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DATA FOR HEALTH INITIATIVE

CRVS Fellowship profile

Assessing the performance of verbal autopsy in Bangladesh

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Resources available from the University of Melbourne, Bloomberg Philanthropies Data for Health Initiative

CRVS course prospectuses
These resources outline the context, training approach, course content and course objectives for the suite of CRVS trainings delivered through the Bloomberg Philanthropies Data for Health Initiative. Each course focuses on a specific CRVS intervention or concept, and is designed to support countries to strengthen their CRVS systems and data.

CRVS Fellowship reports and profiles
The CRVS Fellowship Program aims to build technical capacity in both individuals and institutions to enhance the quality, sustainability and health policy utility of CRVS systems in Fellows' home countries. *Fellowship reports* are written by Fellows as a component of the program, and document, in detail, the research outcomes of their Fellowship. *Fellowship profiles* provide a summary of Fellows' country context in relation to CRVS, an overview of the Fellowship experiences, the research topic and the projected impact of findings.

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These analytical and evaluative resources, generated through the Initiative, form a concise and accessible knowledge-base of outcomes and lessons learnt from CRVS initiatives and interventions. They report on works in progress, particularly for large or complex technical initiatives, and on specific components of projects that may be of more immediate relevance to stakeholders. These resources have a strong empirical focus, and are intended to provide evidence to assist planning and monitoring of in-country CRVS technical initiatives and other projects

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Generated through the Initiative, CRVS best-practice and advocacy resources are based on a combination of technical knowledge, country experiences and scientific literature. These resources are intended to stimulate debate and ideas for in-country CRVS policy, planning, and capacity building, and promote the adoption of best-practice to strengthen CRVS systems worldwide.

CRVS country reports
CRVS country reports describe the capacity-building experiences and successes of strengthening CRVS systems in partner countries. These resources describe the state of CRVS systems-improvement and lessons learnt, and provide a baseline for comparison over time and between countries.

CRVS technical guides
Specific, technical and instructive resources in the form of *quick reference guides, user guides* and *action guides*. These guides provide a succinct overview and/or instructions for the implementation or operation of a specific CRVS-related intervention or tool.

CRVS tools
Interactive and practical resources designed to influence and align CRVS processes with established international or best-practice standards. These resources, which are used extensively in the Initiative's training courses, aim to change practice and ensure countries benefit from such changes by developing critical CRVS capacity among technical officers and ministries.

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Fellowship Profile: Assessing the performance of verbal autopsy in Bangladesh

From October to November 2019, Toufiq Hassan Shawon from the Trishal Upazila Health Complex in Bangladesh undertook a Civil Registration and Vital Statistics (CRVS) Fellowship through the Bloomberg Philanthropies Data for Health (D4H) Initiative at University of Melbourne (UoM), conducting a plausibility analysis for cause of death (COD) data from verbal autopsies (VA) in Bangladesh. This profile provides an overview of country context in relation to CRVS, and documents Toufiq's personal experiences and outcomes and the broader impact his Fellowship might have on improving the quality of mortality data in Bangladesh.

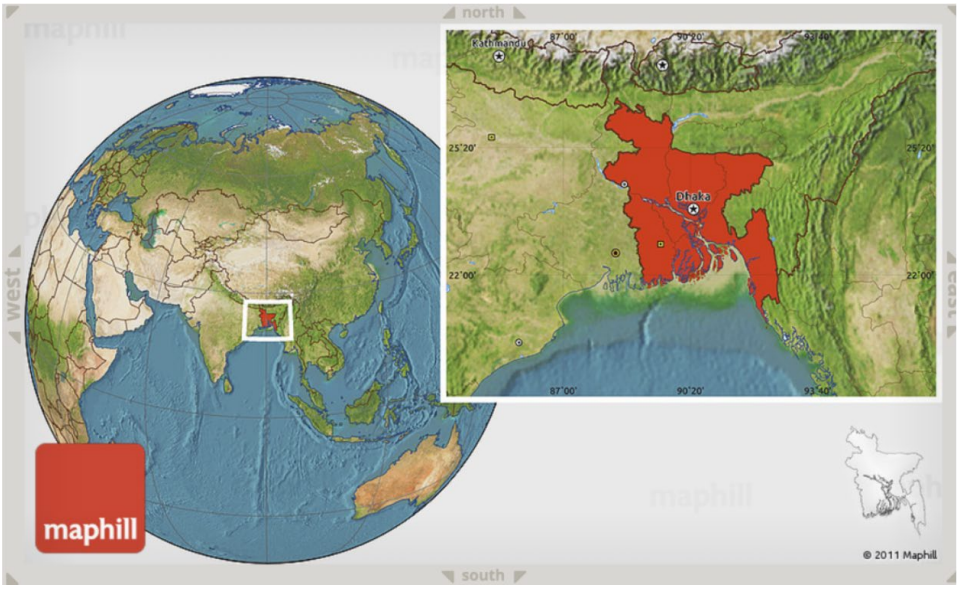
Country context

In collaboration with the Bloomberg Philanthropies Data for Health (D4H) Initiative, Bangladesh is engaged in efforts to improve its civil registration and vital statistics (CRVS) system. A strong and complete CRVS system – the best source of data on births, deaths, and causes of death (CODs) – is necessary for decision-makers, who rely on such data to guide health policy and programming.[1]

