This document is built on the Early Warning and Response System (EWARS), daily data received through MoHFW and WHO from the service providers in settlements of the Forcibly Displaced Myanmar Nationals (FDMNs) and from health facilities in Cox’s Bazar. As such, it can only be considered a snapshot of conditions in those reporting facilities. The presented information may hardly be viewed as representative of the overall health situation in Cox’s Bazar; nonetheless we believe that it gives all actors in the field a stepping stone for building a true picture of morbidity and mortality in the UMNs. We thank all partners contributing to the EWARS.

The EWARS itself and the resulting reports can only be a work in progress. We welcome all comments, feedback and further inputs that can help to improve the system and our joint understanding of the prevailing epidemiological situation, and ultimately - to avert spread of diseases.

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1. Population under Surveillance and Reporting Units

During epidemiological week 43, there was a 15% increase in the population under surveillance compared to the previous epidemiological week (702,400 and 806,900, respectively). The total number of reporting sites trained for EWARS in Cox’s Bazar increased from 39 to 42; 90% (38/42) sent their filled EWARS data form on time during epidemiological week 43 (22-28 October 2017). The EWARS is expected to be expanded to involve all camps/settlements in Cox’s Bazar.

Kutupalong makeshift and Kutupalong registered camp populations increased by 1% while the remaining camp populations remained without changes. EWARS reports were received from Sadar hospital Cox’s Bazar, Teknaf and Ukhia Health Complexes (100,400 populations). Usually, Forcibly Displaced Myanmar Nationals (FDMNs) arrive in Teknaf and then move north to Ukhia upazila to one of the makeshift settlements of Kutupalong, Balukhali and neighbouring satellite sites. There are daily changes in the settlement populations due to movement between camps and additional FDMNs’ arrival.

There were difficulties in estimating the actual catchment population of the medical mobile teams working within camps and settlement areas. The number of daily reports per camp/settlement in Cox’s Bazar from 22-28 October 2017 increased by 25% compared to the previous week (from 212 to 265 reports) as shown in table 1.

2. Table 1: Number of EWARS reports by camp/settlement, Cox’s Bazar, Bangladesh, 22 – 28 October 2017.

<table>
<thead>
<tr>
<th>Camp/Settlement</th>
<th>Population</th>
<th>Epidemiological Week 43 (22-28 October 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>22/10</td>
</tr>
<tr>
<td>Makeshift Settlements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kutupalong Expansion</td>
<td>426,600</td>
<td>12</td>
</tr>
<tr>
<td>Kutupalong Registered camp</td>
<td>32,600</td>
<td>2</td>
</tr>
<tr>
<td>Leda Makeshift</td>
<td>22,800</td>
<td>2</td>
</tr>
<tr>
<td>Nayapara Registered camp</td>
<td>34,600</td>
<td>2</td>
</tr>
<tr>
<td>Shamlapur</td>
<td>23,500</td>
<td>3</td>
</tr>
<tr>
<td>Sub Total</td>
<td>540,100</td>
<td>21</td>
</tr>
<tr>
<td>New Spontaneous Settlements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hakimpara</td>
<td>54,800</td>
<td>3</td>
</tr>
<tr>
<td>Thangkhali</td>
<td>28,200</td>
<td>1</td>
</tr>
<tr>
<td>Unchiprang</td>
<td>30,100</td>
<td>2</td>
</tr>
<tr>
<td>Jamtoli</td>
<td>31,900</td>
<td>4</td>
</tr>
<tr>
<td>Moynarghona</td>
<td>21,400</td>
<td>3</td>
</tr>
<tr>
<td>Sub Total</td>
<td>166,400</td>
<td>13</td>
</tr>
<tr>
<td>MoHWF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox’s Bazar, Teknaf and Ukhia</td>
<td>100,400</td>
<td>4</td>
</tr>
<tr>
<td>Mobile Teams</td>
<td>NA</td>
<td>3</td>
</tr>
<tr>
<td>Sub Total</td>
<td>100,400</td>
<td>7</td>
</tr>
<tr>
<td>TOTAL Population</td>
<td>806,900</td>
<td>41</td>
</tr>
</tbody>
</table>

2 Kutupalong-Balukhali expansion settlement includes the estimated population residing in the existing Kutupalong and Balukhali makeshift settlements, and their surrounding expansion zones.
The total number of consultations reported throughout EWARS increased by 79% compared to the previous week (73,218 vs 40,968). The weekly trend of reporting units participating in the EWARS and the number of consultations is shown in Figure 1.

