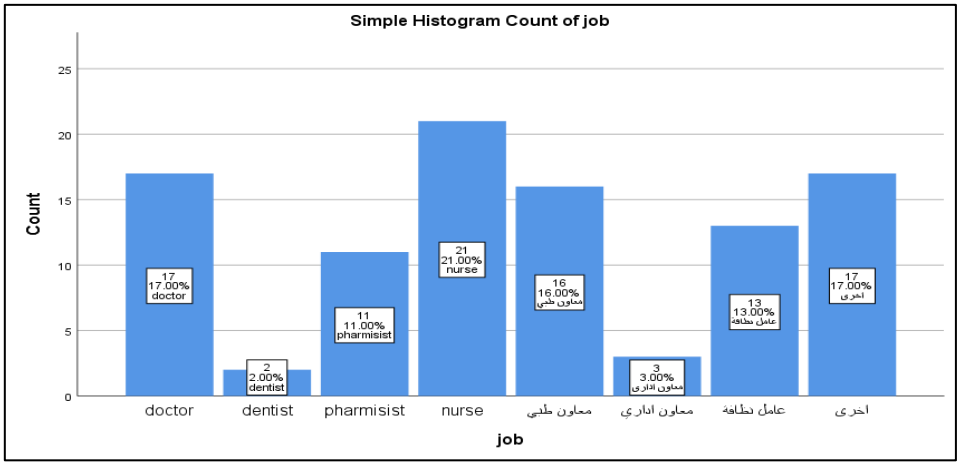

Figure 3: The highest participant ratio was 21%, and the lowest was 2% among dentists.

Publisher: SARC Publisher

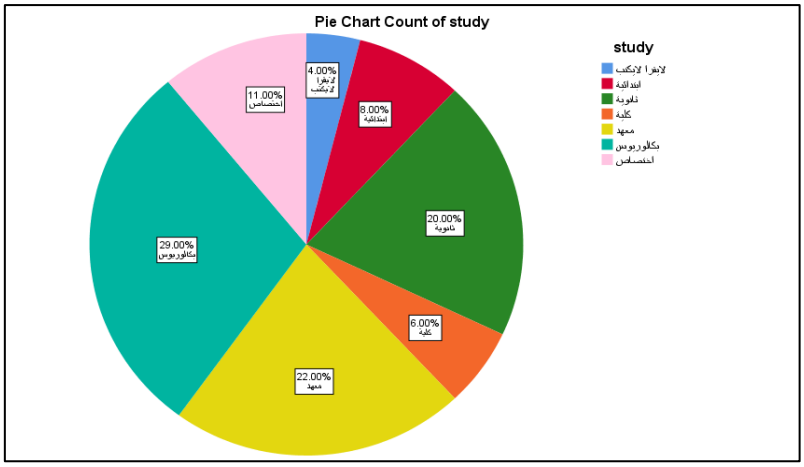

Figure 4: The highest participant ratio was from postgraduate students, 29%, and the lowest was 4% illiterate.

DISCUSSION

The spread by infected secretions, blood, and its importance as a nosocomial infection have made it among the most important infections reported from hospitals and PHC centers, and a main source of infection among service providers and staff in health centers [Rehman, K. *et al* 2018]. Thus, helping the healthcare providers to prevent the spread of the disease in a community and hospital setting has significant role. The first step is to identify the knowledge and attitude of staff responsible as one of the high-risk groups, to find out the weak points of these groups in need of eradication, so that a proper educational plan can be designed according to these weak points to eradicate the disease by providing assistance from the authorities involved related to them at various educational and administrative levels. Most participants are in the age group 20-29, followed by the age group 40-49; the least participate also are in the age group 50-59. This might be because of bias (ease of sampling) or because there may be bias. By gender, males having 56% of participants' ratio as compared to 44% for females; this may be bias. While in a study done in Iran [Koculu, S. *et al* 2015], the males were 49% and the females were 53%. The occupational highest to lowest participant ratio was from 21% nurses to 2% dentists. This may be because HCPs like nurses are more important to be involved as they are at high risk to get infected. The highest proportion of participants were postgraduates (29%), while the lowest was 4% illiterate. This may be due to bias. The highest participants responded in "viral" whilst the lowest participants responded in 'parasitic', 2%. This could be due to the fact that HCPs want to be concerned about the cause to inform them of the methods of intervention. This level (58%) is higher than that seen when conducting a similar study in Guinea (96.7%) in contact with all of the above; the lowest was 1% (in contact with animal or human infected blood or tissue), which is lower than the frequency found in the above-mentioned study in Guinea [Leblebicioglu, H. *et al* ., 2015]. This may be due to the fact that HCPs don't pay attention to the mode of transmission of the disease, as they care much about its cause and prevention.

