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HRH2030
HUMAN RESOURCES FOR HEALTH IN 2030

FINAL REPORT | OCTOBER 2021

Human Resources for Health in 2030 in Indonesia

ACKNOWLEDGMENTS

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October 2021

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ACTIVITY DETAILS

IMPLEMENTING PARTNERS
Chemonics International, Palladium

IMPLEMENTATION PERIOD
January 2018 - August 2021

AWARD NUMBER
AID-OAA-A-15-00046

TOTAL ESTIMATED INVESTMENT
US$2,100,000 in USAID Indonesia MNH investment + US$100,786 in USAID Washington Investment

ACRONYMS

API	Application Program Interface
BHC	Building Health Cities Project
BPPSDMK	*Badan Pengenbangam dan Pemberdayaan Sumber Daya Manusia Kesehatan* (Health Board of Human Resources for Health Empowerment and Development)
CISDI	Center for Indonesia's Strategic Development Initiatives
DATIN	Data and Information Sub-Division (of the BPPSDMK)
DHIS2	District Health Information Software 2
DHO	District Health Office
DPMPTSP	*Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu* (District Licensure Office)
DTO	Digital Transformation Officer
FHIR	Fast Healthcare Interoperability Resource
FY	Fiscal Year
GOI	Government of Indonesia
HRH	Human Resources for Health
HRH2030	Human Resources for Health in 2030
HRIS	Human Resources Information System
IBI	*Ikatan Bidan Indonesia* (Indonesian Midwives Association)
KTKI	*Konsil Tenaga Kesehatan Indonesia* (Health Workforce Council of Indonesia)
MOU	Memorandum of understanding
MOH	Ministry of Health
M-SISDMK	*Mobile System Informatasi SDM Kesehatan*
NHWA	National Health Workforce Accounts
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PHO	Provincial Health Office
PI	Program and Information Unit (Of the BPPSDMK)
PUSRENGUN	*Pusat Perencanaan dan Pendayagunaan SDM Kesehatan* (Center for HRH Utilization and Planning of the BPPSDMK)
PUSDATIN	*Pusat Data dan Informasi* (Center for Data and Information)
SI-SDMK	*System Informatasi SDM Kesehatan* (Human Resources for Health Information System)
SOP	Standard operating procedure
TNP2K	*Tim Nasional Percepatan Penanggulangan Kemiskinan* (National Team for the Acceleration of Poverty Reduction)
TWG	Technical working group
USAID	United States Agency for International Development
WHO	World Health Organization

OVERVIEW AND EXECUTIVE SUMMARY

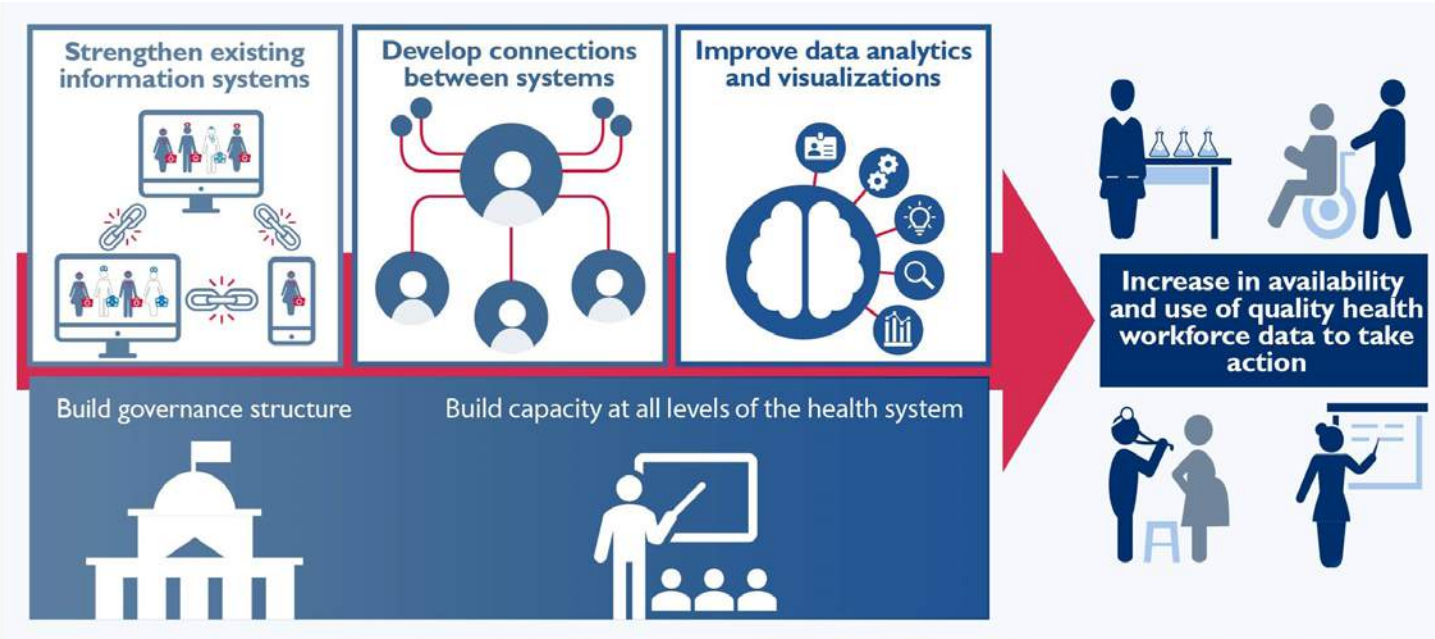
Indonesia's 1.9 million health workers provide services to a country of more than 273 million people, spread out over an archipelago of 17,000+ islands, working in almost 100,000 health facilities—hospitals, health centers, and clinics. The country has some of the highest rates of preventable maternal and neonatal deaths in the Asia Pacific region, an issue that is directly linked to its underlying health workforce challenges—urban-rural maldistribution of health workers; gaps in skill mix of health graduates which leave a workforce unable to meet the population's needs; inadequate regulation of health professional education and health service quality; and, until recently, a fragmented ecosystem of human resources for health information platforms with disparate stakeholders that inhibited evidence-informed decision-making.

Human resources for health (HRH) are the backbone of the health system, providing essential health services in rural, remote, and underserved communities as well as responding to health emergencies and crises. Indonesia has demonstrated its commitment to improving the health workforce through a focus on health workforce strengthening in the mid-term national development plan, the National HRH Strategic Plan, and the signing of key health workforce World Health Assembly Resolutions related to strengthening health workforce data and evidence. Particularly in this time of COVID-19, when Indonesia is managing pandemic response efforts, HRH data is critical to maintain essential health services and to plan for future, post-pandemic scenarios. Complete, accurate, and up-to-date data on the number, production, and budget allocation of health workers are key to increase the availability, accessibility, acceptability, and quality of HRH, as well as to develop effective, evidence-based HRH policies and strategies for these health systems challenges. To ensure the availability of quality health workforce data, the Government of Indonesia (GOI) has committed to building integrated electronic information systems through presidential decrees on "One Data" and governance for electronic platforms. These commitments from the GOI and Ministry of Health (MOH) have provided an enabling environment for strengthening health workforce information systems and building a culture of data use to address health workforce challenges to both respond to COVID-19 and maintain essential services.

Program Purpose

As a strategic development partner to the GOI and the MOH, the United States Agency for International Development (USAID) supports Indonesia's goals for improving maternal newborn health outcomes. The Human Resources for Health in 2030 (HRH2030) Indonesia program, funded by USAID Indonesia, offered a strategic and comprehensive plan to improve health outcomes by strengthening the management and optimization of the health workforce through the enhanced availability and use of quality HRH data. Implemented by Chemonics International, the prime recipient of the global HRH2030 program, in partnership with subrecipient consortium partner Palladium, from January 2018 to August 2021, HRH2030 Indonesia provided technical assistance to the MOH, its government partners, and international stakeholders.

Figure 1: HRH2030 Indonesia's Approach to Ensuring Quality Health Workforce Data



HRH2030 Indonesia supported the MOH's Board of Human Resources for Health Empowerment and Development (BPPSDMK) to enhance its strategic use of health workforce data through improving the functionality and capacity of health workforce information systems and building a culture of HRH data use at all levels of the health system. Figure 1, on the previous page, illustrates HRH2030's approach. By strengthening existing information systems, building connections between these systems, and improving data analysis at the national and regional levels, HRH2030 Indonesia enabled decision makers to make data-driven decisions that support the health workforce. In addition, HRH2030 Indonesia and the BPPSDMK worked together to empower health workers to take ownership of their data themselves, through the development of a mobile application connected to the national human resource information system (SDMK).

HRH2030 Indonesia's approach focused on working hand in hand with the BPPSDMK to design, implement and institutionalize these initiatives. HRH2030 Indonesia ensured that the BPPSDMK had the tools needed to lead the management of health workforce data and lead the engagement of stakeholders from across the health labor market to share and use health workforce data. This approach was also replicated at the regional level, where HRH2030 Indonesia mentored the BPPSDMK to carry forward initiatives in data use and integration at the sub national level in Cirebon, Jakarta, Makassar, Maros, and Pekalongan.

Key Achievements

HRH2030 has strengthened the overall health workforce information ecosystem to provide real-time data for strategic decision-making and built a culture of data use among seven agencies at the national level and 16 additional agencies. As a result, the BPPSDMK and other key stakeholders that have supported or contributed to strengthening the overall health system are now able to manage, analyze, and make data-based decisions to optimize the health workforce for improved health outcomes. The tools and skills fostered by HRH2030 enabled Indonesia's health system leaders and managers to realize the objectives in their national health workforce plans and priority policies and respond rapidly to major shocks to the health system such as the COVID-19 pandemic.

At the program's conclusion, HRH2030 Indonesia's key achievements are:

A health workforce information ecosystem is now in place, facilitating the exchange of data from across the health labor market for collaborative decision-making and action. When HRH2030 began working with the BPPSDMK, the existing, fragmented systems of human resources for health information platforms inhibited evidence-informed decision-making; the country relied (and continues to rely) on a vast network of health workforce stakeholders, all of which managed their own siloed information systems. So, while Indonesia was rich in health workforce data, it was substandard in information, and lacked collaborative decision-making on health workforce issues. HRH2030 worked with the BPPSDMK to bring this network of stakeholders into a cohesive ecosystem that extends across the health labor market at the national and regional level.

To set the vision for this ecosystem, HRH2030 and the BPPSDMK led the development and implementation of the first ever HRIS Ecosystem Roadmap, a guide for the BPPSDMK in targeting investments and activities in information systems. To ensure the proper digital infrastructure was in place to achieve this vision, HRH2030 created and tested the interoperability architecture—the mechanisms for connecting different systems—for the exchange of individual health workforce data with the country's human resource information system (HRIS), known as SI-SDMK, with other systems, ultimately resulting in the exchange of data between SI-SDMK and five national and six regional level information systems, thus improving the completeness and accuracy of individual level health workforce data.

In addition, to supporting the sharing of aggregate data on the health workforce, HRH2030 and the BPPSDMK created an HRH Data Warehouse, a central repository that houses the multi-sectoral aggregate health worker data, which is now being used by more than 4,000 stakeholders in 16 provincial and district health offices. Data is now exchanged between the Data Warehouse and eight subnational information systems in five provincial and district health offices.