2. Proportion of Primary Causes for Cases and Deaths

During the period of 25 August-21 October 2017, a total of 174,731 consultations were reported through EWARS. Of these, 55% (96,714/174,731) were events under surveillance. Overall, 32% (31,070) were due to acute respiratory infections (ARI), 26% (25,192) fever of unexplained origin (UNFEV), 20% (19,217) due to acute watery diarrhoea (AWD), 9% (8,816) due to skin diseases (SKD), 3% (2,884) due to injuries (INJ), 2% (1,857) due to eye infections, 2% (1,737) due to malaria (MAL), the remaining 6% were due to other causes including bloody diarrhea and malnutrition.

For the under 5 year age group, a total number of 37,951 events under surveillance were reported through EWARS, constituting 39% of the events under surveillance. Thirty-six percent (13,757) of these cases were attributed to ARI, while 24% (9,046) were due to UNFEV and 21% (8,080) were due to AWD.

For the over 5 year age group, a total number of 58,763 events under surveillance were reported through EWARS, constituting 61% of the events under surveillance. Twenty-nine (17,313) of these cases were attributed to ARI, while 28% (16,146) were due to UNFEV and 19% (11,137) were due to AWD. The proportion of primary causes of reported cases for both age groups are shown in figure 2.
During the same period, there were 104 reported deaths: 33% (35) were due to ARI, 11% (11) due to NDS, 10% (10) INJ, 9% (9) AWD, 2% (2) MAL, 2% (2) MEN and the remaining 33% (35) were due to other causes.

There were 43 reported deaths in the children under 5, representing 41% of total deaths. Of them, 30% (13) were ARI-related, 26% (11) due to ND, 12% (5) due to AWD, 4% (2) due to INJ, 2% (1) due to MEN and the remaining 26% (11) were due to other causes.

There were 61 reported deaths in the age group over 5 years, representing 59% of total deaths reported. Of these, 36% (22) were due to ARI, 13% (8) due to INJ, 7% (4) due to AWD and 3% (2) due to MAL, 1% (1) due to MEN and the remaining 40% (24) were due to other causes.
3. Acute Respiratory Infection

Between 25 August and 28 October 2017 (epidemiological weeks 34-43), a total of **31,070 ARI** cases were reported. Of them; **44%** (13,757/31,070) were under-5 years old. There were **35 ARI** related deaths (CFR: **0.11%**). The weekly distribution of ARI cases is shown in Figure 3.

![Reported ARI Cases in FDMN Settlements by Age Group](image)

*Figure 3: Weekly Distribution of Reported ARI Cases by age groups, Cox’s Bazar, Bangladesh, 25 August - 28 October 2017.*

Ukhia reported **80%** (24,927/31,070) of total ARI cases followed by Teknaf and Cox’s Bazar with **19%** and **1%** respectively. The weekly distribution of ARI cases by upazila is shown in Figure 4.

![Reported ARI Cases in FDMN Settlements by Upazila](image)

*Figure 4: Weekly distribution of reported ARI cases by upazila, Cox’s Bazar, Bangladesh, 25 August - 28 October 2017.*
Over the last four epidemiological weeks (40-43), the number of ARI cases over 5 years old is greater than the number under 5 years old. There was an increase in the number of reported ARI cases in Jamtoli, Moynarghona, Kutupalong registered camp and Hakimpara, while the number in Kutupalong extension decreased. Overall, the number of reported ARI cases increased by 21% compared to the last week (from 5,670 to 6,869 this week). The weekly distribution of reported ARI cases in selected camps is shown in figures 5 and 6.

**Figure 5:** Reported ARI cases in selected camps, Cox’s Bazar, Bangladesh, 1 - 28 October 2017.

**Figure 6:** Weekly distribution of reported ARI cases in selected camps, Cox’s Bazar, Bangladesh, 1 - 28 October 2017.
4. Acute Watery Diarrhoea

Between 25 August and 28 October 2017 (epidemiological weeks 34-43), a total of 19,217 AWD cases were reported including 9 related deaths (CFR 0.05%). Forty-two percent (8,080) were under 5 years old. The weekly distribution of AWD cases by age group is shown in figure 7.

Ukhia reported 82% (15,737/19,217) of all AWD cases, followed by Teknaf and Cox’s Bazar with 17% and 1%, respectively. The weekly distribution of AWD cases by upazila is shown in Figure 8.
Over the last four epidemiological weeks (40-43), the number of AWD cases over 5 years old is greater than that for under-fives. There was an increase of the number of reported AWD cases in Jamtoli, Mainnerghona, Kutupalong registered camp, and Hakimpara and Kutupalong extension. Overall, the number of reported AWD cases increased by 117% compared to last week (from 3,789 to 8,231 this week). The weekly distribution of reported AWD cases in selected camps is shown in figures 9 and 10.

Figure 9: Reported AWD cases in selected camps, Cox’s Bazar, Bangladesh, 1 - 28 October 2017.

