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HIS Mapping: An Inventory of Digital Tools in Use by the Ministry of Health and Family Welfare in Bangladesh

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Introduction

The Government of Bangladesh (GOB) has formulated a Digital Bangladesh vision for the country. The Ministry of Health and Family Welfare (MOHFW) is translating this vision through different eHealth/Health Information System (HIS) tools. Over the years, many different tools have been developed and used by different organizations or units within the MOHFW. This document presents a list of all major or important systems in use by the different organizations under the MOHFW. This brief also examines policy implications resulting from the listing exercise.

Methodology[1]

Two inventories done in 2015 and 2016, respectively, were reviewed during initial data collection of this HIS mapping (MEASURE Evaluation, 2016; Steen Anderson, et al., 2015). A list appearing in a study of District Health Information System, version 2 (DHIS2) done by the University of Oslo was also consulted (UIO & HISP India, 2020). Data were also collected from a MOHFW data management workshop. An initial list of HIS tools was drafted, and support was sought from the Program Management and Monitoring Unit (PMMU) of the MOHFW to refine the list. The PMMU circulated the list to all Line Directors (LDs) of the Operational Plans (OPs) of the 4th Health, Population and Nutrition Sector Development Program (4th HPNSP) for their inputs. Subsequently, a workshop[2] was organized to explain the purpose of the exercise. The LDs or their representatives were present in the workshop, and they were requested to review the list for correctness and fill in missing values, including additions or deletion of any items, as necessary. Further discussions with the LDs occurred over telephone. Subsequently, comments from development partners working with the MOHFW were sought, and they too provided their inputs. All these inputs were included in the final inventory (Appendix A). Data definitions are provided in Appendix B.

[1] We are grateful to the PMMU, Health Services Division (HSD), Ministry of Health and Family Welfare, for their support in facilitating this study and especially thank Mr. Md. Helal Uddin, Additional Secretary, HSD, Mr. Mujibur Rahman, Joint Secretary, HSD and Ms. Shaila Sharmin Zaman, Deputy Secretary, HSD for proactively facilitating data collection for this exercise. Similarly, we express gratitude to Mr. Shukhendu Sekhar Roy, Senior System Analyst, (Deputy Director equivalent), MIS, DG Health Services MIS, DGHS, and Mr. Abdul Hannan Khan, HISP Bangladesh for providing inputs. We also thank Dr. Shehlina Ahmed, Health System Specialist, FCDO; Dr. Jannatul Ferdous, Health Officer (Health System Strengthening), UNICEF, Dr. Abu Sayed Mohammad Hasan, Program Specialist-SRH, UNFPA Bangladesh, and Dr. Fida Mehran, Health Specialist, Office of Population, Health, Nutrition and Education, USAID, Bangladesh. We also thank Professor Dr. Abul Kalam Azad, former Director General, Directorate General of Health Services, now Project Director, Better Health for Bangladesh, MSH, for their contribution. We also recognize the inputs provided by Mr. Julhas Sujan, Country Coordinator, CAPTURA Bangladesh, International Vaccine Institute (IVI). Finally, we express our gratitude to Dr. Kanta Jamil, Senior Monitoring, Evaluation and Research Advisor, USAID, Bangladesh, and Ms. Gabriela Escudero, Senior Project Manager, D4I for reviewing and providing important suggestions and for overall support in preparing and finalizing this policy brief. We also thank the D4I KM team for their review of this brief.
[2] Held on 11 May 2021 on a virtual platform, presided by Md. Helal Uddin, Additional Secretary, Health Services Division.

How the List is Organized[3]

The list is organized into 13 columns. This inventory lists the types of digital tools used, such as mobile applications (or apps), web-based applications and desktop applications (Figure 1). Apps are those run on mobile devices (Android OS or iPhones). Apps and web-based applications require an Internet connection. The names of organizations are presented in the list (Figure 2). The location or hosting of databases were recorded (Figure 3) and the names of the organizations responsible for maintenance of the system (including third parties) are also included. Initial funding for the tools/systems, where applicable, and the names of the vendors are included, where available. The list also identifies whether tools are commercial or open source. Open-source software is free to use, no licensing fees are required (Figure 4). The MOHFW currently implements a sector-wide approach through the 4th HPNSP. The program is composed of 29 OPs (Appendix-D). The list identifies the OPs which own/use the tools. The inventory reveals that four standard systems are used as a *backbon*e of the development of any new application (more than 55% of the systems used either DHIS2 or eMIS, HRIS, or SCMP) and approximately 50 percent of the total digital tools are being led by the MIS OPs of DGFP and DGHS.

It is expected that this list of HIS tools will be maintained as a living document by the Health Services Division (HSD) in their OP Dashboard website, allowing the list to be accessed and kept up to date by the relevant owners of the tools.

Figure 1. Types of software used in the MOHFW

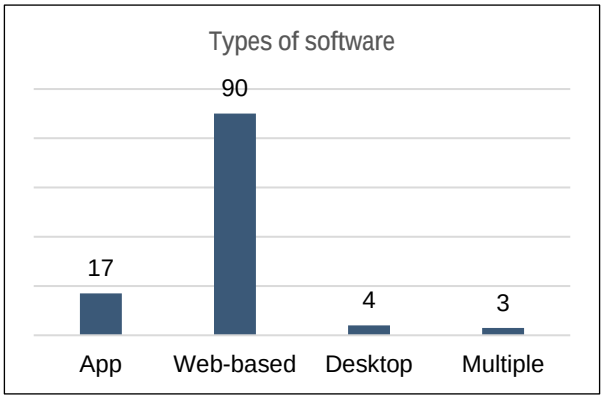
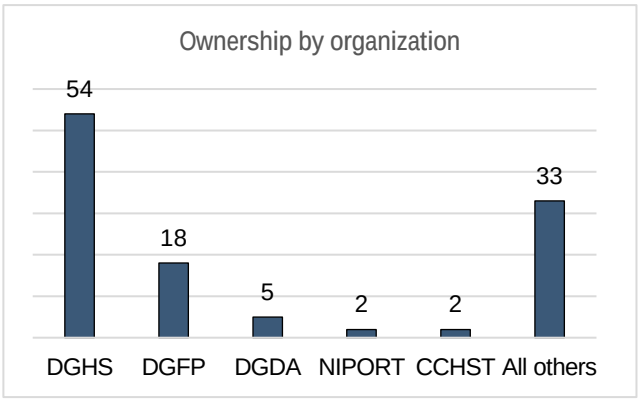


Figure 2. Organizational ownership of tools



[3] While every effort was made to make the list as comprehensive as possible, there may be errors or omissions. It is recommended that the PMMU will maintain the list in their OP Dashboard site, which would allow relevant users or organizations to correct or update the list on the basis of their current implementation.

