NATIONAL HEALTH INSURANCE-BASED TELEMEDICINE IMPLEMENTATION FOR HYPERTENSION MANAGEMENT IN PRIMARY CENTRES

Pandit Bagus Tri Saputra[1], Nabila Izzati[1], Primadita Esther Rosita[1], Desy Trilistyoati[1], Nur Moya Isyroqiyyah[1], Iffa Halimah Hasna[1], Niamita Eka Puspita Putri[1], Ervina Dyah Pitaloka[1], Muhammad Rifqi Arya Putra[1], Andi Lestari Rahman[1], Lilik Djuari[2]

[1]Faculty of Medicine, Universitas Airlangga, Indonesia [2]Department of Public Health-Preventive Medicine, Faculty of Medicine, Universitas Airlangga, Indonesia

ABSTRACT

Hypertension nowadays still becomes one of the severe problems in Indonesia, with a prevalence of 34% in 2018. The complication of hypertension causes the most deaths and disabilities in Indonesia and cost 75% of The Social Security Organizing Agency (BPJS) budget or IDR 15 trillion in 2019. This problem was probably caused by patients' lack of knowledge and limited personnel at the primary health centre (PHC). Telemedicine is a health care provider without any direct contact, which has various methods. Today, telemedicine in Indonesia is growing rapidly along with technology and legal regulation in its implementation, increasing users by 700% in the first year of 2020. Despite the rise of those numbers, telemedicine in PHC is still limited. Recently, the Ministry of Health and various organizations have issued telemedicine regulations at primary level health facilities in collaboration with The Social Security Organizing Agency. This review aims to discuss the current implementation and the potential future of telemedicine-based hypertension management in collaboration with the Social Security Organizing Agency in PHC.

ARTICLE HISTORY

Received: October 5, 2020
Accepted: February 8, 2021

doi:
10.20473/jcmphr.v2i1.25304

KEYWORDS
Telemedicine, Social Security Administrator for Health (BPJS), Primary Health Centre (PHC), hypertension

CONTACT
Lilik Djuari
✉ lilikdjuari@gmail.com
Department of Public Health-Preventive Medicine, Faculty of Medicine, Universitas Airlangga, Surabaya, Jl. Mayjend Prof. Dr. Moestopo 47, Surabaya, Indonesia

INTRODUCTION

Hypertension is defined as systolic blood pressure ≥140 mmHg or diastolic blood pressure ≥90 mmHg on repeated measurements.[1] Basic Health Research (2018) shows that the prevalence of hypertension in Indonesia was 34%. With a total population of 270 million people, the estimated number of hypertensive patients in Indonesia were 92,000,000.[2] Those numbers were more significant than half of the Javanese population. Hypertension complications such as stroke, various heart diseases and chronic kidney failure were the leading causes of disabilities and deaths in Indonesia.[2]

Morbidities and mortalities caused by hypertension can be prevented by continuously controlling blood pressure. The aspect of prevalence and complications prevention is the key in managing hypertension at the national level. Those were reflected in the concept of the Non-communicable Disease Prevention and Control in the PHC, but its implementation was still facing various obstacles and under target.[2] The Social Security Administrator for Health had budgeted to prevent various

diseases, including hypertension, especially in the PHC, but it was not running well. This is thought to be related to hypertensive patients who do not want routine control and change their lifestyle.

Telemedicine allows flexibility between health workers and patients in providing health services, both in place and time.[3] The ethical and legal aspects of telemedicine are currently an issue that is widely discussed in various events. The high flexibility of telemedicine has the potential to solve hypertension problems in Indonesia. The role of telemedicine is quite discussed in advanced health facilities, but there were still few discussions about implementing telemedicine in the PHC, including the role of The Social Security Organizing Agency. This review aims to discuss the current implementation and the potential future of telemedicine-based hypertension management in collaboration with the Social Security Organizing Agency in PHC.

OVERVIEW

The Situation of Catastrophic Hypertension Disease and Its Management

Hypertension was one of the non-communicable diseases (NCD) that became a national priority in the implementation of the 2030 Sustainable Development Goals (SDGs) in the last decade.[4] There was an increase in hypertension prevalence from 25.8% (2013) to 34% (2018) in Indonesia.[2] It was probably highly influenced by an unhealthy lifestyle. It is now becoming an emerging catastrophic iceberg disease and requires holistic management.

NCD Prevention and Control program were the integrated government's program to reduce hypertension prevalence, morbidities and mortalities. The programs were implemented at several levels, starting from family, community, health centres, and referral health facilities.[5] Some of those main programs which focussed on the prevention and early treatment were Pelayanan Terpadu (NCD Pandu) and Pos Pembinaan Terpadu (NCD Posbindu). However, the outcome was still unsatisfactory even after a decade of implementation.

