

# Bangladesh: Rohingya Refugee Crisis 2017–2018

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Public Health Situation Analysis

7 May 2018

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# Acronyms and abbreviations

<b>AFP</b>	acute flaccid paralysis
<b>AIDS</b>	acquired immune deficiency syndrome
<b>AJS</b>	acute jaundice syndrome
<b>ALRI</b>	acute lower respiratory infection
<b>ANC</b>	antenatal care
<b>ARI</b>	acute respiratory infection
<b>ART</b>	antiretroviral therapy
<b>AWD</b>	acute watery diarrhoea
<b>BMS</b>	Balukhali Makeshift Settlement
<b>bOPV</b>	bivalent oral polio vaccine
<b>BRAC</b>	Bangladesh Rural Advancement Committee
<b>BSFP</b>	Blanket Supplementary Feeding Programme
<b>CCHF</b>	Crimean Congo haemorrhagic fever
<b>CHW</b>	community health worker
<b>CiC</b>	camp in-charge
<b>CMR</b>	crude mortality rate
<b>COMBI</b>	communication for behaviour impact
<b>COPD</b>	chronic obstructive pulmonary disease
<b>DAT</b>	diphtheria antitoxin
<b>DFI</b>	Development Finance Institution
<b>EPI</b>	Expanded Programme on Immunization
<b>EWARS</b>	Early Warning, Alert and Response System
<b>FDMN</b>	forcibly displaced Myanmar national
<b>FIT</b>	facility improvement technology
<b>GAM</b>	global acute malnutrition
<b>GBV</b>	gender-based violence
<b>GoB</b>	Government of Bangladesh
<b>HEV</b>	hepatitis E virus
<b>HIV</b>	human immunodeficiency virus
<b>IFRC</b>	International Federation of Red Cross and Red Crescent Societies
<b>INGO</b>	international nongovernmental organization
<b>IOM</b>	International Organization for Migration

<b>IPC</b>	infection prevention and control
<b>IRC</b>	International Rescue Committee
<b>ISCG</b>	Inter Sectoral Coordination Group
<b>JE</b>	Japanese encephalitis
<b>KI</b>	key informant
<b>KMS</b>	Kutupalong Makeshift Settlement
<b>MAM</b>	moderate acute malnutrition
<b>MHPSS</b>	Mental Health and Psychosocial Support Network
<b>MICS</b>	Multiple Indicator Cluster Surveys
<b>MoH</b>	Ministry of Health
<b>MR</b>	measles–rubella
<b>MSF</b>	Doctors Without Borders/Médecins Sans Frontières
<b>NCDs</b>	noncommunicable disease
<b>NGO</b>	nongovernmental organization
<b>NPM</b>	needs and population monitoring
<b>NSP</b>	national strategic plan
<b>OCV</b>	oral cholera vaccine
<b>OPV</b>	oral polio vaccine
<b>PCV</b>	pneumococcal conjugate vaccine
<b>Penta</b>	pentavalent vaccine
<b>PHC</b>	primary health centre
<b>PHSA</b>	public health situation analysis
<b>PLW</b>	pregnant and lactating women
<b>PMTCT</b>	prevention of mother-to-child transmission
<b>PTSD</b>	post-traumatic stress disorder
<b>RMNCH</b>	reproductive, maternal, neonatal and child health
<b>RRRC</b>	Refugee Relief and Repatriation Commission
<b>RSV</b>	respiratory syncytial virus
<b>SAG</b>	strategic advisory group
<b>SAM</b>	severe acute malnutrition
<b>SGBV</b>	sexual and gender-based violence
<b>SMART</b>	Standardized Monitoring Assessment for Relief and Transition
<b>SRH</b>	sexual reproductive health
<b>TB</b>	tuberculosis
<b>Td</b>	tetanus–diphtheria vaccine
<b>TWG</b>	technical working group
<b>UHC</b>	upazila health complex
<b>UN</b>	United Nations
<b>UNFPA</b>	United Nations Population Fund
<b>UNHCR</b>	United Nations High Commissioner for Refugees
<b>UNICEF</b>	United Nations Children’s Fund
<b>WASH</b>	water, sanitation and hygiene
<b>WHO</b>	World Health Organization

# Summary

As of 10 May 2018, an estimated 693 000 Rohingya people have crossed from Myanmar into Cox’s Bazar, Bangladesh since August 2017, joining approximately 212 000 others who had fled in earlier waves of displacement. There have been 5168 new arrivals since January 2018. The sudden arrival of a large number of Rohingya people has put pressure on the existing infrastructure and services in Cox’s Bazar, resulting in a humanitarian catastrophe illustrated by critical needs in terms of food security, shelter, water, sanitation, health, nutrition, safety and protection.

In September 2017, the Government of Bangladesh (GoB) across ministries and the military responded promptly despite limited resources and generously allocated 3000 acres of land for the establishment of a new refugee camp. Local communities have been among the frontline responders, providing food and basic items for new arrivals. To complement the efforts of the Ministry of Health (MoH), health-related humanitarian actors responded in a coordinated manner under the umbrella of the Health Cluster led by WHO.

Notably, the public health response at the early stage of the emergency operation was translated into several rounds of major vaccination campaigns against cholera, measles and diphtheria, and outstanding patient care management and contact chemoprophylaxis to control diphtheria epidemic. However, due to the speed and scale of the influx of Rohingya people, the collective response has been unable to keep pace with the enormous demands.

The living conditions of the refugee population remain extremely vulnerable. These are explained by many factors including the clustering of populations in hastily constructed settlements clinging to steep, rapidly deforested hillsides. Overcrowding, insufficient food, and poor water, sanitation and hygiene (WASH), present serious health threats. In addition, this public health situation analysis (PHSA) report focuses on the high risk of the worsening of public health problems when the rains start, turning the denuded hillsides to mud and dramatically increasing the risks of infectious disease outbreaks.

The results of the risk characterization are summarized as follows:

Health problem	Monsoon and cyclone periods (Jun–Oct 2018)	Actions
Worse reproductive, maternal, neonatal and child health (RMNCH) outcomes	Disruptions in reproductive health care and prenatal care/ supervised delivery Worsening malnutrition	Keep improving access to health-care services
Increased burden of endemic of infectious diseases	Poor WASH situation increases the risk of diarrhoeal diseases overall Cooler temperature during the rainy season might sustain high incidence of ARI and circulation of <i>C. diphtheriae</i>	Keep improving WASH in camps

Health problem	Monsoon and cyclone periods (Jun–Oct 2018)	Actions
Risk of epidemics	Vector-borne and diarrhoeal diseases including JE, dengue, chikungunya, typhoid fever, hepatitis E, leptospirosis, malaria, dysentery ALRI whose most common etiology might be seasonal influenza virus infection	Prepositioning medical supplies COMBI* vector control interventions to be implemented asap Risk assessment for specific diseases asap
Increased HIV and TB burden	Initial minimal morbidity due to disruption of care unless limited access to health care is prolonged	Keep improving access to health-care services
Increased NCD burden	Initial minimal morbidity due to disruption of care unless limited access to health care is prolonged COPD, asthma enhanced or caused by indoor air pollution due to the lack of dry firewood	Keep improving access to health-care services
Crisis-attributable injuries	Ongoing sexual violence Risk of further injuries in Myanmar Rohingya or upon repatriation	
Worse mental health	Severe mental health impact of violence and displacement as well as daily stressors	Mitigate impact of cyclones and monsoon on the environment Improve access to health care

**Red:** Could result in high levels of excess mortality, morbidity and/or mental health problems.

**Orange:** Could result in considerable levels of excess mortality, morbidity and/or mental health problems.

**Yellow:** Could make a minor contribution to excess mortality, morbidity and/or mental health problems.

**Green:** Will very probably not result in any excess mortality, morbidity or mental health problems.

**Grey:** No plausible assessment can be made at this time. \*COMBI: communication for behaviour impact

# Background

The purpose of this third edition of the PHSA report is to provide an updated technical overview of the major public health needs and threats faced by Rohingya refugees who have fled violence in Myanmar since 25 August 2017 and have settled in camps and makeshift settlements in Cox's Bazar, Bangladesh.