To solidify the commitment of stakeholders to this vision, the BPPSDMK, 15 professional organizations, and several other national and regional level stakeholders signed memorandums of understanding to establish the legal agreement and mandate for these stakeholders to share data to collaboratively respond to health workforce issues.

With this timely, quality data infrastructure in place, underpinned by legal mandates, the BPPSDMK is now leading a collaborative and evidence-based decision-making process to support the health workforce.

"The Data and Information Team at the BPPSDMK has succeeded in developing important dashboards containing analysis such as the distribution of personnel at COVID-19 Referral Hospitals. These dashboards are readily available on the BPPSDMK website, improving transparency of data for use by leaders and the public."

— Dr. Mawari Edy, Head of BPP SDMK PI Unit, Indonesia Ministry of Health

The MOH was able to rapidly act at the onset of the COVID-19 pandemic. By late 2019, with HRH2030's support, the users of SI-SDMK and other key players in the health system were trained to develop data visualizations that translated data into evidence-based, actionable information and provided real-time answers to pressing health workforce questions. When the COVID-19 pandemic began just a few months later, more data and information were needed to ensure a strategic, evidence-based response.

To that end, HRH2030 led the BPPSDMK in rapidly developing a training for staff on real time dashboards for COVID-19 response planning. Within two weeks, HRH2030 and the BPPSDMK were able to begin data integration to develop dashboards using the HRH Data Analytics Platform and training of users, including the integration of 12 different data sets and dashboards, used by 509 persons at the national and regional level. These dashboards were used to monitor current and projected workload, existing health workforce, health workforce incentives, volunteers and supplies. Overall, these efforts contributed to the redeployment of 116 health workers in Jakarta Province for COVID-19 response, the recruitment and deployment of over 14,000 volunteers for COVID-19 response, and incentive payments for 399,562 health workers. By leveraging the investments supported by HRH2030 in building data analytics capacity, what would normally have taken months of costly development time only took a matter of a few weeks.

With increased confidence in the SI-SDMK, the Government of Indonesia is using the system as the main source of health worker data for COVID-19 vaccine planning. Indonesia's rapid, data-driven response at the onset of the COVID-19 crisis has evolved into a longer-term, sustained response that continues to rely on the availability of quality, timely data for decisions related to the health workforce. While SI-SDMK was used for several years prior to HRH2030, there were many issues that limited its use at the national and regional levels. As a result of the investments made by HRH2030 and the BPPSDMK in improving the functionality and capacity of the system, which included integration of historical data as well as improving internal data quality assurance mechanisms, the quality of data for all human resources for health professionals (a total of approximately two million people) has been improved. These improvements in data quality have led to increased confidence in the system, which was clear when local government officials mandated the use of SI-SDMK data for planning health workers' COVID-19 vaccinations. To date, more than 1.4 million health workers have been vaccinated and the use of SI-SDMK at all levels of the health system has increased due to improved confidence and renewed understanding of its importance.

Health workers in Indonesia can now take ownership of their professional data through the mobile application M-SISDMK. Maintaining quality data is a continuous process. To truly ensure sustained improvements in data quality, HRH2030 and the BPPSDMK developed the first ever mobile application for use by health workers to manage their SI-SDMK profile. All health workers in SI-SDMK now have access to the mobile app, M-SISDMK, and can review their profiles, submit changes such as contact information, training or education background, licensure, or employment status, and receive communications from the MOH directly on their smart phone via the application. To ensure sustainability M-SISDMK was built and operates on BPPSDMK's local server and maintenance costs are included in their regular operations budget. Officially launched in June 2020, the application had more than 19,000 users in 14 regions throughout Indonesia in its first full month. With access to the system now in their pockets, health workers are empowered to manage their own data, ultimately improving not only the quality of the data, but engaging them in management of their own career growth.

Health workers familiarize themselves with the mobile app, M-SISDMK.

The MOH's leadership, management, and organizational capacity has been strengthened, with the BPPSDMK leading the way in implementing digital health innovations that provide decision-makers and health workers with the data they need. In the GOI's health system structure, directorates like the BPPSDMK typically support national level initiatives, providing technical assistance to the regional/provincial levels only as requested. Prior to HRH2030, BPPSDMK team members that oversaw the SI-SDMK would travel to the regions solely to update SI-SDMK data. The SI-SDMK enhancements supported by HRH2030 decreased the need for technical assistance in this area, allowing the BPPSDMK to focus on improving data integration between health workforce information systems at the regional level and, even more important, increase their capacity for data analysis and use.

Today, the BPPSDMK team provides technical assistance to the regional levels in ways that continue to expand the types of data within the national system, for example, orienting the regional teams on data integration mechanisms to connect the local licensure system with SI-SDMK, or local government information systems with the national system. During the last year of HRH2030, provincial health offices saw a 29% increase in the use of data for decision-making. Decision-makers at all levels of the health systems are now able to use the national human resource information system, SI-SDMK, to make evidence-based decisions related to deployment, recruitment, vaccinations, and health workers' incentive payments.

USAID recognized the program's work with the 2020 Digital Development Award. To recognize the efforts of USAID's missions, bureaus, and implementing partners to leverage digital tools and technology and support the programmatic goals of USAID-funded activities, USAID's Global Development Lab created the Awards for Digital Development ("the Digis"). These awards celebrate USAID-funded projects that use technology to sustain open, secure, and inclusive digital ecosystems and measurably improve development and humanitarian-assistance outcomes on a large scale. In 2020, HRH2030 and USAID Indonesia were recognized for their efforts to strengthen human resources for health by providing real-time quality data for strategic use, while also supporting the development of policies that address challenges in the health workforce and contributing to better public health policies. See the full story on page 6.

HRH2030's Legacy

From its inception, HRH2030 Indonesia's vision was to implement strategies and approaches that would support the BPPSDMK's priorities, giving them actionable data to improve health outcomes through an optimized health workforce. The commitment of the government of Indonesia, including the BPPSDMK as well as other national level and subnational stakeholders, to developing a strong human resources for health data ecosystem has proven successful, with early investments made prior to the COVID-19 pandemic that paved the way for rapid action at the onset of the crisis. The BPPSDMK and local government health leaders have the systems, data, and skills to respond quickly and adapt in the face of evolving conditions such as the advent of vaccines and the surge in cases towards the end of the project. However, even before the pandemic, the early results of the HRH2030-supported and the BPPSDMK-led work resulted in an increase in the national budget for all MOH initiatives related to data analysis and visualization. 2019 saw a record 105% increase in national budget funds for the BPPSDMK Program and Information (PI) Unit. While the national budget for the BPPSDMK PI Unit decreased by 19% between 2019 and 2020 due to government wide budget cuts to promote efficiency, overall, there has been a net 67% increase for improving HRH data use from 2018 to 2020 demonstrating consistent investment and commitment by the BPPSDMK to data analysis and visualization initiatives.

The increased awareness of health workers' contributions to the well-being of the country, elevated during the COVID-19 pandemic, has resulted in a greater understanding of the need to better protect, invest in, and motivate the health

workforce beyond this immediate crisis. As a result, the Ministry of Planning is preparing to announce a special presidential decree on the importance of the health workforce in 2022. HRH2030 Indonesia leaves behind committed, motivated teams throughout the BPPSDMK and its partners in the health system, who are well prepared with the data and skills necessary to support a high-performing health workforce.

This final report highlights HRH2030 Indonesia's achievements. The following sections describe the key achievements in greater detail, followed by program challenges, and conclusions and the way forward. Annex I presents HRH2030 Indonesia's Performance Indicators over the life of the program.

ACCOLADES:

Receiving the USAID 2020 Award for Digital Development

In October 2020, USAID Indonesia and HRH2030 Indonesia were recognized with the USAID Digital Development Award, given to USAID missions, bureaus, and implementing partners that leverage digital tools and technology to support USAID-funded projects' programmatic goals.

In announcing the award winners, USAID cited USAID Indonesia and HRH2030 for "strengthening the information system for human resources for health in Indonesia and its ecosystem to provide real-time quality data for strategic use, while also supporting the development of policies that address challenges in the health workforce and contributing to better public health outcomes overall."

HRH2030 Indonesia Project Lead Leah McManus, learning of the USAID accolades for the project's work, noted that while health workforce data is a critical component of a high-performing health system, HRH2030's initiatives in Indonesia assumed an even greater importance once the pandemic began.

"Health workers are on the front lines, being asked to protect us during this health emergency while also providing continued access to essential services, such as maternal and child health services," said Ms. McManus. "HRH2030 has been working hand in hand with the MOH's HRH Directorate and USAID Indonesia over the last three years to develop a digital ecosystem of health workforce stakeholders and systems to improve the availability and quality of data for use by decision makers at all levels of the health system."

The award ceremony took place in April 2021, in a virtual ceremony due to the COVID-19 pandemic. In accepting the award on behalf of HRH2030 Indonesia's implementing partners leading the work, Chemonics International and Palladium, Chemonics' Taufiq Sitompul, the ICT advisor for HRH2030, said, "We are honored to receive a 2020 Digital Development Award for this truly collaborative effort, with the Ministry in the driver's seat. This award recognizes our collective commitment and dedication to Indonesia's health workforce, and USAID's recognition of the importance of digital innovations for the health workforce globally as important drivers of the health system. We look forward to continuing to support the MOH in their continued efforts to use digital health innovations and empower health workers and decision-makers with the data they need to take action."

USAID's U.S. Global Development Lab received more than 140 applications from around the world for the 2020 competition. Applications were judged on each project's ability to support the digital ecosystem or the development of digital technology, based on USAID's Digital Strategy. HRH2030 was one of five winners, and the only health project recognized with an award.

Top photo: Health workers working with SI-SDMK dashboards. Bottom photo: HRH2030's technical team with the Digi Award. Credit: HRH2030 Indonesia

HIGHLIGHTS OF ACHIEVEMENTS

Institutionalized the HRIS for HRH Decision-Making

Complete, accurate, and current data on the number, distribution, and budget allocation of the health workforce are key to a high-performing health system. When HRH2030 began working with the MOH and the BPPSDMK in January 2018, the existing, fragmented human resources for health information systems didn't present a complete or accurate picture of the health workforce. By focusing on integrating information streams from many disparate systems into a single business intelligence platform with comprehensive data analytics dashboards, HRH2030 enabled the BPPDSMK to improve HRH planning, management, and optimization of the health workforce. Initial results from the development of these dashboards, demonstrated at a high-level meeting of the MOH, allowed the BPPSDMK to receive an increase in the national budget to further support scaling up data analysis and visualization tools. The newly launched platform was then put to the test with the arrival of the COVID-19 epidemic in Indonesia in early 2020, when HRH planning became essential to optimizing the workforce. HRH data, combined with data on epidemiological trends and demographics, helped to forecast the demand for COVID-19 services, as well as the health workforce needed to mount an effective response.

