Policy Brief

Data for Decision Making in Bangladesh: Evidence from MIS Data of DGFP during COVID-19 Pandemic

Key Messages:

- Data and information help identify a problem and put it in an organized manner. However, the quality of data has often been questioned in Bangladesh.
- While the number of pregnancies and menstrual regulation declined significantly in April and May 2020, the distribution of family planning products decreased during this period. As a result, we cannot conclude the impact of COVID-19 on whether Bangladesh will have a baby boom or bust.
- For informed and evidence-based decision-making, quality and timely data are most important. A lack of quality data challenges reaching inclusive and context-specific decisions in Bangladesh.
- Without reliable and quality data, averting the negative consequences of future disasters like COVID-19 would be a magnificent challenge.
- Therefore, Bangladesh should make policies/laws to produce better quality data in every sector.

Background and methodology:

Change agents worldwide are embracing the "data revolution" as a way to accelerate development in key sectors, including health, economy, education, and nutrition [1]. The strengthening of health systems has been a top priority of many global and national health agendas to improve health outcomes. In this regard, the World Health Organization (WHO)'s framework for strengthening health systems identifies six building blocks of a health system [2]. The building blocks include a health workforce, health services, financing, governance and leadership, medical products, vaccines, technologies, and health information [3]. While each building block is essential to improving health systems, quality and timely data from health information systems (HIS) are the basis of the overall system and inform decision making in other building blocks in the health system [3]. Robust health information systems (HIS) are the basis of informed decision-making for health and wellbeing [2,4,5]. However, the utility and effectiveness of routine health information systems (RHIS) in improving health system performance, particularly during an emergency, has often been questioned in developing countries like Bangladesh.

The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) or Coronavirus Disease 2019 (COVID-19) has also revealed the importance of data as it has severely affected the distribution and utilization of family planning methods and maternal health care services [6,7]. In this emergency, all countries need robust data to plan and manage health services impacted by COVID-19 and to monitor advancement to reach global commitment like the Sustainable Development Goals. Data and information help to identify a problem and put it in an organized manner. Without information about an issue, e.g., the effect of COVID-19, the decision-making process cannot even be started. In this circumstance, we aimed to explore the importance of data in decision making using desk reviews (literature), family planning methods, and maternal health care services-related data from the Management Information System (MIS) of the Directorate General of Family Planning (DGFP) [8], and qualitative survey data using in-depth interviews (IDIs) among the family planning maternal health service recipients (n=80) and key informant interviews (KIIs) among the service providers and program managers (n=38) at different levels.

Issues related to data for decision making:

We identified some predominant issues based on the review of existing literature, which needs to be considered using data for decision making.

Sufficient skills in data use core competencies

Core proficiencies in data analysis, explanation, synthesis, demonstration, and the development of data-informed recommendations at all health system levels are crucial for improving the demand and use of data [9]. These skills are often sidelined amongst the workforce compared to capacity-building initiatives, resulting in a lack of technical capacities and data use core competencies. The individuals responsible for generating and managing data (data managers, data clerks, monitoring and evaluation professionals, front-line health workers) require the skills to access, analyze, interpret and summarize data into clear messages for decision-makers in understandable formats. Without these competencies, data cannot be used appropriately in scientific decision-making. In the context of Bangladesh:

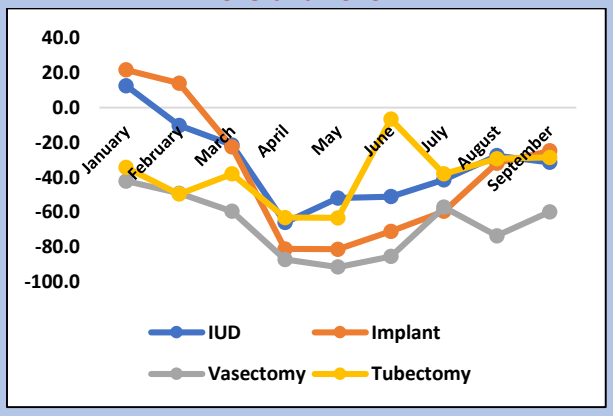
- During the early phase of COVID-19, we have rarely observed sufficient skills among the DGFP MIS workers regarding data.
- Decision-makers have not had enough training to identify information needs and data use opportunities and leadership and advocacy skills to push data-driven recommendations into action.
- Poor training in technical competencies and support systems to produce reliable information also impacts data quality. The current workforce of DGFP feels overburdened and unable to fulfill their data-related tasks.

