

## Summary Report

# Reproductive Age Mortality Study (RAMOS)

(Rohingya Refugees Camp, Cox's Bazar  
Bangladesh)

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## Background

Global evidence indicates that currently, there are more displaced people than at any point since World War II. In 2016 approximately 80 million people were in need of humanitarian assistance, and over 75% were women and children (EWEC-2016). Worldwide, pregnancy-related death is the second most common cause of death of women of reproductive age. More advocacy towards reducing maternal and neonatal mortality and morbidity, particularly in the worst places such as in humanitarian and crisis settings where it is difficult to measure adequately is needed. The main purpose of this study was to obtain accurate estimates of the number of Pregnancy-Related Deaths (PRD) and documenting the cause and associated conditions among all women of reproductive age (WRA) who died within the first year after the influx of the Rohingya Population, (September 2017 - August 2018) in Cox's Bazar Bangladesh. This study also aimed to establish a foundation of the surveillance system that will lead to adequate and effective responses.

## Methods

WRA deaths were captured through exhaustive census-based data collection for general mortality in all settlements hosting new arrivals. Each identified death among WRA was followed up with a standard verbal autopsies tool. From the verbal autopsies, PRDs and maternal deaths (MDs) were identified among all deaths of WRA using the ICD-10 definition. Cause of death and contributing conditions determined by a panel of experts using the classification system for pregnancy, childbirth, and the puerperium (ICD-MM). Using the number of MDs and PRDs from September 2017-August 2018, we calculate the ratios and rates per livebirths using demographic information from Refugee Relief and Repatriation-United Nations High Commissioner for refugees (RRRC-UNHCR) - Counting Exercise and International Organization for Migration (IOM)'s Needs and Population Monitoring.

## Results

For a one-year period, from September 2017 to August 2018, 405 out of 3,094 total deaths or 13.5% were WRA deaths between 12-50 years old, which were recorded through the general mortality data collection, retrospectively. A total of 82 PRDs were identified from the verbal autopsy interviews; giving a Pregnancy-Related Death Ratio of 282 per 100,000 live births (95% confidence interval of 221-343). From those PRDs, a total of 52 maternal deaths were confirmed; giving a Maternal Mortality Ratio of 179 per 100,000 live births (95% confidence interval of 130-228)

Out of the 82 Pregnancy-Related Deaths or PRDs cases, Obstetric Hemorrhage was the leading cause at 28%, followed by Pregnancy-induced Hypertension was 22%, Non-obstetric Complication was 21%, Pregnancy with Abortive Outcome was 6%, Coincidental Causes was 4%, Pregnancy-related Infections accounted for 2% of them, and the final 17% were Undetermined. Of the 28% of deaths due to Obstetric Hemorrhage, 39% were Antepartum Hemorrhage (HAP) and 61% were Post-Partum Hemorrhage (PPH). Of the 22% of deaths due to Hypertension, 56% were Pre-eclampsia and 44% were Eclampsia. Fetal outcomes included 35% live births, 27% undelivered,

13% stillbirths, and 4% abortions. 50% of PRDs occurred at home and 44% in a facility, and 6% died on the road.

Thirty-three percent of PRDs were identified as Late Maternal Deaths (LMDs), defined as maternal death from 43 days up to one year after delivery from causes directly related to pregnancy or indirect precipitated by the effect of pregnancy. Of the LMDs, 44% were due to non-obstetric complications such as cardiac diseases including pre-existing hypertension, liver diseases, and diabetes. 11% had Pregnancy induced hypertension and 4% were pregnancy related infection. Forty one percent had undetermined causes.

We found that delays in referral were a significant contributing factor. Among all verbal autopsy interviews conducted, 26% reported that no treatment was sought prior to woman's death. Of those, 48% reported that they did not think it was important to seek treatment, which was the principle reason for receiving treatment.

From the general mortality data collection, we found 531 neonatal deaths, giving a neonatal mortality rate (NMR) 18/1000 live births (95% confidence interval 17-51) with 55% of newborn deaths happening in early stage between 1-7 days.

## Conclusion

Our study not only found many PRDs in the community, but it also gained insight into the women's histories and circumstances around death in this setting. We were also able to estimate the PRD ratio and MMR in this setting, which is the first estimated calculated since the influx of Rohingya population who live in the camp. The high number of PRDs that occur at the community level, the causes of death and contributing conditions reflect challenges in the utilization of services at the facility level.

A Reproductive Age Mortality Study (RAMOS) is feasible in emergency settings and provides contemporaneous estimates of MMR. A RAMOS is an effective method to use to update data on maternal mortality in the camp setting while efforts are made to improve on maternal death audits in the health facilities. Strengthening the existing community-based volunteers to report deaths that take place at home and the registration systems of births and deaths is also highly recommended.

Several limitations to this estimate include variability in recall of age and dates among the Rohingya population, relying on third-party demographic information, changing camp borders/migration of people between camps, which may have caused us to miss deaths as well as caused us to use both census and convenience methods for Camp 26. Despite these limitations, we gained important insight and information on causes of maternal deaths. The high number of MDs with place of death evenly distributed highlights the need for communities and facilities to work together to prevent additional maternal mortality in these refugee camps.