In 2019, the program's targets based on the number of PHC applied NCD Pandu and NCD Posbindu and families coverage were reached, but the unhealthy lifestyle and prevalence of hypertension disease were still increasing.[5] This may be because most of the Posbindu for non-communicable disease, including hypertension, have not been implemented routinely, and the patients' follow-up was not optimal. Moreover, the activity focused on treating the elderly population, not preventing the younger age from being sick. Other obstacles such as high operational cost, mobile human resources, and unequal Cadre training in Posbindu were also challenged.[2]

Essential health research shows that only half of the patients undergo routine treatment.[2] The impediments originate from the patients or healthcare providers. Figure 1. shows that most of the reasons for non-compliance of individuals in carrying out treatment were grassroots by the lack of knowledge, both the disease and health system. As a result, asymptomatic patients, especially with low levels of knowledge,

had weak motivation to seek routine treatment even though the Social Security Organizing Agency guaranteed the treatment cost for Health. Patients' knowledge was directly proportional to the adherence to treatment and treatment outcomes.[6]

Meanwhile, the limited number of health workers[7] and inequality in program implementation[2] was considered why the national program results are still under target. The suboptimal number of health workers seems to have contributed to patients' lack of knowledge in the 'conventional system'. Most of the programs were offline, requiring plenty of time and energy to cover each PHC's territory. Sometimes, the workers asked to cover others' job desks due to the limited personnel and high demanding programs.[7] In contrast, telemedicine-based programs imple-mentation were still limited for managing hypertension in PHC.

The Role of The Social Security Organizing Agency For Hypertension Management In Primary Health Centre

PHC is a health facility that provides primary health services. It has the main role to do promotive and preventive aspects (without neglecting curative and rehabilitative aspects) in health efforts in Indonesia, including hypertension management. Several programs have been implemented at the PHC for hypertension management, such as health screening and Prolanis (in collaboration with The Social Security Organizing Agency), as well as Pandu and Posbindu (which are government programs).[4]

Nowadays, PHC always closely associated with The Social Security Organizing Agency, as one of the sources of financing widely used by the community. The Social Security Organizing Agency is a legal entity in the form of social protection to carry out promotive, preventive, curative and rehabilitative aspects. The Social Security Organizing Agency participants have the right to get health services, such as health screening, which Prolanis follow in terms of hypertension management. The aim is to improve the quality of life for people with degenerative diseases and reduce complications so that health service costs become effective and efficient.[8]

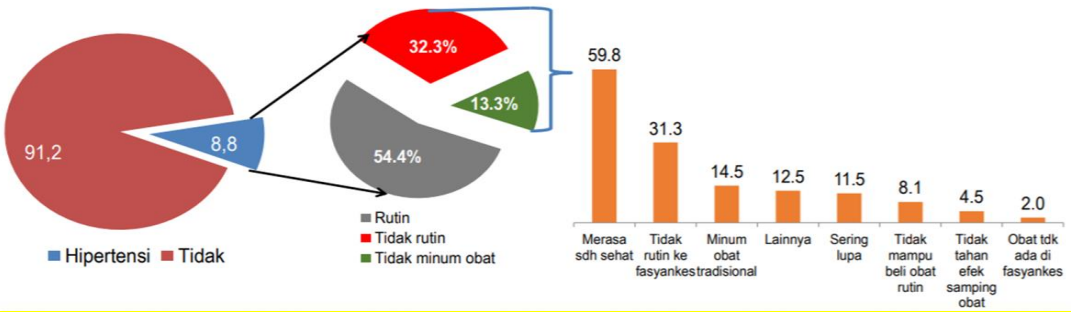

Figure 1. The proportion of medication history and reasons for not taking medication in hypertensive patient (Ministry of Health, 2018)

The health insurance burden in 2019 is IDR 108.6 trillion with a budget of IDR 15 trillion for heart disease, stroke and kidney failure.[9] It is regrettable because this disease is a complication of hypertension that can be prevented in PHC. So far, the government budget for curative-rehabilitative efforts is 77.1%, while for promotive-preventive efforts, only 19.3% of the total health budget.[10] This condition shows that promotive and preventive health services have not run optimally. This phenomenon is also supported by Audit Board of the Republic of Indonesia (BPK) data which shows that there are 5,619 out of 10,104 PHC that have not had five types of health workers to take promotive and preventive actions.[11]

The Social Security Organizing Agency spending to deal with complications from degenerative diseases is still too large. The factor that becomes an obstacle is the possibility that PHCs are still involved in many curative efforts and are not implementing promotive and preventive efforts. Another factor is the unevenness of the PHC, which makes it difficult for people to access them in certain areas. The problem of geographic access can be partially resolved with telemedicine's implementation; however, until now, The Social Security Organizing Agency has not yet provided financing for telemedicine services.