An estimated 693 000 Rohingya people fleeing violence in Myanmar's Rakhine state have crossed the border into Bangladesh since the end of August 2017. These include 585 000 in the Kutupalong Expansion site, 237 000 in other settlements and camps, and 79 000 in host communities, who have joined another 213 000 Rohingya people already in Bangladesh following earlier waves of displacement.

While the majority of the refugees are living in Kutupalong and Balukhali mega camps and a few other clusters of small and big settlements, about 79 000 are living with the host population. The mega camps are currently one of the world's biggest refugee settlements and also one of the world's most densely populated areas.

The speed and scale of the influx has resulted in a critical humanitarian emergency, with people relying almost entirely on humanitarian assistance for food, water, shelter and basic needs. Population movements within Cox's Bazar remain highly fluid, with increasing concentration in Ukhia, where the government has allocated 3000 acres of land for a new camp. People arrived at the new site before infrastructure and services could be established. Humanitarian partners are now building necessary infrastructure in challenging conditions, with extremely limited space. The upcoming monsoon season, starting around the end of May, will bring additional challenges and needs to a highly vulnerable population already living in precarious conditions.

Cox's Bazar is one of Bangladesh's poorest and most vulnerable districts; the income level is well below the national average, and the district is prone to natural hazards, i.e. cyclones, floods and earthquakes. The sheer number of new arrivals has overwhelmed the existing health services: without a rapid, comprehensive response, there will be massive loss of life.

First, this analysis summarizes the current situation based on data from a variety of sources, including surveillance data collected through WHO's Early Warning, Alert and Response System (EWARS), health facility mapping, results from assessments and surveys on the ground (including nutritional assessments, vaccination coverage estimates), as well as background secondary data review of the health profile and epidemiological risks both in the displaced population and the host community. Second, this analysis reports to the international community on the major threats that the refugee population will face in the upcoming monsoon season and on the level of preparedness and response to these threats among partners, and the national and subnational authorities.

# Health status – current situation

## Epidemics and endemic infectious diseases

The EWARS, established in October 2017 and upgraded on 31 December 2017, has been the main source of knowing the status of the outbreak-prone infectious diseases that have affected the refugees since September 2017. These infectious diseases or syndromes of interest include acute respiratory infection (ARI), acute watery diarrhoea (AWD), bloody diarrhoea, measles/rubella, acute flaccid paralysis (AFP), suspected meningitis, acute jaundice syndrome (AJS), acute haemorrhagic fever, neonatal and adult tetanus, confirmed and suspected malaria, and unexplained fever.

### 1. Acute respiratory infection

ARI has been the most common pathology reported by EWARS since October 2017 with an average per week rate of 12% of all infectious diseases. The weekly trends and proportional morbidity have been steady with no significant epidemics. No specific etiologies have been investigated; however, overcrowding in camps may lead to an increased transmission of respiratory pathogens, including influenza, respiratory syncytial virus (RSV) or bacterial pathogens such as pneumococci, a leading cause of community-acquired pneumonia. This situation, compounded by malnutrition, indoor smoke and burning fire, and inadequate shelter is likely to increase the burden of severe ARIs among people living in the camps [1]. A 13-valent pneumococcal conjugate vaccination campaign (PCV13) to expanded age groups (6 months–7 years) was undertaken in November 2017. However, the benefit of stand-alone PCV campaigns without routine vaccination, or at infrequent interval, may be rapidly offset if not followed up, particularly in high-burden settings [1,2]. In addition, a number of other viral and bacterial pathogens that are not covered by PCV are significant causes of morbidity and mortality from ARI.

### 2. Measles

Measles outbreaks were reported in 2016 and continued in 2017 in Cox's Bazar. During 31 December 2017–22 April 2018, a total of 1231 cases of measles were reported through EWARS (estimated CRF 0.12%). The under-5 age group represented 81% of the total cases. The number of cases has decreased but transmission appears to continue.

A top priority is to vaccinate all children under-5 years newly arriving in the camps against measles. Two rounds of a mass vaccination campaign with a measles–rubella (MR) vaccine were organized by the Ministry of Health (MoH) with support from WHO and other partners, among children aged between 6 months and less than 15 years. Details of vaccination campaigns are provided below in

the section on vaccination campaigns and routine immunization. A measles sampling strategy to assess viral transmission has been finalized and is scheduled to begin by May (WHO weekly situation report 12 April 2018)

### 3. Diphtheria

Since early November 2017, a large-scale diphtheria outbreak has affected the displaced population in Cox's Bazar with a spill over into the host community. From 8 November 2017, there have been a total of 6687 diphtheria case-patients and 42 deaths (CFR <1%) reported through EWARS. As of 14 April, 210 (29%) cases have been confirmed by laboratory tests. Vaccination coverage among Rohingya people in Rakhine state was estimated to be low; thus causing this epidemic. WHO and other partners are working with the Bangladesh MoH to ensure that more than 475 000 children in the Rohingya refugee camps and surrounding areas are vaccinated [3]. In addition, treatment protocols for DAT use and chemoprophylaxis are being implemented [4].

Three vaccination campaigns have been conducted since December 2017 with a diphtheria toxoid-containing vaccine for children aged 6 weeks to 15 years. The pentavalent (DPT-HepB-Hib) vaccine was administered to children 6 weeks to <7 years of age while the tetanus-diphtheria (Td) vaccine was administered to individuals 7–15 years of age.

Diphtheria cases among the refugee population have declined since January 2018, however there appears to be a plateauing in the weekly case count. Cases among the host community continue to be reported. During week 13 to week 15 of 2018, 72% of cases were vaccinated (self-reported) with at least one dose of diphtheria vaccine. Though the coverage of vaccination campaign was high (data below), it is unclear whether these three Td campaigns with at least 4-week intervals are able to achieve an expected 98% vaccine efficacy. It should be noted that the recommended primary schedule is three doses with a minimum interval of 4 weeks between the first and the second dose, and an interval of at least 6 months between the second and the third dose. Further analysis is ongoing to determine the needs for another round of Td vaccination.

### 4. Acute jaundice syndrome

At least 1892 cases of acute jaundice have been reported through EWARS since January 2018, with an average of 100–150 cases a week. Results from a large sampling strategy (n=269) undertaken by WHO from 28 February to 26 March 2018 showed a large predominance (56%) of cases positive for hepatitis A. Such findings are corroborated by mild clinical presentations, the absence of severe signs among pregnant women, and a peak age around 5–10 years, although most infections probably occur among younger age groups who are less symptomatic (about 5% only in <5-year-olds). Hepatitis A is hyperprevalent in Bangladesh, and poor hygiene and sanitation conditions in the camps are a fertile ground for transmission.

One sample tested positive for hepatitis E, along with previous positive tests in late 2017, suggest that HEV is circulating, which presents a non-negligible risk of more severe complications particularly among pregnant women. Studies in rural Bangladesh have reported a seroprevalence of 20–25% among adults [5]. Of the 269 AJA samples tested, 13.4% were positive for hepatitis B, 9.3% were positive for hepatitis C, and 5.2% were positive for leptospirosis. Leptospirosis is an emerging pathogen with a reportedly high CFR (5%) in Bangladesh (Larocque *et al* 2005). Leptospirosis poses further risk of causing epidemics in flood-prone areas heavily infested with vector organisms including rats. Response actions are under way between the Community Health Technical Working

Group (TWG) and Hygiene Promotion TWG to reinforce the messages of community prevention and health education. These include: (i) the hygiene promotion working group has initiated a training-of-trainers programme for AWD and hepatitis A and E among the hygiene promoters and community health workers (CHWs) across all camps and settlements; (ii) a programme is being prepared for hygiene promotion among food vendors; (iii) the WASH sector plans to distribute aqua tablets, and health sector partners have begun to complement these efforts by procuring “ultrafiltration” community water filters and providing comprehensive protection for households with pregnant women.