By committing to strengthen its CRVS system, the Government of Bangladesh is working to ensure that its population of nearly 170 million people[2] is counted and included in the country's policy and planning decisions. One of the most densely populated countries in the world, Bangladesh is a country in demographic transition, featuring a continuous decline in the natural growth rate.[3] Its population is spread out across eight administrative divisions, and these divisions are divided into 64 districts, and close to 500 sub-districts, or upazilas.[4]

1 Mukut MAA. Fellowship report: Evaluation of the 'Kaliganj Model' for proactive birth and death notification and registration. CRVS development series. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2019.
2 World Bank. Bangladesh: Country Data. Available at: https://data.worldbank.org/country/bangladesh
3 Bangladesh Ministry of Health and Family Welfare. Bangladesh Demographic and Health Survey 2014. Available at https://dhsprogram.com/pubs/pdf/FR311/FR311.pdf
4 UNICEF. Bangladesh: Where we work. 2019. Available from https://www.unicef.org/bangladesh/en/where-we-work

Figure 1. Map of Bangladesh



Source: Adapted from World Atlas, available at http://worldatlas.com/webimage/countrys/asia/lgcolor/bdcolor.htm and Maphil, available at http://www.maphill.com/bangladesh/location-maps/satellite-map/

The CRVS system of Bangladesh

Since first establishing its CRVS system in 1873,[5] Bangladesh has made great strides in CRVS-strengthening. Currently, a wide range of vital statistics in Bangladesh are produced by the Bangladesh Bureau of Statistics as well as the Ministry of Health and Family Welfare, both of which conduct periodic demographic and health surveys and censuses.[1]

Bangladesh also has an online Birth Registration System (BRIS), which as of April 2018, held nearly 163 million registered births nationally.[6] As for death reporting, Bangladesh has a health management information system through which around 100,000 deaths are reported annually to the Bangladesh Directorate General of Health Services (DGHS).[1] Whilst there is no institutionalised system for recording COD information, Bangladesh introduced a customised version of the WHO International Form of Medical Certificate of Cause of Death as well as the Startup Mortality List for standardised COD reporting.[1]

Currently, medical certification of cause of death (MCCOD) (**Box 1**) practices in Bangladesh do not generate valid, national-level COD data – instead, they produce a high proportion of ill-defined CODs.[7]

5 Bangladesh Office of the Registrar General. Birth & Death Registration. Available at: http://br.lgd.gov.bd/english.html

6 Bangladesh Office of the Registrar General. Birth Registration Information System (BRIS) report. Dhaka, Bangladesh: BORG; 2018.

7 Bangladesh Implementation Working Group. Bangladesh: A successful journey towards CRVS system improvement. CRVS country perspectives. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, The University of Melbourne; 2018. Available at https://crvsgateway.info/file/11680/69

Box 1. What is medical certification of cause of death?

When a patient dies in a hospital or health facility, a medical certificate of COD should be completed.[8] The medical death certificate is usually completed by a physician who attended to the patient or a physician who is familiar enough with the patient's medical history to confidently ascertain the COD.[9] To certify a death, the physician must first identify the disease or injury leading directly to death, and then trace back the sequence of events to determine the underlying COD.[6]

Improving notification and registration

Although birth and death registration are legally mandated, in 2015, only 18.9% of all estimated births and 12.6% of all estimated deaths were registered.[1] In order to improve notification and registration of births and deaths, the Government of Bangladesh aimed to shift to a more proactive identification and notification model. Developed and piloted in the Kaliganj sub-district in 2016 and 2017, these modified birth and death notification and registration processes became known as the Kaliganj Model.[1]

One key aspect of the Kaliganj Model was training on automated verbal autopsy (VA), or SmartVA (**Box 2**) for deaths that occur in the community. Participants included health assistants, family welfare assistants, and supervisors (i.e. assistant health inspectors and family planning inspectors). The training sessions covered death notification as well as the application process for death registration, the latter being a prerequisite for conducting VA in the Kaliganj Model.[1]

Box 2. What is verbal autopsy?