Figure 3. Hosting of databases and servers

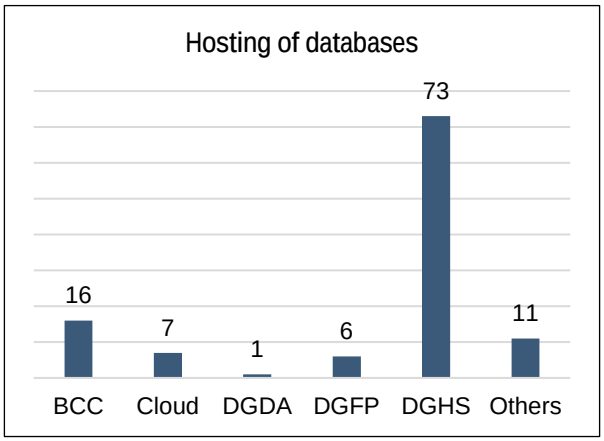
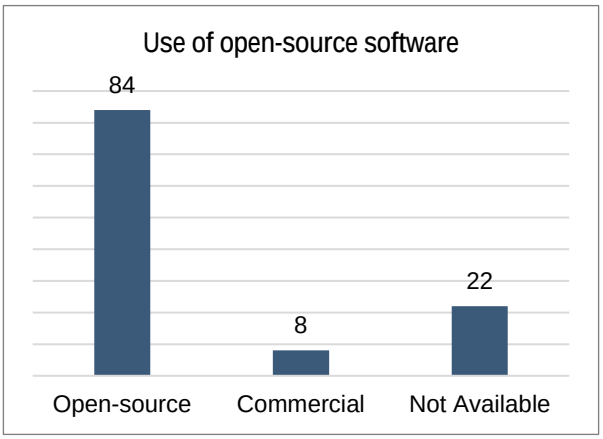


Figure 4. Use of open-source software in MOHFW



Observations and Policy Implications

Information and communication technologies (ICT) are transforming the traditional way of doing things across all functions and domains of government. However, the speed with which technology is evolving surpasses the speed that governments can respond and they often face challenges trying to adjust or to use ICTs to their advantage (DESA, 2018). Digital technologies offer opportunities for improving business processes, collecting and using data for effective service delivery, or improving the performance of employees. Public sector organizations are adopting ICTs to implement digital electronic government (e-government) tools and those in the health sector are implementing HIS tools, many of which fit into the category of e-government tools (WHO, 2018). The MOHFW has introduced many eHealth/HIS tools (as detailed in Appendix A) and classified them according to the World Health Organization (WHO) Digital Health Interventions categories (Appendix C).

Some observations regarding these digital tools are made here from a policy perspective.

The transition from traditional manual, paper-based systems to digital systems is challenging for organizations.

Scaling-up a pilot successfully can be fraught with challenges. All pilots are not necessarily scaled-up organization-wide. It is said that the development sector in lower- and middle-income countries is a graveyard of pilots (Spicer, et al., 2018). In 2003, it was found that only 15 percent of digital projects became successful. Many were abandoned or only partially successful (Heeks, 2003). Even at present, the success rate—for both public and private sector organizations—is around 30 percent (Shehzad, et al., 2017; BCG, 2020). The reasons for failure could be numerous and lie in political, social, technical, and organizational contexts and can result even after successful pilot implementation (Anthopoulos, et al., 2016). Corruption has also been cited as one of the reasons for project failure (Aladwani, 2016). In other words, ICT project implementation is challenging and there is a need to monitor for success from very early stages so that decisions regarding their continuity could be made in a timely manner.

Developing information systems is resource intensive. Continuous investment in HIS should be ensured through regular budgetary allocations.

The use of good health information can help reduce costs as well as improve individual care. While digital technologies can play innovative roles in strengthening the health system, there is an equally important need to evaluate their contributing effects and ensure that such investments do not inappropriately divert resources from alternative, non-digital approaches (WHO, 2019). However, a strong case can be made for increasing investments in HIS. Investing in health information can lead to cost containment by providing sound

epidemiological and health system performance data to make the right health investments; achieving greater efficiency by gaining information about the performance of health services through data driven continuous quality improvement techniques; and health information technology itself leads to considerable savings in the health sector (Yates & Dhillon, 2014). The MOHFW has made investments in HIS and needs to continue making investments to sustain the systems developed with the support of its development partners.

The opportunities offered by mobile technologies should be explored.

In the MOHFW, web-based applications outnumber mobile apps (Figure 1). Mobile communication-based systems are versatile and especially suitable for low-resource environments. Deployment of mobile communications-based solutions or mHealth solutions contributes to improved health outcomes. For example, "mHealth has the potential to address and overcome: (1) disparities in access to health services; (2) inadequacies of the health infrastructure within countries; (3) shortage of human resources for health; (4) high cost of accessing health; and (5) limitations in the availability of financial resources" (Levine, et al., 2015). It is quite possible that increased emphasis on mHealth tools can help the MOHFW and its partner organizations to reach the service delivery points—or possibly to the doors of the clients/service-seekers themselves—more effectively.

A centralized or cloud-based location for storing all government databases is cost-effective.

The availability of cloud-based computing is changing the way the world operates. Storing data on site is not the most cost-effective way of managing digital resources. Most of the country's public health databases are hosted on-premises in MOHFW organizations (Figure 3). The Bangladesh Computer Council has established a modern Data Center which hosts government data. The Cloud is suitable for building or migrating business systems and its benefits lie in freeing IT teams from managing basic computing infrastructure, such as servers, storage, etc., so that greater value can be derived from the latest technologies and tools (BCG, 2019). Eliminating the management of data centers would also result in significant savings and free organizations from the rigors of day-to-day management while greatly reducing the need to replace expensive hardware periodically.

Use of open-source software for developing digital tools is encouraging.

This inventory identifies tools developed using open-source software (OSS) which can reduce development and/or maintenance costs (Figure 4). Without OSS, it would be essential to have control over all source-code developed by third parties for managing the resources after contracts expire

Further analysis is required on the efficacy of the tools.

The Mid-Term Review (MTR) of the 4th HPNSP noted some implementation weaknesses of ICT systems within the sector program. The MTR observed that most of the systems in the MOHFW are standalone and lack interoperability, which in turn limits overall system efficiency and performance (Independent Review Team, 2020). There was no scope to examine interoperability for this inventory. When making digital investments or developing large enterprise-based HIS, the WHO suggests conducting an inventory of existing or previously used software applications, ICT systems, and other tools to better understand the requirements for reuse and interoperability requirements (WHO, 2020). This inventory can well serve that purpose for the MOHFW.

A pool of skilled human resources personnel and increased procurement management capacity are required.

It is clear that MOHFW organizations manage large numbers of digital resources. Therefore, it is imperative that all organizations assess their internal capacities (technical, human, and financial) for managing or running their digital systems. However, having in-house technical human resources within organizations may not be feasible in all cases due to the demands of rapid and evolving technologies. Therefore, it may be necessary to employ vendors or out-source development tasks. When out-sourced, efficient procurement management systems need to be in place, for which capacity issues should also be addressed.