## 5. Cholera and AWD

WHO recognizes that cholera is endemic in Bangladesh. A model of burden of disease estimated that the country bears ~110 000 cases with ~4500 deaths each year. WHO, MoH, IOM and UNICEF conducted in October 2017 a risk assessment for a large cholera outbreak. As a result, a pre-emptive vaccination campaigns for the Rohingya population was recommended. Details of the vaccination campaigns are given below.

## HIV/AIDS and Tuberculosis

### 1. HIV and tuberculosis

The Bangladeshi National Strategic Plan (NSP) for HIV and AIDS has taken up the task of expanding programme coverage to the Rohingya population in Bangladesh, which includes case detection, increased access to treatment, care and support services for the people living with HIV. Drug stocks were made available by the NSP but some second-line drugs will expire in June 2018.

By December 2017, the NSP estimated that >100 identified Rohingya patients were on antiretroviral therapy (ART). Notably, Myanmar has the second highest prevalence of HIV in South-East Asia with 0.8% of the population. The total number of Rohingya people living with HIV has been estimated to be about 5000 [6]; WHO estimates that ~500 patients were on ART in three northern townships of Rakhine state from where the Rohingya population has fled since 25 August 2017 [7].

Antenatal care (ANC) services are crowded; often, even minimal investigations are not available. The prevention of mother-to-child transmission (PMTCT) services are available only at Chittagong, which is almost 200 km away and it may be difficult for pregnant women to travel that distance. There are an estimated 20 000 pregnant women among the migrants, though only two have been found to be HIV-positive.

Adherence and access to drugs remain difficult among the refugees due to some movement restriction beyond the camp areas. Introducing screening and laboratory diagnosis capacity also remains a challenge.

As per reports, the rate of tuberculosis (TB) notification in Rakhine state in 2016 was 231/100 000 compared to the overall rate of 217/100 000 in Myanmar. HIV among TB cases is 3% (national average 9.6%). The rate of incidence of TB in Myanmar is 365/100 000 (higher than the Bangladesh rate of 225). Extrapolating this rate and using a prevalence rate of 500/100 000, one can expect to have about 4000 TB patients among the displaced persons now in the camps.

The TB response launched by the Bangladeshi NSP for TB along with the lead nongovernmental organization (NGO) partner, Bangladesh Rural Advancement Committee (BRAC), is noteworthy. An extensive referral system has been established by the NSP with support from partners but its operationalization remains a challenge. TB screening is being done at health clinics and at the community level. Additional microscopy laboratories, camp-based sputum smear sites and GeneXpert at strategic upazila health complexes (UHCs) and Sadar Hospital have been established. The supply of laboratory consumables and drugs is being maintained by the NSP. Recording and reporting is largely as per the national guidelines.

## Noncommunicable diseases

Health services currently offer clinical stabilization and management of acute, life-threatening exacerbation of diseases such as asthma, diabetes, hypertension and chronic obstructive pulmonary disease (COPD). However, partners are struggling to address continuation of care for patients with noncommunicable diseases (NCDs), which require proper referral pathways, facilities, laboratory follow-up and human resources – all of which still need to be put in place.

### 1. Anaemia

According to the 2015 Demographic and Health Survey, among children under-5 in Rakhine state, 60% have some degree of anaemia, of which 30% have mild anaemia, 30% have moderate anaemia, and <1% have severe anaemia. Among women aged 15–49 years in Rakhine state, 57.2% have some degree of anaemia, of which 44.4% have mild anaemia, 12.8% have moderate anaemia, and none have severe anaemia. According to the Health Sector Situation Report 31 December 2017, 50% of the general Rohingya population is anaemic.

### 2. Breastfeeding

Rakhine state has the lowest rates of exclusive breastfeeding in Myanmar at 1.3% (as compared to the national average of 23.6% according to the MICS data 2010). This low rate of breastfeeding further compounds the risk of malnutrition and infectious diseases among Rohingya children. An IRC assessment conducted in September 2017 among the newly arrived Rohingya reported the practice of breastfeeding and pregnancy among 44% and 18% of families, respectively.

### 3. Chronic diseases

The prevalence of NCDs among the Rohingya population in Bangladesh remains to be quantified. While data are available from national prevalence surveys conducted in Myanmar, these data are not disaggregated by state or ethnicity. Therefore, it may not be generalizable to the Rohingya population in Bangladesh, or applicable given the significant and sudden change in the social and environmental determinants of health for this population.

Field workers and physicians in health facilities have indicated frequent diagnosis of COPD among the Rohingya population, particularly in men. Musculoskeletal pain is also a common presentation. There are sporadic presentations of heart failure and suspected angina, and even fewer reports of cancers. There were also patients who self-reported diabetes and hypertension. Within the district hospital, the most common NCD admissions among the Rohingya people who recently arrived were injuries (see below), COPD and chronic liver disease with underlying hepatitis C infection.

Risk factors for NCDs are observed in the Rohingya and the host population including tobacco use, particularly by men, frequent betel nut chewing by men and women, and indoor air pollution from household cooking in the camps.

NCD needs may currently be masked by the overwhelming burden of infectious diseases, but they also remain undetected due to constraints of the health system. Training on prevention and management of common NCDs for non-specialists would increase the capacity for care. Procurement of sufficient and quality essential NCD medicines and equipment at the peripheral level would enable health-care workers to improve health outcomes for those with NCDs.

#### 4. Crisis-attributable injuries

One of the leading causes of NCD consultations in Cox's Bazar is injuries, especially from gunshot wounds (17% of families according to the October 2017 IRC assessment report). An earlier assessment conducted in September 2017 also noted a high need for treatment of burns.

According to an MSF assessment in December 2017 (MSF Health Survey Report in Kutupalong and Balukhali Refugee Settlements, Cox's Bazar, Bangladesh – December 2017), most of the recently displaced population experienced violent events between 25 August and 25 September (n=738, 85% of all recently displaced population that experienced violent events), with 22% of recently arrived refugees in the sample population experiencing violence during this period. This was 7.7 times higher than that in the same population between 25 February and 24 August (3%) and 20.5 times higher than that in the same population between 25 September and the end of the recall period (1%). During this 31-day period of peak violence, men (23%) were significantly more likely than women (20%) to have experienced a violent event. The type of violence experienced by the recently displaced population between 25 August and 24 September was similar for both genders, except for sexual violence, which was more likely to be experienced by women (16% of all violence experienced) than men (9%). Sexual violence among women occurred almost exclusively before arrival in Kutupalong and Balukhali, with 56 of 58 (97%) incidents reported before arrival in the settlements in Bangladesh. Shooting (76%) and beating (60%) were the most common types of violence experienced by both genders in the recently displaced sample population. Most people experiencing an "other" type of violence (n=207, 28%) reported having their house burnt (9% of all violent events), witnessing other people being shot (2%), having their money taken/being extorted (1%) and various other types of violence including witnessing beatings or detentions.

### Reproductive health

The Sexual and Reproductive Health Working Group is coordinated by UNFPA and includes approximately 50 partners. According to the latest UNHCR family counting data in February 2018, an estimated 52% of the refugees are women, including more than 205 000 women aged 18–59 years.<sup>1</sup>

Although some partners are providing the minimum initial service package of sexual reproductive health (SRH), access to essential comprehensive reproductive, maternal, neonatal and child health (RMNCH) services remain a major concern. Based on the latest available needs and population monitoring (NPM) data<sup>2</sup> in February 2018, it was reported that refugees face problems accessing

<sup>1</sup> Latest report published on 18 March 2018.

<sup>2</sup> Round 9 assessment was conducted between 7 and 25 February 2018.

