BRIEFING NOTE FOR:
THE OFFICE OF THE REFUGEE RELIEF
AND REPATRIATION COMMISSIONER,
COX's BAZAR, BANGLADESH
December 2023

MEDECINS SANS FRONTIERES

Survey Title: **Prevalence of active HCV infection and associated risk factors among members of Forcibly Displaced Myanmar National (FDMN) Population residing in camps, Cox's Bazar, Bangladesh.**

CONTEXT

Limited data suggested an unusually high HCV seroprevalence among FDMN population residing in in camps in Cox's Bazar, Bangladesh (Refs 1, 2, 3). HCV infection is treatable and early diagnosis is critical to prevent serious liver disease or death and further transmission. Currently, MSF is currently the only actor providing treatment in the camps. No representative estimate of active HCV infection in the general population was available. To this end, Médecins sans frontières (MSF) conducted a survey conducted to assess the prevalence of HCV active infection among the general adult FDMN population and associated risk factors to guide and advocate for adapted HCV prevention, testing and treatment programs in the camps.

METHODS

Study sites: 8W, 12, 13, 16, 17, 18, 19

Sample size: 680 Households (HHs), one eligible individual per HH

Eligibility Criteria: Age ≥18 years, willing and able to provide written informed consent (at home within 3 days of HH visit).

Sampling: Cross-sectional prevalence survey using simple random sampling of HHs, applying geospatial sampling methods, proportionate number of HH per camp according to population, one randomly selected participant from each HH.

Survey measures: 1) WHO recommended HCV reflex-testing: a) Fingerprick rapid HCV-antibody test for all participants to assess seropositivity, b) venous blood collection (6ml) for all seropositive participants to test for active HCV infection (Xpert viral load test, MSF HoH laboratory), 2) structural questionnaire for all participants to assess for factors associated with HCV infection. Confidentiality and medical ethics were applied in all processes and procedures, including data collection in HH level and digital data systems. All potential risks of participants and staff were considered for this study.

Linkage to Care: Participants identified with active HCV infection were linked to the routine MSF HCV treatment program at the Hospital on the Hill (HoH) in the camp.

Authorizations: Survey protocol approved by MSF Ethical Review Board (No: 2287), Bangladesh University of Health Sciences (BUHS) ethics review board (BUHS/ERC/EA/22/46), and The Office of the Refugee Relief and Repatriation Commissioner.

MAIN FINDINGS

Survey participant characteristics

Between 10th May and 14th June 2023, 641 households were identified and one individual per household included to the survey. The median age of participants was 34 years [IQR: 28, 46], 8% were aged ≥60 years, 66.3% were women. All participants were born in Myanmar and the median time since arrival in the Cox's Bazar camps was 5.7 years, 76.9% never attended school.

Table 1 Characteristics of survey participants

Participants, N	641
Female, N (%)	425 (66.3)
Age, median [IQR] (years)	34 [28, 46]
Age categories (years)	
○ 18-24	87 (13.6)
○ 25-34	239 (37.3)
○ 35-44	129 (20.1)
○ 45-54	93 (14.5)
○ 55-64	93 (14.5)
○ ≥65	31 (4.8)
Born in Myanmar	641 (100)
Years since arrival in the camps, median [IQR]	5.73 [5.69-5.7]
Education	
○ Never attended school	493 (76.9)
○ Primary level	93 (14.5)
○ Intermediate level	46 (7.2)
○ Higher level	6 (0.9)
○ *missing*	3 (0.5)

High HCV seroprevalence in the general adult population

Among 641 participants, 191 tested HCV seropositive, resulting in a **survey-adjusted HCV seroprevalence estimate of 29.7% (95% CI: 26.0-33.8)** for the general adult population residing in the camps. The HCV seroprevalence estimate was significantly higher for female than male (figure1, table2), and lower for the youngest age group (table 2). The HCV seroprevalence estimate also varied somewhat by camp, with significantly lower prevalence in camp 17 (8.5%), and highest in camp 12 (45.9%, non-significantly different from the estimates of the remaining camps) (table 3). The survey did not aim for and was not powered to specifically identify differences in HCV seropositivity by camps and confidence intervals are wide.