Recommendations

On the basis of the above discussion, we provide the following recommendations:

- In the event that the MOHFW considers any assessment of the existing HIS, or its digital tools, this inventory may serve as an initial document.
- Continuous investment in HIS should be ensured through regular budgetary allocations.
- Institutional capacities (technical, human, and financial) need to be strengthened with the capacity to manage out-sourced development environments or products.
- Preference may be given to cloud storage available from the Bangladesh Computer Council of the Government of Bangladesh versus local data centers within each organization of the MOHFW.

Conclusion

The MOHFW is taking steps to achieve the Digital Bangladesh vision of the government and emphasizing digitization of its activities. This document inventories the numerous software tools currently in use by organizations under the MOHFW. It may be used to evaluate existing tools. The observations made are intended to inform policies and are presented for consideration and action by policy makers.

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Glossary

App: A mobile application, also referred to as a mobile app or simply an app, is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch.[1]

Cloud storage: Cloud storage is a model of computer data storage in which the digital data is stored in logical pools, said to be on "the cloud." The physical storage spans multiple servers (sometimes in multiple locations), and the physical environment is typically owned and managed by a hosting company. These cloud storage providers are responsible for keeping the data available and accessible, and the physical environment secured, protected, and running. People and organizations buy or lease storage capacity from the providers to store user, organization, or application data.[2]

Desktop software: (1) An application that runs stand-alone in a desktop or laptop computer. Contrast with "web-based application," which requires a web browser to run. The term may be used to contrast desktop applications with mobile applications that run in smartphones and tablets. See desktop computer, web application and mobile app. (2) In Windows, a desktop application is one that runs in the traditional Windows desktop in contrast to a tablet application that runs full screen. See tablet mode.[3]

eHealth: The World Health Organization defines eHealth as the use of information and communication technologies (ICT) for health. In its broadest sense, eHealth is concerned with improving the flow of information, through electronic means, to support the delivery of health services and the management of health systems. ICT provides significant benefits not only in achieving health goals, but also in demonstrating what has been attained and at what cost.[4]

mHealth: mHealth is a component of eHealth. The Global Observatory for eHealth (GOe) defines mHealth or mobile health as medical and public health practice supported by mobile devices, such as mobile phones, patient monitoring devices, personal digital assistants (PDAs), and other wireless devices.[5]

Web services: A web service is an application or data source that is accessible via a standard web protocol (HTTP or HTTPS). Unlike web applications, web services are designed to communicate with other programs, rather than directly with users. While web services can provide data in a number of different formats, XML and JSON are the most common. These standard text-based formats can be easily recognized and parsed by another program that receives the data. Most web services provide an application programming interface (API), or a set of functions and commands, that can be used to access the data.[6]

Web-based applications: An application in which all or some parts of the software are downloaded from the web every time it runs.[7] These could be explained in terms of browser-based applications or client- based applications. The majority of web applications are browser based or used through a website or webpage. The server side is typically performed to access databases and other support functions. However, web applications may also run without the browser or client based on where the program interacts with a server on the web using standard web protocols.

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[1] Available at https://en.wikipedia.org/wiki/Mobile_app
[2] Available at https://en.wikipedia.org/wiki/Cloud_storage
[3] Available at https://www.pcmag.com/encyclopedia/term/desktop-application
[4] World Health Organization & International Telecommunication Union. (2012). National eHealth strategy toolkit. Available at https://apps.who.int/iris/bitstream/handle/10665/75211/9789241548465_eng.pdf
[5] mHealth: New horizons for health through mobile technologies: second global survey on eHealth. Available at: https://www.who.int/goe/publications/goe_mhealth_web.pdf
[6] Available at https://techterms.com/definition/web_service
[7] Available at https://www.pcmag.com/encyclopedia/term/web-application

Appendix A. List of HIS Tools in the MOHFW

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
1	COVID-19 test certificate validation and verification	Secured report verification for worldwide immigration and ports of COVID-19 test result	Web-based	Production	All airports, land ports, immigration, airlines, and public using QR code	Public	DGHS	2020	UNICEF	HISP Bangladesh	MIS-DGHS, HISP Bangladesh	Yes	HIS & eHealth
2	DHIS2 – Mortality (causes of death) reporting and notification	Case-based death reporting with causes of death according to the ICD 10 and SoML with underline causes	Web-based	Production	All hospitals (private and public)	Upazila and above	DGHS	2017	EU/Share project	HISP Bangladesh	MIS-DGHS, HISP Bangladesh	Yes	HIS & eHealth
3	OpenSRP – PRIMA (integrated with SHR)	Population registration in catchment area of CHCP	App	Production	CCHST	HAs	DGHS	NA	WHO-HQ	mPower	mPower	NK	CHBC
4	MHV app (CHCP community tracker)	Multipurpose health volunteer work management	App	Production	CCHST	Multipurpose Health Volunteer	DGHS	NA	OP	CMED	CMED	NK	CHBC
5	DHIS2 – URBAN HMIS System	Collect aggregated URBAN HMIS data	Web-based	Production	City corporation facilities and NGO facilities	City corporation and municipalities	DGHS	2015	GIZ	GIZ, HISP Bangladesh	MIS-DGHS, HISP Bangladesh, UNICEF	Yes	HIS & eHealth
6	DGDA registered drug database	DGDA web portal	Web-based	Production	DGDA	Everyone	NA	NA	GOB and USAID	GOB and MSH	DGDA	Yes	SDAM
7	Pharmadex	Online drug registration system	Web-based	Pilot	DGDA	HQ	NA	2014	USAID	MSH	MSH	Yes	SDAM
8	Pharmacy Management System (PMS)	Model pharmacies and model medicine shop under DGDA	Web-based	Production	DGDA	Pharmacy users and DGDA central level	Cloud	2019	UKAID/ FCDO/ BHB	JBRSOFT	JBRSOFT up to 2020	No	SDAM
9	Drug license automation and renewal system	Online licensing system for pharmacies	Web-based	Pilot	DGDA	Central	NA	2020	UKAID/ FCDO/ BHB	NA	NA	No	SDAM
10	Adverse Drug Reaction Reporting – COVID-19 AEFI reporting system	Monitoring adverse drug reactions including COVID-19 AEFI reporting	Web-based	Production	DGDA	DGDA and all hospitals	DGDA	2020	WHO and a2i	Technovista	Technovista	No	DGHS, SDAM

