

Does Indonesia's National Health Insurance Scheme mobile phone application, Mobile JKN, support health financing?

Country studies series on digital technologies for health financing



**World Health
Organization**

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Abbreviations

BPJS	Badan Penyelenggara Jaminan Sosial Kesehatan (the National Health Insurance Administration)
ID	Identity
IT	Information Technology
JKN	Jaminan Kesehatan Nasional
MB	Megabyte
OTP	One-time password
REHAB	"Rehabilitation" programme
WHO	World Health Organization





Executive Summary

In 2014, a national health insurance programme (Jaminan Kesehatan Nasional, or JKN) was introduced in Indonesia, with the objective of improving access to health services and providing financial protection. By July 2024, its registered membership had increased to 274.2 million (97.6% of the Indonesian population). However, studies have shown persistent problems related to the use of JKN entitlements, due to a lack of available health services, long waiting times at health facilities and a lack of information of members about their entitlements. In 2017, a mobile phone application (Mobile JKN) was introduced to make it easier for members to register for health insurance and to support the payment of contributions for those outside the formal sector, as well as to provide members with information about their benefits, while reducing administrative costs for the health insurance agency, BPJS Kesehatan, that manages JKN. Two previous studies show positive acceptance of Mobile JKN among the study participants, however another study reports the impact of Mobile JKN as limited, because various population groups do not have a suitable device to use Mobile JKN and most JKN members reported not knowing about Mobile JKN.

This paper takes a different approach and assesses how Mobile JKN was designed and implemented. It explores the effects on improving access to health services and various health financing functions and tasks, in particular membership enrolment and contribution collection. This study is based on primary qualitative data (from in-depth interviews and focus group discussions) and secondary quantitative data (obtained from BPJS Kesehatan), complemented by document review. Based on the challenges encountered in design and implementation, the report provides policy options for the further strengthening of Mobile JKN, also as lessons for other countries.

The first version of Mobile JKN included a limited number of features and was primarily intended to support administrative processes between BPJS and JKN members through digital means, with the aim of reducing the administrative burden and the long queues in the BPJS offices. More features were added in 2020 and 2022 respectively, such as the auto debit function (allowing for automatic deduction of monthly contributions from a member's bank account) and the REHAB function (to request relaxation of arrears in contribution payments), being two features particularly relevant for the health financing function of revenue raising.

Several positive effects of the introduction of Mobile JKN have been identified. While not quantified, direct benefits for BPJS include reduced administrative costs through the reduction of face-to-face interactions at BPJS branch offices. For JKN members, Mobile JKN simplifies membership enrolment and contribution payment, and contributes to improved information and access to benefits and entitlements. As such, it can help to provide a more positive experience for members. They avoid transportation costs and travel time by not having to visit a BPJS office and reduce their waiting time at the branch offices. Overall, Mobile JKN has good potential to serve as an important tool for BPJS Kesehatan to support managing the large number of members and the respective administrative processes of membership registration, collection of contributions (supporting revenue raising and pooling)

and patient registration with health facilities (supporting purchasing, specifically the capitation payment arrangement).

However, this analysis also revealed that Mobile JKN does not yet reach its full potential and still suffers from critical shortcomings. One key challenge relates to the digital divides among JKN members in terms of digital literacy, ownership of smartphones and internet connectivity. As such, Mobile JKN has yet to reach certain segments of the JKN membership population. The internet connectivity issues are exacerbated by certain software features of Mobile JKN which are not sufficiently aligned with its operating context and the digital ecosystem. Downloading the app is not as easy as expected or suggested in the awareness raising and information campaigns. Another set of challenges relates to slow updates and limited integration of data. For instance, there are delays in updating the payment status of members in Mobile JKN, which can cause their temporary loss of coverage. There are also insufficient linkages between Mobile JKN and information management systems of other ministries and agencies that Mobile JKN relies on to provide its functions. These issues hinder timely and accurate information provision for members to access JKN entitlements. They also lead to a temporary loss of coverage in certain instances. Lastly, it is noted that there is no institutionalized monitoring system to evaluate the effects of Mobile JKN.

A number of recommendations are provided to strengthen the positive effects of Mobile JKN and address the main shortcomings:

- Expansion of the number of Mobile JKN users, through awareness raising, engagement of informal patient navigators and simplification of the software features;
- Setting up a continuous and agile revision process with strong user participation guided by their needs;
- Better alignment of Mobile JKN with its operating context and the digital ecosystem, considering that not every household has a smartphone with stable internet connection;
- Enhanced data integration and inter-operability between Mobile JKN and other data bases from JKN as well as from other organizations;
- Strengthening compliance of health service providers with JKN guidelines for Mobile JKN to offer its functions;
- Systematic monitoring and evaluation of the effects of Mobile JKN in relation to the overall goals of JKN.

In conclusion, the case of Mobile JKN demonstrates both the opportunities and the challenges of the use of digital technology to facilitate health financing tasks. Some of the infrastructural, technological and behavioural challenges faced in relation to Mobile JKN in Indonesia may be equally found in other countries. This is why it is critical that the design process of any mobile application is contextualized to its (digital) environment and that it involves a broad range of stakeholders, including target users. Monitoring, evaluation and documentation of country practices is essential to learn lessons across countries and to make sure that digital technologies support health financing functions and are conducive to progress towards UHC.



1. Introduction

The implementation of the Indonesian national health insurance programme, called Jaminan Kesehatan Nasional (JKN), is critical to improve access to health services and financial protection. BPJS Kesehatan (Badan Penyelenggara Jaminan Sosial Kesehatan; the National Health Insurance Administration) is the agency in charge of implementing the JKN programme. By the end of 2014, the year that JKN was introduced, there were 133.4 million registered members (including those transitioned from the previously existing coverage schemes), which meanwhile has grown to 274.2 million registered members in July 2024 (97.6% of the Indonesian population) (BPJS Kesehatan, 2024). Contributory payments through payroll deductions are received from formal public and private sector employers and employees while non-poor workers outside the formal sector have to pay a fixed contribution amount by themselves, based on their choice of inpatient ward class. Subsidies, as a surrogate to pay direct contributions, are provided for 62.1% of members in 2024. These public subsidies are targeted at the poor (particularly those living below the poverty line, who constitute 9.4% of the population) (ADB, 2024) as well as the near-poor, aiming to cover the two lowest income quintiles, i.e. the poorest 40%. Other groups benefiting from subsidies are other lower income-groups, such as victims of natural disaster, pensioners, orphans, babies born of poor parents and prisoners, as stipulated in Article 11 (7) of Government Regulation No. 76/2015 on subsidized JKN membership. An estimated 20% of all JKN members are inactive, meaning they are not paying contributions and cannot make use of JKN benefits (Azhar, 2024).