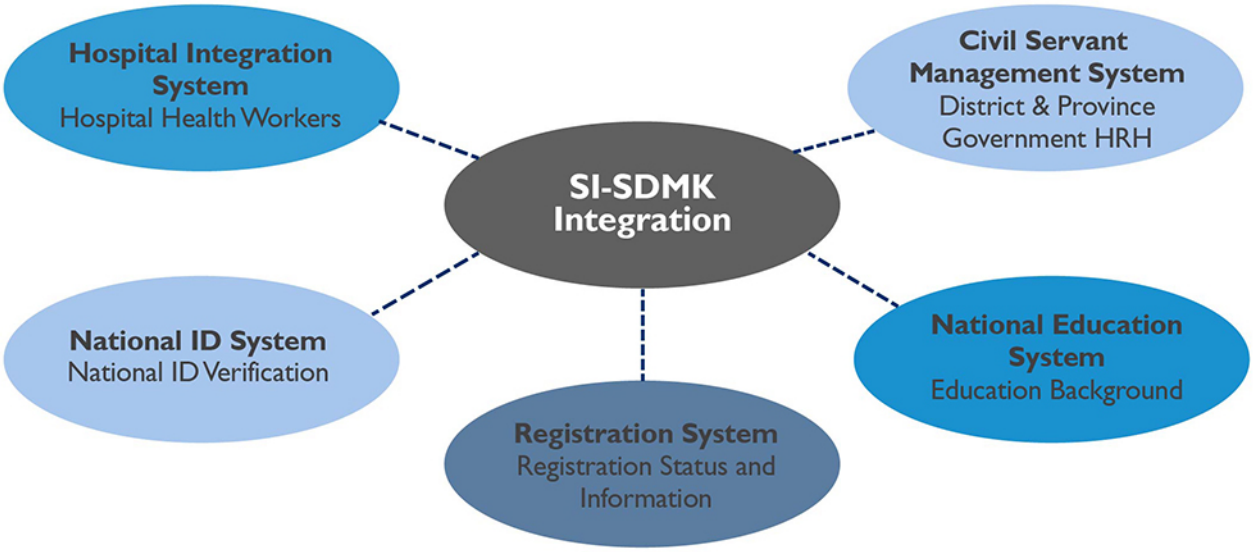
Evidence-Based Planning for COVID-19 Response

At the onset of the COVID-19 pandemic, HRH2030 supported the BPPSDMK to develop and maintain public facing and non-public dashboards for both the COVID-19 response and the continued provision of essential health services. Building on the existing data set from SI-SDMK and the HRH Data Warehouse and interoperability architecture, data from five different information systems was integrated through use of web application program interface into SI-SDMK to facilitate data exchange (as shown in Figure 2 below), resulting in the development of a central HRH COVID-19 dashboard as well as internal dashboards for use by high level officials from the Ministry of Health and the National COVID-19 Task Force.

The dashboards provided various types of analysis, such as ranking provinces on trends in COVID-19 cases (increasing/decreasing) as compared to the available health workforce, to support planning to redeployment as needed; tracking the impact of COVID-19 on the availability of the health workforce (i.e., health worker COVID-19 deaths and infections); and ongoing analysis of the health workforce incentive program, both for routine status updates and to identify any issues that might be occurring that could affect health worker motivation. All dashboards were collaboratively designed and developed by the BPPSDMK, with capacity building to develop dashboards reinforced through technical trainings supported by HRH2030.

In 2020, the National COVID-19 Task Force used SI-SDMK as the basis for the development of an HRH Decree to inform the COVID-19 response. The new decree proposed guidelines for the number of health workers eligible for incentives, identifying and meeting health workforce and PPE needs at COVID-19 hospitals, and recruiting for COVID-19 contact tracing teams. Stakeholders noted that the new functionality of the SI-SDMK made it easier for them to communicate health workforce needs to leadership for COVID-19 planning and allow for a

Figure 2. Five Different Information Systems Were Integrated with SI-SDMK at the National Level to Facilitate Data Exchange and HRH Planning, Including the Following Data Points:



rapid understanding of number of health workers that are registered with licenses. In total, 12 datasets were included in the HRH Data Warehouse, facilitating the development of 12 dashboards being used by more than 500 stakeholders in the health system to inform the COVID-19 response, as seen in Figure 3.

Today, use of these dashboards have been institutionalized by the MOH, BPPSDMK, PHOs, and the National COVID-19 Task Force, and contribute to the evidence base being used to guide COVID-19 response planning and action. For examples of the dashboards in action, see the story Harnessing Health Worker Data in Indonesia, on page 12.

Supporting Health Workers during COVID-19 through Use of National-Level Data

The pandemic provided HRH2030 and the BPPSDMK with two important opportunities to demonstrate how the health workforce information ecosystem could be leveraged for decision-making at the national level. First, HRH2030 developed dashboards for tracking the health worker incentive program using the health workforce data analytics platform and HRH Data Warehouse. Dashboards were developed to highlight both the progress of liquidation (incentive disbursement) and inform decisions around the disbursement of funds for future rounds. Through HRH's support, the BPPSDMK was able to conduct additional analyses as needed and provide regular updates on incentive distribution and liquidation progress in high level multisectoral forums.

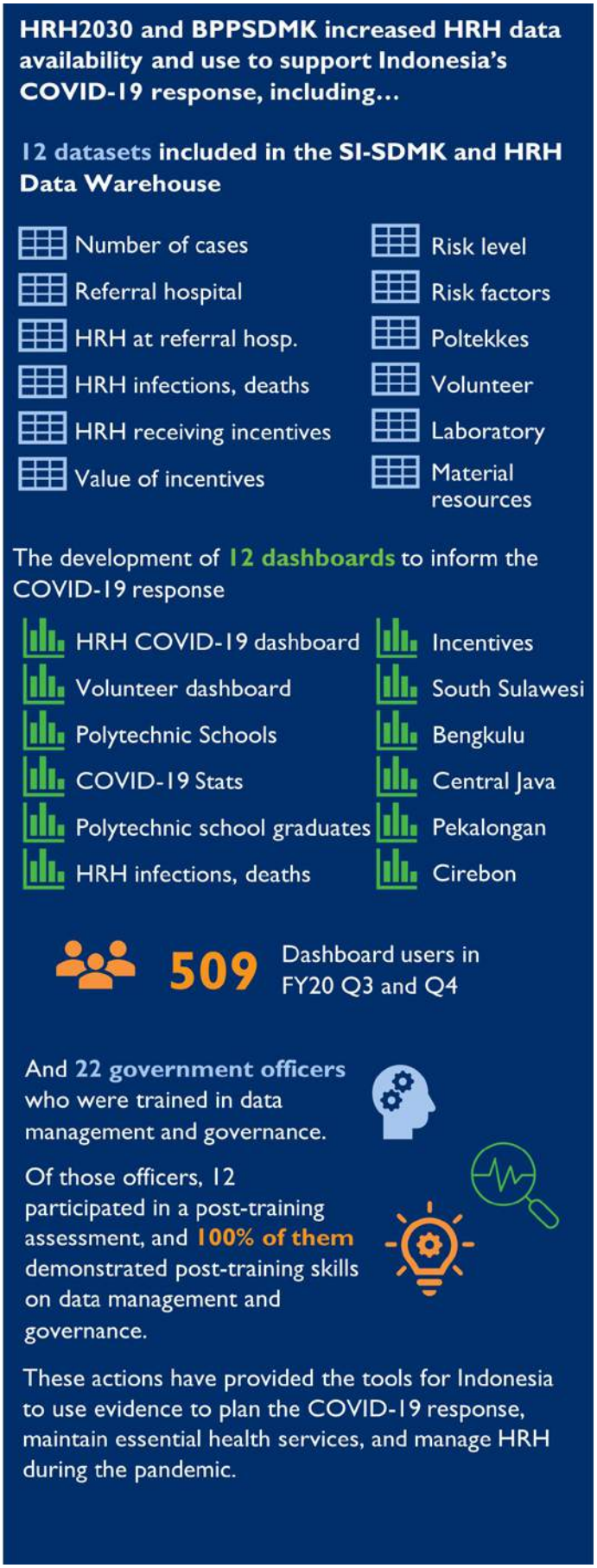
Second, to advance COVID-19 vaccine distribution efforts, HRH2030 supported the development of tools to extract specific data in the HRH Data Warehouse for analysis, and to ascertain health worker gender, age group, and status by facility and district. This data was used for planning the health worker vaccine rollout. Currently, more than 1.4 million health workers have been vaccinated; SI-SDMK was the main source of data for this campaign.

Building a Culture of Data Use at the Subnational Level for COVID-19 Response

Since stakeholders at the local government level are closest to the data and best positioned to act in real time to manage and optimize the health workforce, HRH2030 worked closely with the BPPSDMK to develop a series of virtual trainings to build the capacity of stakeholders to operationalize data.

Per key findings from an assessment of data use among leaders and data officers throughout Indonesia, the trainings focused primarily on addressing HRH issues related to managing the health workforce, while

Figure 3. Overview of COVID-19 Datasets, Dashboards, and Training Developed with HRH2030 Support



"HRH2030 supports Cirebon City with data visualization, which is used for stakeholder analysis related to mapping, planning, and improving the competencies of the health workforce."

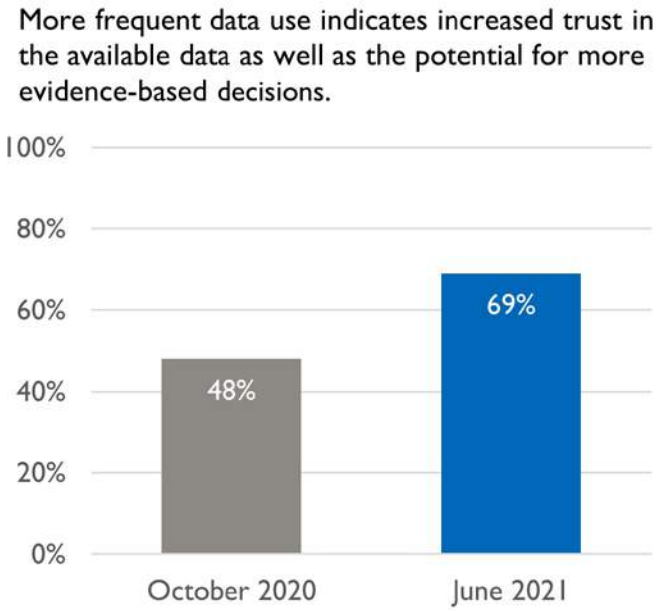
— Vita Amanda, Cirebon City District Health Office Data Officer, West Java, Indonesia

also helping data officers to strengthen their skills in the technical integration of information systems, data analysis, and building dashboards for COVID-19 response in Makassar, West Java, Pekalongan, and Maros.

In addition, HRH2030 Indonesia and the BPPSDMK DATIN team conducted a training series to build the skills of data managers to use data to tell stories and inform decision-making and planning. Thirty six participants from PHO, DHO, hospitals and *Puskesmas* in Jakarta, Cirebon, Pekalongan, Makassar, and Maros came together in three separate sessions to produce data use action plans for priority HRH issues in their respective PHO/DHO.

The trainings were well attended, with representation from the DHO, PHO, hospitals, and *Puskesmas*, demonstrating engagement and commitment to skill-building at all levels of the health system. At the end of the project year, respondents in the data use assessment of HRH2030-supported PHOs/DHOs reported an 21% increase in frequency of use of data and an overall increase in confidence in a range of data operation functions, including being able to the identify, map, integrate, analyze, and visualize the data, as shown in Figure 4 at right.

Figure 4. The Percent of HRH2030-Supported PHOs and DHOs Who Use Data at Least Once a Week Has Grown 21% after HRH2030 Support



Source: Data use assessment of HRH2030-supported PHOs and DHOs. 2020 n = 48, 2021 n = 13.

Publicly available health dashboard.