Good data quality

Good quality of data is necessary for evidence-based decision-making. Data of poor quality, data that are not sufficiently timely, credible, accurate, and complete, cannot effectively be used to track program performance and thus negatively impacts strategic planning and decision making [9,10]. Inadequate data quality limits confidence and value in data, impacting future demand for data in decision-making processes. Data quality can be compromised due to excessive data collection processes at local service delivery levels, often due to complex reporting procedures, lack of standardized and harmonized systems for data collection, limited technology, and the lack of infrastructure and computers, and connectivity issues necessitating manual data collection on paper forms. Lack of reliability and accuracy, inconsistencies, and error are the major problems with RHIS data in developing countries.

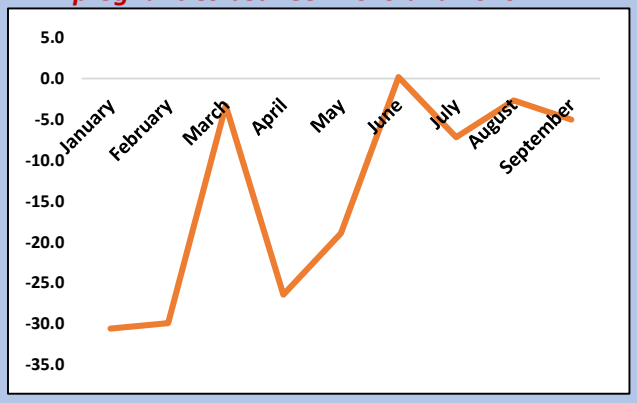
- The marked decline of long-acting and permanent contraceptive methods in April and May 2020 was associated with lockdown due to COVID-19 (**Figure 1**).
- The percentage differences between 2019 and 2020 show the marked decline of the provision of IUD in April (-65.9%), May (-51.9%), June (-51%), July (-41.4%), August (-27.6%), and September (-31.4%).

Figure 1: Month-wise difference (%) in use of long-acting and permanent methods between 2019 and 2020



- For implants, it was -81% in April, -81.2% in May, 71% in June, -59.5% in July, -31.9% in August, and -24.8% in September. The percentage differences for Vasectomy and Tubectomy between 2019 and 2020 were -87% and -63.1% in April.
- The number of pregnancies had declined 28.7% in April, followed by 21.3% in May and 2.1% in June 2020 compared to February 2020 (**Figure 2**).
- The decline of both pregnancies and the use/distribution of family planning methods indicate the quality of data issue.

Figure 2: Month-wise difference (%) in pregnancies between 2019 and 2020



Adequate availability of data

The lack of access to the most relevant data for decision-makers is a significant barrier to its use. Government officials are not always aware of existing data or how data might be helpful in decision-making [9]. Moreover, how information is synthesized, packaged, and communicated to decision-makers impacts its availability and thus its use in decision making.

- DGFP MIS data can be availed through formal application to the authority
- DGFP MIS data have not yet been available in the readymade format.
- The data is not timely uploaded. It has around 1-2 months of lags to be uploading.

Therefore, to inform decision-making, data must also be available at the time they are needed. Data are more likely to inform decisions when readily available at specific windows of opportunity for policy and planning actions.

System design

Substantial investments have been made toward improving both paper-based and digital health information systems to produce high-quality and available data for decision-making. However, the lack of systems design thinking in HIS design and development, especially complexity and usability, can impede data quality and use [9]. The usability constraints, such as 'user interfaces,' complicated data entry processes, excessive mouse clicks to navigate the system and retrieve information, and the lack of built-in data analysis tools, can create workflow barriers and impede their decision-making use. In Bangladesh,

- The user interface of DGFP MIS is not up to mark.
- There are no built-in data analysis tools.

Good relationships between actors who produce and use data

A significant barrier to data use is the limited interaction and subsequent disconnect between actors who produce data and those who use data to make decisions throughout data collection, synthesis, analysis, interpretation, and use [9,10]. A lack of mutual respect and mistrust in the skills and competencies of those producing data often exacerbates perceptions of data quality issues. It prevents decision-makers from demanding and acting on data [10].