Members can choose their primary care providers who are then paid by JKN through capitation payments. As such, there is an element of provider choice for patients as well as competition among providers, at least in urban areas. Hospitals are paid through case-based payments. The subsidized members have only access to a lower ward class, as well as the non-formal sector workers who have chosen the lower ward class, for which JKN provides a smaller payment rate to hospitals. It is thus less attractive for hospitals to provide such ward beds and to offer health services to these population groups.

Studies on JKN have shown persistent problems for members to actually use their JKN entitlements. For instance, JKN members often do not have information about their membership status and entitlements, they do not receive health services to which they are entitled, and they experience long queues at health facilities (Khoirunurrofik & Raras, 2021; Raharja et al., 2022). For a patient finding a free hospital bed in an emergency case, unless life-threatening, is another big challenge.



As part of the efforts to improve the operations of JKN and address such problems, BPJS embraces digital technologies. Digital technologies can be defined as electronic tools, systems, and devices, that generate, store, use and analyse data; they can support health system and health financing functions (World Health Organization, 2021).

One of these digital technologies is Mobile JKN. This Mobile JKN is a mobile phone application with the purpose of facilitating administrative processes for JKN members related to registration and contribution payment as well as accessing JKN benefits, including through the provision of information. Moreover, Mobile JKN contains a range of other features, such as telehealth/teleconsultation with doctors, referral information and health screening records (BPJS Kesehatan, n.d.).

Mobile JKN was introduced in 2017 as part of and under the national strategy to achieve “Digital Indonesia” by 2024. Under this strategy, the national digital transformation and connectivity policy has aimed to create “easily accessible public services from anywhere” (Ministry of Communication, Information and Technology, 2021), through digitizing public services, making public services efficient and being responsive to citizens, with the ultimate goal of strengthening the country’s productivity and economic growth (ibid., p.40). In relation to Mobile JKN, the government’s aim was for people to be able to make better use of JKN entitlements and to have better access to health services.

There have been a few studies on Mobile JKN. Adriani (2018) and Syamsuar & Al Reza (2022) focus on assessing perceptions of Mobile JKN users through the Technology Acceptance Model. Both papers show positive acceptance of Mobile JKN among the study participants. Another study equally argues that Mobile JKN eases access to JKN (ILO, 2020). Wulandari et al. (2019), however, reveals a more nuanced member experience in using Mobile JKN, suggesting that Mobile JKN users on the one hand considered Mobile JKN as an innovation to improve access to JKN entitlements but on the other hand that the impact is limited as various population groups do not have a suitable device to use Mobile JKN and most JKN members reported not knowing about Mobile JKN.

Taking a different focus, this paper assesses how Mobile JKN was designed and implemented and how it improves access to health services and supports health financing functions. These improvements may ultimately contribute to progress towards the intermediate and the final UHC objectives.

Specifically, this paper pursues the following research questions:

1. What are the key features and functions of Mobile JKN?
2. Why was Mobile JKN developed?
3. How has Mobile JKN been developed and implemented?
4. What are the effects of Mobile JKN on access to health services and on health financing functions?
5. What are the design and implementation challenges?

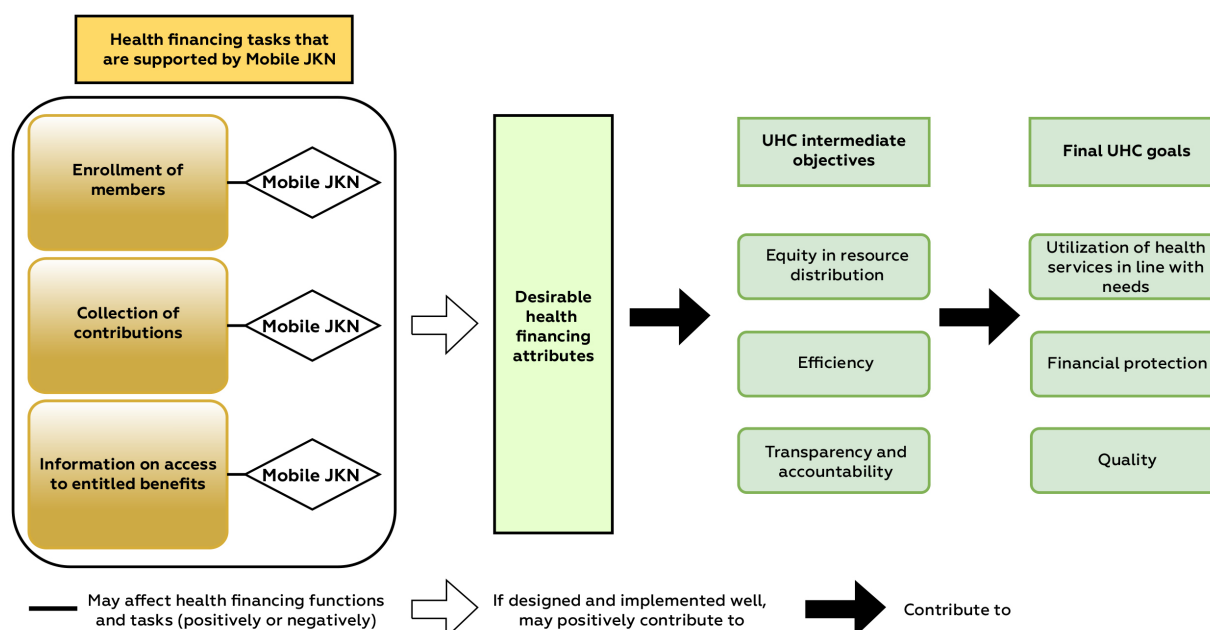
Reflections will be provided on options to strengthen the effects of Mobile JKN, which may also serve as lessons on mobile phone applications in health financing for other countries seeking to progress towards UHC.