Table 1: Highlights of how PHOs and DHOs used SI-SDMK data to support COVID-19 actions

Type of Action	DHO/PHO Activity
HRH Planning	In Jakarta, the regional planning agency used data from SI-SDMK to support the vaccination of over 120,000 health workers and the recruitment of 1,478 volunteers to support health services.
Health Worker Incentives	After the HRH trainings, the city of Cirebon used data to plan the distribution of their health workers and calculate appropriate incentives for those participating in vaccination campaigns.
Health Worker Distribution and Staffing	In Pekalongan, SI-SDMK data was used to ensure that the correct mix and number of skilled health workers were available to manage COVID-19 cases in health facilities as well as community testing and vaccination sites.
Health Worker Vaccination Campaigns	SI-SDMK data was used in Makassar to identify the number of health workers at both the facility and city level and cross-referenced with data from other sources to ensure accurate planning for the vaccination of more than 23,000 health workers supporting the COVID-19 response.

The impact of these trainings can also be seen in the rapid mobilization of PHOs and DHOs using SI-SDMK data to support a range of COVID-19 response actions across the country (please see Table 1 above for examples).

By strengthening the ecosystem of health workforce information systems and building a culture of data use at the local level through targeted trainings, stakeholders are better equipped to use the data to make informed decisions about the health workforce. The approach used by HRH2030 and the BPPSDMK throughout the project will continue to be replicated by the BPPSDMK in their future provision of technical assistance in other provincial and district health offices.

Developing an HRH Planning Module for Strategic Health Workforce Planning

Even as Indonesia prioritized its COVID-19 response, health system decision-makers also considered how to plan for maintaining essential services in the coming year, analyzing the data to ensure that the right mix of health workers with the right skills were available and deployed to the right location. The BPPSDMK's Center for HRH Planning and Utilization, the PUSRENGUN, is responsible for planning of the health workforce. HRH2030 worked with the PUSRENGUN to empower its team to use available data for the 2022 recruitment planning process and beyond. Specifically, HRH2030 developed and trained the PUSRENGUN on the HRH Planning module of the Data Warehouse which includes existing data on age, gender, and employment status by health worker type, facility type, location, budget, and population. At the same time, HRH2030 and PUSRENGUN developed guidelines for the integration of PUSRENGUN's information system (Renbut) and the HRH Data Warehouse to further optimize PUSRENGUN's annual planning. This year, for the first time, PUSRENGUN is using these data and analysis tools to develop a more efficient annual planning process for 2022 and beyond.

Convening Stakeholders to Advance Policy Discussions on Health Workforce Planning

At the conclusion of the HRH2030 program, the BPPSDMK and HRH2030 led a webinar, Leveraging the Evolving Health Labor Market to Improve the Accessibility of Health Services during COVID-19 and Beyond, to explore the connection between health workforce information and HRH policy issues. This webinar brought together cross-sector stakeholders from across the health labor market to discuss HRH challenges and provide long and short-term policy recommendations. Speakers from BPPSDMK, HRH2030, Tim Nasional Percepatan Penanggulangan Kemiskinan (TNP2K, National Team for the Acceleration of Poverty Reduction), and local partner Center for Indonesia's Strategic Development Initiatives (CISDI) used the health labor market as a foundation to share initiatives to support the health workforce and the COVID-19 response. Commentary was also received from high level leaders at Ministry of Planning, Office of the President, and Ministry of Higher Education. The webinar, attended by 185 people on Zoom and with 654 views on YouTube (as of October 6, 2021), proved to be an important discussion on the next steps needed in health workforce initiatives to protect, invest, and motivate health workers for both COVID-19 response and maintaining essential services.

ACCOLADES:

Harnessing Health Worker Data in Indonesia

Streamlining Data for a Stronger COVID-19 Response — and Healthier Futures

In Jakarta, Indonesia's bustling capital city, Dr. Ani Ruspitawati's office oversees more than 5,500 health facilities — known locally as *Puskesmas* — which serve a population of 10 million people.

When COVID-19 struck, with Jakarta as the nation's hotspot, the Provincial Health Office needed well-organized, up-to-date data on this massive health system to mount an effective response.

"Data is needed for decision-making," explained Dr. Ani, head of the Health Resources Division. "If the data is inaccurate, then the decisions will be wrong."

Nine years ago, when Dr. Ani first started working at the Provincial Health Office, data about health workers and facilities was "pretty much nonexistent," she said. But by the time the pandemic arrived, her office was better prepared.

Creating Systems that Work

In 2019, USAID began investing in innovative digital tools to help Indonesia improve its Human Resource Information System (HRIS), which collects, monitors, and stores health workforce data. USAID helped transform the fragmented HRIS by linking together massive amounts of data from 25 siloed systems into actionable information.

Using the improved HRIS during the pandemic, Dr. Ani was able to set evidence-based targets for vaccinating health workers, and the Provincial Health Office was able to make data-driven decisions about where to best place COVID-19 response volunteers, including doctors and nurses.

Serving Providers, Serving Patterns

Dr. Astrid Sri Kusumawati manages the mental health service unit at the Pancoran Sub-District *Puskesmas* in Jakarta. Before the pandemic, many of her patients needed at-home treatment because their health issues precluded clinic visits. COVID-19 restrictions made it harder than ever before to treat these patients, so Dr. Astrid turned to the data now available at her fingertips.

"The system greatly helps us to get information about health workers or clinics in a given area," she said. She was able to coordinate with other providers who lived closer to her patients and could provide services.

Dr. Astrid's *Puskesmas* also used HRIS to plan for an efficient vaccine rollout for health workers. "When we administered the first doses, the system greatly helped us — in mapping; gathering data on providers who needed to be vaccinated; and planning for procurement, scheduling, and implementation," she said.

On top of bolstering the COVID-19 response, HRIS supported other critical aspects of Dr. Astrid's job, like maintaining records for her licensure. "Without a license, I would not dare to practice. That would endanger me and certainly the patients I'm serving," she said. "The HRIS system helps in the process of licensing and planning continued training."

Dr. Ani added that licensing data also helps the Provincial Health Office alert health care facilities about unlicensed practitioners who might pose a danger to clients.

No Time to Lose

During the COVID-19 response, the Provincial Health Office was able to use the HRIS data to quickly deploy more than 1,400 COVID-19 response volunteers, based on expertise and staffing gaps at the *Puskesmas*.

Nur Aulia, a recent college graduate with a degree in public health, decided to volunteer. "I saw the recruitment announcement on Instagram," she said. "I registered, submitted my application, and went for an interview. When we were notified of acceptance, we immediately got our assignments."

"The volunteers were a huge help to us," said Dr. Astrid. "Early on in 2020, we struggled getting information out to the public, but the volunteers helped. They also did contact tracing and monitored patients in self-quarantine."

Aulia helped her assigned *Puskesmas* communicate with the community about COVID-19, vaccine stigma, and misinformation. "There were volunteer radiographers, data analysts, surveillance staff, and health support staff, too," she says.

Toward a Data-Driven Future

In addition to supporting the COVID-19 vaccine rollout for frontline healthcare professionals and easing burdensome licensure processes, the streamlined HRIS system has helped reassign over 115 qualified healthcare professionals to more appropriate locations based on community needs.

Dr. Ani's creed is simple: "Data can't just sit there in a document. It has to be continually used — including the HRIS data." In the future, she hopes, "we can find out if 100 percent of our health care providers are licensed and then track their abilities relative to the standard."

As for the ongoing pandemic, systematic use of data to make decisions will help Indonesia move more quickly into a post-COVID-19 recovery period.

"Every individual, everyone, has the right to good health — and this has to be provided through optimal service," Dr. Astrid said.

With the streamlined HRIS system in place, Indonesia has taken a big step forward toward an optimized health system that can maximize the potential of its health workforce.

This story was first published by USAID on Medium and was written by staff from USAID Indonesia and HRH2030.

Photo captions from top to bottom: (1) Dr. Ani Ruspitawati, head of the Health Resources Division at the Provincial Health Office in Jakarta, Indonesia, puts data to use in making decisions that affect the health and wellbeing of staff and patients alike. (2) Dr. Astrid Sri Kusumawati's clinic accessed the data they needed for an efficient COVID-19 vaccine rollout for health workers. (3) Through the HRIS, trained volunteers like Nur Aulia were efficiently deployed to support Jakarta's pandemic response. (4) Dr. Ani Ruspitawati and her team at the Jakarta Provincial Health Office's Health Resources Division can now make data-driven decisions that improve health care in Indonesia's densely populated capital. All photos in this story were taken by Des Syafrizal for USAID.

HIGHLIGHTS OF ACHIEVEMENTS

Advanced Innovation to Pave the Way for the MOH's "Digital Transformation"

This year, Indonesia's Ministry of Health enters a new phase of strategic planning called the "Digital Transformation." HRH2030 is pleased to have paved the way for this new period through enhancements in existing infrastructure and innovations that are leaving the MOH well-positioned with tools, resources—and perhaps most importantly—increased expertise in using digital technologies to maximize the benefits of health workforce information.

Setting a Strategic Vision for Long-Term Investments in Digital HRH Systems

To document a long-term vision for strategic growth and continued strengthening of the health workforce information ecosystem, HRH2030 worked in partnership with the BPPSDMK to facilitate discussions with key stakeholders and review and adapt global best practices to develop the country's first-ever Human Resource Information System (HRIS) Roadmap. Overall, the roadmap serves as a guide for the BPPSDMK in targeting investments and activities moving forward under the following vision and missions in Table 2 below. In addition, all HRH2030 FY21 activities were aligned with the roadmap, allowing the BPPSDMK to begin implementation of activities detailed in the roadmap immediately.

To introduce the HRH2030-supported BPPSDMK achievements, along with the HRIS Roadmap, to the broader MOH and health labor market stakeholders, the BPPSDMK and HRH2030 jointly organized a webinar in the program's last quarter, Taking Action Using Data to Support Indonesia's Health Workforce: Approaches, Lessons Learned and Vision for the Future. After presenting on the roadmap and getting feedback, the speakers highlighted achievements made in strengthening the health workforce information ecosystem, followed by lessons learned over the past two years in building a culture of data use to optimize the health workforce. Attended by 116 persons, the webinar proved successful in disseminating the achievements and lessons learned from HRH2030 and BPPSDMK's partnership, demonstrating to a wide range of MOH stakeholders, including the Center for Data and Information and the Digital Transformation Officer, the progress of the BPPSDMK in developing their information system architecture, which was important to continue to engage all stakeholders in sustaining progress in digital HRH information advancements.