The highest percent was 47%, meaning all of the above, and the lowest percent was 1%, don't know. Overall, 47% said all of the above, 1% don't know, and 1% said nausea. This is less than a study in Guinea done in 2013, at 93.3%. This may be because HCPs require more learning about the characteristics of the disease to diagnose it easily [Leblebicioglu, H. *et al* ., 2015]. The number given most was 50%, said 5-6 days, and this was fewer than the study (15), which may have been due to HCP not showing any interest in the incubation period, as it has no bearing on the disease management provided in the questionnaire, as being multiple choice answers, it was challenging to select the correct answer choice. The highest percent was 71%, said all of the above, while the lowest percent was 1%, and this may be because HCP care about the precaution of the disease; that's why they have good knowledge about its precaution, and it's less than a study that was done at 83%. This is because HCPs have good knowledge in relation to the vaccination program; the highest percent said there is no vaccine (67%), while the lowest score (8%) said there is a vaccine [Mallhi, T. H. *et al* ., 2016].

The highest percent was 41% to all the tests of diagnosis, while the lowest percent was 1% for prolonged thrombin time, variable screening tests, and elevated ESR, CBC. This could either be HCP

Publisher: SARC Publisher

believing their viral don't need study or being unaware that there is a different classification of viruses. This was said by the highest percent of (78%), whereas a lower percent (1%) said they don't know, because they are very active and strong about the education of precaution and advice about HF, which are very much in place and active as health promotion programs. And this is less than a study; 90% may be in our study research, we put multiple-choice questions, so it was hard to answer all of them or to guess the correct answers [Ahmed, A. *et al* ., 2020; Report M. W. *et al* ., 2008; Othman, S. M. *et al* ., 2014]. The highest percent, 49%, said all of the complications, while the lowest percent, 1%, said loss of consciousness, renal failure, and nervous system disturbances; this may be because HCPs can't remember all the complications. The lowest percent for the correct answer was 20% for Incubation Period, the highest, 78%, was for the cause and advice on HF. This is because HCP may be interested in the cause and giving some advice on the possible cause of HF more than the incubation period, as the cause and its advice are so vital as they are to deal with and treat this disease [Colvin, H. M., & Mitchell, A. E. 2010; Ahmed, A. *et al* ., 2018; Zohaib, A. *et al* ., 2020].

CONCLUSION

In this study (carried out in 2 PHC centers and 2 hospitals), HCP had good knowledge about VHF, while there were still some gaps in their practices in knowledge of the cause, incubation period of the disease, clinical features, and complications of VHF. Hence, there are needs for more training in IPC. Future IPC trainings in hospitals and PHC centers should ensure that a level of quality is maintained and achieved by health care facilities, particularly when assessing the health care capacity to detect future VHF cases and to prevent outbreaks.

Actions to reduce the transmission risk from ticks, animals and humans are recommended as follows: (1) During slaughtering, butchering and removing procedures, the risk of transmittance from tick, animal to human is reduced through implementation of preventive measures; (2) Quarantine animals before entering slaughterhouses and regularly use pesticides to make animals unlivable two weeks before slaughter; (3) Ensure the use of infection control measures by health care workers who work with CCHF and other cases of hemorrhagic fever.