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
11	eLearning portal for pharmacists and good pharmacy practice	To promote the knowledge and practice towards enhancing good pharmacy practice in the country	Web-based	Production	DGDA, PCB	All pharmacists and related professionals	BHB	2021	FCDO	BHB	BHB	Yes	SDAM
12	Online survey platform for pharmacists	To conduct online surveys among pharmacists	Web-based	Production	DGDA, PCB	All pharmacists and related professionals	BHB	2021	FCDO	BHB	BHB	Yes	SDAM
13	Online pharmacy newsletter distribution system related to good pharmacy practice in the country	To distribute email newsletter related to good pharmacy practice	Web-based	Production	DGDA, PCB	All pharmacists and related professionals	BHB	2021	FCDO	BHB	BHB	Yes	SDAM
14	SCMP – WMIS	Warehouse management - WMIS	Web-based	Production	DGFP	Upazila and above	DGHS	2010	USAID	MSH	DGFP	Yes	PSSM-FP
15	SCMP – UMIS	Inventory management	Web-based	Production	DGFP	Upazila	DGHS	2008	USAID	MSH	DGFP	Yes	PSSM-FP
16	SCMP-eLMIS	Online tracking of family planning stock status	Web-based	Production	DGFP	Upazila and above	DGHS	2010	USAID	MSH	DGFP	Yes	PSSM-FP
17	Service Statistics (SS)	DGFP MIS service statistics	Web-based	Production	DGFP	Upazila and above	DGFP	2009	OP	DGFP-MIS	DGFP	Yes	MIS-FP
18	eMIS – FWA eRegister	Digital version of FWA register, advanced workplan and MIS forms	App	Production	DGFP	Family Welfare Assistants	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	MIS-FP
19	eMIS – FPI eSupervision System	Digital version of FPI register and others	App	Production	DGFP	Family Planning Inspectors	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	MIS-FP
20	eMIS – UFPO eManagement System	Monitoring FWAs' and FPIs' work	App	Production	DGFP	Upazila Family Planning Officers	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	MIS-FP
21	eMIS – Facility Systems eRegister (SACMO and FWV)	Digital version of paper registers used in Upazila Health and Family Welfare Centers (UHFWC)	App	Production	DGFP	Sub-Assistant Community Medical Officers (SACMO), Family Welfare Visitors (FWV)	BCC	2015	USAID/ MaMoni HSS	MaMoni/SCI	MaMoni/SCI	Yes	MIS-FP
22	eMIS – Facility dashboard	Monitoring page for supervisors and managers under eMIS	Web-based	Production	DGFP	All managers	BCC	2015	USAID/ MaMoni HSS	MaMoni/SCI	MaMoni/SCI	Yes	MIS-FP

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
23	DHIS2 – DGFP (FP DHIS2)	Aggregated reporting	Web-based	Production	DGFP	Upazila and above	DGFP	2019	USAID and UNFPA	MEASURE Evaluation/ icddr,b and MaMoni	icddr,b and MaMoni	Yes	MIS-FP
24	eLearning platform for IEM	Access to eLearning materials from app/online	App	Production	DGFP	Field workers	DGFP	2019	USAID	Ujjiban	NK	Yes	IEC, DGFP
25	Sukhi Poribar (16767)	Call center for providing family planning information	Web-based	Production	DGFP	Public-private	DGFP	2019	OP	NA	Vendor	NK	DGFP-IEM
26	eLearning site for DGFP	Online training courses	Web-based	Production	DGFP	Upazila to national	DGFP	2020	USAID	MaMoni/SCI	MaMoni/SCI	Yes	MIS-FP
27	PAMS	Physical asset (land, building, etc.) management system	Web-based	Pilot	DGFP	Field offices	DGFP	2019	USAID	MaMoni/SCI	MaMoni/SCI	Yes	MIS-FP
28	eMIS – community Dashboard	Monitoring page for supervisors and managers under eMIS	Web-based	Production	DGFP	Central, local	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	MIS-FP
29	eMIS – Provider and catchment area management	Assignment and management of catchment areas of community workers and service providers under DGFP	Web-based	Production	DGFP	Central, local	BCC	2015	USAID/ MEASURE Evaluation/ icddr,b	icddr,b, MaMoni/ SCI	icddr,b, MaMoni/ SCI	Yes	MIS-FP
30	eMIS – Health and Family Planning ID printing system	Management of printing individual unique ID cards for registered population	Web-based	Production	DGFP	Central, local	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	MIS-FP
31	eMIS – Support ticket system	Management of support tickets for eMIS implementation	Web-based	Production	DGFP	Central, local	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	MIS-FP
32	DHIS2 – Aggregate performance reporting	Aggregated reporting	Web-based	Production	DGHS	Upazila and above	DGHS	2009	GiZ, UNICEF	UoO	DGHS	Yes	HIS & eHealth
33	DHIS2 – CHCP Community tracker	Patient tracker at community level	App	Production	DGHS	CHCP	DGHS	2013	UNICEF	COIA	DGHS	Yes	HIS & eHealth
34	DHIS2 – COVID-19 vaccine reporting and vaccine logistics	COVID-19 vaccine use reporting and vaccine logistics monitoring (aggregated)	Web-based	Production	DGHS	Upazila and above	DGHS	2021	UNICEF	HISP Bangladesh	MIS-DGHS, HISP Bangladesh	Yes	HIS & eHealth
35	DHIS2 – AEFI and VPD surveillance system	Case reporting and investigation of AEFI and VPD cases	Web-based	Production	DGHS	Upazila and above	DGHS	2019	WHO	HISP Bangladesh	MIS-DGHS, WHO, HISP Bangladesh	Yes	MNCAH

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
36	DHIS2 – Routine vaccine reporting, and vaccine logistics	Aggregated routine vaccine reporting and vaccine logistics	Web-based	Production	DGHS	Upazila and above	DGHS	2014	GIZ, UNICEF	GIZ, HISP Bangladesh, UNICEF	MIS-DGHS, UNICEF, HISP Bangladesh	Yes	MNCAH
37	SCMP – Equipment tracker	Equipment tracker	Web-based	Production	DGHS	Hospital	DGHS	2014	USAID	MSH	DGHS	Yes	PFD, PSSM, HSM
38	DHIS2 – Gender-based violence reporting	Aggregated routine case reporting	Web-based	Production	DGHS	Upazila and above	DGHS	2020	UNFPA	HISP Bangladesh, UNICEF	MIS-DGHS, HISP Bangladesh	Yes	HEU
39	DHIS2 – Routine leprosy case and logistics reporting	Aggregated routine case reporting	Web-based	Production	DGHS	Upazila and above	DGHS	2019	NA	HISP Bangladesh	MIS-DGHS, HISP Bangladesh	Yes	TBL&ASP
40	HRIS – Geolocation registry	Geolocation registry based on Bangladesh Bureau of Statistics	Web-based	Production	DGHS	Central	DGHS	2012	DGHS-MIS	DGHS-MIS	DGHS	Yes	HIS & eHealth
41	HRIS – User management system	User management system	Web-based	Production	DGHS	MIS	DGHS	2012	DFID	Activation	DGHS	Yes	HIS & eHealth
42	DHIS2 – Maternal, child and general patient reporting system	Maternal, child and general patient case-based and aggregated reporting	Web-based	Production	DGHS	Community clinics	DGHS	2012	GiZ, UNICEF	GIZ,UNICEF HISP Bangladesh	MIS-DGHS, HISP Bangladesh, UNICEF	Yes	CBHC, NNS, HIS & eHealth
43	DHIS2 – Maternal and Perinatal Death Screening and Review	Case-based maternal and perinatal death review verbal autopsy	Web-based	Production	DGHS	Community clinics	DGHS	2014	UNICEF	UNICEF	HISP Bangladesh, UNICEF	Yes	CBHC, HEU
44	DHIS2 – Health Assistant's activity report	Health assistant's monthly BCC and other service delivery activity report	Web-based	Production	DGHS	Communities	DGHS	2018	MIS-DGHS	MIS-DGHS	MIS-DGHS	Yes	HIS & eHealth
45	SHR	To ultimately build a system of universal electronic health records of all citizens of Bangladesh	Web-based	Production	DGHS	All healthcare providers and citizens of Bangladesh	DGHS	2015	DFID	ThoughtWorks	DGHS	NA	HIS & eHealth
46	DHIS2 – NASP reporting system including PLHIV & PMTCT	NASP aggregated reporting including PMTCT and PLHIV case-based system	Web-based	Production	DGHS	STD-AIDS/ HIV centers	DGHS	2015	GIZ	GIZ, HISP Bangladesh	HISP Bangladesh	Yes	TBL&ASP
47	OpenMRS+	Medical record system for hospitals and clinics	Web-based	production	DGHS	Selected hospitals	DGHS	NA	DFID	ThoughtWorks	DGHS	Yes	HIS & eHealth
48	Bulk SMS-based system	SMS broadcasting for citizens	Web-based	Production	DGHS	HQ	DGHS	NA	OP	NK	Grameen Phone	NA	HIS & eHealth

