

How real-time death notifications from the community have been used to implement minimally invasive tissue sampling (MITS) in *Baliakandi*, Bangladesh.

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Background

- The Child Health and Mortality Prevention Surveillance (CHAMPS) Network is ongoing in *Baliakandi*, a rural sub-district in Bangladesh, that aims to identify specific causes of stillbirths and deaths among children under 5.
- To identify the cause of death, CHAMPS uses minimally invasive tissue sampling (MITS) which is a postmortem procedure instead of the full autopsy to extract tissue specimens using a needle within 24 hours of the death for laboratory analysis.
- CHAMPS initiated MITS procedure in 3 major health facilities in September 2017, where 46% of stillbirth and <5 child death occurred from the *Baliakandi* population (population 220,000).
- Around 54% of stillbirths and <5 child deaths occurred in the community or private clinics inside the community and the cause of those deaths is only imprecisely examined through verbal autopsies.
- From June 2019, CHAMPS has been approaching for MITS to those families whose children died in the community or private clinics inside the community.
- Although, the MITS procedure must be conducted within 24 hours of death, in the cultural and religious context in rural areas, the average time to complete the burial varies from 3 to 5 hours.
- Therefore, the strategy on MITS approach to community deaths suggested that the notifications received within 5-hours from the death may have the potentials to approach the MITS.
- Receiving death notification within a short time is crucial for conducting the MITS procedure for those stillbirths and <5 children who died in the community.
- To receive death notifications quickly, from June 13, 2019 CHAMPS activated a mobile-based web notification system that records <5 child death and stillbirth notifications to enable the MITS team to reach the household of a deceased child and approach the guardian to participate in the MITS

Methods

- To receive rapid notifications, we provided orientation training among 1,158 community volunteers from 261 villages from December 2018 to May 2019 and informed them about the CHAMPS activities including information about the MITS procedure.
- Community volunteers were requested to report stillbirths and deaths of children under 5 to the CHAMPS hotline number.
- Besides, data collectors of the Demographic Surveillance System (DSS) visit households once every two months to collect health-related information and identify stillbirths and deaths and report to the CHAMPS hotline number.
- Once the notification is recorded in a web-based system 'CHAMPS Tracker,' a system-generated SMS sends to the CHAMPS team if the death occurred within the past 24 hours.
- After receiving the SMS, the team moves to reach the deceased's household quickly to approach the guardian to participate in the MITS procedure if the deceased's body is not buried; initial eligibility checks for each notification before the team moves.



Image 1: Orientation program of the community volunteer



Image 2: Staff attending CHAMPS hotline and recording information in the notification system



Image 3: A system-generated SMS sends to the CHAMPS team

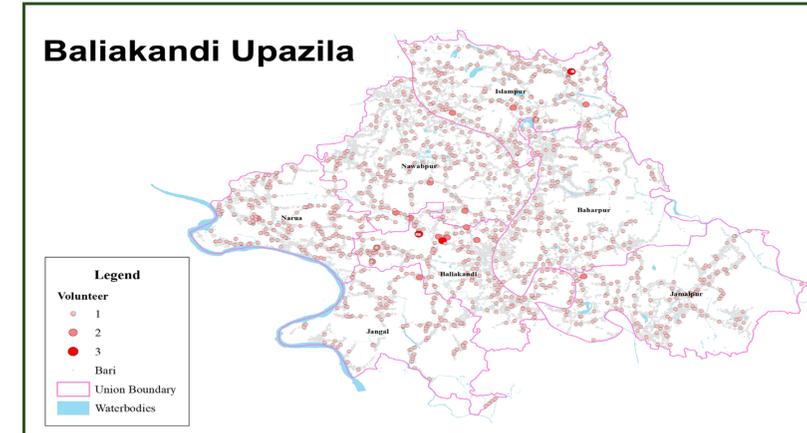
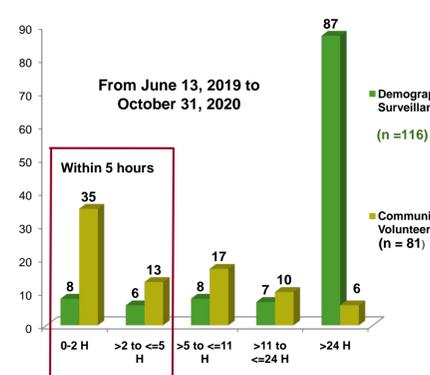