High burden of active HCV infection

The overall **survey-adjusted prevalence estimate of active HCV infection** in the adult camp population was **19.6% (95%CI 16.4-23.2),** with 21.1% (17.1-25.7) among female and 15.8% (11.4-21.6) among male adults (table 2). Extrapolation of the survey estimates to the general adult population residing in the camps (464'324 adults, UNHCR/Bangladesh government camp population statistics, September 2023), indicates that **overall, approximately 85 000 adults currently require HCV treatment** (estimate adjusted for higher proportion of women included in the survey).

Figure 1 Survey adjusted HCV Seroprevalence estimates with 95% confidence intervals, by sex

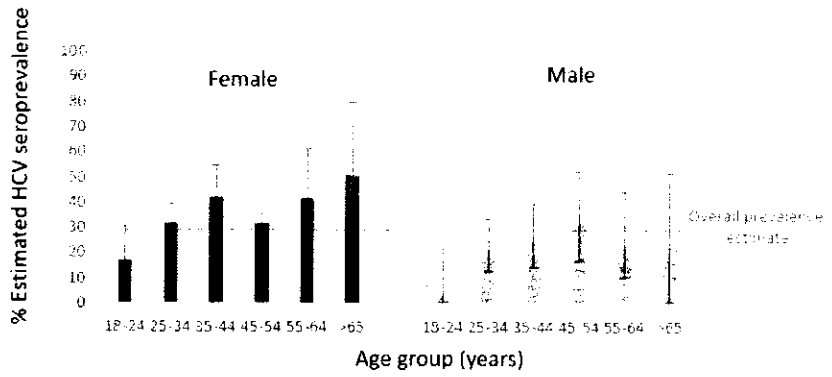

Table 2 Survey adjusted estimates of HCV Seroprevalence and active infection, by sex and age group

	Estimated prevalence **HCV seropositive** (95% CI)	Estimated prevalence of **Active HCV infection*** (95% CI)
Overall	**29.7 (26.0-33.8)**	**19.6 # (16.4-23.2)**
Female	32.8 (28.1-37.9)	21.1 (17.1-25.7)
Male	22.1 (16.8-28.5)	15.8 (11.4-21.6)
Age group (years)		
18-24	13.8 (7.3-24.5)	10.0 (0.5-20.1)
25-34	29.1 (23.3-35.7)	21.1 (16.0-27.3)
35-44	36.4 (27.8-45.9)	21.2 (14.4-30.0)
45-54	31.9 (22.2-43.5)	17.0 (10.1-27.3)
55-64	35.5 (23.2-50.1)	22.3 (12.6-36.4)
>65	38.1 (20.4-59.8)	32.0 (15.3-55.2)

**N=4 seropositive (refused blood collection for HCV VL test) excluded from denominator to estimate overall active infection prevalence*

Table 3 Survey adjusted estimates of HCV Seroprevalence and active infection, by camp*

Camp	Estimated prevalence **HCV seropositive** (95% CI)	Estimated prevalence of **Active HCV infection**** (95% CI)
8w	25.0 (16.5-35.9)	17.2 (10.1-27.6)
12	45.9 (34.7-57.5)	27.6 (18.5-39.2)
13	28.4 (20.6-37.9)	20.4 (13.6-29.6)
16	32.5 (22.1-45.0)	21.3 (13.4-32.1)
17	8.5 (3.4-18.3)	7.0 (2.8-16.3)
18	29.8 (20.9-40.5)	19.7 (12.5-29.7)
19	33.0 (23.1-44.6)	20.2 (12.4-31.2)

*Survey was not designed or specifically powered to identify significant differences between camps. Confidence intervals are wide.
*** N=4 seropositive (refused blood collection for HCV VL test) excluded from denominator to estimate overall active infection prevalence*

High viremic rate indicates significant gap in HCV treatment coverage in the camps.

HCV viremic rate (or viremic ratio) is the proportion of individuals with active HCV infection (viremic infection) among HCV seropositive. Among 187 HCV seropositive with a VL test, 124 had a detectable VL (= active HCV infection), resulting in a **survey-adjusted viremic ratio of 66.6 % (95%CI: 58.9-73.6) among HCV seropositive.** Furthermore, only 10.5% of seropositive survey participants reported previous HCV treatment.