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
49	Telemedicine system	Telemedicine services to citizens	Web-based	Production	DGHS	Telemedicine hospitals	DGHS	NA	OP	MIS, DGHS	DGHS	NK	HIS & eHealth
50	DHIS2 – Malaria aggregate reporting system	Malaria	Web-based	Production	DGHS	National	DGHS	2010	NA	CDC	CDC	NK	CDC
51	eMIS – HA eRegister	Digital version of HA register and different forms	App	Production	DGHS	HA	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	HIS & eHealth
52	eMIS – AHI eRegister	Digital version of AHI register and other forms for supervision of HAs	App	Production	DGHS	AHI	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	HIS & eHealth
53	eMIS – HI eRegister	Digital version of HI register and other forms for supervision of HAs' work	App	Production	DGHS	HI	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	HIS & eHealth
54	Public health dashboard	DGHS web-based tools	Web-based	Production	DGHS	All managers	DGHS	2016	UNICEF	UNICEF	DGHS	Yes	HIS & eHealth
55	DHIS2 – Immunization registry (e-Tracker)	DHIS2 Tracker app for immunization program	App	Pilot	DGHS	Field offices	DGHS	2019	UNICEF	UNICEF	DGHS	Yes	MNCAH
56	Janao	Aggregating the mandatory TB notification of cases from both public and private healthcare institutions/practitioners	App	Production	DGHS	Medical doctors	icddr,b	2018	USAID	Icddr,b	Icddr,b	No	TBL&ASP
57	eTB Manager	Patient-based electronic TB information system	Web-based	Production	DGHS	TLCA	Cloud	2010	USAID	MSH	MSH	Yes	TBL&ASP
58	GxAlert	GeneXpert management, monitoring, reporting and real-time results notification	Web-based	Production	DGHS	Lab technicians	Cloud	NA	USAID	SystemOne	SystemOne	No	TBL&ASP
59	TB-WIMS	Warehouse inventory management	Desktop	Production	DGHS	Central	Cloud	2017	USAID	MSH	MSH	NK	TBL&ASP
60	Video conferencing system	Connectivity with field officials through internet and video platform	Web-based	Production	DGHS	Field offices	DGHS	NA	OP	NA	MIS-DGHS	NA	HIS & eHealth
61	Shasthyo Batain 16263: Health Call Center	Call center for providing services to general public (integrated with HRIS)	Web-based	Production	DGHS	Field offices	DGHS	2015	OP	Synesis IT	MIS-DGHS	NA	HIS & eHealth
62	Grievance Redressal System (GRS)	Platform for the people to raise complaints about health services	Web-based	Production	DGHS	Field offices	DGHS	2012	OP	Consultants	MIS-DGHS	NA	HIS & eHealth

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
63	HRIS – Biometric attendance system	System for monitoring attendance at field offices through Internet	Web-based	Production	DGHS	Field offices	DGHS	NA	OP	Consultants	MIS-DGHS	NA	HIS & eHealth
64	HRIS – Media monitoring system	Collection of news/reports in digital format	Web-based	Production	DGHS	Field offices	DGHS	NA	OP	OP	MIS-DGHS	NA	HIS & eHealth
65	Private hospital registration and licensing system (integrated with HRIS)	Web-based tool for registration of private hospital and clinics	Web-based	Production	DGHS	Public-private	DGHS	2018	UNICEF	UNICEF	MIS-DGHS	NA	HSM
66	DHIS2 – DGHS eLMIS	Stock status tracking of priority MNCH medicines	Web-based	Production	DGHS	DGHS facilities	DGHS	NA	OP	MSH	MSH	Yes	HIS & eHealth
67	NCD – eMIS	NCD screening and treatment monitoring (using population registration from eMIS)	App	Production	DGHS	DGHS facilities	icddr,b	2019	USAID/ RDM	RDM	icddr,b	Yes	NCD
68	COVID-19BD	COVID management and awareness	App	Production	DGHS	Public-private	DGHS	2020	OP	ICT Division	NA	NA	HIS & eHealth
69	eMIS - UHFPO eManagement system	Monitoring HAs, AHIs and HIs work	App	Production	DGHS	UHFPO	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	HIS & eHealth
70	eMIS – EPI session microplanning system	Prepare yearly EPI-related microplanning including EPI session plan	Web-based	Production	DGHS	All managers	BCC	2015	USAID/ MEASURE Evaluation	icddr,b	icddr,b	Yes	HIS & eHealth
71	DHIS2 – Mukto	Nutrition	App	Production	DGHS	National	DGHS	2018	OP	UNICEF	NNS	NK	NNS
72	DHIS2 – SCANU/ NSU reporting system	Monitoring of sick-newborn admitted at SCANU	Web-based	Production	DGHS	National	DGHS	2015	UNICEF	UNICEF	MIS, DGHS HISP, UNICEF	Yes	HIS & eHealth, MNCAH
73	DHIS2 – KMC (Kangaroo Mother Care) program reporting	Monitoring of low-birth-weight babies at KMC center	Web-based	Production	DGHS	National	DGHS	2019	UNICEF	UNICEF, Save the Children	MIS, DGHS HISP UNICEF	Yes	HIS & eHealth, MNCAH
74	DHIS2 – Adolescent health service reporting	Monitoring of adolescent health service at adolescent service corner	Web-based	Production	DGHS	National	DGHS	2019	UNICEF	UNICEF,	MIS, DGHS HISP UNICEF	Yes	HIS & eHealth, MNCAH