2. Methods

2.1. Conceptual framework

The core objective of this paper is to assess how Mobile JKN has impacted health financing functions (i.e. specific tasks thereunder) and access to health services. As a conceptual framework, we used the WHO Guide with key questions for assessing the effects of digital technologies on health financing and universal health coverage objectives (World Health Organization, 2023a). Besides the overall use of the Mobile JKN App, the paper specifically assess how Mobile JKN contributes to improved membership enrolment and contribution collection. An underlying interest is hence whether Mobile JKN works as a game changer to improve the collection of contributions from those outside formal sector employment, which is challenging and an issue in many low- and middle-income countries. Furthermore, it is explored how Mobile JKN facilitates information provision to enhance access to entitled benefits for JKN members. As visualized in Figure 1, the assumption is that this contributes to the desirable health financing attributes and ultimately supports progress towards the UHC intermediate objectives (equitable distribution of resources, efficiency, and transparency and accountability) and final objectives (utilization in line with need of health services, universal financial protection, and quality) (Jowett et al., 2020; World Health Organization 2023a).

Figure 1. Conceptual Framework



Source: authors (based on WHO 2023a)

2.2. Data collection and analysis

This study is based on both primary qualitative and secondary quantitative data. Data collection took place from January to May 2023 and sought insights into the design, implementation, use and effects of Mobile JKN, from the perspective of BPJS policy makers and information management specialists as well as informal navigators.¹ The latter group also shared experiences on using Mobile JKN. This is complemented with data collected in 2020–2021 through in-depth interviews and focus group discussions with patients and informal navigators on the roles of BPJS and informal patient navigation and their use of Mobile JKN to make health insurance more responsive to citizens (for details on the methods cf. Raharja et al., 2022). All interviews were recorded, transcribed, and coded based on the elements in the conceptual framework.

The qualitative approach is combined with secondary data obtained from BPJS Kesehatan on the downloads of the Mobile JKN application and utilization of its various features. Finally, a document review was undertaken, including the national strategy on digital technology, four BPJS Kesehatan reports, as well as the peer-reviewed literature.

¹ Informal navigators are community-related volunteers that are organized as a non-government initiative. The informal navigators help JKN members to get access to health services through information provision, helping with JKN enrolment, accompanying them for hospital visits, etc. (Raharja et al. 2022).



3. Results

The Mobile JKN introduction and operation is taking place in and has to be understood within a context of expanding, yet inequitable internet usage. As the third largest country of internet users in Asia after China and India, data from Statista suggests that by January 2022 there were 224.01 million internet users in Indonesia, which by 2024 is projected to have grown to 242.39 million (Statista, 2024). The Covid-19 pandemic has accelerated internet utilization, with 50 million new internet users during 2020–2022 (Statista, 2024). Among the Indonesian internet users, nearly two thirds are users of smartphones. According to data from the Association of Indonesian Internet Service Providers, the highest proportion of smartphone ownership (87%) is in Java (the most populated island). This is due to its relatively better telecommunications infrastructure compared to other islands. There are significant digital disparities across regions in Indonesia, ranging from disparity in internet access to digital literacy (Kasmad et al., 2019). For instance, urban communities have a higher smartphone ownership rate (83%) compared to rural communities (50%).

3.1. What are the key features and functions of Mobile JKN?

Each individual member of JKN can download Mobile JKN from Google Play Store or Apple Store and register by providing their sixteen-digit citizen's identity (ID) card number and a phone number. The phone number will be verified using a one-time password (OTP) sent through text message. The same phone number can be used to register family members, which is encouraged by BPJS Kesehatan. The first version was released in 2017, while the 2022 version of the Mobile JKN application was 4.4.0 with 48.52 MB in size and the latest (2024) version was 4.8 with 71.9 MB in size.

The features of Mobile JKN have gradually increased over time. The first version included a limited number of features, primarily geared towards helping reduce the administrative burden for both BPJS and JKN members. Further improvements to existing features were made and more features were added in December 2020 and December 2022 respectively, with the latest features particularly providing additional services for JKN members. Table 1 below provides an overview of the features introduced at each stage of the process. Moreover, to attract more users, BPJS Kesehatan also changed the Mobile JKN screen display and logo.

Table 1. Evolution of Mobile JKN features over time

Year	Mobile JKN features
2017	• Membership menu, namely: information about members, digital membership card, and the feature to register and to update membership data; • Payment menu, namely: information on contribution rate, history of payment, and to check the virtual account number; • Service menu, namely: history of service, registration for service and for health screening; • General menu, namely: information about JKN, locations of hospitals, settings of application, and to submit grievances.
2020	• List of medicines covered by JKN; • Operation schedule, namely a display of information regarding hospitals' surgical schedules for JKN members; • Hospital bed availability, namely a display of bed availability for inpatient care, which is particularly relevant for those having access to the lower ward classes only (such as the subsidized members or those who have chosen it); • Doctor consultation, namely a feature to communicate with doctors at primary health centres, which supports physical distancing policy during the COVID-19 pandemic; • COVID-19 self-screening, namely a guidance for JKN members to recognize the symptoms of COVID-19 transmission and to monitor health conditions.
2022	• Registration for automatic debit for contribution payment ("Auto debit"), i.e. monthly contribution payments are transferred automatically from the bank account or another chosen payment option to BPJS; • Request for contribution relaxation, i.e. a self-paying JKN member (working outside formal sector employment) can request to pay outstanding contributions in instalments ("REHAB programme"); • Reminder for monthly contribution payment; • Change of member registration with the primary health care facility (in case a member changes their domicile or is unhappy about the service in the previous facility); • Online queuing system, which allows members to cut waiting time at the health care facilities; • Information on surgery availability and on past health facility visits; • Health screening feature for health promotion and prevention, which is a list of questions on life-style and history of health condition that JKN members can use to detect the possible presence of degenerative illnesses; • COVID-19 health service, which allows members in self-isolation to teleconsult their health conditions with doctors at the primary care level.

The auto debit and REHAB features are particularly important to support the health financing function of revenue raising. JKN members outside formal sector employment can register for the auto debit payment system, i.e. they register their bank accounts through Mobile JKN so that BPJS Kesehatan can automatically deduct their monthly contributions through their bank accounts. This is simpler for both BPJS Kesehatan and for members compared to the other existing non-automatic payment methods, such as bank payments or payments through third-party institutions assigned by BPJS Kesehatan to receive payments (e.g. certain minimarts). The feature to request contribution relaxation (REHAB) is equally critical to assist non-salaried members with arrears to pay in instalments within 12 months and get their contributions up-to-date. As such, members do not lose their coverage.