Improving Information Systems for NHWA Implementation

Developed by the World Health Organization (WHO) and adopted by the global health community, National Health Workforce Accounts (NHWA) support countries to progressively improve the availability, quality, and use of health workforce data to help achieve HRH and health goals for a high-performing health system. They promote effective stakeholder relationships to define country-level data standards, governance, and interoperability, allowing efficient, multisectoral data sharing for real-time data analysis and decision-making to address key health workforce issues across the labor market. HRH2030 Indonesia supported the MOH in laying the groundwork for NHWA implementation, assessing the HRIS readiness for NHWA, making the structural and technological system enhancements needed to support implementation, and engaging

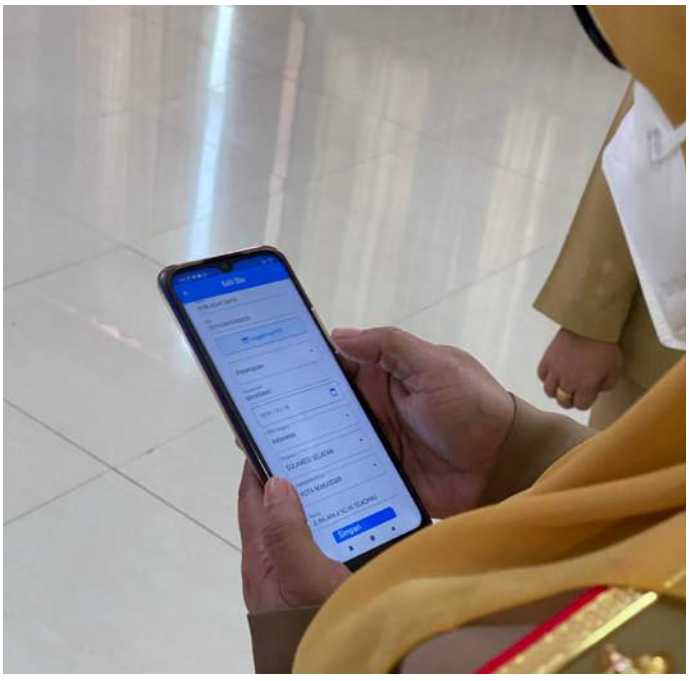
Table 2: HRIS Ecosystem Roadmap Vision and Mission

Vision To build a robust integrated ecosystem of HRIS from across the health sector in order to improve availability and quality of data for decision-making related to human resources for health in Indonesia		
Mission 1	Mission 2	Mission 3
Strengthen the HRIS ecosystem for interoperability between the existing systems within the BPPSDMK, MOH, and across the health labor market. **Focuses on building staff, infrastructure, and SI-SDMK capacity as the core of strengthening the overall HRIS ecosystem.**	Mobilize and institutionalize a governance structure for the collaborative exchange and use of data between stakeholders throughout the health labor market. **Lays out a plan to better engage and coordinate with stakeholders around the sharing of data to create a more cohesive and collaborative ecosystem.**	Institutionalize innovation to improve use of data for decision-making and strategic growth. **Describes how business intelligence and the mobile SI-SDMK application can be used to enhance decision-making throughout the ecosystem.**

stakeholders across the health labor market in the process. HRH2030 had an instrumental technical support role to the BPPSDMK in carrying out the NHWA Technical Working Group (TWG) meetings, and ultimately, enabled the BPPSDMK to submit data to the online NHWA platform for the 2019 NHWA report, as well as the 2020 State of the World Midwifery report. Based on these accomplishments, HRH2030 assisted the BPPSDMK to develop a standard operating procedure (SOP), a draft data dictionary, and recommendations for consideration during process revision in the future to support the institutionalization of NHWA into the BPPSDMK's routine operations.

Further engaging stakeholders in the exchange of health workforce data under operationalization of NHWA, HRH2030 facilitated discussions between the Indonesia Midwives Association (IBI), BPPSDMK, Health Workforce Council of Indonesia (KTKI), UNFPA, and USAID to coordinate the exchange of midwifery data between the BPPSDMK and IBI. Ultimately, in November 2020, the BPPSDMK and IBI signed the first-ever Memorandum of Understanding (MOU) for the exchange of data between the MOH and a professional association. Overall, this data integration will allow IBI and BPPSDMK more complete and up to date data on midwives, which can then be used for better decision-making at their respective levels. Establishing this relationship also opened the lines of communication between the two organizations so they can address both operational issues related to management of midwives (i.e., defining levels of midwives' qualifications) as well as optimization (i.e., training, distribution, etc.) of this workforce. See the story, Integrating Data on Indonesia's Midwives to Strengthen the Country's Human Resource Information System, on page 20.

Best practices from the BPPSDMK-IBI technical meetings and the MOU development process were also documented into an SOP, so that BPPSDMK can replicate this process with other professional associations to ensure the continued expansion of health worker data in SI-SDMK. In fact, the BPPSDMK replicated the process with 15 other professional organizations, and MOUs between these organizations and the BPPSDMK were signed in July 2021. Organizations that are now signed on to exchange data include the Indonesian Public Health Association (IAKMI), the Indonesian Clinical Psychologists Association (IPK), the Indonesian Medical Laboratory Technologists Association (PATELKI), and many other health worker associations responsible for service delivery.



A health worker testing the SI-SDMK app. Credit: HRH2030 Indonesia. .

Putting SI-SDMK Data in Health Workers' Pockets with a New Mobile App

Engaging health workers in updating, tracking, managing, and using their own data — including personal details such as age and contact information, as well as professional information such as training and licensing details — supports their ability to take of ownership of their data and their careers. Health worker engagement also spurs improvements to HRH data quality, as individual health workers will be able to appropriately update data in a timely manner, rather than waiting for the BPPSDMK to do it, and ensures that decision makers will have the latest information and feel confident in its quality. To give health workers a practical and easy way to become active partners in the health information system, HRH2030 and the BPPSDMK developed a mobile application for SI-SDMK, called M-SISDMK, which can also be used by other HRH decision makers throughout the health system. M-SISDMK was built and operates on BPPSDMK's local server. To ensure sustainability of the application, BPPSDMK included maintenance fees and anticipated labor costs as part of their regular operations budget.

HRH2030 Indonesia conducted a stepwise user-centered design and development process with the BPPSDMK to develop M-SISDMK, consulting with groups from Pekalongan, Cirebon, Maros, Jakarta, and West Lombok Provinces to get feedback from health workers, PHO staff, and professional organizations on the functionality of the system to ensure that the app would work for them and meet their needs. The app's current functionalities allow health workers to

view and update their information on current and past positions and training history and to receive needed information from the PHO and BPPSDMK. A verification and validation structure is in place, so that updates made in M-SISDMK by a health worker are confirmed by their supervisory PHO or DHO, which improves the timeliness of data updates since the sole burden of validating changes does not rest with the BPPSDMK at the central level.

M-SISDMK includes a questionnaire module built into the app, enabling the BPSPDMK and PHOs to communicate with health workers on specific, targeted issues. This function includes an attendance module that will be used by the BPPSDMK to monitor the attendance of health workers within the Nusantera Sehat deployment program. Separately, the app features dashboards that will show the BPPSDMK and PHOs/DHOs which health workers are using the app and where, as well as where user gaps exist. This information will be used to target advocacy efforts as needed to promote further use of the application. In June 2021, at the BPPSDMK's Annual Meeting, BPPSDMK Secretary Ibu Trisa officially announced the soft launch of M-SISDMK, in front of 106 HRH focal points from all 34 districts. Announcing the launch at the annual meeting was a clear sign of the BPPSDMK's ownership and commitment to M-SISDMK. After the soft launch, the BPPSDMK DATIN team rolled out the app in 14 provinces and districts. Nearly 20,000 health workers registered in the app in the month following the launch. See Figure 5 below, highlighting usage at the end of July 2021.

Strengthening SI-SDMK

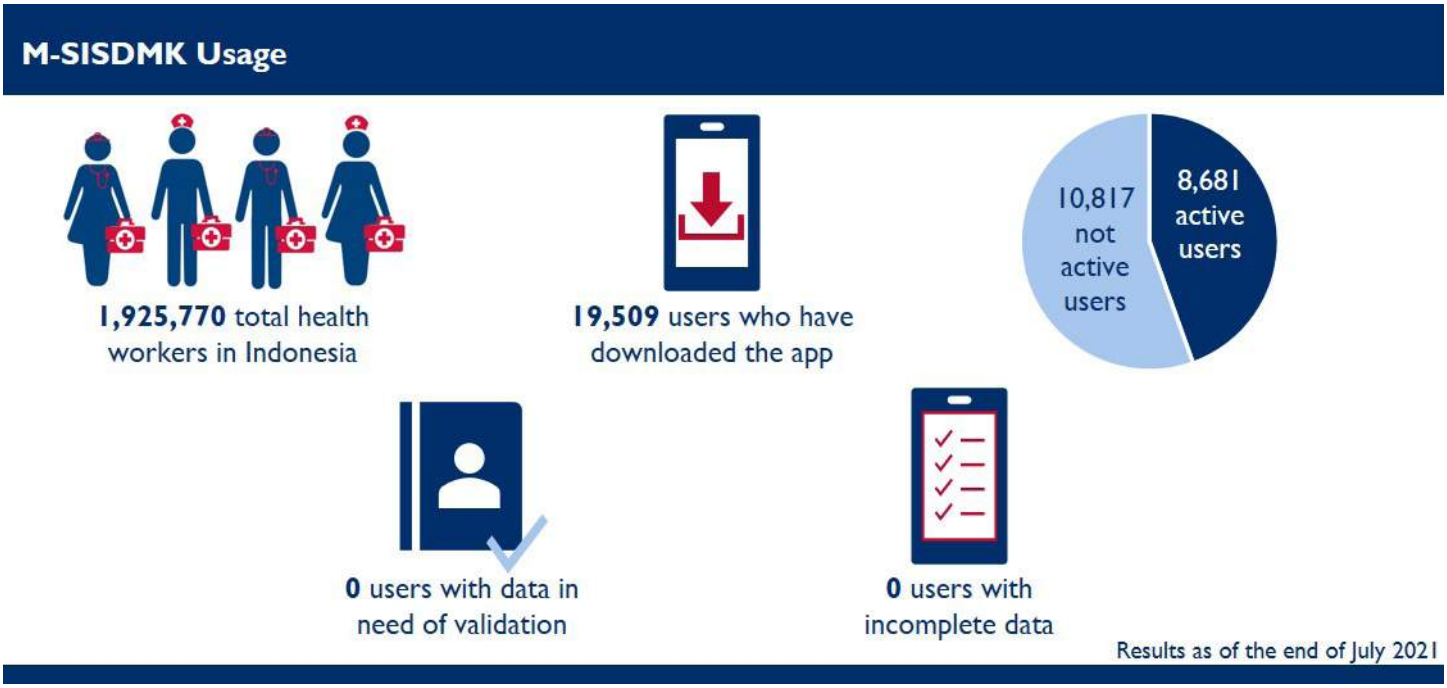
All the prior achievements highlighted above in this section of the report—the development of the HRIS Roadmap, the implementation of NHWA, and the creation of the mobile app, M-SISDMK—were realized due to the major investments that the BPPSDMK made in strengthening the SI-SDMK, all guided by HRH2030. As stated earlier in this report, investments made in strengthening the health workforce information ecosystem before the pandemic supported rapid decision-making and response at the onset of COVID-19. Briefly, here are some of the achievements that contributed to an overall strengthening of the system:

Enhancing SI-SDMK Functionality

SI-SDMK holds information on the entirety of Indonesia's health workforce in Indonesia. To increase the quality and completeness of existing information, HRH2030 supported the BPPSDMK to continue integration of data sources to improve the availability of quality data. This enabled data exchange with systems of other health workforce stakeholders and allowed the integration of information on educational background, national ID verification, and registration status. In addition, HRH2030 supported the inclusion of 600 private health facilities into SI-SDMK, as well as historical data on health workers.