- In Bangladesh, lower-level staff often see themselves only as data producers and are unaware of their potential in analyzing and interpreting data due to hierarchical reporting structures.
- There is no extra benefit for the staff to produce the data. As a result, they do not feel encouraged to collect the data.

- A disparity between MIS data and findings from qualitative surveys has been observed.

Institutional factors influencing data use, leadership for data use, and data use culture

Decision-Making Autonomy and Authority Structures sometimes affect the data used as decision-making involves multiple actors with competing priorities, biases, and values. Power differentials due to positional authority across government sectors or departments can influence the role of information in decision-making processes and agenda-setting [9]. Decision-making autonomy often lies beyond the authority of the health sector, limiting the influencing capacity of decision-makers to act upon data-informed recommendations. Organizational structures can also play a role in constraining or facilitating a culture of data-driven decision-making. For data use to become a regular and sustained activity, adequate administrative supports are needed.

- The lack of data use is tied to weak leadership for evidence-informed decision-making.
- Top-level decision-makers assign low priority to data due to the perception that data quality is poor.
- Data use culture is not fully established in Bangladesh.

Strong individual commitment and motivation

Individual attitudes, motivations, and values also impact the use of data [9]. Low commitment to work and morale amongst health workers can compound common motivations for using data among staff.

- Poor motivation among staff can be due to low salaries, late wages, poor working conditions, lack of feedback on performance, and an overburdening of work responsibilities.
- Reports at lower levels of the health system show that health personnel often do not have time for data-related tasks due to competing demands and consider data-related jobs to be thankless and of a low priority.
- As a result, the staff sometimes complete their task from home without considering data quality and integrity.

Lack of disaggregated data

Disaggregated data separate compiled information into smaller units to elucidate underlying trends and patterns [11]. The data is grouped by dimensions, such as age, sex, geographic area, education, ethnicity, or other socioeconomic variables to enhance understanding of a situation and disaggregating data helps to explore hidden trends. It may allow the identification of vulnerable populations or help establish the scope of the problem and make vulnerable groups more visible to policymakers. However, there is a lack of disaggregated data from DGFP MIS service statistics (SS), as provided in **Figure 3**. When a pandemic occurs, an appropriate and well-organized response needs to identify the factors responsible for slowing or accelerating transmission and the populations who are most vulnerable [11]. High quality, accessible, trusted, timely, open, and reliable disaggregated data is critical to generating valuable information for real-time decision-making.

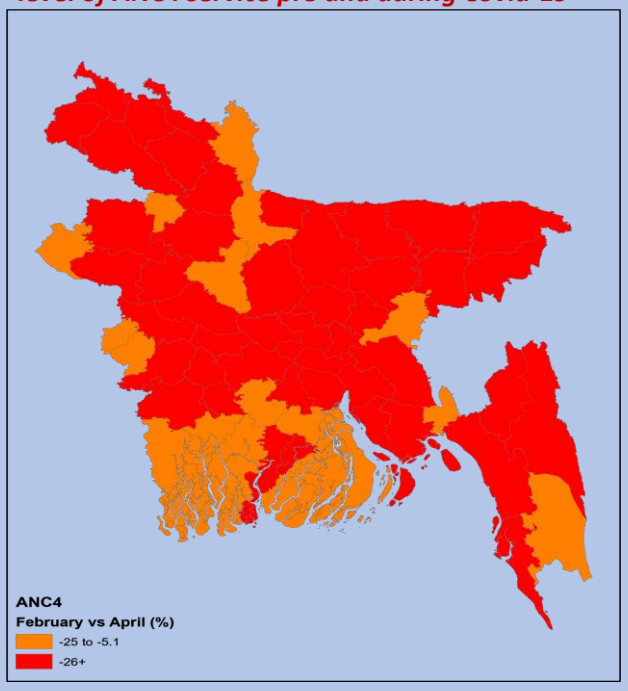
- Real-time decision-making may require data analysis by age, geographic area, and other socioeconomic variables.
- The better-disaggregated data we have, the wiser the response will be.