3.2. Why was Mobile JKN developed?

Before 1 January 2014, mandatory health insurance only targeted civil servants, military/police personnel and certain workers in formal sectors. With the introduction of JKN, the country shifted to a single-payer system and the goal of providing mandatory health coverage to the whole population. BPJS Kesehatan is the operating agency of JKN and was faced with a huge increase of JKN members within a short period of time. It was very quickly challenged by the huge number of inquiries coming to its 126 branch offices and 388 sub-branch offices at the district levels across the country. An average of just under 300 000 people visited the BPJS Kesehatan offices every day, leading to long queues (OECD, 2014). At the same time, JKN members also complained about the need to visit BPJS Kesehatan branch offices each time there was a question or issue related to their membership status and contribution payments, being time consuming and incurring transportation costs as well as queuing. Mobile JKN was introduced in 2017 to support administrative processes in the interaction between BPJS and JKN members through digital means with the aim to reduce the long queues in the BPJS offices. This included the following administrative processes: i) enrolling members into JKN; ii) improving contribution collection such as through the contribution relaxation programme; iii) providing information on JKN entitlements; and iv) providing easier access to health facilities, such as online queuing features. The idea was to reduce paperwork and face-to-face interactions, as well as waiting lines and waiting times at the branch offices.

Moreover, BPJS Kesehatan also viewed Mobile JKN as a tool to collect information, such as the total number of enrolled members or the number of members seeking health care. Such information to be collected through Mobile JKN was also thought to be useful to improve JKN design and quality services in the future, as illustrated by the following quote.

“Through Mobile JKN we [could] know the number of people registered or queuing at health facilities. We [could] also measure utilization rates at all health facilities so that we can predict (...) whether there are trends.” (Focus group discussion, BPJS Kesehatan)

3.3. How has Mobile JKN been developed and implemented?

The Mobile JKN application was developed in-house by the BPJS Kesehatan Information Technology (IT) Directorate, which has about 100 staff. The BPJS Kesehatan Directors of Finance and Investment, of Information Technology, and of Coverage Expansion and Customer Service consistently referred to the so-called waterfall model as the underlying design logic for Mobile JKN, which is “a sequential development process that flows like a waterfall through all phases of a project (analysis, design, development, and testing, for example), with each phase completely wrapping up before the next phase begins” (ACT, 2022).

Specifically, the IT Directorate facilitated the development of Mobile JKN features based on scheduled inputs twice a year from other directorates. The IT Director would then weigh priorities to decide which features would be created or improved. For the further design and revision of Mobile JKN features, the IT directorate considered feedback from Google Playstore, social media channels, as well as from BPJS Kesehatan regional and national staff. In-house tests and pilots of new Mobile JKN features were undertaken by several selected branch offices, usually reaching out to about 100 BPJS staff.

Various stakeholders were invited to get involved in the monitoring and evaluation process for the further development of Mobile JKN. For instance, in early 2021, BPJS Kesehatan organized a forum called BPJS Kesehatan Mendengar (“BPJS Kesehatan Listens”) to receive input from the general public. Further, BPJS Kesehatan set up a WhatsApp group called “monitoring and evaluation (Mon-ev)”, administered by the BPJS Kesehatan IT directorate. This group consists of approximately 2 680 individuals, who represent hospitals and patients’ associations (Focus Group Discussion, BPJS Kesehatan).

Notably, the informal patient navigators who are important actors in organising feedback events with JKN and as such are known to JKN authorities report that they have not been involved formally in the process of developing Mobile JKN features. However, these informal patient navigators used personal, informal communication with JKN authorities to voice their inputs (Raharja et al., 2022).

BPJS Kesehatan has pursued several strategies to promote Mobile JKN. First, the headquarter’s public relation unit developed national campaigns and used BPJS Kesehatan’s social media channels, such as Instagram, Facebook, X, YouTube, and TikTok to share information widely. Printed, online, and broadcast media were equally used, but they were reported by BPJS officials to be less effective. Branch offices were also instructed to create local campaigns promoting Mobile JKN in their area of coverage, monitored by the headquarter. As a recognition BPJS Kesehatan handed out certificates of appreciation to those branches with a noticeable number of Mobile JKN member registrations. Moreover, the BPJS Kesehatan public relation unit cooperated with other central and local government offices, hospitals and primary care facilities to disseminate Mobile JKN information material. The informal patient navigators report that their knowledge about Mobile JKN was based on the BPJS Kesehatan campaign material and equally from health facility officers who encouraged patients to use Mobile JKN to access health services.

3.4. What are the effects of Mobile JKN on access to health services and health financing functions?

Overall use of Mobile JKN

The BPJS Kesehatan IT directorate sets annual targets to expand the use of Mobile JKN among JKN members. The aim is to reach at least 10 percent of the total JKN members per year. However, as of May 2023, six years into the existence of Mobile JKN, according to BPJS Kesehatan data there were only 24 million downloads of Mobile JKN in total, resulting in 21 285 375 verified users of Mobile JKN (i.e. their ID has been validated and aligned with official population registration data). Overall, the verified number of JKN members using Mobile JKN is thus rather low (a share of about 8.4%). As there is no data on the number of other household members linked to each verified ID, it is difficult to estimate the total share of JKN members using Mobile JKN.

The use rates of the various Mobile JKN features vary considerably, but are overall small as Table 2 reveals, listing the most frequently used Mobile JKN features. There were about 21 million registrations (or changes of registration) with a primary care provider, i.e. on average every Mobile JKN registered member used this feature once since the launch of Mobile JKN. Hospital bed availability has been checked 5 million times since its introduction in 2020. Moreover, BPJS Kesehatan officers reported that the updated 2022 version of Mobile JKN has increased the number of downloads and use rates, yet it is not possible to further disaggregate the data for lack of quantitative data since the latest version of Mobile JKN was launched.