Inclusion of this data ultimately contributed to promoting confidence and use in the system by stakeholders. For example, the Ministry of Home Affairs now uses SI-SDMK as the main data source

Figure 5. Usage of the M-SISDMK app from June launch to July HRH2030 closing



for health worker transfers between provinces. If a health worker is transferred, the Ministry of Home Affairs will check SI-SDMK to verify their information before approving the transfer. Then, once the transfer is approved, the Ministry of Home Affairs will update the information in SI-SDMK and provide detailed information on the health worker's new location and position. This partnership with the Ministry of Home Affairs reinforces the use of SI-SDMK as the main, authoritative source of health staff data at all levels of the health system.

Building Linkages between Systems

HRH2030 supported the BPPSDMK to develop and sustain the exchange of data between the Health Services Directorate, National Civil Service Agency, Ministry of Home Affairs, Ministry of Education and Culture, and Ministry of Administrative and Bureaucratic Reform. The project also established an HRH Data Warehouse with data from SI-SDMK and over 30 different data sets from 12 different information systems from across the health labor market. The HRH Data Warehouse includes aggregate historical data on the health workforce, as well as non-health workforce data related to health facilities and other workload-related data. It is a key resource for the exchange of data between systems, allowing for the exchange of this aggregate data across the labor market, such as internally at the MOH Pusat Data dan Informasi (PUSDATIN, Center for Data and Information) at the national level, and local levels such as Smart City and Satu Data dashboards and licensure offices in five DHOs. Access to this aggregate data allows decision makers to create robust analysis tools—such as dashboards comparing health workforce location to other health service statistics—to support their decision-making.

And, recognizing that where there are system linkages, there are also opportunities for system breaches, HRH2030 developed version 1.1.0 of the Health Workforce Information Service Bus, to serve as the central repository of individual level health worker data for use by other information systems. The Service Bus is designed to protect the security of data during the exchange between SI-SDMK and other information systems, creating a secure barrier to those approved individuals/units seeking health workforce data within the MOH. While more efforts need to be placed on institutionalizing the Service Bus within the MOH, the BPPSDMK is now well equipped with the knowledge and tools to begin this work when the MOH is ready.

To ensure the BPPSDMK has the skills to maintain linkages between systems, HRH2030 implemented a training, coaching, and mentoring plan. One indicator of the success of these efforts: the BPPSDMK is now leading the roll out of the HRH Data Warehouse throughout Indonesia without HRH2030 support, demonstrating that they have the capacity to continue health workforce information system strengthening efforts after the close of HRH2030.

Participant at a data visualization training. Credit: HRH2030 Indonesia.

Improving Data Analysis and Visualization

To ensure that health workforce data is translated into meaningful action and used, HRH2030 supported the BPPSDMK to develop a data analytics platform, which includes use of free, open source, and public resources such as DHIS2, Tableau, and Google Viz to create dashboards. HRH2030 provided technical support to operationalize the platform, starting with the development of dashboards comparing the availability of nine cadres of health workers at the *Puskesmas* level and the minimum five types of health workers at the hospital level with various health indicators. HRH2030 then expanded dashboards to other analysis and decision-making needs of the BPPSDMK.

To ensure routine use of data visualization, particular emphasis was placed on building skills at the national level, so that the BPPSDMK could train PHOs and DHOs to use the health workforce business intelligence platform. Eighteen participants from across the BPPSDMK's centers and units participated in training sessions spanning six weeks on conceptualizing, designing, and developing dashboards on the health workforce.

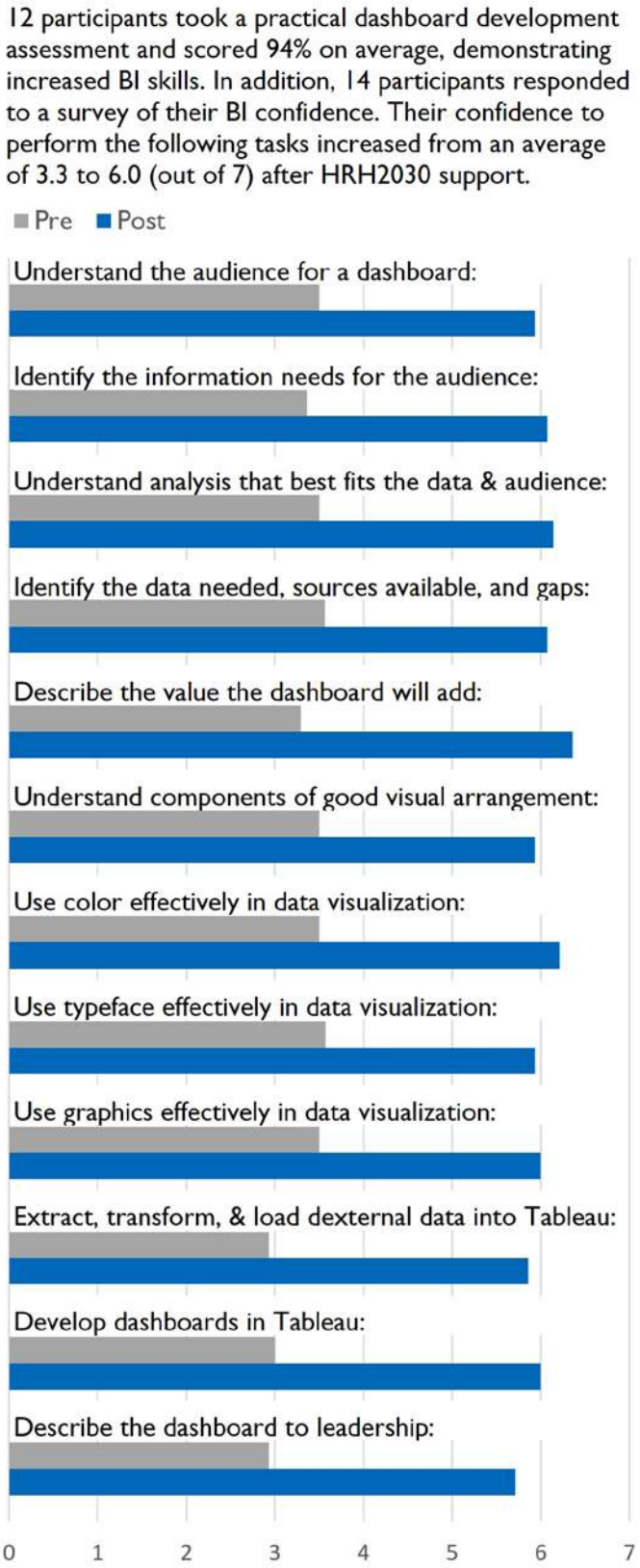
To understand if the training was effective in terms of building participants' skills and to inform planning

for future trainings, HRH2030 carried out a skills assessment and applied a retrospective confidence ranking questionnaire (see Figure 6 at right) on using the business intelligence (BI) platform. The results of the skills assessment demonstrated that 94% of participants were able to correctly develop dashboards, with participants scoring the highest on dashboard design theory. In addition, there was an increase in participants' confidence ranking on key data visualization concepts (on a scale of 1-7), jumping from 3.3 to a 6. What was critical about this training was that it not only advanced the BPPSDMK's skills in dashboard development but that it brought together users of health workforce data from across the BPPSDMK, building partnerships within the directorate for long term coordination on decision-making. Participants in the national-level trainings demonstrated their new skills in virtual workshops with teams from provinces, districts, and referral hospitals, and health centers in Jakarta, South Sulawesi, Bengkulu, Central Java, Maros, Pekalongan, and Cirebon. These trainings resulted in increased data completeness and consistency for these provinces in SI-SDMK, as well as increased sensitization on use of health workforce data later during the COVID-19 response, as shown by the teams' reliance on SI-SDMK for redeployment, vaccine planning, and incentive distribution.

Overall, the investments in strengthening the SI-SDMK paid off during the COVID-19 response, which required that stakeholders at all levels of the health system could access the data and information needed, rapidly, to make strategic health workforce decisions. HRH2030 supported the BPPSDMK in 19 working sessions with 19 provinces, 281 districts, 343 referral hospitals, and 364 health centers throughout the country on strengthening the quality and completeness of data in SI-SDMK, allowing SI-SDMK to serve as the main information system for COVID-19 response. Local political leaders throughout Indonesia promoted SI-SDMK as the main source of health worker data for COVID-19 response activities such as vaccine planning and incentive planning.

To facilitate the continued dissemination of health workforce information at the national and regional levels, HRH2030 developed a web-based HRH Information Resource Center to host technical references, trainings, guides, and all products developed by HRH2030 throughout the life of the project. HRH2030 Indonesia also documented recommendations for future investments in the health workforce information system architecture as part of the final technical deliverables package to the BPPSDMK.

Figure 6. People who Received BI Capacity Building from HRH2030 Demonstrated Increased Business Intelligence Skills and Confidence.



Source: Assessment of participants who received BI capacity building support from HRH2030.

ACCOLADES:

Integrating Data on Indonesia's Midwives to Strengthen the Human Resource Information System

The Indonesian Ministry of Health (MOH) continues to expand the capabilities of its health workforce information system by engaging stakeholders from across the entire health labor market, with efforts underway to integrate data from the country's expansive midwifery workforce into its health worker registry.

In November 2020, the MOH signed an agreement with Indonesia's Midwifery Association (Ikatan Bidan Indonesia, or IBI) to share data and work together to better manage and optimize midwives' contribution to the health workforce. IBI membership has hundreds of thousands of midwives across the health system – including those who are private and independent – and the MOH, among other things, manages midwifery registration and licensure data. Bringing these two agencies together allows for an impactful partnership as integrating their data will provide a more robust picture of health workforce capacities for both the MOH and IBI. According to Dr. Emi Nurjasmi, Chairman of the Central Board of IBI, this data integration agreement is important not only for enhancing data accuracy, but also for empowering the workforce and guiding future planning and policy decisions. In addition, data integration will advance the understanding of how midwives contribute to improving quality maternal and child health care.

The signing of this agreement marked the first time the MOH has formalized a partnership with one of the country's professional associations to align data on its members. Since signing the agreement last year, the Board of Human Resources for Health Empowerment and Development (BPPSDMK), the Health Workers Professional Council of Indonesia (KTKI), IBI, and HRH2030 have been working to clean and standardize data and establish technical standard operating procedures for the integration of data representing nearly 400,000 midwives.

The HRH2030 Indonesia activity, funded by USAID, is working to increase the availability and use of quality, real-time data to respond to health workforce challenges, with the goal of improving maternal and newborn health outcomes. The maternal mortality ratio is high in Indonesia, compared to neighboring countries (177 per 100,00 live births) but the percentage of births supported by a skilled attendant has been rising, largely attributed to the support of midwives, who assisted in more than 60 percent of deliveries over the last five years. To respond to the country's health challenges, HRH2030 supported the BPPSDMK to build a connected ecosystem of health workforce data, to improve the availability and use of quality health workforce data. This included strengthening the functionality of the existing human resource information system (known as the SI-SDMK) to better respond to the needs of all users for health workforce data.

To support the MOH-IBI agreement, HRH2030 Indonesia helped to bring these two entities and other relevant stakeholders together and facilitated the technical discussions around the governance structure and interoperability between the systems. These discussions covered an analysis of the legal considerations of data exchange, identifying which data points should be exchanged, mapping the data points, developing common definitions, and developing the mechanisms for the exchange of data between the two systems.