ANC in 28% of locations surveyed, either because the service was not available, or because it was available but not easily accessible. In 36% of assessed locations, it was reported that women do not give birth in health facilities. Based on the data reported by SRH partners, an estimated 14%<sup>3</sup> of deliveries occurred in SRH facilities, which may reflect a combination of both demand and access issues. The difficulty of transporting patients or pregnant women for safe facility-based births continues to be a challenge, especially for night-time deliveries, as 24/7 facilities with birthing units are scarcely located within the camps, and arranging for an emergency transport at night remains a major challenge, resulting in avoidable maternal and infant mortalities.

Nevertheless, several facilities are providing SRH services in hard-to-reach areas, and SRH partners continue to construct additional clinics with sturdy structures that can provide high-quality services even during the rainy season. So far, 2980 safe delivery kits have been provided to key health facilities. In response to the high proportion of home deliveries, a cash-based project is being piloted to incentivize facility-based deliveries and traditional birth attendants are being trained to promote safe motherhood.

A total of 280 health-care practitioners received training on Helping Babies Breathe, Emergency Response, Helping Mothers Survive and Clinical Management of Rape. To address the need for emergency obstetric services, three obstetrics/gynaecology consultants were deployed to Ukhia health complex for supporting 24/7 emergency obstetric services. In March 2018, hepatitis B vaccination for health-care workers was launched by the Civil Surgeon's Office, and a national task force of HIV visited Cox's Bazar to assess support needed to begin implementation of HIV/AIDS activities in certain health facilities, particularly for PMTCT. From December 2017 to February 2018, a total of 1593 deliveries took place in a health facility, at least 16 592 women were reached with family planning methods and 29 654 ANC visits were reported.

## Violence and mental health

The mental and psychosocial impact of being forcibly displaced are vast, with the affected populations facing daily stressors associated with reliance on humanitarian assistance for food and other life-saving needs. This situation is compounded by reports of exposure to extreme violence including SGBV and physical violence in Rakhine state. Results of health sector partners' preliminary assessments show that needs for a mental health and psychosocial support network (MHPSS) exist for both the refugees and the host community. However, adaptive distress shows a lower prevalence in the host community when compared with more chronic problems related to pervasive sense of hopelessness in the registered and makeshift camp populations. Many needs have been identified, among these are: identified disrupted social support and self-help, particularly in some of the newly arrived populations, massive distress, lack of awareness on mental health problems with associated lack of adequate assistance and stigma. Finally, high levels of malnutrition and lack of adequate education-related stimulation are considered adverse to a child's psychosocial development.

A cross-sectional study based on several methodologies examined the history of trauma, daily environmental stressors, and mental health status for 148 Rohingya adults residing in Kutupalong and Nayapara refugee camps post - influx. The results indicated high levels of mental health concerns: depression, somatic complaints, grief, and conditions specifically related to stress,

<sup>3</sup> Note that this figure is based on reported data; it is likely that data on deliveries are underreported.

e.g. post-traumatic stress disorder (PTSD). Participants also endorsed local idioms of distress, including somatic complaints and concerns associated with spirit possession. The study also found high levels of daily environmental stressors associated with life in the camps, including problems with food, lack of freedom of movement, and concerns regarding safety. The findings indicate that daily stressors play a key role in mental health outcomes of populations affected by collective violence and statelessness.

Symptoms linked to extreme stressors are frequently reported, including nightmares, flashbacks, anxiety, dissociation and fear. One can anticipate high prevalence of anxiety, depression and suicidal ideation. Depression, particularly among women, has contributed to malnutrition in families.

Even before this crisis, mental health services were extremely limited in Cox's Bazar. WHO has worked closely with the MoH to mobilize specialized human resources for the district hospital and continues to contribute to building the capacity of general practitioners to manage common and severe mental health conditions at the primary health-care level. An MHPSS working group is established with a dedicated WHO officer at the field level to provide support in coordination with the WHO Country Office and the Regional Office.

There is an urgent and immense need for mental health and psychosocial support to the Rohingya population. Mental health needs may currently be masked by the overwhelming burden of infectious diseases, but they also remain undetected due to constraints of the health system. Training on prevention and management of common mental health issues for non-specialists would increase the capacity for care.

Given the high proportion of adolescents among the population in need, there is likely to be a significant need for the treatment of adolescent mental health issues.

## Population mortality

Mortality estimates obtained through retrospective surveys conducted by MSF among Rohingya refugees in November and December 2017 reported a crude mortality rate (CMR) of 0.41/10 000/day (95% CI 0.28–0.62) and 0.59/10 000/day (95% CI 0.43–0.81), respectively [10, 11]; with violence already being one of the main causes of mortality at that time.

The CMR for the Rohingya population who already lived in the camps before the large influx of population in August was estimated at 0.27/10 000/day (95% CI: 0.13–0.54), stable between February and November 2017 [10]. The primary cause of death among the recently displaced population, before the crisis in Rakhine state, was "other" causes of death (44.0%, n=11), which consisted of heart attacks (n=8) and neonatal deaths (n=3).

Those two surveys also provide evidence of exceptionally high levels of mortality in the few weeks after 25 August due to direct violence, with the CMR as high as 1.2/10 000/day. About 3% of the refugee population captured through the surveys died in Myanmar due to direct violence, including beating, gunshots or sexual violence during the one month following 25 August. These figures are based on recall from refugees, and are likely to be an underestimate given reports of entire families being killed in their village at the time.

Since 25 September 2017, the CMR was reported at 0.67/10 000 population (95% CI 0.35–1.29) among the recently displaced population [11]. The last estimated CMR for recently displaced refugees in the camp is similar to that of the pre-crisis CMR in Myanmar. The primary cause of death among them was from diarrhoeal diseases and respiratory infections.

While current estimates are not available, it is expected that mortality in the camps has remained steady or has decreased compared to the post-acute phase, given the wide range of preventative and curative services provided.

Community-based surveillance of mortality and unusual severe events among Rohingya refugees in Cox's Bazar was approved for implementation by the Civil Surgeon's Office in Cox's Bazar.

# People in need of health services

The total population in need of health services has been calculated for the 2018 Joint Response Plan as 1.3 million people including 336 000 people of the host community. The demographics of the current estimated 655 500 Rohingya refugees is illustrated in Table 1.

Table 1. Demographic proportions of current refugee population (RRRC/UNHCR 18 March 2018)

Characteristics	Percentage
Males	48.0
Elderly (>60 years of age)	3.4
0–4-year-olds	18.5
Under 18-year-olds	55.0
Single mothers	16
Pregnant women	4.9
Un-accompanied children	1
Disabled individuals	3

Source: [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/npm-r9-sa-report-2018-march\\_0.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/npm-r9-sa-report-2018-march_0.pdf), accessed 8 May 2018

The sheer magnitude of new arrivals has put massive pressure on all health services, and the cramped living conditions present significant public health risks. Poverty-ridden and without access to resources, the vulnerable displaced people are dependent on what the Bangladesh government and the relief agencies can provide to them – such as primary and secondary health care, trauma care and rehabilitation, RMNCH, and mental health services and psychosocial support. The existing facilities in Cox’s Bazar and surrounding areas have reported a 150–200% increase in patients, overwhelming the current capacity and resources. At the same time, many new arrivals have little knowledge of what services are available and how to access them.