Table 2. Use rates of Mobile JKN features (until May 2023)

Mobile JKN features	Number of uses of these features*
Initial features (in place since 2017):	
Seeking information on contribution status	50 758 223
List of general Questions & Answers	25 047 568
Registration with a primary care facility	21 375 285
Features introduced in subsequent years:	
Checking bed availability in hospitals	5 180 394
Allocated schedule for a member's planned surgery	3 567 480
Auto debit registrations	1 722 517
Seeking information on surgery availability in hospitals	341 135

Source: data provided by BPJS Kesehatan

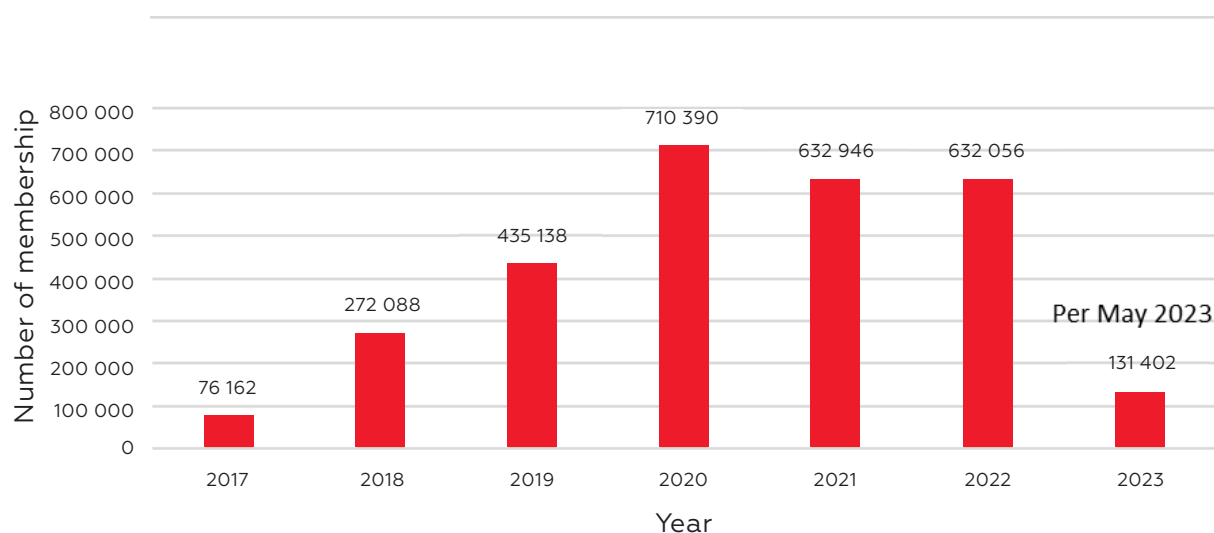
* This may include revisits

Asked about their view, informal navigators and patients confirmed that the two features most useful to them are the patient registration to health facilities and the information provision on bed availability in hospitals.

Membership registration

Mobile JKN facilitates the registrations of new JKN members, which contributes to increasing overall population coverage by JKN. The ease of registering via Mobile JKN may motivate more people to be JKN members, as they no longer have to travel to a BPJS Kesehatan branch office and queue there. Figure 2 presents the increasing number of new JKN members registered through Mobile JKN, with a peak in 2020 during the first year of the COVID-19 outbreak. However, compared to the number of new JKN members overall, the share of registrations through Mobile JKN ranges from less than 1% in 2017 to 4.8% in 2022. The use of Mobile JKN for registering as a new member with JKN is thus overall very modest.

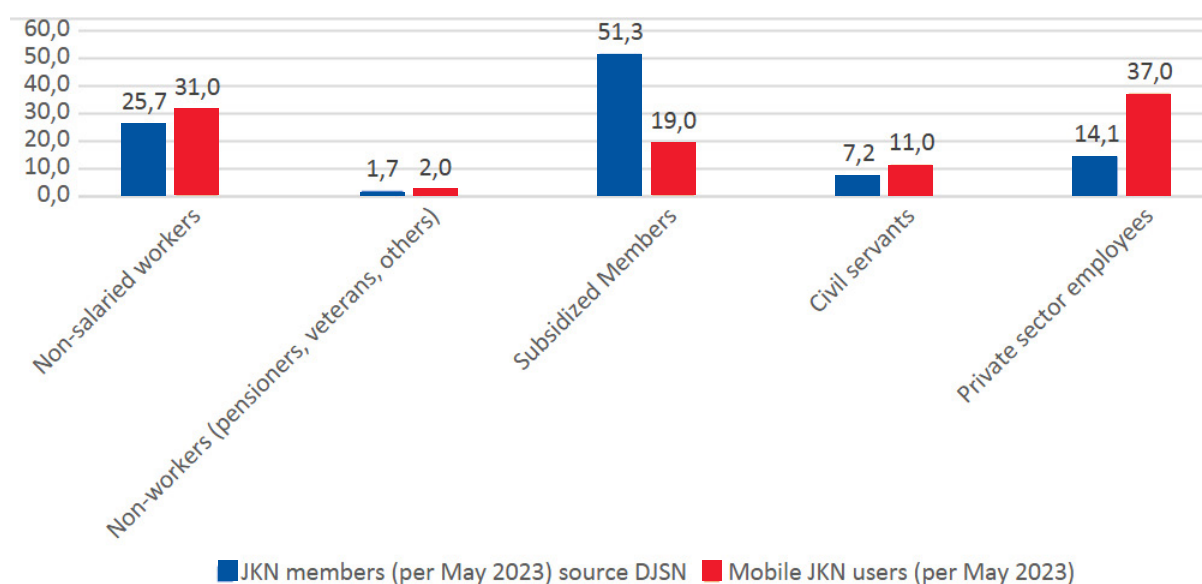
Figure 2. Number of new JKN membership registrations through Mobile JKN per year from November 2017 until May 2023



Source: BPJS Kesehatan (2023)

Figure 3 shows the proportion of different population groups within the total JKN membership numbers as well as their proportions within the total Mobile JKN user numbers. This provides some interesting insights: the largest group of Mobile JKN users (37%) are private sector employees who form only 14% of all JKN members, followed by 31% non-salaried workers (in the informal sector), who form 26% of all JKN members. Meanwhile, only 19% of the registered Mobile JKN users are subsidized JKN members (who form the largest group among JKN members).