The path to developing the MOU sparked interesting and informative discussions between the MOH and IBI, regarding the various levels of midwifery qualifications, certifications, and licensing, and even the types of midwives who will be considered in the data exchange. IBI, for example, includes data on midwives who do not deliver health system services—such as those who work in educational institutions as lectures and researchers. This was the first time such discussions had been held, and they are continuing with members of the National Health Workforce Accounts Technical Working Group, to ensure data on midwives from both the public and private sector will be used for evidence-based action and planning.

Photo: From left to right: Dr. Emi Nurjasmi, Chairman of the Central Board of the Indonesian Midwives Association; Dr. Maxi Rein Rondownuwu, Head of the Center for HRH Planning and Utilization at the BPPSDMK; and Dr. Trisa Wahjuni Putri, Secretary of the BPPSDM. Credit: HRH2030 Indonesia.

THOUGHT LEADERSHIP:

Sharing HRH2030's Expertise in Health Workforce Information

HRH2030 Indonesia implemented 79 knowledge-sharing workshops and dissemination events over the life of the project to advance the work of the project locally and raise awareness of USAID Indonesia's investments in strengthening the MOH.

The program also elevated awareness of HRH2030's expertise through convenings hosted by influential groups in the global health and scientific communities. HRH2030 team members, USAID colleagues, and MOH representatives participated in approximately a dozen high-profile national, regional, or global convenings to help increase understanding of the importance of health workforce information systems, advance ideas on how to use HRH data to optimize the health workforce, and share technological innovations supporting the growing digital health domain.

Here's a brief overview of HRH2030 Indonesia's participation in some of these key conferences and webinars:

In Indonesia: In November 2019, HRH2030 presented on Using Health Workforce Data to Address Health System Challenges at the **Indonesia Health Economics Association 6th Annual Scientific Meeting** (InaHEA).

Global Convenings: In December 2019, HRH2030 team members presented The Secret Ingredient: Building Stronger Health Systems through Use of Health Workforce Data at the **Global Digital Health Forum** in Washington, DC, one of the last in-person convenings prior to the COVID-19 pandemic. Subsequent virtual presentations took place at the **Global Digital Development Forum,** on Reinforcing Indonesia's COVID-19 Response with Health Workforce Data and Building a Dynamic Ecosystem of Health Workforce Data to Achieve the SDGs in May 2020, and Putting Data in Indonesia Health Workers'

Pockets to Support the COVID-19 Response in May 2021; at the **Sixth Global Symposium on Health Systems Research** in November, 2020, as part of a panel on Building a resilient health system by improving data-driven health workforce decisions: Evidence and approaches from Asia and West Africa (November 2020); and presented Optimizing the Health Workforce in Indonesia: Strengthening Partnerships and Applying the Principles of Digital Development to Create a Digital Ecosystem of Health Workforce Data, at the **ICT4D Partnerships Conference** in January 2021.

In July 2021, HRH2030 team members did a training presentation for a two-part series organized by USAID's Bureau for Asia and the Taiwan International Cooperation and Development Fund on Health Workforce Management and Data Systems: A Focus on Pacific Island Countries and Health System Resilience. Notably, this training shared the tools and approaches used by HRH2030 Indonesia and cited examples from the project's work.

Webinars hosted by the Global HRH2030 Program: The Global HRH2030 Program invited representatives from the Indonesia project to take part in several webinars targeted to a global audience. These included On the Road to One Global Human Resources for Health Data Platform: Lessons from Ethiopia, Indonesia, and the Philippines, focusing on Implementing National Health Workforce Accounts (December 2019), featuring panelists from the BPPSDMK and HRH2030, along with representatives from USAID's Office of HIV/AIDS, the WHO, and Ethiopia's and Philippines' health systems. In the final months of the program, HRH2030 hosted its End-of-Program Legacy Series, with HRH2030 Indonesia's Taufiq Sitompul talking about the work with the BPPSDMK in the May 2021 webinar, Six Years in 60 Minutes: Learning from the HRH2030 Program, and USAID Indonesia's Anastasia Susanto talking about USAID Indonesia's investments in Indonesia's HRH information systems through HRH2030 in the June 2021 online event, The Health Workforce of the Future.

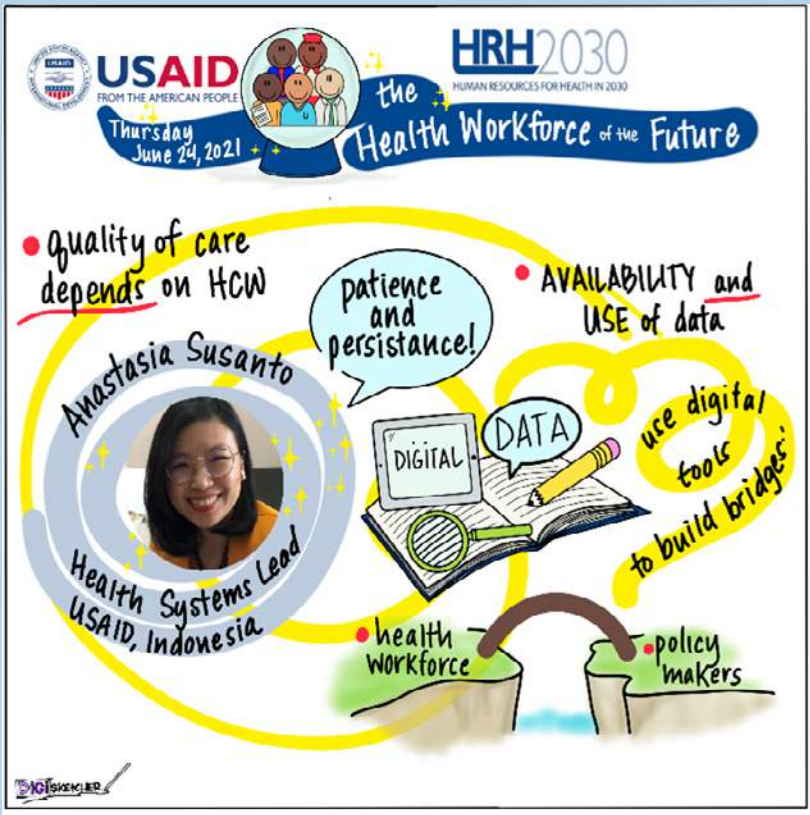


Photo captions from top to bottom: (1) The MOH's Adita Sasmita with HRH2030's Ummi Niswah and Taufiq Sitompul at the InaHEA event. (2) Speakers from the MOH, USAID Indonesia, and HRH2030 presented at the Global Digital Development Forum in 2021. (3) An infographic summarizes USAID Indonesia's Anastasia Susanto's presentation during HRH2030's final Legacy Series event entitled The Health Workforce of the Future. (4) HRH2030 presented a poster on its work using health workforce data to address health systems challenges at the InaHEA event. All photos courtesy of HRH2030 Indonesia.

ADAPTING TO PROGRAM CHALLENGES

Implementation challenges during the program period were mostly related to limitations with the existing BPPSDMK infrastructure, data quality issues, and delayed data analysis and systems' interoperability efforts. COVID-19 presented its own challenges.

BPPSDMK Infrastructure Limitations, and Data and System Challenges

While the BPPSDMK is well equipped with servers and an overall data center, periodic disruptions were seen throughout program implementation due to changes in server management, firewalls, and internet service providers. Capacity issues were also identified with the SI-SDMK server. To address these issues, HRH2030 provided technical support to the BPPSDMK, coaching them through problem solving and solution development, as well as supporting staff to carry out the solution.

Although stakeholders from across the health system were willing to engage in the exchange of data, once data integration began, HRH2030 saw issues with data quality, necessitating efforts to improve data accuracy (for example, data from laboratories) and follow-up efforts to ensure data completeness (such as data from referral hospitals). While initially a challenge, this issue had an unintended benefit, since it led to the development of more systemized data quality checks by the BPPSMK, and the delivery of a robust set of data for COVID-19 referral hospitals, which is now integrated into SI-SDMK for future use. In some cases, though, data quality issues proved difficult to resolve entirely, as the source of the data quality issue is outside the oversight of the BPPSDMK and MOH (such as data related to health worker incentives liquidation). However, recommendations to resolve the issues have been proposed, with the intent that the BPPSDMK will advocate with these external stakeholders on actions they can take to improve data quality.

COVID-19 Pandemic

Due to the COVID-19 pandemic, HRH2030 was forced to end in-person activities indefinitely in March 2020. While HRH2030 was able to reorganize activities as virtual, timelines of stakeholders who were rightly prioritizing direct COVID-19 response activities resulted in slight delays in project activities. In addition, as was expected, the COVID-19 pandemic did lead to a reprioritization of activities by the BPPSDMK. For example, the launch of Indonesia's COVID-19 vaccination campaign meant that HRH2030 program partners within BPPSDMK and PHO/DHO offices were often busy with this very important activity, and HRH2030 activities had to wait. HRH2030 adapted to this schedule as much as possible and offered to assist in the vaccination campaign, where appropriate. In addition, this impacted targeted activities to strengthen linkages between PUSDATIN and the BPPSDMK. While HRH2030 originally intended to facilitate stronger ties between the BPPSDMK and PUSDATIN earlier this year, these efforts were delayed due to COVID-19 as well as changes with the MOH's approach. Separately, the MOH established a Digital Transformation Officer (DTO) position, which led to the development of a new digital health strategy for the ministry. HRH2030 advocated to engage PUSDATIN in the development and roll out, as well as in the launch of the HRIS Roadmap. BPPSDMK was receptive to this idea and PUSDATIN was engaged, thus, continuing to strengthen ties between the two institutions.

RECOMMENDATIONS & WAY FORWARD

From its inception, HRH2030 Indonesia's vision has been to strengthen Indonesia's health workforce information ecosystem and build a culture that acts based on data when making health workforce decisions. The program's key achievements were realized due to the collaborative, supportive, and adaptive management partnership of USAID and the MOH of Indonesia, in particular the BPPSDMK, national level stakeholders across the health labor market, and regional level governments in Cirebon, Jakarta, Makassar, Maros, and Pekalongan.

HRH2030 is proud of supporting the BPPSDMK in its great leap forward in strengthening the health workforce information ecosystem; the BPPSDMK has new confidence in its ability to make HRH decisions that will lead to improved health outcomes. It now has one common vision for health workforce information systems, agreement among stakeholders throughout the health system, and a mandate to continue to build an interconnected, integrated, and sustainable ecosystem. There is also a reinforced sense that simply having data is insufficient, and what matters most is translating that data to strategic information and acting on that information to ensure that the health system can respond to dynamic contexts, both now and in the future.

Building on this strong foundation, HRH2030 offers several key recommendations for next steps and the way forward, which have previously been documented and discussed with the BPPSDMK:

Reinforce Evidence-Based Decision-making to Build, Manage, and Optimize the Health Workforce

The BPPSDMK, with HRH2030's guidance, made huge progress on improving the availability of quality data for evidence-based decision-making. And while there were concerted efforts and observed progress in building a culture of data use with tangible outcomes, translating data into action should be the focus moving forward. Now that the NHWA TWG is in place and meets regularly, this group can be leveraged to move beyond data collection and establish a multisectoral health workforce policy agenda using existing evidence. This agenda should be in line with Indonesia's National Mid Term Development Plan, as well as efforts to develop a resilient health system in the wake of COVID-19.