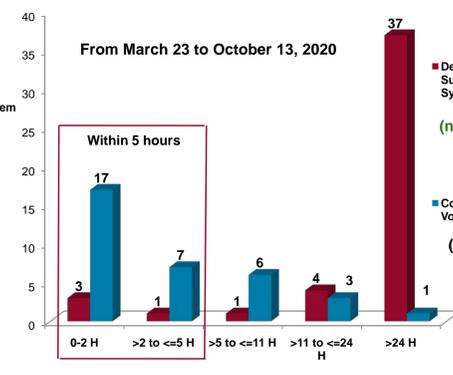
Image 4: Location of the community volunteers in 261 villages in 7 unions of *Baliakandi*

Results

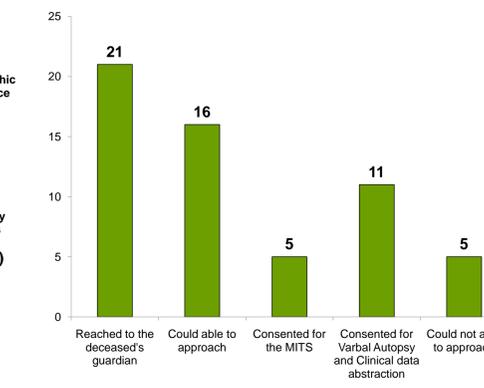
- From June 2019 to October 2020, we received a total of 197 death and stillbirth notifications from the community volunteers and data collectors of the DSS. Among these, we received 104 notifications within 24 hours and 62 received within 5 hours of the deaths.
- From March 23 to October 13, 2020, the MITS was temporarily suspended due to the COVID pandemic and during this period, we received 80 deaths and stillbirth notifications. Among these, we received 42 notifications within 24 hours and 28 received within 5 hours of the deaths.
- Except for the MITS suspended period from June 2019 to October 2020, we received a total of 62 notifications within 24 hours and the team received the SMS once the notification was recorded in the system.
- After receiving the SMS, the team immediately reached the households of 21 deceased children. We approached 16 families for the MITS participation and 5 gave consent for the MITS.
- The remaining 11 families refused consent for the MITS but consented to participate in clinical data abstraction and verbal autopsy.
- We could not approach 5 families either for the MITS or clinical data abstraction and verbal autopsy as the body was taken outside of the surveillance area and any of the parents was not available in the household.
- In the other 41 deaths, the major reasons for not being able to reach the deceased's household included death notifications received after evening or in the holidays; ritual bathing or burial process started, bodies were taken outside surveillance area.



Graph 1: Total death and stillbirth notifications received (N=197) from the community



Graph 2: Total death and stillbirth notifications received (N=80) from the community during MITS suspended period due to COVID



Graph 3: Action taken after receiving the death notifications (N=21)

Conclusions

- The real-time notification system identified 53% of deaths and stillbirths in the community within 24 hours and 31% within 5 hours.
- Involving community people as community volunteers in this program was beneficial in terms of regular communication with the community and receive support during implementing the MITS.
- Identifying the problems of not notifying the deaths and stillbirths or delayed to notify are important to understand what action can be taken.
- Periodical performance monitoring of the community volunteers is an integral part to sustain the notification system.
- Based on the data, we can improve the system by arranging refresher training, where the major problems of not notifying and delayed notification were discussed and ask community volunteers to propose some ideas that can mitigate the problems to improve the notification system.
- The notification system can be more effective by identifying the bottleneck of the system, proper monitoring, and executing necessary actions to resolve the problems.
- The use of a real-time notification system was shown to be a valuable approach that could be used in other public health programs where real-time information is required.

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