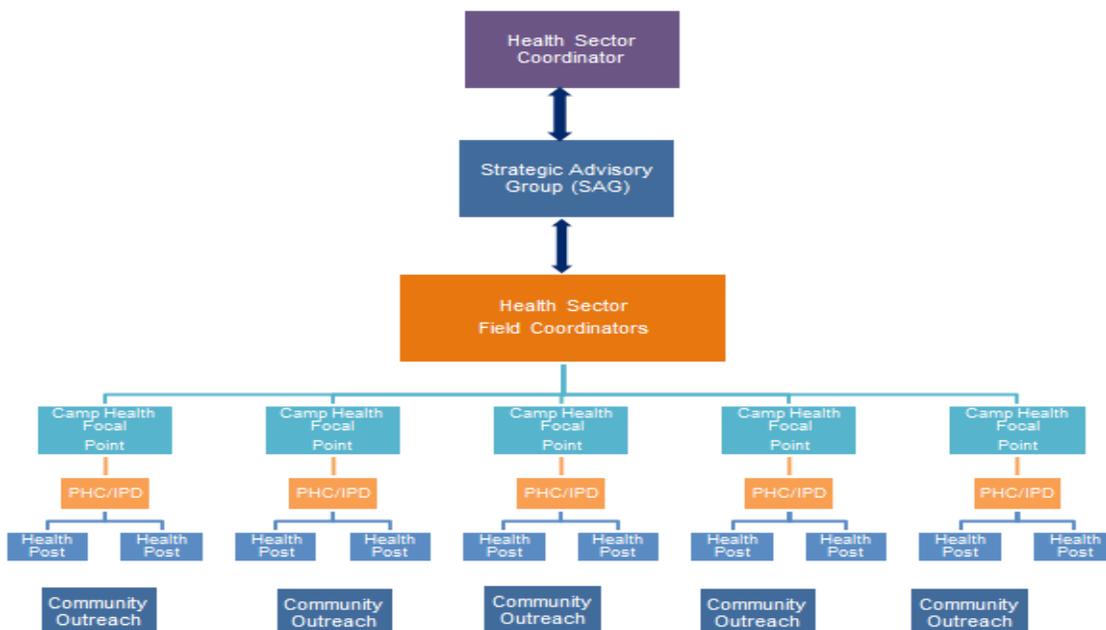
# Humanitarian health response

## Health Cluster coordination of humanitarian response

Overall, the health sector partners are coordinated under the leadership of Civil Surgeon's Office of Cox's Bazar, the Directorate General Health Services Coordination Centre and WHO, for better planning and implementation of a coordinated emergency response.

The health sector is aiming for a multi-tiered coordination structure, as illustrated in Fig. 1. A strategic advisory group (SAG), constituting the main health sector partners, serves an advisory role to the health sector coordination based on priority needs. Health sector field coordinators have begun to be placed at the upazila level (district), to strengthen the linkages between the health sector coordinator and camp/settlement-level activities. At the camp level, health agencies have been identified to the camps in-charge (CiC) Office under the guidance of the health sector field coordinator to ensure coordination of the health sector response. They are tasked with centralizing and circulating relevant information among health partners operating in the same camp and coordinating with other sectors. Briefings and trainings in support of camp lead agencies' new roles are being provided.

**Fig. 1: Health sector coordination structure**



Under the health sector coordination there are several active working groups with strong representation from various health sector partners. Based on current needs, these groups evolve and meet at differing frequencies depending on the priorities. At present, the active working groups are:

- Mental Health and Psychosocial Support (MHPSS)
- Sexual and Reproductive Health (SRH)
- Community Health
- Health Sector Emergency Preparedness and Response
- Acute Watery Diarrhoea
- Vector-borne Diseases.

The health sector priority over the past 2–3 months has been emergency preparedness for the upcoming monsoon/cyclone season.

## Availability/functionality of humanitarian health services

During the early influx and subsequent spontaneous building of settlements, the provisioning of health services was limited by the lack of space for setting up fixed health facilities. However, in collaboration with the site management sector, the number of health facilities improved in the refugee settlements by March 2018 (Table 2).

Table 1. Health facility coverage<sup>4</sup>

Type	Current Number of Facilities*	Sphere Standard Ratio	Current Ratio
Health Post	129	1 per 10 000 population	1 per 10 077
Health Centre	54	1 per 50 000 population	1 per 24 074
Hospital	10	1 per 250 000	1 per 130 000

\*These figures reflect only those facilities verified to be within the geographical boundaries of the camp. They exclude facilities not within these boundaries, planned and unverified facilities.

As of 27 February 2018, the total number of health facilities reported by partners to the health sector was 281.<sup>5</sup> However, this figure is subject to change as several facilities require verification on the ground. Of these, 256 (91%) are reported functioning, 20 (7%) are planned or under construction, and 5 (2%) are non-functional. As of 22 April 2018, a total of 157 health facilities were registered on EWARS. Of the 35 listed camps (n=193 facilities) by the Health Sector Facility Tracking in February 2018, the median ratio of the number of health facilities to the camp population was 1:4482, varying between 1:1059 and 1:10 198. These facilities reflect only those verified to be within the geographical boundaries of the camp. They exclude facilities not within these boundaries, planned and unverified facilities.

<sup>4</sup> Health Sector Facility Tracking 27.02.2018

<sup>5</sup> Health Sector Facility Tracking 27.02.2018

Health sector partners including WHO, BRAC, UNICEF, SCI and IFRC conducted a joint health facility service and WASH/IPC assessment during 27 January–5 February. The assessment showed that there were approximately 75 health sector partners involved in the provision of health-care services through static and mobile facilities in all camps in refugee settlements.<sup>6</sup> The facilities assessed included both fixed and mobile as well as those providing inpatient and outpatient services. In April 2018, 305 health facilities were listed (mapped); of these 270 were functional. This represents a major increase from the total of 210 reported as of 31 December 2017, of which 169 (80%) were functional.

Many of the initially mapped facilities were structurally fragile, being composed of plastic sheets and bamboo sticks and would not withstand severe weather conditions. The locations of some of these facilities also presented an access challenge as patients could reach these facilities only on foot.

Service provision was assessed for 150 facilities, which included community clinics, primary health centres (PHCs), health posts (both fixed and mobile), labour rooms and SRH facility. Of those, 138 (92%) were operational only during daytime, with 7 (5%) operating at all times (24/7), and another 5 (3%) operating over 24 hours for selected services. However, this is likely to be an underestimate as recent data from UNFPA show 15 facilities providing 24/7 SRH services in both Ukhia and Teknaf.<sup>7</sup>

Of the 150 facilities assessed,<sup>8</sup> 131 (87%) facilities provided outpatient services and only 7 facilities (5%) provided inpatient services. The average outpatient consultations were 133 per day, however they ranged from very few to over 900 consultations per day. This reflects differences in size and technical human resource capacity, with only 84 (56%) facilities having a full-time trained doctor on site.

A major concern is the shortage of inpatient beds available within the facilities located in the camp. A total of 138 inpatient beds and 57 delivery beds were available. With an estimated 53 266 pregnant women among the Rohingya refugees and 16 513 expectant deliveries over the next 3 months<sup>9</sup> (an average of 181 deliveries a day), the number of delivery beds is well below the needs.

The assessment also evaluated the availability of services in 12 areas of health services including curative care, maternal and newborn, child health, adolescent health, family planning, gender-based violence (GBV), nutrition, communicable diseases, mental health and psychosocial services, NCDs, basic laboratory and information management. The results show that there are significant gaps in the treatment of communicable diseases, particularly concerning HIV and TB. There are gaps too in terms of storage of vaccines, preterm newborn and sepsis management, basic laboratory facilities, and mental health.

According to a survey conducted by MSF in December 2017, 49% (n=757) of people who reported being sick in the previous two weeks visited a health-care facility, while 37.1% (n=528) took self-medication, 9% (n=130) accessed no health care, 4% (n=55) visited a traditional healer, and 1% (n=7) accessed an “other” form of health care, predominantly receiving medicines from the public drug distribution system. The main reason given for not attending a health facility was that the respondent did not have enough funds in cash (42%); this was statistically significantly higher in the Kutupalong Makeshift Settlement (KMS) (67%) than in other areas. Other commonly reported

6 WHO Report on the Assessment of Health Care Facility Services in FDMN Settlement Areas. Draft. 25.02.2018

7 Rohingya Refugee Response Health Sector Bulletin #3. 26.02.2018

8 WHO Report on the Assessment of Health Care Facility Services in FDMN Settlement Areas. Draft. 25.02.2018

9 Health Sector Bulletin #3. 02.26.2018

reasons were that “the clinic is too far away” (26%), particularly in the Balukhali Makeshift Settlement (BMS) (37%) and KMS (28%) extensions, and that “there was no time” (20%). Given the rapid expansion of the extension areas, and the large number of people residing there, the distances between clinics can be large and the existence of geographical barriers is to be expected.