One example of this type of policy dialogue was the webinar HRH2030 and the BPPSDMK held in July 2021 (referenced on page 11), which brought stakeholders from across the labor market together to discuss evidence based innovated approaches to supporting the health workforce during COVID-19 and beyond. During this webinar, a representative from the Ministry of Planning announced that there will be a Presidential Decree on the Health Workforce in 2022, to focus on protecting, investing, and motivating the health workforce to ensure the country is ready to respond to future shocks and crises. With the SI-SDMK strengthened, the NHWA TWG convening regularly, and political will for HRH support at its peak, the BPPSDMK can now sharpen efforts to reinforce knowledge, skills, and attitudes on evidence-based decision-making at all levels of the health system. Using the tools (such as training materials and other key data use references) developed by HRH2030, this will be possible.

Further Engage Health Workers in Managing their Data and Building Connections through M-SISDMK

The M-SISDMK application, while launched in June 2021, is still in its infancy (version 1.1.0). The BPPSDMK will continue to roll out the application throughout the country, by engaging leadership at the provincial and district health office level who will then take on the task of orienting health workers in their regions on the importance of using the application. During this roll out, it is likely that users will identify technical bugs in the system and make requests for new features. To ensure M-SISDMK is always well functioning and responding to user needs, the BPPSDMK should purchase a new server dedicated solely to M-SISDMK, as well as hire a full-time programmer for maintenance and system improvements. As more users join M-SISDMK, the current server may reach maximum capacity. If the BPPSDMK does not acquire an additional server, this could limit overall functionality of the application. Looking forward, a blueprint for the next version of the mobile app should be developed as soon as possible to ensure that requests from users are systematically documented. In line with the MOH's digital transformation strategy, we recommend that PUSDATIN establish quality assurance standards for M-SISDMK. While BPPSDMK will always manage the server, if governance agreement structures were put in place, as a client, PUSDATIN could centrally manage the M-SISDMK infrastructure.

Overall, now that version 1.1.0 of the mobile app has been launched—with its focus on management of health workers' profiles—the BPPSDMK can focus on ensuring that the application is as helpful to health workers in their career management as possible, making it easy to use for licensure renewal or applying for continuous professional development opportunities, to cite two examples. In addition, the questionnaire and messenger features should be

utilized to their full potential, to allow health workers to feel connected to their colleagues throughout the health system.

Invest in Strengthening the Information System Architecture as the Centralized Location of Health Workforce Data

While the BPPSDMK, with HRH2030's hands-on coaching and mentoring, made great strides in strengthening its health workforce information system architecture, there are targeted investments that are recommended to ensure long-term growth and security in the face of ever-evolving technology trends. These recommendations include: (1) use of cloud computing services for servers; (2) use of software development management systems to better manage product development; (3) improve overall security architecture with the BPPSSDMK and develop security SOPs and dedicated team to manage this; and (4) implement use of the Fast Healthcare Interoperability Resource (FHIR) data standard to improve efficiency in interoperability within the MOH. Overall, as technology continues to grow and evolve, the BPPSDMK should regularly conduct risk/benefit analyses to assess if other platforms for interoperability and data analysis would better suit their user and organizational needs. This process should be integrated into annual planning and look at costs as well.

Focus on Interventions at the Subnational Level

While donor investments typically are geared toward the national level, with the BPPSDMK's strengthened leadership, management, and governance capacity, future interventions should focus on ensuring that provinces and districts are able to reach their full potential.

With the conclusion of the HRH2030 Indonesia program, the BPPSDMK is well-positioned to continuously improve its health workforce information systems and to help uphold the Presidential Decree expected in 2022 regarding protecting and supporting the country's health workers. HRH2030 is proud to have partnered with USAID Indonesia and Ministry of Health colleagues in building a strong foundation for the next wave of Indonesia's digital transformation.

ANNEX

Annex I. Performance Indicator Table

Indicator	Life of Activity Result	Highlights
Number of staff trained	1,182	HRH2030 provided trainings in areas designed to improve data capacity and use for HRH planning in Indonesia, including trainings on HRIS, business intelligence, Tableau, dashboard design, data quality, data analysis, data visualization, data use, the HRH Data Warehouse, mobile application design and management, data integration, and more.
Number of training activities conducted	64	
Number of countries where HRH interventions focus on improving access to and coverage of services related to global health goals in underserved and priority areas	1	HRH2030 supported national level and district level capacity building (in Pekalongan, Surabaya, Cirebon, Makassar, Maros Regency, and West Java) so that stakeholders can use data and evidence to better build, manage, and optimize the health workforce to improve maternal and child health outcomes.
Number of tools and approaches developed and/or applied and/or evaluated	8	HRH2030 has applied innovative approaches including development of a business intelligence platform to strengthen decision-making, strengthening HRIS for improved health workforce management, development of documentation guidelines on use of HRIS and BI for decision-making, interoperability between HRH information systems, HRH COVID-19 dashboards, COVID-19 health worker incentive tracking, M-SISDMK, and the HRH Data Warehouse.
Number of countries that have reviewed, developed, tested, institutionalized, or evaluated HRH management at the site level to improve its effectiveness	1	HRH2030 developed HRH dashboards to support management at the site level, including ensuring complete skill mix and number of health workers at the *Puskesmas* level to improve access and equitable distribution of HRH. During the COVID-19 emergency, HRH2030 mapped the emergency and referral hospitals for COVID-19 as well as health worker readiness to respond. This information feeds decision makers at MOH, National Disaster Response Body (BNPB), and President Secretary Office (KSP).
Number of countries that have reviewed, developed, tested, institutionalized, or evaluated policies to improve the transparency of HRH decision-making	1	The development of publicly available COVID-19 HRH dashboards, the HRH COVID-19 incentive dashboard, and district level dashboards displaying the number and location of HRH supports transparency of the existing health workforce and HRH planning decisions.
Number of countries that have reviewed, developed, tested, institutionalized, or evaluated policies to strengthen multi-sectoral collaboration for moving the HRH agenda forward	1	HRH2030 supported development and implementation of the multi-sectoral Technical Working Group for Interoperability, the National Health Workforce Accounts Technical Working Group, and the development of an MOU for exchange of data between the MOH and 15 professional organizations so that multi-sectoral stakeholders are collaborating for HRH planning and management.

Indicator	Life of Activity Result	Highlights
Number of HRH major events that include multi-sectoral collaborations conducted or participated at global, regional and country levels	9	To contribute to the global HRH knowledge base, HRH2030 presented at major HRH events including 4 different presentations at Global Digital Health Forums in 2019, 2020, and 2021, the Indonesia Health Economics Association 6th Annual Meeting, the AAAH Webinar Series on Optimizing the Health Workforce in Indonesia, the Indonesia management of Multi-sectoral Data Integration during the COVID-19 Pandemic event, the 6th Global Symposium on Health Systems Research, and the ICT4D Partnerships Conference.
Number of countries that have assessed, developed, tested, institutionalized, or evaluated their capacity for using HRH data for decision-making	1	HRH2030 supported five pilot cities and provinces (Makassar/South Sulawesi, Pekalongan/Central Java, Cirebon/West Java, Surabaya/East Java and DKI Jakarta) to obtain complete HRH data, create dashboards for analysis and management, and integrate SI-SDMK with Smart City data sources or local government data.
Number of countries supported to advance the implementation of national health workforce accounts (NHWA)	1	HRH2030 supported BPPSDMK to engage stakeholders across the health labor market to strengthen the exchange of data to respond to key HRH policy questions under the NHWA.
Number of countries supported to improve HRIS	1	HRH2030 strengthened the use of health workforce data via SI-SDMK in four pilot cities and provinces.
Number of knowledge sharing, dissemination, workshops, and similar events implemented	79	Workshops and other knowledge sharing events included COVID-19 Response meetings, provincial level HRH data strengthening workshops, interoperability TWG sessions, NHWA data collection, cleaning, and standardization workshops, HRIS Roadmap Development events, 2020 State of the World Midwifery Report stakeholder meetings, M-SISDMK technical meetings and work sessions, NHWA TWG meetings, data integration and interoperability sessions, and more.
Number of datasets in the SI-SDMK and HRH Data Warehouse	12	1. Number of cases 2. Referral Hospital 3. SDMK at the Referral Hospital 4. Volunteer 5. Laboratory 6. Logistics 7. Risk level 8. Risk factors (Diabetes, Hypertension, Heart disease, etc.) 9. Poltekkes 10. SDMK: is infected and dies 11. PHO/DHO data on health workers receiving incentives 12. MOF data on IDR amount of incentives

Indicator	Life of Activity Result	Highlights
Number of monitoring operations dashboard developed related to COVID-19 response	12	12 dashboards developed, including 5 regional dashboards as well as the 7 national dashboards listed below: 1. HRH COVID-19 dashboard including sub-dashboards: a. Number of Covid-19 cases per Province b. Location of Covid-19 Hospital c. Total HRH per health facility d. Laboratory e. Logistics f. Risk Level g. Risk factor 2. Volunteer Dashboard 3. Polytechnic School Dashboard 4. COVID-19 Stats 5. Poltekkes including sub-dashboards: a. Agency Accreditation b. Study Program Accreditation c. Clusterization d. Number of graduates e. Number of lecturers 6. SDMK is infected and dies including sub-dashboards: a. HRH infected (Central Java Province) b. HRH died (general doctor and medical specialist) 7. PHO/DHO data on health workers receiving incentives including sub-dashboards: a. Total incentive budget b. Amount of funds transferred to regions and hospitals c. The amount of funds realized in the regions and hospitals d. The number of workers who receive The 5 Regional Dashboards for South Sulawesi, Bengkulu, Central Java, Kota Pekalongan, and Kota Cirebon include health worker number and locations compared to COVID-19 cases.
Number of dashboard users	509	509 users of national and regional dashboards (350 in Q3 and 159 in Q4)
Number of government officers demonstrated skills on data management and governance to maintain regional monitoring dashboard	22	22 government officers have been trained in data management and governance. - Of those officers, 12 participated in a post-training assessment - Of those who completed the post-training assessment, all 12 demonstrated post-training skills on data management and governance

Anita (at left) consults with Dr. Dewi (at right) at the Puskesmas Tanjung Priok Health Center in Jakarta, Indonesia. Photo credit: Andi Gultom (2018).

Program Partners

- Chemonics International
- American International Health Alliance (AIHA)
- Amref Health Africa
- Open Development
- Palladium
- ThinkWell
- University Research Company (URC)

About HRH2030

HRH2030 strives to build the accessible, available, acceptable, and high-quality health workforce needed to improve health outcomes.

Global Program Objectives

1. Improve performance and productivity of the health workforce. Improve service delivery models, strengthen in-service training capacity and continuing professional development programs, and increase the capacity of managers to manage HRH resources more efficiently.

2. Increase the number, skill mix, and competency of the health workforce. Ensure that educational institutions meet students' needs and use curriculum relevant to students' future patients. This objective also addresses management capability of pre-service institutions.

3. Strengthen HRH/HSS leadership and governance capacity. Promote transparency in HRH decisions, strengthen the regulatory environment, improve management capacity, reduce gender disparities, and improve multi-sectoral collaboration for advancing the HRH agenda.

4. Increase sustainability of investment in HRH. Increase the utilization of HRH data for accurate decision-making with the aim of increasing investment in educating, training, and managing a fit-for-purpose and fit-for-practice health workforce.

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HUMAN RESOURCES FOR HEALTH IN 2030

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