Figure 3. Shares of different population groups within total JKN membership numbers and total Mobile JKN user numbers (per May 2023)



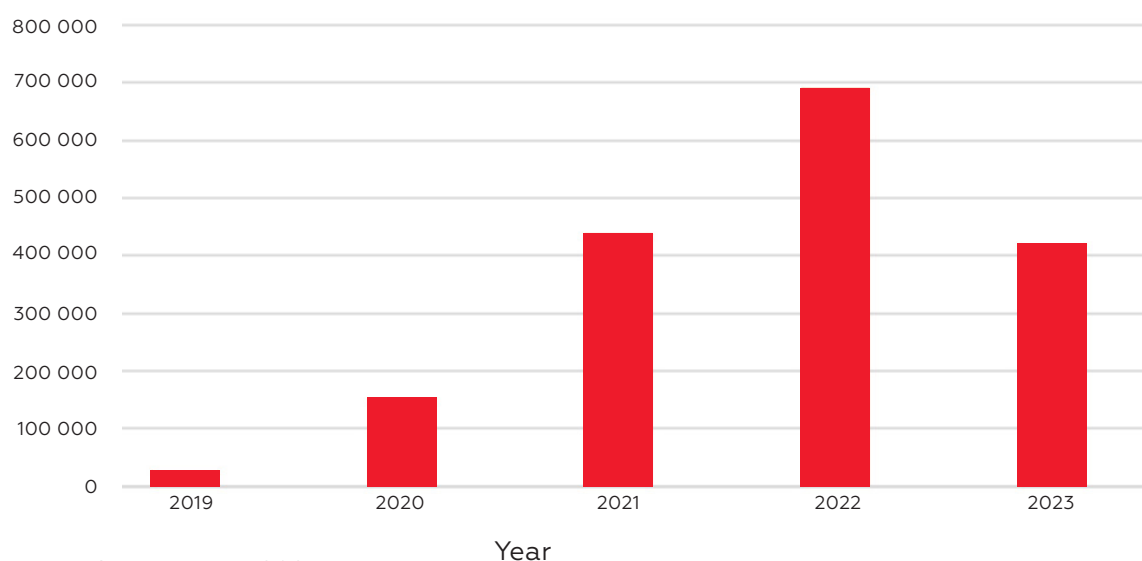
Source: BPJS Kesehatan and DJSN (2024)

The four geographical areas with the largest numbers of registered Mobile JKN users are Jakarta metropolitan area (23.2% of all users), Central Java province (15.3%), East Java province (13.4%) and West Java province (12.5%). Nearly two thirds of Mobile JKN users (64.4%) are thus located on Java, which is also the most populated island in Indonesia, hosting just over half of the Indonesian population. Outside of Java, members registered with Mobile JKN are mostly located in certain locations, most notably North Sumatera and Aceh (a total 6.8% of all Mobile JKN users).

Contribution collection

BPJS Kesehatan officers report that Mobile JKN contributes to improved JKN contribution collection from members who are non-salaried workers, primarily through the auto debit registration, even though absolute revenues may be low. Figure 4 shows the increasing number of auto debit registrations over the period of January 2019 to May 2023.

Figure 4. Number of auto debit registration through Mobile JKN (from January 2019 until May 2023)



Source: BPJS Kesehatan (2023)

Although as of now this is just a very small proportion of all members for which the auto-debit function could support regular contribution collection, this trend of increasing numbers shows the potential for BPJS Kesehatan to regularize contribution payments by JKN members working in the informal economy. As various BPJS officers put it, there are benefits for both JKN as well as the JKN members:

"Now about 8.1 million JKN members are registered for automatic debit and they do so not just through Mobile JKN but also through other channels such as e-commerce namely Tokopedia and directly through banks" (Focus group discussion, BPJS Kesehatan).

"[...] This way we have certainty of them paying contribution." (In-depth interview, BPJS Kesehatan).

"On Mobile JKN, members can see their payment status, register for automatic debit, which shall avoid the hassle of remembering to pay every month. Members no longer need to go to the bank to register for the automatic debit." (In-depth interview BPJS Kesehatan)

Likewise, the REHAB programme, introduced in January 2022, for which members can register on Mobile JKN, has also helped to improve the collection of outstanding contributions by members who have arrears, with instalment options for 3, 6, 9 or 12 months. It is estimated that 40 to 50% of all (32 million) non-salaried workers have arrears in contribution payments. Out of those, 1.1 million members had applied for REHAB by May 2024, out of which 51% had their membership being reactivated (which means they can access health services again), while the remaining 49% was in the process of being reactivated. As of May 2023, BPJS Kesehatan had collected about Rp. 288 billion (or approximately 18.14 million USD) from contributions

through REHAB, thus improving the overall contribution collection rate. BPJS Kesehatan's national target is to reach 750 000 non-active members of JKN annually to enrol in the REHAB programme, which seems a modest but realistic goal. The REHAB feature within Mobile JKN primarily reduces transaction costs for JKN members and serves to ease reactivation of their membership status, as illustrated in the quote below:

"These kinds of member do not need to come to our office; they can register to get relaxation of payment through Mobile JKN. Even if they didn't pay for three years or more, we still only want them to pay their debt of the past 24 months." (In-depth interview, BPJS Kesehatan headquarter).

When they participate in REHAB, the JKN members will receive virtual account numbers to pay their adjusted contribution. JKN members have the options to pay through banks or through third-party vendors (such as minimarts).

Access to entitled benefits through information provision and queuing management

In terms of improving access to entitled benefits, the effect of Mobile JKN is somewhat mixed. One key feature of Mobile JKN is the provision of information on bed availability in hospitals, yet various issues, including insufficient interoperability, affect reaching the full potential of this feature. Importantly, the online registration for a health facility visit and the checking of one's queuing number help reduce waiting time and members can easily change their registration with their selected primary care provider through Mobile JKN. Yet, user rates of these features are still low.

Administration costs for BPJS

The interviews with BPJS Kesehatan officers suggest that Mobile JKN has helped to reduce the face-to-face administration volume at their branch offices. For instance, between 2020 and 2022, more than 600 000 people annually registered through Mobile JKN, so they did not have to visit a branch office to do so. This surge was also due to the COVID-19 pandemic. At the time the physical distance enforcement led to a decline in visits to branch offices and an increase in the usage of Mobile JKN. Likewise, the JKN members who no longer make contributions by coming to BPJS Kesehatan branch offices help reduce the administrative work at the BPJS offices. With further reductions in administrative costs, through enhanced use of Mobile JKN, translating into increased administrative efficiency, the question is what these gains will be used for.