Risk factors associated with HCV exposure

Multivariate regression analysis indicated **nearly two times higher odds of HCV seropositivity for women** than men (adjusted odds ratio (aOR)=1.8 (95%CI: 1.2-2.9)); similarly**, older age groups had more than two times increased odds** (aORs ranging between 2.3-2.9) to be seropositive **than the youngest 18-24-year-old age group.**

A strong association (nearly 5-fold increased odds) with HCV seropositivity was found for self-reported history of a surgery (adjusted odds ratio (aOR)=4.7 (95%CI: 1.3-16.7), and nearly **two times higher odds of seropositivity in association with reported medical injection(s)** (aOR=1.7 (95% CI: 1.0-2.6). Medical injection(s) were reported by nearly two-thirds of participants (70.4%), while surgery was reported only by few (3.3%).

Multivariate analysis also identified increased odds of HCV seropositivity associated with reported **blood transfusion, dental treatments, or re-use of needles**, but these associations did not remain significant in sensitivity analysis which omitted data for participants with missing values or refused answers, or replies of "don't know", possibly due to lack of power.

The survey did not aim at and was not powered to identify differences in HCV seroprevalence by camps. In fact, the seven sampled camps were considered largely representative of the entire Cox's Bazar camps. Camp-specific seroprevalence estimates differed to some extent, though mainly with wide and overlapping confidence intervals. A significantly lower seroprevalence was indicated in camp 17, which was confirmed in multivariate regression analysis with higher odds of HCV seropositivity for all other camps when compared to camp 17.

Awareness and knowledge about Hepatitis C

The survey also identified Knowledge gaps regarding Hepatitis C infection in the population. Less than half of survey participants (48.5%) had ever heard about Hepatitis C before, and among these only 41.8% reported that HCV treatment is available, 44.7% incorrectly replied that a vaccine is available and 73.9% indicated food as a potential transmission risk, suggesting confusion with Hepatitis A and Hepatitis B.

CONCLUSIONS

The survey confirmed a high level of HCV exposure and alarmingly high prevalence of active HCV infection, estimating that about one in five adults in the camps are currently living with untreated HCV infection. These findings underline the urgent need for scaling up access to diagnosis and treatment. Facing the generalized HCV epidemic and high prevalence of active HCV infection affecting the FDMN population in the Cox's Bazar camps, a multi-partner Task Force initiative and the development of a strategic plan to

effectively diagnose and treat HCV infection in the camps (to avert disease and prevent further HCV transmission) is strongly recommended.

RECOMMENDATIONS

- Integration of HCV prevention, diagnosis, and care into the general health care package for the entire Cox's Bazar camp community.
- Health-facility based screening combined with community-outreach screening of the general adult population in the camps.
- Adoption of the simplified model of care implemented by MSF OCP since 2020 in the camps should facilitate uptake of DAA treatment provision by other health actors.
- Education and promotion of prevention and infection control measures for all health care providing sectors in the camps, including traditional healers and traditional birth attendants.
- Health education campaigns should address the significant gaps in information about HCV prevention, diagnosis, and treatment for the general camp population and key community stakeholders.
- Community engagement to support linkage to care and address stigma and discrimination.
- Implementation of a monitoring strategy to follow up on testing and treatment coverage, treatment outcomes and the evolution of HCV active infection rates among screened population.
- Integration of HCV (ideally in combination with Hepatitis B) prevention information, counseling and testing into adolescent (girls) education programs, family planning and ANC services.
- Testing of children born to HCV seropositive women and integration of pediatric DAA into treatment programs, following latest WHO recommendations.

For detailed findings and discussion, please refer to FINAL STUDY REPORT (November 2023).

References

1. Mohsena M, Fazle Akbar SM, Takahashi K, Mohammad Adnan AB, Hosna AA, Uddin MH, et al. *Alarming Levels of Hepatitis C Virus Prevalence among Rohingya Refugees in Bangladesh: Emergency National and International Actions Warranted*. Euroasian Journal of Hepato-Gastroenterology. 2019;9(1):55–6.

2. Ali M, Rahman MA, Njuguna H, Rahman S, Hossain R, Sayeed A, et al. *High Prevalence of Hepatitis B and C Virus Infections Among Rohingya Refugees in Bangladesh: A Growing Concern for the Refugees and the Host Communities*. Clinical Liver Disease. 2022;19(1):1–6.

3. Medecins Sans Frontieres. "HCV treatment database of MSF OCP Cox's Bazar mission"..