Verbal autopsy (VA) is a method for collecting information about an individual's signs and symptoms before their death from their family or next of kin, and interpreting these to diagnose the likely or most probable COD.[10]

The VA process consists of three steps:

1. Setting up an interview by a trained VA staff member at home (or another appropriate place)
2. Conducting a structured interview to collect information on signs and symptoms of illnesses and events that the deceased had before death
3. Interpreting the interview data to diagnose the most probable COD.[11]

Because physician-certified VA can be time-consuming and costly, automated methods of analysing VA questionnaire data have been developed.7 These methods often use a digital tablet and have several advantages over VA questionnaires in paper form, from reducing data entry errors to speeding up the interview process.[12]

8 The University of Melbourne. Strategies for improving the quality of cause of death data in hospitals, CRVS development series. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, University of Melbourne; 2017

9 Lomas HD, Berman JD. Diagnosing for administrative purposes: some ethical problems. Social Science and Medicine 1983; 17:241-244.

10 de Savigny et al. Integrating community-based verbal autopsy into civil registration and vital statistics (CRVS): system-level considerations. Global Health Action 2017; 10:1272882.

11 Senanayake CH. Fellowship profile: Country-specific adaptation of a SmartVA DHIS2 integration module for Sri Lanka. CRVS country perspectives. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, the University of Melbourne and Ministry of Health, Nutrition and Indigenous Medicine, Sri Lanka; 2019.

12 University of Melbourne. Challenges associated with automated VA training and rollout, CRVS development series. Melbourne, Australia: Bloomberg Philanthropies Data for Health Initiative, Civil Registration and Vital Statistics Improvement, The University of Melbourne; 2018.

The CRVS Fellowship project

In Bangladesh, Toufiq is a Medical Officer at the Trishal Upazila Health Complex. As a full-time physician, Toufiq is one of only three or four physicians in his hospital – so although his daily duties involve treating patients, leaving little to no time for much else, Toufiq decided to undertake a CRVS Fellowship at the University of Melbourne in the hopes of broadening his research and data analysis skills.

During his Fellowship, Toufiq conducted a plausibility analysis of COD data from VA data collected in 2017. This involved analysing Bangladesh's COD data collected through SmartVA (Bangladesh rolled out SmartVA in a number of districts in 2017 as part of the Kaliganj Model, producing over 25,000 VA cases requiring analysis) and comparing this VA data with other comparator data. To do this, Toufiq used the Verbal Autopsy Interpretation, Performance and Evaluation Resource (VIPER) developed by the University of Melbourne which allows for visual comparisons of country VA data with compactor data, such as datasets from the Global Burden of Disease (GBD) studies. Through comparison of the datasets, Toufiq used his Fellowship opportunity to assess the utility of VA in producing accurate mortality statistics in Bangladesh.

Reflections: take-home lessons

Learning how to interpret findings

Through the process of comparing Bangladesh's VA data with other referenced data, Toufiq came across a number of dissimilarities between his VA and comparator data. He stated, however, that the most helpful skill he learned throughout the Fellowship was to find logical reasons as to why there might be dissimilarities between datasets – a lesson that he was eager to share with his colleagues.

Gaps in the literature

In order to conduct his project, Toufiq had to compare VA data with existing mortality data. Upon trying to use Bangladesh's existing mortality data as a comparator, however, Toufiq noticed the lack of reliability and completeness of the mortality data. Toufiq explained that his Fellowship supervisor and other UoM D4H staff were able to help him find other sources of data and even make projections using older datasets. He emphasised his gratitude for the opportunity to collaborate with the CRVS specialists from D4H.

Bangladesh has made incredible progress

Regarding other aspects of CRVS, Toufiq realised just how much progress Bangladesh has made over recent years. Throughout his time in Melbourne, Toufiq learned about other countries' CRVS experiences. When reading literature on VA implementation in other countries, for example, he noticed how different countries were at varying stages with regards to VA – some countries were still in the process of deciding whether or not to pilot VA, whereas Bangladesh had already rolled it out and had plans for nationwide scale-up. So, Toufiq commented, "maybe Bangladesh is lagging behind in some areas compared to other countries, but in terms of CRVS, it is ahead".

Benefits for CRVS system development in Bangladesh

Toufiq mentioned his plans to share what he learned during the CRVS Fellowship with his colleagues in Bangladesh. Instead of having to create data visualiations manually as they had in the past, CRVS stakeholders can now use VIPER to quickly visualise and interpret data according to their needs. Doing so will enable those involved in CRVS improvement activities to pinpoint areas of weakness and focus their efforts accordingly, allowing Bangladesh to continue improving its mortality data. As CRVS stakeholders like Toufiq share what they have learned with one another, Bangladesh will continue to set an example for other countries looking to begin a CRVS-strengthening journey of their own.

Bloomberg Philanthropies DATA FOR HEALTH INITIATIVE

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