REFERENCES

1. Cobo, F. "Viruses causing hemorrhagic fever. Safety laboratory procedures." *The open virology journal* 10 (2016): 1.
2. Kortepeter, M. G., Bausch, D. G., & Bray, M. "Basic clinical and laboratory features of filoviral hemorrhagic fever." *The Journal of infectious diseases* 204.suppl_3 (2011): S810-S816.
3. World Health Organization. "Clinical management of patients with viral haemorrhagic fever: a pocket guide for front-line health workers." *interim emergency guidance for Country adaption*. World Health Organization, (2016).
4. Selvaraj, S. A., Lee, K. E., Harrell, M., Ivanov, I., & Allegranzi, B. "Infection rates and risk factors for infection among health workers during Ebola and Marburg virus outbreaks: a systematic review." *The Journal of infectious diseases* 218.suppl_5 (2018): S679-S689.
5. World Health Organization. "Situation Report Ebola Virus Disease." (2016).
6. World Health Organization. "Health worker Ebola infections in Guinea, Liberia, and Sierra Leone." (2015).
7. World Health Organization. "Ebola Virus Diseases Democratic Republic of Congo Situation Report. August" (2019).
8. Greiner, A. L., Mamuchishvili, N., Kakutia, N., Stauffer, K., Geleishvili, M., Chitadze, N., & Salyer, S. J. "Crimean-Congo hemorrhagic fever knowledge, attitudes, practices, risk factors, and seroprevalence in rural Georgian villages with known transmission in 2014." *PloS one* 11.6 (2016): e0158049.
9. Rehman, K., Bettani, M. A. K., Veletzky, L., Afridi, S., & Ramharter, M. "Outbreak of Crimean-Congo haemorrhagic fever with atypical clinical presentation in the Karak District of Khyber Pakhtunkhwa, Pakistan." *Infectious diseases of poverty* 7.06 (2018): 59-64.
10. Koculu, S., Oncul, A., Onal, O., Yesilbag, Z., & Uzun, N. "Evaluation of knowledge of the healthcare personnel working in Giresun province regarding Crimean-Congo hemorrhagic fever before and after educational training." *Journal of vector borne diseases* 52.2 (2015): 166-170.
11. Leblebicioglu, H., Sunbul, M., Memish, Z. A., Al-Tawfiq, J. A., Bodur, H., Ozkul, A., & Hasan, Z. "Consensus report: preventive measures for Crimean-Congo hemorrhagic fever during Eid-al-Adha

Publisher: SARC Publisher

festival." *International Journal of Infectious Diseases* 38 (2015): 9-15.
12. Mallhi, T. H., Khan, Y. H., Sarriff, A., & Khan, A. H. "Crimean-Congo haemorrhagic fever virus and Eid-Ul-Adha festival in Pakistan." *The Lancet Infectious Diseases* 16.12 (2016): 1332-1333.
13. Ahmed, A., Tahir, M. J., Siddiqi, A. R., & Dujaili, J. "Potential of Crimean-Congo Hemorrhagic Fever outbreak during Eid-Ul-Adha Islamic festival and COVID-19 pandemic in Pakistan." *Journal of medical virology* 93.1 (2020): 182.
14. Report MW. "Morbidity and Mortality Weekly Report recommendations for identification and public health management of persons with chronic Hepatitis B virus infection." *Presentations* 57 (RR-8) (2008):1-20.
15. Othman, S. M., Saleh, A. M., Shabila, N. P. "Knowledge about Hepatitis B infection among medical students in Erbil City, Iraq." *Eur Sci Journal* 9.10 (2014): 299-305.
16. Colvin, H. M., & Mitchell, A. E. "Immunization." *Hepatitis and liver cancer: a national strategy for prevention and control of hepatitis B and C* (2010).
17. Ahmed, A., Tanveer, M., Khan, G. M. "Knowledge, perception, and attitude about Crimean-Congo hemorrhagic fever (CCHF) among medical and pharmacy students of Pakistan." (2018).
18. Zohaib, A., Saqib, M., Athar, M. A., Hussain, M. H., Sial, A. U. R., Tayyab, M. H., & Shi, Z. L. "Crimean-Congo hemorrhagic fever virus in humans and livestock, Pakistan, 2015–2017." *Emerging infectious diseases* 26.4 (2020): 773.

Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Mohammed, I. Y., Hadi, N. A. & Ismail, R. "Evaluation of Knowledge and Attitude of Hcp at Hospitals and Phc Centers about Hemorrhagic Fever." *Sarcouncil Journal of Internal Medicine and Public Health* 5.4 (2026): pp 1-8.

Publisher: SARC Publisher