3.5. What are the design and implementation challenges?

Digital divides affecting the use of Mobile JKN

One key challenge relates to the digital divides among JKN members in terms of digital literacy, ownership of smartphones and internet connectivity, as outlined earlier in this section. As such, Mobile JKN has yet to reach certain segments of the JKN membership population: the number of households that can be effectively reached through such mobile phone applications is much smaller than the JKN membership base. The use of Mobile JKN is particularly low among the 130 million subsidized JKN members, one reason being that two core features of Mobile JKN (enrolment and auto-debit function for contribution payments) are initially not relevant to them, although, as outlined below, people may easily drop from the list of the subsidized. Among the subsidized, the urban population is more likely to own a smart phone especially those living in metropolitan Jakarta or in other large cities. They may use smart phones for their work, such as motorcycle drivers offering their services via digital platforms. However, among the subsidized and in particular the poor, those living in rural areas may experience varying levels of digital connectivity, with those living in the mountainous areas, valleys, or forests having rather limited digital connectivity (Raharja et al., 2023)

Insufficient alignment of Mobile JKN software features with its operating context and the digital ecosystem

The internet connectivity issues are exacerbated by certain software features of Mobile JKN which are not sufficiently aligned with its operating context and the digital ecosystem. BPJS Kesehatan officers, IT experts, informal patient navigators and patients report that downloading the Mobile JKN app is not as easy as expected or suggested in the awareness raising and information campaigns, stating that it is more difficult and less user friendly than for instance downloading mobile phone games or transportation applications. A strong and stable internet signal is necessary, given the size of the application. If people use a prepaid mobile phone contract and have a limited data amount in a poor signal area, they may have trouble to complete the download. This may also explain the low number of JKN members using Mobile JKN (a share of 8.4%).

Moreover, the installation process for Mobile JKN is also demanding for some users because of the need to prepare various documents such as their citizen ID card, family card and JKN ID card. This is illustrated by the following quote:

“I often need to help people to download Mobile JKN. We can give them the printed instructions, but sometimes I help them download and input data” (Informant 26, BPJS Satu officer).

Finally, unless staying logged in to Mobile JKN, members need to enter their (long) sixteen-digit citizen ID number every time they use the application. This is cumbersome and prone to typing in an erroneous number, thus not user-friendly.

Insufficient integration of data from other data systems with Mobile JKN

Another set of challenges is related to limited data integration. For instance, there are delays in updating the payment status in Mobile JKN. BPJS Kesehatan cooperates with third party institutions such as banks and minimarts through which members can pay their contributions. However, payments through these institutions are not always updated in real time, taking several days to be reconciled in the member database. When the due date for their monthly payment has passed, JKN members have no coverage during the payment reconciliation process and can only use emergency health services during this period.

In addition, there are insufficient linkages between the Mobile JKN application and information management systems of other ministries and agencies that JKN relies on, which creates a huge problem especially for subsidized JKN members. The Ministry of Social Affairs is responsible for regularly updating poverty data on subsidized members, yet there is no notification via Mobile JKN or any other communication channel to the subsidized members of changes that affect their subsidization status. If they are no longer considered as part of the vulnerable population groups that benefit from subsidies (for instance, their income being above the poverty line or above the near-poor threshold), they will drop out of JKN's list of subsidized members to their surprise. To rectify this, subsidized members need to undergo a cumbersome process of verification requiring a visit to a BPJS Kesehatan office before they can access JKN benefits and use Mobile JKN again.

Likewise, when a JKN member's name is misspelt on the JKN ID cards, when the membership status is incorrect due to double registration of IDs, or when a person's data from the formal sector schemes (prior to the introduction of JKN) into the JKN membership basis was not correctly transitioned, the JKN member may not receive benefits when seeking health care. A person would only learn about not being able to benefit from their entitlements when seeking health services. Shifting from one JKN membership category to another (e.g. a salaried worker becoming unemployed) will also interrupt JKN coverage. These problems can only be solved by visiting the BPJS Kesehatan branch office before using Mobile JKN again. Downloading Mobile JKN helps citizens find out earlier about their ID problems.

Moreover, Mobile JKN is not linked to the Aplicares web-based application, which is an application that BPJS Kesehatan developed for health facilities to inform patients about the list of health facilities serving JKN members and the bed availability at these facilities. Therefore, health facilities also have to provide this information to Mobile JKN separately and regularly so as to offer real-time data. However, if these data on Mobile JKN are not provided on real-time basis, as a result informal patient navigators would find that the information on bed availability provided on Mobile JKN is not accurate. They often have to fill the information gap by contacting a BPJS Satu officer to inquire about bed and ward availability, contacting the BPJS Kesehatan office, or else checking themselves by physically visiting the hospital ward.



There are various reasons for this. The information on ward availability does not consider the real-time turnover and patients in the emergency room who are already waiting at the hospital to enter the wards. Moreover, there are hospitals which do not update their bed availability information in real time (hourly), which also affects the accuracy of information for the bed availability feature on Mobile JKN.

A related issue is that hospitals cannot connect the Mobile JKN registration to doctors' offices but only to the central admission office. As a result, JKN members still need to queue in hospitals to see a doctor, against the idea of Mobile JKN to avoid such queuing entirely, by giving people a specific appointment. Nonetheless, compared to the previous situation (before this feature was included in Mobile JKN), the total waiting time has now been reduced, as patients no longer have to queue twice (first for registering at the hospital and then for the appointment with a specific doctor). In sum, these challenges also point to the dependence of JKN's digitalization process on the successful digitalization processes of healthcare providers and other health system actors.

Lack of monitoring system and data analysis

It is noted that there is no institutionalized monitoring system to evaluate the effects of Mobile JKN in terms of improved enrolment, collection of contributions and access to health services. BPJS Kesehatan highlights that Mobile JKN helps collect data from JKN members. Yet so far, this data is not sufficiently tapped into and analysed, thus the full potential of the data generated is not yet fully exploited.

For instance, this information could potentially also support the operation and regular assessment of the capitation payment system, being a payment method that supports the objective of making purchasing more strategic, of increasing equitable resource distribution and improving equitable access to health services.

4. Conclusion: Lessons and options

In light of the challenges that Indonesia is facing to progress towards universal health coverage, Mobile JKN has good potential to serve as an important tool for BPJS Kesehatan to support managing the large number of members and the respective administrative processes of membership registration, collection of contributions (supporting the revenue raising and pooling function) and patient registration with health facilities (supporting the capitation payment arrangement and the purchasing function). While not quantified, direct benefits for BPJS include reduced administrative costs through the reduction of face-to-face interactions at BPJS branch offices. Moreover, Mobile JKN simplifies membership enrolment and contribution payment for JKN members, and also contributes to improved information and access to benefits and entitlements. As such, Mobile JKN can help to provide a more positive experience for JKN members, since they can avoid transportation costs and travel time by not having to visit a BPJS office. Moreover, it cuts down the waiting time at the branch offices, which otherwise constitute high opportunity costs, such as working time. In sum, similar to other country experiences using digital technologies to support revenue-raising, pooling and purchasing (Oranje & Mathauer, 2024; World Health Organization, 2021, 2022, 2023b), Mobile JKN can make a useful contribution to various health financing tasks and facilitate access to benefits. But whether such a mobile phone application can serve as a real game changer for increasing the collection of (practically) voluntary contributions from those working outside formal sector employment, a challenge that many low- and middle-income countries face, remains to be further explored. The findings from Indonesia do not yet provide sufficient evidence.