Telemedicine Based Hypertension Management In The Primary Health Centre

Definition, History and Purpose

According to WHO (2010), telemedicine is a form of health service that uses information and communication technology to exchange information on diagnosis, treatment, and prevention of disease, evaluate disease and continue health workers' education to improve individual and community health.[3]

The development of telemedicine has started for quite a long time. One of the first pieces of literature said a Dutch physician, Willem Einthoven, did a long-distance transfer of electrocardiograms in 1905. Then, it was followed by radio consultation from health care centres in Norway, Italy, and France in the 1920s, 1930s, and 1940s for patients aboard ships at sea and on remote islands.[12]

This service is beneficial because it can connect one health facility to another even though the distance is far. The purpose of telemedicine includes providing clinical service, overcoming geographical barriers, connecting users who are not in the exact location, utilizing information and communication technology, and improving health outcomes.[3]

Implementation in Indonesia

The conditions in Indonesia are pretty adequate in implementing telemedicine based on technology, health infrastructure and the economy. In 2020, there were more than 190 billion smartphone users in Indonesia.[13] Most of the Health infrastructure-PHC, clinics, and hospitals, have been established. Overall, communication and technology sectors are diverse, wireless and satellite networks are adequate for telemedicine in PHC. However, they may not reach several highly

remote areas in this large archipelago island.[14]

The estimated investment and operational costs for telemedicine are Rp180 billion if calculated from an economic perspective. The amount is quite large but still affordable, which is only 19% of the government budget allocated for health. The cost for telemedicine is part of the funds allocated to the Directorate General of Health Efforts. The Directorate General of Health Efforts has the task of formulating and implementing policies and technical standardization in health effort development. In 2015, the allocation of funds for the Directorate General of Health Efforts amounted to 961 billion with the realization of only 329 billion.[14] If the completion of the budget is more significant, the implementation of telemedicine can be more optimal.

Legal issues of telemedicine published by the Ministry of Health, open more expansive opportunities for managing hypertension in PHC. However, PHC did most of the primary health programs for managing hypertension in conventional ways. Some primary health facilities, especially in cities, use the E-Health system to increase the program's effectiveness, focusing on administration, such as taking the e-ticket. The elderly population still come to ask the health centre directly despite the administration being accessible online due to the lack of knowledge.[15] Overall, the program was effective to shorten the queue duration and satisfy the patient.

The telemedicine program also can be claimed or legally administratively under The Social Security Organizing Agency. So far, there are still no health facilities (including PHC) that use The Social Security Organizing Agency-based telemedicine to manage hypertension. The Prolanis program that focuses on early prevention and curation is still not telemedicine-based, except for the use of websites whose content is still limited.[4]

An explicit example of telemedicine-based hypertension management in PHC is the smoking hotline (Quitline). Quitline is a consultation conducted via telephone for smokers. The program design that targets the improvement of risk factors is quite good in the preventive efforts of hypertension. However, there are many other risk factors such as a sedentary lifestyle, diet regulation, and stress management that need to be improved, which Quitline has not covered.[16]

Another telemedicine implementation is not limited to individual consultations with doctors but also in groups. Research conducted in Indonesia showed a satisfactory outcome in peer group members. The performance of peer groups in Indonesia has developed in the form of WhatsApp groups. Generally, this method is used for public education in improving risk factors. People gathered in groups will be given regular information about a healthy lifestyle in posters, booklets, or sharing via chat. For example, a particular youth group in Medan, which focuses on smoking prevention, was able to increase the knowledge and awareness of teenagers so that it could become a primordial preventive effort.[17] The literature was limited, but it may be one of the most

common unofficial telemedicine used in PHC.

Potential and Barrier

The COVID 19 pandemic has made the health sector experience rapid digitalization, suggesting a shift in services towards telemedicine to minimize direct contact between patients and health workers, increasing the risk of transmission of COVID 19.[18] The Indonesian Doctors Association has also stated its support for telemedicine, focusing on the empowerment of patients. Thus, clinics in rural areas can also perform various examination modalities before consulting with a specialist in the city.[19] Telemedicine could be one solution to the inequality of health facilities in Indonesia.

Several countries have implemented and experienced the benefits of telemedicine before the COVID 19 pandemic, but there are also obstacles in its implementation. One of the countries that can be considered successful in implementing telemedicine in China. China has a large population like Indonesia, with a large number of health workers. However, maybe the difference lies in the infrastructure, especially the rapidly developing technology.[20]

The main points in the advantages of telemedicine are practicality, convenience, and speed. Telemedicine offers comfort for patients and health workers because they can carry out consultations anywhere, especially in areas with no health facilities to access health services. The convenience and comfort will increase patient compliance in treatment. Multidisciplinary coordination is easier to carry out. Data recording can be done in real-time, automatically and well integrated. Telemedicine is also helpful, especially for developing countries, which have fewer doctors than the population.[18]

Telemedicine also saves costs because services do not require transportation to or from referral health facilities,[18] especially preventive efforts against complications of degenerative diseases, such as hypertension. Indirectly, telemedicine effectively reduces the costs incurred by the government for treatment, mainly if the The Social Security Organizing Agency covers it. That condition is an advantage for The Social Security Organizing Agency if it is willing to finance telemedicine services immediately.