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
75	National public COVID-19 portal of DGHS	Monitoring COVID-19 status, hospital Information and bed occupancy, etc.	Web-portal	Production	DGHS	National	DGHS	2020	UNICEF	UNICEF	MIS, DGHS UNICEF	Yes	HIS & eHealth
76	DHIS2 – HMIS System for FDMN (both aggregated reporting and EPI tracker)	Monitoring health services and immunization services of FDMN population	Web-based and Android app	Production	DGHS	COX's bazar Civil Surgeon, DPs and NGOs	DGHS	2017 and 2020 (EPI tracker app)	UNICEF	UNICEF	MIS, DGHS UNICEF	Yes	HIS & eHealth
77	DHIS2 – NCD trackers	NCD tracker	Web-based	Production	DGHS	CHCPs	DGHS	2017	OP	HISP	MIS-DGHS	Yes	HIS & eHealth
78	HRIS – Health facility registry	To maintain electronic registry of public and private health facilities of Bangladesh	Web-based	Production	DGHS	All health facilities in Bangladesh	DGHS	2016	DFID	DFID	MIS-DGHS	Yes	HIS & eHealth
79	HRIS – Health provider registry	To maintain registry of healthcare providers of Bangladesh	Web-based	Production	DGHS	All healthcare providers of Bangladesh	DGHS	2016	DFID	Activation	MIS-DGHS	Yes	HIS & eHealth
80	HRIS – DGHS support ticket	To facilitate electronic receipt of requests of assistance by DGHS managers and staff for the eHealth systems and providing quick response and logging	Web-based	Production	DGHS	DGHS facilities and healthcare providers	DGHS	2017	OP	Activation	MIS-DGHS	Yes	HIS & eHealth
81	HRIS – Training management system	To manage all kinds of training, including local and foreign	Web-based	Production	DGHS	DGHS facilities and healthcare providers	DGHS	2017	OP	Activation	MIS-DGHS	Yes	HIS & eHealth
82	HRIS – Online application system	To manage health personnel application regarding transfer, posting promotion, etc.	Web-based	Production	DGHS	DGHS facilities and healthcare providers	DGHS	2017	OP	Activation	MIS-DGHS	Yes	HIS & eHealth
83	ACR management system	To manage ACR of Health Cadres	Web-based	Production	DGHS	MOHFW, DGHS	DGHS	2017	OP	Divo Solutions	MIS-DGHS	NA	HIS & eHealth
84	Online appointment system	To manage day-to-day meetings, workshops, seminars, etc.	Web-based	Production	DGHS	High Officials	DGHS	2017	OP	Consultants	MIS-DGHS	NA	HIS & eHealth
85	Photo archiving system	To manage photos of health activities	Web-based	Production	DGHS	Health facilities	DGHS	2017	OP	Consultants	MIS-DGHS	NA	HIS & eHealth

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
86	DHIS2 – Reporting system for Kala-azar elimination program	Kala-Azar case-based tracking and aggregated reporting to support the elimination program	Web-based	Production	DGHS & private facilities providing Kala-Azar treatment	Upazila Level	DGHS	2015	KALACORE Project	ICDDRB, GIZ	HISP Bangladesh	Yes	CDC
87	DHIS2 – Health system strengthening (HSS) reporting and scoring system	HSS scoring, including onsite monitoring and patient satisfaction survey anonymous case-based system	Web-based	Production	DGHS facilities	All health facilities under DGHS and supervisors	DGHS	2015	UNICEF, WHO	UNICEF	MIS-DGHS, UNICEF, HISP Bangladesh	Yes	HIS & eHealth
88	DHIS2 – Hospital inpatient HMIS system	Collect case-based hospital inpatient data	Web-based	Production	DGHS facilities	Upazila and above	DGHS	2015	GIZ	GIZ, UNICEF, HISP Bangladesh	UNICEF, HISP Bangladesh	Yes	HSM
89	DHIS2 – EmONC reporting system including fistula	EmONC including aggregated reporting of genital fistula	Web-based	Production	DGHS facilities providing MCH services	Upazila to national	DGHS	2015	GiZ, UNICEF	GIZ, UNICEF, HISP Bangladesh	MIS-DGHS, HISP Bangladesh, UNICEF	Yes	MNCAH
90	DHIS2 – IMCI reporting system including nutrition	IMCI including nutrition reporting system	Web-based	Production	DGHS facilities providing MNCAH services	Union and above	DGHS	2015	GiZ, UNICEF	GIZ, UNICFE, HISP Bangladesh	MIS-DGHS, HISP Bangladesh, UNICEF	Yes	MNCAH
91	Local Health Bulletin (integrated with HRIS)	Downloadable key performance data relating to facilities	Web-based	Production	DGHS field offices	Public-private	DGHS	2016	UNICEF	UNICEF	MIS-DGHS	Yes	HIS & eHealth
92	Antimicrobial Resistance Data Warehouse	DGHS, DGDA, CDC, IEDCR, WHO, 46 public and private medical colleges, hospitals, and diagnostics centers	Web-based	Production	DGHS, DGDA	CDC, IEDCR, all labs	Cloud	2020	International Vaccine Institute (IVI), Fleming Fund	Big Data Institute (BDI), University of Oxford	IVI-CAPTURA BD Team	No	NA
93	WHONET	Collecting and analyzing antimicrobial resistance surveillance data in the 46 public and private medical colleges, hospitals, and diagnostics centers across the country	Desktop	Production	DGHS, DGDA	Individual labs	Laboratory owns computers	2020	International Vaccine Institute (IVI), Fleming Fund	WHO Collaborating Center for Antimicrobial Resistance (WHONET Boston team)	IVI-CAPTURA BD Team	Yes	NA
94	DHIS2 – Cervical and breast cancer surveillance system	Community screening and referral system for cervical and breast cancer	Web-based	Production	DGHS, DGFP, NGOs, BSMMU	From national to the community level	DGHS	2020	UNFPA	HISP Bangladesh	MIS-DGHS, HISP Bangladesh	Yes	BSMMU