## Vaccination campaigns and routine immunization

Table 3: Vaccination campaigns conducted among FDMNs, Cox’s Bazar during September 2017–May 2018

No.	Vaccination campaigns	Date of campaign	Antigen and target Age group	Target population	Coverage (%)	Remarks
1	bOPV, MR and vitamin A campaign	16/09/17–03/10/17	MR – 6 month to <15 years	122 580	111%	New influx of FDMN started on 25 August 2017
			bOPV – <5 years	47 165	153%	
			vitamin A – 6 months to <5 years	44 000	164%	
2	OCV campaign (1st round)	10–18/10/17	>1 year	658 371	106%	Second largest OCV campaign conducted in the world! Evaluated coverage showed >92%
3	OCV and bOPV campaign (2nd round)	04–09/11/17	bOPV – <5 years	209 931	113%	Evaluated coverage showed >96%
			OCV – 1 to <5 years	182 317	109%	
4	Measles and rubella mop up campaign (2nd round)	18/11–05/12/17	6 months to <15 years	336,943	105%	Evaluated coverage showed >94%
5	Penta, PCV, bOPV and Td campaign (1st round)	12–31/12/17	Penta, PCV, bOPV – 6 weeks to <7 years	185 533	81%	Multiple antigens given
			Td – 7 to <15 years	172 007	96%	

No.	Vaccination campaigns	Date of campaign	Antigen and target Age group	Target population	Coverage (%)	Remarks
6	Host community penta/Td campaign (1st round)	1–17/01/18 and 17–22/02/18	Penta – 1 to <7 years	105 885	82%	School-based vaccination
			Td – 7 to <15 years	109 018	116%	
7	Penta/Td campaign (2nd round)	27/01–10/02/18	Penta and bOPV – 6 weeks to <7 years	183 333	93%	Total coverage 110% of the target
			Td- 7 to <15 years	176 985	128%	
8	Penta/Td campaign (3rd round)	10–25/03/18	Penta – 6 weeks to <7 years	189 495	89.8%	Total coverage 102% of the target
			Td – 7 to <15 years	225 577	113%	

FDMN: forcibly displaced Myanmar national, MR: measles/rubella, bOPV: bivalent oral poliovirus vaccine, OCV: oral cholera vaccine; Td: tetanus–diphtheria vaccine; Penta: pentavalent vaccine

Over 11 000 aid workers have been vaccinated across agencies.

The routine Expanded Programme on Immunization (EPI) is being provided through 25 fixed sites established in the area. BCG, pentavalent, OPV, MR and PCV vaccines are being provided through these fixed sites. Fifty-six vaccination teams, of two members each, have been trained to provide routine EPI through the 672 outreach sessions (576 in Ukhia and 96 in Teknaf), which are being conducted for this purpose. Each team will conduct 12 vaccination sessions per month in the camps.

Entry-point vaccination continues to be provided to all new arrivals in Cox’s Bazar from Rakhine state of Myanmar. Vaccination of close contacts of all suspected cases of diphtheria is being strengthened as a part of accelerated efforts to interrupt the transmission of diphtheria.

# Threats

## Availability/functionality of humanitarian health services

The normal monsoon season in Bangladesh, which peaks during June–August, will have 20–25 days of rain, with an average precipitation of 400–600 mm a month [12]. However, rainfall patterns can be inconsistent, with reports of over 200 mm of rain in a single day. While most areas in Cox’s Bazar have not been historically prone to flooding, the removal of vegetation, extensive cutting of hills and other changes to the landscapes in the refugee camps have dramatically increased the risk of flooding and landslides (ISCG’s Cox’s Bazar monsoon and cyclone season operational plan). Heavy rains are expected to reduce access and exacerbate health needs significantly, degrading living conditions and increasing risks of water- and vector-borne outbreaks. Cyclones generally strike Bangladesh in two seasons, March through July and September through December, with majority of the storms arriving in May and October. Landslides and cyclones will damage and disrupt the health facility services.

### 1. Acute respiratory infection and influenza

The season of influenza/acute respiratory illness in Bangladesh follows the pattern of the Southern Hemisphere season, following the start of monsoon, with the peak incidence in June or July, and declining thereafter. Myanmar has a rainy season similar to that of Bangladesh (Saha *et al* 2014)

The rains, and potential associated flooding, are likely to increase the risk of both transmission of other respiratory viruses and bacteria, particularly if access to timely health care is compromised. **The risk of increased morbidity and mortality from pneumonia and ARIs – mainly caused by seasonal influenza viruses during the upcoming monsoon season – is considered high.**

### 2. Acute jaundice syndrome

Two diseases – leptospirosis and hepatitis E and A – can pose major threats during the rainy and potentially flooding seasons.

Limited evidence on leptospirosis from Bangladesh points towards a wider presence of the disease in both urban and rural areas. A study among febrile patients in urban Bangladesh identified nearly 10% of them as positive for leptospira [3]. More recently, a study assessing etiologies of fever in rural and semi-urban areas of Bandarban district, an area approximately 100 km from Cox’s Bazar, showed high proportions (44%) of seropositivity for leptospirosis in cases misdiagnosed as malaria [8]. As part of the recent assessment of acute jaundice in the camps, 14 (5%) cases of leptospirosis were confirmed. Acute jaundice is a rare form of presentation for leptospirosis, and part of the more severe clinical presentation, which may also include kidney failure and haemorrhage. Cases

positive for leptospirosis among the jaundice cases reflect the more widespread presence of leptospira infections in the camps, given that >90% of patients present with milder febrile illnesses and an absence of jaundice.

Human leptospirosis is contracted by exposure to infected urine, or directly contaminated soil, or water. Typically, floods increase the risk of contamination, and the upcoming monsoon season brings a high likelihood of transmission, with potentially severe consequences in a few patients.

**There is therefore a moderate risk of increased morbidity from leptospirosis in the coming months.**

The upcoming monsoon season therefore brings a risk of exacerbation of hepatitis A and E, by increasing transmission through the effect of rains and flooding on sewage systems, and an increased risk of hepatitis E outbreaks, **with a high risk of elevated mortality and morbidity in the refugee population – particularly in pregnant women.**

### 3. Vector-borne diseases

In recent times, both Bangladesh and Myanmar have witnessed outbreaks of dengue, chikungunya, Japanese encephalitis (JE), and malaria. While progress has been made in malaria control, Cox's Bazar continues to be among the malaria endemic districts of Bangladesh (both *Plasmodium falciparum* and *P. vivax* are circulating). As of 18 April 2018, BRAC screened 32 7999 cases for malaria, of which 7 (0.02%) tested positive.

Bangladesh and Rakhine state in Myanmar are endemic for JE. Bangladesh has regularly reported JE cases during the past decade. In 2011, a study in Bangladesh estimated the incidence of JE as 2.7/100 000 population in Rajshahi, 1.4 in Khulna and 0.6 in Chittagong (Paul *et al* 2011). While a large outbreak of JE was reported in Rakhine state, Myanmar in 2014 (Oo *et al* 2016). Despite high endemicity, both countries are yet to introduce a national JE immunization programme. Awareness about JE or knowledge related to transmission and prevention of the disease is limited in local communities.

Both Bangladesh and Myanmar (and their respective refugee areas) are endemic for dengue and chikungunya. Existing evidence suggests that both Bangladesh and Myanmar suffer from poor vector-borne disease surveillance and control activities.

The rains, and potential associated flooding, are likely to increase the risk of transmission of major vector-borne diseases including malaria, dengue, chikungunya and/or JE. **There is therefore a high risk of increased morbidity from vector-borne diseases in the coming months.**

**Community-based vector control measures and communication for behaviour impact (COMBI), positioning of chemical pesticide and net distribution are being introduced.**

### 4. Diarrhoeal diseases and dysentery

Indications of threat posed by AWD outbreaks and all alerts generated through EWARS have not been investigated so far. Thus, vigilance is warranted with the upcoming monsoon season. Diarrhoea treatment centres are being assessed to be in a state of readiness. EWARS reported many cases of bloody diarrhoea; however, no etiological investigations were conducted. *Shigella dysenteriae* type 1 is of concern as it has the potential for large outbreaks and high fatality.