However, this analysis also revealed that Mobile JKN does not yet reach its full potential and that it still suffers from various critical shortcomings and faces challenges, both in terms of limited uptake by members (due to digital divides, limited digital literacy, cumbersome use of the mobile phone application) as well as technical issues (related to software features not being aligned with the operating context and the digital ecosystem, limited data integration and interoperability, and absence of real-time data provision). These issues hinder timely and accurate information provision to members to better access JKN entitlements. The following suggestions may contribute to strengthening the positive effects of Mobile JKN and addressing its shortcomings.



Expanding the number of Mobile JKN users

While the Mobile JKN functions are increasingly being used, nonetheless overall user rates are still low. There is need to understand why it is not being used by certain groups, but also a need to make more people aware of the existence and benefits of Mobile JKN. The JKN cadres could play an important role in doing so: as they explain the REHAB programme features, they may also help members to download and install Mobile JKN. Another possible measure is to partner up with other actors, including the informal navigation initiatives under which numerous informal navigators operate who help people to address issues with JKN. These informal navigators could be supported with relevant information material, recognition and involvement in the further revision process of Mobile JKN. The use of Mobile JKN will also increase by simplifying the various Mobile JKN software features, in order to reduce the required data volume for users and to make it more user-friendly, and by taking into consideration and addressing the digital divides (see further below).

Agile revision process with strong user participation guided by their needs

Partly as a result of using a waterfall model underlying the development of Mobile JKN, it faced several issues, which BPJS then sought to gradually address. A more comprehensive and user-centric approach to the Mobile JKN development could possibly have avoided some of the design and implementation challenges that reduced the potential effects of Mobile JKN. For the continued elaboration of Mobile JKN, BPJS Kesehatan could include principles of agile modelling that place emphasis on inclusive user participation, with the idea of making the app more user-centric and oriented along user needs.

Better alignment of Mobile JKN with its operating context and the digital ecosystem

It is critical to align Mobile JKN software features with its operating context and the digital ecosystem, considering that not every household may have a smartphone with stable internet connection. For instance, BPJS Kesehatan may address the balance between the variety of Mobile JKN features on the one hand and the ease of utilizing Mobile JKN on the other hand, also considering the amount of data to download and operate Mobile JKN and the types of mobile devices being used across Indonesia. Also, logging into Mobile JKN could be simplified by avoiding entry of the sixteen-digit ID card number, which has proven to be a hurdle. Overall, this would reduce the risk of creating or expanding digital divides that contribute to consolidating or increasing existing inequities in financial protection and access to care.

Enhanced data integration and inter-operability between Mobile JKN and other data bases

BPJS Kesehatan could improve data integration and inter-operability between Mobile JKN and other data bases from JKN as well as from other organizations, foremost the Ministry of Social Affairs and the Ministry of Health (with its related databases, such as the SatuSehat, a national integrated health data exchange platform). Moreover, it would be important to include measures such as improved data connection with third parties that are involved in collection of contribution payments (banks, minimarts, e-commerce) to ensure real-time updates on membership payment status, as well as enhanced inter-operability between Mobile JKN and Aplicares. Above all, a systems perspective is needed to anticipate and address any inter-operability problems before they occur, as the digitalization process expands across the health sector.

Strengthening compliance by health service providers

The Government needs to engage in stronger enforcement to ensure that health providers comply with the JKN guidelines and provide real-time data on bed availability, patient registration and surgery appointments to Mobile JKN. This also points to the need of supporting effective digitalization processes within the health facilities in order to realize benefits for JKN at system level. Options to do so could include stringent rules, consideration for the accreditation status or financial incentives.

Systematic monitoring and evaluation

It will be useful to systematize the monitoring and evaluation of the effects of Mobile JKN in relation to the overall goals of JKN, for instance as to improved collection of contribution payments, the reduction in arrears and the number of JKN members having registered for the REHAB programme via Mobile JKN compared to those visiting the branch offices. There is also need to assess how the bed availability feature in Mobile JKN has improved access to hospital services, especially for lower income groups. Such information will help to strengthen Mobile JKN (through updating or redesigning its features), but also support planning and strategizing processes for JKN overall.

Differentiating new JKN members having enrolled through Mobile JKN versus new JKN members having enrolled at branch offices is also important as is identifying the number of new members enrolled via Mobile JKN versus ("old") members having registered with Mobile JKN in order to be able to assess the actual effects of Mobile JKN. Moreover, it may also be critical to disaggregate the user data along urban versus rural populations as well as along other socio-demographic (e.g., gender, age, educational background) and socio-economic lines (income quintiles, subsidized population groups).



The data generated through Mobile JKN provides enormous potential when actually used and analysed in order to explore patient preferences and to improve access to and quality of service. Likewise, effects for the BPJS administration could be explored in more detail, such as the costs being saved on staff that could then be deployed elsewhere.

In conclusion, the experiences with the Mobile JKN application demonstrate both the opportunities and the challenges of the use of digital technology to facilitate health financing tasks through which BPJS as well as the members are supported. The overall aim is to enable people to make use of their JKN entitlements and access health services in order to ultimately progress towards UHC. Some of the infrastructural, technological and behavioural challenges faced in relation to Mobile JKN in Indonesia may be equally found in other countries. This is why it is critical that the design process of any mobile application is contextualized to its (digital) environment and that it involves a broad range of stakeholders, including target users as well as other government agencies, foremost the Ministry of Health. Monitoring, evaluation and subsequently revisions, where needed, of both the design and the implementation are pertinent to ensure that digital divides are overcome and that benefits of such a digital intervention accrue to all population groups equitably. Equally critical is the creation of administrative efficiency gains and reduction in administrative costs for the purchasing agencies and health service providers, and turning these efficiency gains into enhanced coverage. Documenting country practices, i.e. their achievements as well as encountered challenges, and sharing of experiences to learn lessons across countries will help to design strong digital technologies that support health financing functions and are conducive to progress towards UHC.

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