Figure 10: Weekly distribution of reported AWD cases in selected camps, Cox’s Bazar, Bangladesh, 1 - 28 October 2017.
5. Drinking water testing results

Between 18 September and 28 October 2017, a total of 580 water samples were collected by DPHE teams from different water sources in FDMNs’ settlements.

Using membrane filtration testing technique, 17% (98/580) of the samples were found negative for *E. Coli* and meeting the Bangladesh Standard and WHO guideline value (0 cfu/100ml). The remaining 83% (482/580) tested positive for faecal contamination (*E. Coli*) of them; 38% (183) of all the positive samples were very highly contaminated (>100 cfu/100ml), 28% (135) highly contaminated (>50 and <100 cfu/100ml) and intermediate contamination (<50 cfu/100ml) was found in 34 % (164) of the samples. The *E. Coli* water testing results by camp/settlement is showed in Figure 11.

Out of all contaminated samples, 41% (200/482) were collected from water stored at household level, 58% (278) from tube-wells, and the remaining 1% (4) from different sources including stream water (Chhora), tankers and water bladders. The highest level of contamination was observed in Unchiprang 100% (3), followed by Kutupalong 89% (427). The *E. coli* water testing points in Kutupalong is presented in Figure 12.

![E.Coli Water Testing Results](image)

*Figure 11: E Coli water testing results, FDMNs settlements, Cox’s Bazar and Bandarban districts, Bangladesh, 18 September - 28 October 2017.*
After the initial assessment of the water quality, WHO in collaboration with DPHE started a water quality surveillance program in different FDMNs’ settlements and camps. The water quality surveillance is composed of a sanitary inspection of the water source and household’s storage followed by water quality testing. The objective is to know the sanitary status of sources and household’s storage and the quality of water and to increase the capacity of the DPHE professionals and workers in water quality surveillance. WHO supported DPHE to establish a water quality testing laboratory in the Sadar DPHE Office. Twelve (12) sample collectors were trained on how to inspect the water sources and household’s storage and collect water samples collection from different FDMNs.

Monitoring and evaluation procedures were put in place, including random re-testing of positive samples by DPHE and WHO technical persons. The results and findings were widely shared with WASH cluster partners working in the FDMC camps to take appropriate measure to resolve the deterioration of drinking water quality by improving the sanitary conditions. In addition, water testing results are shared with WASH cluster and partners working in the field on a weekly basis in the health sector meeting.
6. Measles Outbreak

Between 1 September and 29 October 2017, a total of 139 suspected measles cases were reported through EWARS including 1 related death (CFR; 0.72%): the mean age of the reported cases was 3.7 years [SD 5.9] ranging from 36 days to 30 years (the mean age was 3.3 and 4.1 years for males and females, respectively). Fifty-seven percent (79) of patients were male. Ninety percent (125/139) were less than 5 years old. The age distribution of reported cases is shown in figure 13.

Sixty-three percent (88) of the cases were from Ukhia, 26% (37) from Teknaf, 8% (11) from the district hospital, 2% (2) from Ramu and 1% (1) from Kutubdia. Of the total number of cases, 90% (125/139) were from FDMNs and 10% (14/139) from the host community. Distribution of the cases is shown in figures 14 and 15.
Figure 15: Geographical distribution of reported measles cases, Cox’s Bazar, Bangladesh, 1 September - 28 October 2017.
Fifty-eight samples were collected for laboratory results. Of these, 64% (37) were positive for measles specific IgM, 16% (9) were negative for measles specific IgM, 2% (1) were positive for rubella specific IgM, and 19% (11) are pending laboratory results. The onset date of reported measles cases is shown in figure 16.

5.1 Enhancing routine vaccination in response of the measles outbreak

In response to the ongoing measles outbreak, several meetings with MoHFW and partners were conducted to outline response strategies, including short and long term routine vaccination coverage improvement plans. Static sites for vaccination posts were identified (alongside other health care services), where routine vaccination will be delivered by two dedicated vaccinators. At Ukhia and Teknaf, a total of 27 (GoB; 11, UNHCR: 6; Save the Children” 2, MSF: 5 and IOM: 3) and 9 static vaccination sites were identified (GoB: 6, MSF: 2 and MAOS: 1), respectively.

Following identification of static vaccination centres, a total of 95 staff from Ukhia (69) and Teknaf (26) were trained on 28 and 29 October 2017 on: the current routine EPI schedule; key EPI messages; cold chain; VVM; injection safety; registration; reporting; waste management; and AEFI surveillance. DGHS issued an order on 31 October to start routine vaccination in 36 static sites (27 in Ukhia and 9 in Teknaf) and in one outreach site in Teknaf starting from 10 November 2017. Vaccination posts will operate 6 working days a week (Saturday through Thursday).

Two doses of MR will be provided to all children less than 2 years of age at the static sites. In addition, a fixed vaccination post will be established at all entry points to offer MR vaccination for children 6 months to 15 years old.