Every year from July to September across monsoon and floods, there is an increase in the risk of waterborne diseases, including typhoid fever and related diseases such as paratyphoid and invasive non-typhoidal *Salmonella* disease. Bangladesh is highly endemic of typhoid fever; monsoon months had the highest disease occurrences (45%) followed by the pre-monsoon (30%) and post-monsoon (25%) season (Dewan *et al* 2013). In addition, incessant rains can pollute water and damage latrines, releasing sewage into the environment and contaminating water sources used for cleaning, cooking and drinking.

Typhoid fever presents with febrile diarrhoea and vomiting; however, the disease caused by *Salmonella typhi* represents 11% of the non-malaria febrile illness in Chittagong – a district adjacent to Cox’s Bazar in which many of the Rohingya have arrived in 2016. **There is therefore a moderate-to-high risk of increased morbidity from typhoid fever in the coming months.**

## 5. Scrub typhus

*Scrub typhus* is a serious disease: approximately 6% of patients die if untreated. The disease is an underdiagnosed cause of febrile illness across the tropics, and it is not known how common it is in Bangladesh and Myanmar. Considering the influx of nearly half a million people from Myanmar and given the presence of mites in the region, poor hygiene and vulnerable population, scrub typhus is a threat. **There is therefore a moderate risk of increased morbidity from scrub typhus in the coming months.**

## 6. Haemorrhagic fever syndrome, i.e. Crimean Congo haemorrhagic fever (CCHF) and dengue

The CCHF-transmitting *Hyalomma* tick vector is found in Bangladesh. Similarly, confirmed human cases have been reported in the past; but its occurrence is considered rare with limited potential for large outbreaks.

Ticks responsible for the transmission of CCHF are also known to exist in Myanmar, hence putting it at risk for CCHF virus. The high risk of Myanmar for CCHF is also in line with recent evidence as there are parts of the country where humans are predicted to be at potential risk for CCHF, yet evidence is lacking, and thus surveillance is a priority.

There is a significant overlap of presentation, clinical scenario and laboratory abnormalities between dengue and CCHF. Both Bangladesh and Myanmar are endemic for dengue and hence differential diagnoses are an issue until late into the illness. In the absence of clinical suspicion by treating physicians, CCHF could spread undetected and soon become a public health threat. This could result in a complex emergency situation in densely populated settings. This is especially true for Myanmar where human cases of CCHF have never been reported. Recent risk assessment done by the WHO Regional Office for South-East Asia has also shown limited human and vector surveillance for CCHF in Bangladesh, thus further adding to the risk. The time of CCHF viral activity coincides with an increase in the tick population density and adult tick activity, i.e. during the rainy months. **There is therefore a moderate risk of occurrence of CCHF in the coming months.**

## Population vulnerabilities: WASH, nutrition and shelter

### 1. Water, sanitation and hygiene

Besides the medical response, improving water and sanitation is a major public health response to prevent the spread of disease. At present, more than 5600 tubewells and 47 674 latrines have been constructed in various camps by WASH sector partners and the GoB. As per the WASH situational report, about 88% of latrines are functional with routine desludging. In the initial phase of the emergency – in a rush to provide water – about 63% tubewells were constructed without following proper siting and standards. This resulted in poor quality and inappropriate location, and about 21% required immediate rehabilitation or replacement. More than 30% toilets were located less than 10 m from a water source and pits of 17% of latrines were full and not functioning. Three rounds of water quality surveillance were carried out from September to December 2017 by WHO and WASH partners. The third water quality monitoring surveillance showed that 81% of the water samples collected (1108) from households were contaminated with *E. coli*, indicating poor handling and storage of water in the camps. Gaps identified are water quality issues in tubewells and at the household level, water scarcity in Teknaf area, lack of sustainable interventions for faecal sludge management, and unplanned nature of settlements.

With the monsoon season coming up, desludging and decommissioning of these latrines, which are located in flood-prone areas remains a priority to prevent contamination of the camp environment. The WASH sector has prepared flood risk maps for all areas, and so far 2405 latrines in the flood risk areas have been decommissioned. Considering that the shallow aquifer is contaminated with faecal coliforms throughout the camps, the Department of Public Health and Engineering with WASH partners has installed a total of 595 deep tubewells (150–200 metres) (380 in the Ukhia and Teknaf host community areas and 215 in different camps).

Standards and guidelines for construction of tubewells and latrines have been developed and issued jointly by WASH partners and the government. Several TWGs such as hygiene promotion, AWD, hydrogeology and faecal sludge management are set up to provide coordinated technical backstopping for WASH interventions. The WASH sector has been also actively engaged with the health sector for preventing hepatitis A and E infections. There is a continuous need for hygiene promotion and distribution of hygiene kit and menstrual hygiene kits. These are coordinated through the WASH sector.

About 270 health-care facilities in the camps were assessed on WASH/IPC and health services using the WHO WASH FIT (facility improvement technology) tool. Around 30 facilities had unsafe water. These were followed up and action was taken to address the issues concerning the quality of water. The Rohingya population and host community benefited from 573 348 hygiene kits and non-food items.

The latest NPM survey by March 2018 showed that in only two out of 1807 locations it was reported that the refugee population had no access at all to drinking water, both in collective sites. In approximately 8% of all locations it was reported that access to water was limited, as only some people had enough water for their needs. In 43% of assessed locations at least half of the population had enough water, while in 41% most people had enough and in 7% nearly everyone had enough water for their needs.

In less than 1% of all locations it was reported that almost nobody had access to latrines, while in 5% of locations only some people did. In 37% of locations, KIs reported that at least half of the population had access to latrines, in 50% most people and 7% nearly everybody had access to latrines.

## 2. Nutrition

The nutrition sector estimates that more than 208 000 0–59-month-old infants, 107 000 pregnant and lactating women (PLW) and 88 000 adolescent girls among the refugees and host communities are in need of life-saving nutrition interventions. These high levels of undernutrition are in part a result of existing vulnerabilities such as stunting (above 40%), food insecurity, poor hygiene and sanitation conditions, and disease outbreaks. Additionally, extremely high levels of anaemia among FDMN children indicate high prevalence of micronutrient deficiencies<sup>10</sup>. Results from the Standardized Monitoring Assessment for Relief and Transition (SMART) Surveys conducted at the end of 2017 suggest that the prevalence of global acute malnutrition (GAM) among Rohingya children is above the WHO emergency threshold levels.

During February–March 2018, an estimated 4886 children were admitted for severe acute malnutrition (SAM) and 6053 for moderate acute malnutrition (MAM). A total of 17 635 children were reached through blanket supplementary feeding programmes and 80 870 PLW were counselled on infant and young child feeding (Health sector Bulletin Apr 2018: <https://reliefweb.int/sites/reliefweb.int/files/resources/healthsectorcxbbanbulletinno4.pdf>).

Many health sector partners continue to provide nutrition services in their health facilities such as screening of children as well as PLW for malnutrition. Additionally, many partners are also providing therapeutic supplementary food provision and referrals to targeted supplementary feeding programmes. Partners have engaged community health workers to provide joint health and nutrition messaging to the community and there is collaboration between Nutrition and Health Sectors through training of health staff on nutrition and provision of health nutrition equipment to health facilities as well as training of nutrition staff on common infectious diseases.

The nutrition sector recently undertook a review to identify areas of work that require improvement. One recommendation is to ensure continuum of care for all acutely malnourished and following the agreed road map to identify and prioritize locations where nutrition services need to be established. In addition, discussions were held with other sectors, including the health sector, to identify core integration actions that can be implemented through multisectorial approaches. Treatment protocols for the management of acute malnutrition (SAM, MAM) as well as BSFP were reviewed.