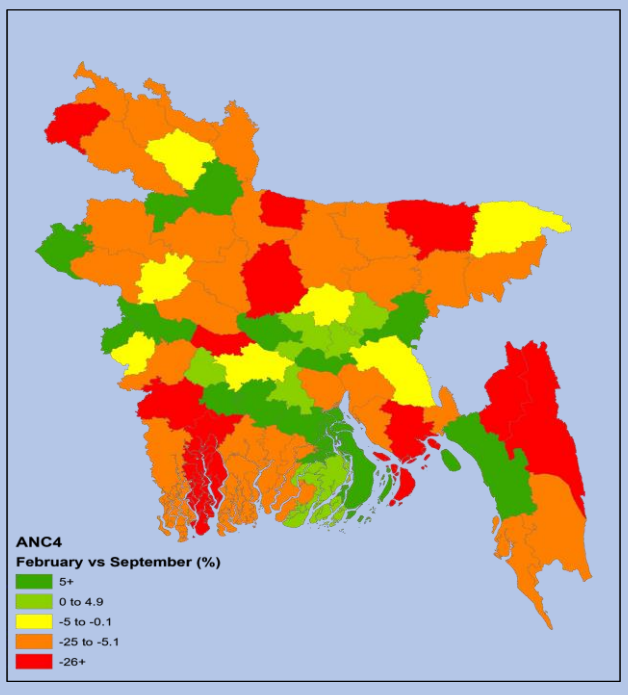
Discussion, conclusion, and recommendations:

All countries need robust data for planning and managing health services impacted by COVID-19 and monitoring advancement on the way to reach global commitments. Data and information help to identify a problem and put it

in an organized manner. The quality of data has often been questioned in Bangladesh. D4I shows that COVID-19 had a statistically significant adverse effect on the utilization of maternal health, family planning, and childhood vaccination services in Bangladesh.

Figure 3: Comparison of the distribution of level of ANC4 service pre and during Covid-19





However, there were sudden increases or decreases in reporting (**Figure 1 & 2**), so several Upazilas had incomplete time series data [7]. Since they were not included in the information system until 2019, these *Upazilas* have incomplete data.

It has also been observed that there is inadequate data availability in Bangladesh. The user interface of DGFP MIS is not user-friendly, and system design changes sometimes. D4I (2021) shows that it was impossible to account for geographic differences (*Upazila* level) due to changes in the information system and the unavailability of facility-specific data in Bangladesh. Without geographic differences, the local-level decision cannot be made.

High-quality, accessible, reliable, and timely disaggregated data is critical to generating valuable information for real-time decision-making. However, SS of DGFP is not timely uploaded. As a result, real-time decisions (during the emergency period) cannot be made precisely. Staffs at lower levels are unaware of their potential duties in analyzing and interpreting data. There is no extra benefit for the team to produce the data. Poor staff motivation due to low salaries, late wages, poor working conditions, lack of feedback on performance, and an overburdening of work responsibilities are responsible for the low quality of data.

The DGFP MIS data shows that the number of pregnancies and the performance of menstrual regulation declined significantly in April and May 2020. However, the distribution of FP products had also gone down during this period (**Figure 1 & 2**), which contradicts the previous findings. As a result, we cannot conclude the impact of COVID-19 on whether Bangladesh will have a baby boom or bust.

Multiple factors inhibit routine health data in decision-making for programs, policies, and advocacy. The factors discussed earlier lie within the Performance of Routine Information System

Management (PRISM) framework, an innovative approach to design, strengthen, and evaluate RHIS. We need to implement the following issues for DGFP MIS to use data for decision-making in Bangladesh.

- For sufficient skills in data use core competencies, capacity building of the health-workforce is most important. Capacity-building resources focus specifically on data use core competencies, including training on data demand concepts and data analysis and interpretation, as well as tools to identify and engage stakeholders, identify information needs, and link questions of interest and data to action.
- Different assessment tools, including the data quality review (DQR) and the routine data quality assessment (RDQA), should be used to improve the data quality [9,12].
- Like DGHS, DHIS 2 software should be introduced under the DGFP combined with Tableau, which will provide real-time data. The implementation of DHIS 2 can also facilitate the accessibility of health data across many sources and the easy generation of tables, graphs, charts, and information products that enable data use.
- There should be the provision of cash or prize, counseling, motivation, and feedback on the performance for the staff engaged in data reporting with their overburdened work responsibilities.
- Good leadership should be the topmost primary, and data culture should be established.
- There should require interventions to strengthen organizational support for data demand and use.
- Robust monitoring and evaluation system should be established under DGFP MIS. The PRISM framework should be used regularly to evaluate, design, and strengthen RHIS.