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
95	WHONET	Monitoring in 46 public and private medical colleges, hospitals, and diagnostics centers	Desktop	Production	DGHS, IEDCR	Central	NA	2020	WHO	WHO	NA	NA	NA
96	DHIS2 – COVID-19 surveillance system	COVID-19 case surveillance with sample collection and testing, secured report verification for worldwide immigration and ports	Web-based	Production	DGHS, Private Hospitals, Medical Colleges and Laboratories	Upazila and above, and all covid laboratories	DGHS	2020	UNICEF	HISP Bangladesh	MIS-DGHS, HISP Bangladesh	Yes	HIS & eHealth
97	DHIS2 – Aggregate performance reporting for midwives	Aggregated reporting	Web-based	Production	DGNM	Upazila and above	DGHS	2021	UNFPA	HISP Bangladesh	DGNM	Yes	HIS & eHealth
98	CMR module in Bangla	Clinical Management of Rape (CMR)	Web-based	Production	GNSP UNIT, HEU	All health care Providers	BCC	2019	UNFPA	UNFPA & ICT HUB	UNFPA & ICT HUB	YES	HEU
99	NGO Database in HPN Sector	GO & NGO Collaboration (health-related information)	Web-based	Production	GNSP UNIT, HEU	GNSP Unit & all NGOs	DGHS	2019	UNICEF	UNICEF	UNICEF	YES	HEU
100	SSKMS	BPL registration, admission, IPD service, health record, claim and management system of Shasthyo Shurokkha Karmasuchi (SSK)	Desktop, Web and App	Pilot	HEU	Selected hospitals, doctors, nurses, kiosk assistants, lab technicians, and SSK pharmacies	DGHS	2016	KFW, German Develop-ment Bank	Oxford Policy Management (OPM), UK & Heritage Health Knowledge Services PVT. LTD	HEU & Scheme Operator	YES	HEU
101	IEDCR AMR surveillance system	Collecting antimicrobial resistance surveillance data from 9 sentinel sites with 6 pathogens	Web-based	Production	IEDCR	IEDCR, all sentinel sites and public dashboard	DGHS	2017	WHO-GHSA	IEDCR (own development team)	IEDCR Team	No	IEDCR
102	SCMP – Product catalog	Populating product list for preparing procurement plan	Web-based	Production	MOHFW	HQ	DGHS	2010	USAID	MSH	DGHS	YES	PSSM-FP
103	HRIS – MOHFW	Central human resources information system for MOHFW	Web-based	Production	MOHFW	Field offices	DGHS	2017	DFID	Activation	MIS-DGHS	NA	HIS & eHealth
104	ADP monitoring system	Annual development plan M&E system – financial data for development fund	Web-based	Production	MOHFW	MOHFW, all OPs and projects	DGHS	NK	OP	Vendor	NK	NK	HIS & eHealth, SWPMM
105	PMMU Dashboard	OP data management and periodic report preparation	Web-based	Production	MOHFW	MOHFW, all OPs	DGHS	2021	USAID	MEASURE/ D4I/icddr,b	Icddr,b	Yes	SWPMM

Sl	Name of the system and sub-system	Purpose	Type	Status	Organization	Users	Hosting	Year started	Initial funding	Developed by	Maintained by	OSS	Lead OP/ wing
106	Surokkha app	COVID-19 vaccine reporting	Web-based	Production	MOHFW and ICT division	National	DGHS	2021	MOHFW	ICT division	ICT division, DGHS	Yes	HIS & eHealth, MNCAH
107	SCMP – Procurement tracker	Procurement tracker	Web-based	Production	MOHFW, all OPs	Central	DGHS	2011	USAID	MSH	NA	Yes	PSSM-FP
108	Asset management system for NIPORT	Inventories of all assets under NIPORT	Web-based	Production	NIPORT	HQ, field offices	Cloud	2017	USAID	MaMoni/SCI	NIPORT	Yes	TRD
109	Training management system	Management of training programs and trainees	Web-based	Production	NIPORT	HQ, field offices	Cloud	2017	USAID	MaMoni/SCI	Shukhi Jibon	Yes	TRD
110	PCB automation system	Automating pharmacist licensing, pharmacy education including university, institutes, and training centers, internal administration, and interoperability with DGDA drug license database	Web-based	Production	Pharmacy Council of Bangladesh, DGDA	PCB, DGDA HQ, licensed pharmacists, all public and private universities, institutes and 64 training centers	BCC	2019	UKAID/ FCDO/ BHB	JBRSOFT	JBRSOFT	No	PCB
111	ADP monitoring system (new)	To maintain and track ADP financial and physical progress of MOHFW of HPNSP	Web-based	Production	Planning Wing, MOHFW	All LDs and development projects	DGHS	2021	FCDO	BHB	SWPMM	Yes	SWPMM
112	QuanTB	Forecasting tool for TB drugs and laboratory supplies	Desktop	Production	Preventive and Social Medicine	National	NA	2014	USAID	MSH	NT	Yes	TBL&ASP
113	Self-service COVID-19 test result reporting system	COVID-19 test (case-based) result self-service, secured report verification for worldwide immigration and ports	Web-based	Production	Public use though OTP	Publicly available	DGHS	2020	UNICEF	HISP Bangladesh, D4H	MIS-DGHS, HISP Bangladesh	Yes	HIS & eHealth
114	DHIS2 – TB aggregated reporting	Aggregated routine TB case reporting (using forms 10, 11, 12)	Web-based	Production	TB hospitals and DOT centers (private and public)	Upazila and above	DGHS	2016	USAID, DFID	HISP Bangladesh	HISP Bangladesh, MSH, TB Control Program	Yes	TBL&ASP
Total	**114**	**114**	**114**		**114**	**114**	**114**	**114**	**114**	**114**	**114**	**114**	**114**

Note: A list of acronyms is provided in Appendix D.

Appendix B. Data Definitions

Item	Explanation
Name of the system	Name of the system and subsystem, if applicable. Shortened in some cases for brevity.
Purpose	Purpose of the app (in brief).
Status	The status of implementation (categorized as pilot or production).
Type	Category in terms of operating environment: Desktop application (Windows), web-based application, or app (Android).
Organization	Name of organization using the tool.
User	Central, local, or community. Central are at headquarters, local are at districts/subdistricts, and community are those users at the rural community level.
Hosted in	The location of the database.
Year started	The date of initiation, if available.
Initial funding	Operational plan (OP), or the name of the development partner (DP) who provided the initial funding for development of tools. If OP is listed, it means an operational plan of the 4th Health, Population and Nutrition Sector Program (HPNSP).
Developed by	The name of the developer(s) (organization).
Maintained by	The name of the organization responsible for maintenance of the system (including third parties).
OSS	Whether the system is open-source or not.
Lead OP/Wing	Name of the OP of the 4th HPNSP or the name of the organization under MOHFW (or an unit of such organization)—please see Appendix E for a list of Ops.

Note: NA means “not available,” while NK is used for “not known.”