The nutrition sector has also worked on preparedness and response planning for the monsoon/cyclone season, to review and estimate nutrition supplies needed for the flood response, their procurement and prepositioning and to present changing approaches and modalities based on different emergency scenarios.

## 3. Shelter

The NPM conducted by RRRC and UNHCR ([https://reliefweb.int/sites/reliefweb.int/files/resources/npm-r9-sa-report-2018-march\\_0.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/npm-r9-sa-report-2018-march_0.pdf)) in March 2018 reported that in 69% of locations refugees

<sup>10</sup> Joint Response Plan for the Rohingya crisis, March–December 2018

have received neither any non-food items nor shelter assistance during the previous 30 days. Of the population that received shelter and DFI assistance, the main providers were UN/INGOs, in 33% the military, in 3% local organizations, and in 2% government authorities. The major need gaps identified in the survey were fuel, followed by 67% indicating lack of firelighter and 52% the provision of shelter materials. Unstable shelter structure (31%) was reported as a key concern. Exposure to landslide, fear of wild animals and fear of break-in were also mentioned in 7% of locations. Key informants (KIs) of almost all locations were concerned by the exposure to landslide or the fear of wild animals particularly in Kutupalong and Balukali expansion areas. With dry firewood in short supply during monsoon, many people are unable to cook properly, adding to malnutrition and respiratory problems caused by indoor burning smoke.

## Availability/functionality of humanitarian health services

The same NPM showed that access to static health facilities was difficult only in 2% of locations while in 39% of assessed locations, the refugee population was reported to have access to mobile clinics. However, in 64% of locations the population reportedly faced difficulties accessing health facilities at night.

Adherence to the validated minimum package of primary health services remains variable, and the quality of service provision needs strengthening. Programming for NCDs, TB and HIV/AIDS remains insufficient.

24/7 services remain a critical gap in the camps and in MoH facilities particularly for obstetric and surgical emergencies. Health services: KIs were asked whether people in their location faced problems accessing various services. In 28% of locations, it was reported that refugees faced problems accessing ANC, either because the service was not available, or because it was available but not easily accessible. In 36% of assessed locations, it was also reported that women do not give birth in health facilities. In 64% of locations people in distress or with mental health issues reportedly faced problems accessing assistance. Likewise, in 66% of locations refugees faced problems accessing psychosocial care, and in 62% persons with disabilities faced problems accessing rehabilitation support. Vaccinations services were reportedly widespread and easily accessible in 92% of assessed locations.

Cox's Bazar has a modest health infrastructure with no designated trauma care facilities. The water and sanitation profile of the area is reportedly satisfactory with 96% houses having access to safe drinking water and 82% to sanitary latrines. With one 250-bedded district hospital, seven UHCs (312 beds) and 12 union subcentres, the existing health facilities also include 22 private clinics, 12 NGO clinics and one 10-bedded hospital. In the rural areas, there is only one rural dispensary and 174 community health clinics. There are virtually no ambulances, jeeps, buses, minibuses or pick-ups attached to these facilities, potentially limiting mobility and outreach.

No data are available on health-care quality and outcomes in Cox's Bazar since the onset of the crisis. According to a WHO analysis conducted in December 2017, the following issues exist in terms of quality:

(i) limited activities towards service quality oversight; insufficient level of care for NCDs particularly diagnosis and management of cardiovascular diseases (including hypertension), diabetes, and chronic respiratory diseases; (ii) a proper follow-up system; (iii) monthly visits for

dispensing medicines; (iv) biannual or annual general check-up programmes; (v) referral for acute complications; (vi) recognition of need for disability and rehabilitation services and referral.

- lack of adequate reproductive, maternal and newborn health services
- security restrictions at night pose a challenge to 24/7 access
- inadequate WASH in some health facilities
- limited capacity for laboratory diagnosis of outbreak-prone diseases
- limited referral system including patients' transport
- insufficient technical capacity of medical assistants, medical officers, midwives and health providers to adhere to international and occasionally to national standards and guidelines
- staff burn out within a short period of time due to major workload
- need of quality maternal health support leading to high percentages of home deliveries
- lack of space for expansion of services
- confidentiality of reporting system particularly with regards to GBV, HIV is a challenge
- need for culturally appropriate communication at the health services level
- long waiting time for patients, lack of proper waiting area in health facilities.

## Emergency preparedness plan for monsoon and cyclone season

The ISCG gathered all concerned partners and stakeholders to develop a monsoon and cyclone season operational plan for Cox's Bazar refugee sites. The plan focused on responses to different scenarios from minor/moderate, severe to catastrophic. As far as health-care services are concerned, responses will focus on flexible service delivery mechanism, management capacity or trauma/mass casualty/emergency obstetric care and targeted mental health interventions with nine "subgroups" (Coordination; Relocation of health facilities; Logistics; Mobile medical teams; Community preparedness; Outbreak preparedness and response; Trauma/mass casualty incident; Dead body management; Mental health and psychosocial support) (cf ISCG's Cox's Bazar Refugee sites – Monsoon and cyclone season operational plan - not available online).

On 22 March 2018, a one-day simulation exercise was conducted for cyclone/monsoon season emergency preparedness and response. It was attended by health partners, other sector focal points, and government agencies including the Ministry of Health and Family Welfare, camp in-charge, Cyclone Preparedness Programme, Refugee Relief and Repatriation Commission and the Bangladesh Military. Objectives of the exercise included: (i) orienting participants with the contents of the Health Sector Emergency Preparedness and Response Plan; (ii) validating procedures for incident verification, coordination and communication across sectors and stakeholders; (iii) verifying roles, responsibilities and actions of communication, coordination and referral systems during a natural disaster event and the mass casualty and/or major outbreak consequences; and (iv) building relationships among partners. The exercise was successful in highlighting gaps and areas for renewed focus where more defined roles and responsibilities are required and the health sector continues to coordinate with partners and government authorities to enhance preparedness. Activities related to emergency preparedness are described in the sections below, where relevant.

# Risk characterization

Health problem	Monsoon and cyclone periods (Jun–Oct 2018)	Actions
Worse reproductive, maternal, neonatal and child health (RMNCH) outcomes	Disruptions in reproductive health care and prenatal care/ supervised delivery. Worsening malnutrition.	Keep improving access to health-care services
Increased burden of endemic infectious diseases	Poor WASH situation increases the risk of diarrhoeal diseases overall. Cooler temperature during the rainy season might sustain high incidence of ARI and circulation of <i>C. diphtheriae</i>	Keep improving WASH in camps
Risk of epidemics	Vector-borne and diarrhoeal diseases including JE, dengue, chikungunya, typhoid fever, hepatitis E, leptospirosis, malaria, dysentery ALRI whose most common etiology might be seasonal influenza virus infection	Prepositioning medical supplies COMBI* vector control interventions to be implemented asap Risk assessments for specific diseases asap
Increased HIV and TB burden	Initial minimal morbidity due to disruption of care unless limited access to health care is prolonged	Keep improving access to health-care services
Increased NCD burden	Initial minimal morbidity due to disruption of care unless limited access to health care is prolonged COPD, asthma enhanced or caused by indoor air pollution due to the lack of dry firewood	Keep improving access to health-care services
Crisis-attributable injuries	Ongoing sexual violence; risk of further injuries in Myanmar Rohingya or upon repatriation	
Worse mental health	Severe mental health impact of violence and displacement as well as daily stressors	Mitigate impact of cyclones and monsoon on the environment Improve access to health care

**Red:** Could result in high levels of excess mortality, morbidity and/or mental health problems.

**Orange:** Could result in considerable levels of excess mortality, morbidity and/or mental health problems.

**Yellow:** Could make a minor contribution to excess mortality, morbidity and/or mental health problems.

**Green:** Will very probably not result in any excess mortality, morbidity or mental health problems.

**Grey:** No plausible assessment can be made at this time. \*COMBI: communication for behaviour impact

# Additional resources

## Contacts

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## Key documents

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