For informed and evidence-based decision-making, quality and timely data are most important. However, in the context of Bangladesh, there is a lack of quality data which poses challenges to reaching a data-driven decision. Without reliable and quality data, we cannot avert the negative consequences of future disasters like COVID. Therefore, Bangladesh should make policies/laws to produce better quality data in every sector.

References

1 R4D. Data for Decision-Making. https://r4d.org/how-we-work/data-for-decision-making/

2 Lee J, Lynch CA, Hashiguchi LO, *et al.* Interventions to improve district-level routine health data in low-income and middle-income countries: a systematic review. *BMJ Glob Heal* 2021;**6**:e004223. doi:10.1136/bmjgh-2020-004223

3 Nutley T, Reynolds HW. Improving the use of health data for health system strengthening. *Glob Health Action* 2013;**6**:20001. doi:10.3402/gha.v6i0.20001

4 Kumar M, Gotz D, Nutley T, *et al.* Research gaps in routine health information system design barriers to data quality and use in low- and middle-income countries: A literature review. *Int J Health Plann Manage* 2018;**33**:e1–9. doi:10.1002/hpm.2447

5 Stansfield SK, Walsh J, Prata N, *et al.* Chapter 54. Information to Improve Decision Making for Health. In: Jamison DT, Breman JG, Measham AR, *et al.*, eds. *Disease Control Priorities in Developing Countries (2nd Edition)*. Washington (DC): 2006. 1017–30. doi:10.1596/978-0-8213-6179-5/chpt-54

6 Data for Impact (D4I). Estimating the effect of COVID-19 on total utilization of health services in Bangladesh. 2021. https://www.data4impactproject.org/publications/estimating-the-effect-of-covid-19-on-total-utilization-of-health-services-in-bangladesh/

7 Data for Impact (D4I). Estimating the effect of COVID-19 on utilization of health services in the DRC and Bangladesh. 2021. https://www.data4impactproject.org/wp-content/uploads/2021/04/Estimating-the-effect-of-COVID-19-on-utilization-of-health-services-in-the-DRC-and-Bangladesh_FS-20-516-D4I.pdf

8 DGFP MIS. Service statistics. 2021.https://dgfpmis.org/ss/ss_menu9.php (accessed 25 Dec 2021).

9 MEASURE Evaluation. Barriers to use of health data in Low- and Middle-Income countries — A review of the literature. 2018. https://www.measureevaluation.org/resources/publications/wp-18-211/at_download/document

10 Tilahun B, Teklu A, Mancuso A, *et al.* Using health data for decision-making at each level of the health system to achieve universal health coverage in Ethiopia: the case of an immunization programme in a low-resource setting. *Heal Res policy Syst* 2021;**19**:48. doi:10.1186/s12961-021-00694-1

11 PAHO, WHO. Why Data Disaggregation is key during a pandemic. 2020. https://iris.paho.org/bitstream/handle/10665.2/52002/Data-Disaggregation-Factsheet-eng.pdf?sequence=19#:~:text=Ensuring that data collected are,no one is left behind.

12 MEASURE Evaluation. Comparative Analysis of Data Quality Assessment Tools. 2018. https://www.measureevaluation.org/resources/publications/tr-18-300/at_download/document

Prepared by:

Md Rabiul Haque, PhD
Md Aminul Haque, PhD
Mohammad Mainul Islam, PhD
Tehmina Ghafur, PhD
Mohammad Bellal Hossain, PhD
Shafayat Sultan
Md. Zakiul Alam
Md. Mahir Faysal

Published by:

Department of Population Sciences, University of Dhaka, in collaboration with the United Nations Population Fund, Bangladesh Country Office, 2021.

Department of Population Sciences
University of Dhaka

United Nations Population Fund Dhaka
Bangladesh