Appendix C. Classification of Tools Per WHO Digital Health Interventions

1.0 CLIENTS

1. COVID-19BD
2. Grievance Redressal System (GRS)
3. HRIS – Bulk SMS-based system
4. Self-service COVID19 test result reporting system

2.0 HEALTHCARE PROVIDERS

1. CMR module in Bangla
2. COVID-19 test certificate validation and verification
3. DHIS2 – Adolescent health service reporting
4. DHIS2 – Adverse Drug Reaction Reporting – COVID-19 AEFI reporting system
5. DHIS2 – AEFI and VPD surveillance system
6. DHIS2 – Aggregate performance reporting
7. DHIS2 – Cervical and breast cancer surveillance system
8. DHIS2 – CHCP community tracker
9. DHIS2 – COVID-19 surveillance system
10. DHIS2 – DGFP (FP DHIS2)
11. DHIS2 – EmONC reporting system, including fistula
12. DHIS2 – HMIS System for FDMN (both aggregated reporting and EPI tracker)
13. DHIS2 – Hospital inpatient HMIS system
14. DHIS2 – IMCI reporting system, including nutrition
15. DHIS2 – KMC (Kangaroo Mother Care) program reporting
16. DHIS2 – Malaria aggregate reporting system
17. DHIS2 – Maternal and Perinatal Death Screening and Review
18. DHIS2 – Maternal, child and general patient reporting system
19. DHIS2 – Mortality (causes of death) reporting and notification
20. DHIS2 – Mukto
21. DHIS2 – NASP reporting system, including PLHIV & PMTCT
22. DHIS2 – NCD trackers
23. DHIS2 – Reporting system for Kala-Azar elimination program
24. DHIS2 – Routine leprosy case and logistics reporting
25. DHIS2 – SCANU/NSU reporting system
26. DHIS2 – TB aggregated reporting
27. DHIS2 – URBAN HMIS System
28. DHIS2 – Gender-based violence reporting
29. DHIS2 – Immunization registry (e-Tracker)
30. eLearning platform for IEM
31. eLearning portal for pharmacists and Good Pharmacy Practice
32. eLearning site for DGFP
33. eMIS – EPI session microplanning system
34. eMIS – Facility Systems eRegister
35. eMIS – FPI eSupervision System
36. eMIS – FWA eRegister
37. eMIS – HA eRegister
38. eMIS – HI eRegister
39. eMIS – Health and Family Planning ID printing system
40. eTB Manager
41. GxAlert
42. IEDCR AMR surveillance system
43. Janao
44. NCD – eMIS
45. OpenMRS+
46. OpenSRP – PRIMA (integrated with SHR)
47. Service Statistics (SS)
48. Shasthyo Batain 16263: Health Call Center
49. SHR– DGHS client (patient registry)
50. Sukhi Poribar (16767)
51. Surokkha app
52. Telemedicine (CISCO/DHIS2/HRIS)
53. Training management system
54. Video conferencing system

3.0 HEALTH SYSTEM MANAGERS

1. ADP monitoring system
2. ADP monitoring system (new)
3. Asset Management System for NIPORT
4. DGDA registered drug database
5. DHIS2 – Aggregate performance reporting for midwives
6. DHIS2 – COVID-19 vaccine reporting and vaccine logistics
7. DHIS2 – DGHS eLMIS
8. DHIS2 – Health Assistant's activity report
9. DHIS2 – Health System Strengthening reporting and scoring system
10. DHIS2 – Routine vaccine reporting, and vaccine logistics
11. Drug license automation and renewal system
12. eMIS – AHI eRegister
13. eMIS – Community dashboard
14. eMIS – Facility dashboard
15. eMIS – Provider and catchment area management
16. eMIS – UFPO eManagement system
17. eMIS – UHFPO eManagement system
18. eMIS – Support ticket system
19. HRIS – Biometric attendance system
20. HRIS – DGHS support ticket
21. HRIS – Geolocation registry
22. HRIS – Health facility registry
23. HRIS – Health provider registry
24. HRIS – MOHFW
25. HRIS – User management system
26. MHV app (CHCP community tracker)
27. NGO Database in HPN Sector
28. PAMS
29. PCB automation system
30. Pharmacy management system (PMS)
31. Pharmadex
32. Private hospital registration and licensing system
33. QuanTB
34. SCMP – Equipment tracker
35. SCMP – Procurement tracker
36. SCMP – Product catalog
37. SCMP – WMIS
38. SCMP – UMIS
39. SCMP – eLMIS
40. SSKMS
41. TB – WIMS
42. WHONET
43. HRIS – Training management system
44. HRIS – Online application system
45. ACR management system
46. Online appointment system
47. Photo archiving system

4.0 DATA SERVICES

1. Antimicrobial Resistance Data Warehouse
2. HRIS – Media monitoring system
3. Local Health Bulletin (integrated with HRIS)
4. National public COVID-19 portal of DGHS
5. Online pharmacy newsletter distribution system
6. Online survey platform for pharmacists
7. PMMU dashboard
8. Public health dashboard
9. WHONET – AMR reporting

Appendix D. List of Acronyms

BCC	Bangladesh Computer Council
BSMMU	Bangabandhu Sheikh Mujib Medical University
CCHST	Community Clinic Health Support Trust
DFID	Department for International Development
DGDA	Directorate General of Drug Administration
DGFP	Directorate General of Family Planning
DGHS	Directorate General of Health Services
eMIS	Electronic Management Information System
EPI	Extended Program for Immunization
FCDO	Foreign, Commonwealth & Development Office
HEU	Health Economics Unit
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IEDCR	Institute of Epidemiological Disease and Research
MOHFW	Ministry of Health and Family Welfare
NASP	National Aids/STD Program (under DGHS)
NIPORT	National Institute of Population Research and Training
RDM	Research for Decision-Makers
SCI	Save the Children
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Appendix E. List of Operational Plans (OPs) of the 4th HPNSP

Sl. No.	Name of OPs
1	Human Resource Development (HRD)
2	Physical Facilities Development (PFD)
3	Improvement Financial Management (IFM)
4	Sector-wide Program Management and Monitoring (SWPMM)
5	Health Economics and Financing (HEF/HEU)
6	Maternal, Neonatal, Child and Adolescent Health (MNCAH)
7	Community Based Health Care (CBHC)
8	Tuberculosis Leprosy and AIDS/STD Program (TB-L&ASP)
9	Communicable Diseases Control (CDC)
10	Non-Communicable Disease Control (NCDC)
11	National Eye Care (NEC)
12	Hospital Services Management (HSM)
13	Alternate Medical Care (AMC)
14	Planning, Monitoring & Research (PMR)
15	Health Information Systems & E-Health (HIS & e-HEALTH)
16	Lifestyle Health Education & Promotion (L&HEP)
17	Procurement, Storage and Supplies Management-HS (PSSM-HS/CMSD)
18	National Nutrition Services (NNS)
19	Strengthening of Drug Administration and Management (SDAM)
20	Maternal, Child, Reproductive & Adolescent Health (MCRAH)
21	Clinical Contraception Services Delivery (CCSD)
22	Family Planning Field Services Delivery (FPFSD)
23	Planning, Monitoring & Evaluation of Family Planning (PME-FP)
24	Management Information System (MIS)
25	Information, Education & Communication (IEC)
26	Procurement, Storage & Supplies Management (PSSM-FP)
27	Medical Education and Health Manpower Development (ME&HMD)
28	Training, Research and Development (TRD-NIPORT)
29	Nursing and Midwifery Education & Services (NMES)

For more information

D4I supports countries to realize the power of data as actionable evidence that can improve programs, policies, and—ultimately—health outcomes. We strengthen the technical and organizational capacity of local partners to collect, analyze, and use data to support their move to self-reliance. For more information, visit https://www.data4impactproject.org/

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