Implementation of telemedicine services between health service facilities in Indonesia is regulated by Permenkes.[4] There are several things from Permenkes[4] that can be noted to improve telemedicine services in Indonesia, such as improvements in applications and financing.

A significant element in telemedicine is an application, originating from the ministry of health or developed independently.[4] In this case, the ministry of health should be able to make an application that connects PHC and Referral health Facilities and between PHC throughout Indonesia. This relationship is expected to increase cooperation and equalize telemedicine services in all PHC, especially those located in rural areas.

Another interesting thing is about financing. The fee is charged to the health

facility requesting a consultation with the cost of the health insurance program determined by the minister, and financing claims are made through the application.[4] This statement shows that Indonesia already has a legal basis that allows The Social Security Organizing Agency to be involved in telemedicine application. However, until now, The Social Security Organizing Agency is still not engaged in telemedicine.

In addition, to have advantages and potentials, telemedicine also has obstacles in daily practices. The problem that has not been fully resolved is how telemedicine can replace face-to-face contact between doctors and patients. It can be said that there is no difference between face-to-face meetings and anamnesis via video calls. Nowadays, some physical examinations can also be done remotely, for example, in terms of inspections. Even in terms of checking vital signs such as blood pressure, patients can do it independently at home, considering that many automatic blood pressure measuring devices are sold freely. Patients can also measure blood pressure in several public places that are easily accessible, equipped with simple facilities and sufficient medical personnel connected automatically with telemedicine service. It's called blood pressure telemonitoring (BPT).[21]

Home blood pressure monitoring (HBPM) was recommended by the latest Indonesian consensus of hypertension (2019) and almost all hypertension guidelines. It can improve control compliance and patient awareness of the importance of self-regulation of blood pressure. There was no exact number of HBPM in Indonesia, but the withdrawal of the sphygmomanometer had expected to increase HBPM.[22] HBPM was the basis of BPT in hypertension management-based tele-medicine.[21] Some of the common obstacles were patient's lack of knowledge, a perception that the device was unreliable and cost.[22] Indeed the results of that tend to vary and can be less accurate depending on the automated tools used by each individual. Still, the diversity is not significant compared to the benefits obtained.[21] BPT may be widely used in advanced health centres but less likely in PHC due to the limited implementation of telemedicine.

A small number of physical examinations and vital signs can be done remotely. However, telemedicine still cannot cover all medical practices, such as physical examination (except inspection), laboratory, and radiology. Therapy that requires action, of course, cannot be separated from health facilities. Many medical personnel think that online interaction will reduce the closeness of the doctor-patient relationship.[23] Therefore, telemedicine continues to play a role as a good supporter without completely replacing the practice of medicine.

Implementation of telemedicine in several countries also had obstacles in general. Technology is still a big problem, especially for developing countries. Cultural barriers occur in several countries, such as China, where some doctors still find it difficult to change the mindset that face-to-face meetings are mandatory. Lack of legal regulations is also a problem in India and Egypt, resulting in unclear telemedicine models, such as what services are provided and how the financing

mechanisms pay them.[20] Indonesia, as a developing country, must have a similar problem. The government should use the experience of the difficulties in several countries as lessons for better implementation of telemedicine in Indonesia.

CONCLUSION

After a decade of various hypertension programs implemented in PHC, hypertension still became one of the national health problem priorities to achieve SDG. However, lack of awareness highly contributed to the failure of hypertension management. HBPM and risk factors management recommended by some latest hypertension guidelines became an essential foundation of hypertension management-based telemedicine. However, implementation of hypertension management based-telemedicine was still minimal and local. Since the COVID-19 pandemic, various aspects of telemedicine have been exponentially growing, including user number, legality, and ethical aspect. The ministry of health stated that The Social Security Organizing Agency funding-based telemedicine services had been legal in Indonesia, but the technical rules of The Social Security Organizing Agency were in process. The challenge of telemedicine implementation relies predominantly on the cultural, cost, human resource, and infrastructure aspects, especially in severely remote areas. However, telemedicine seems to become a promising opportunity to increase hypertension management's outcome in PHC.

REFERENCES

1. Indonesian Society of Hypertension (2019). Konsensus Penatalaksanaan Hipertensi 2019
2. Ministry of Health, Republic of Indonesia (2018). Laporan nasional RISKESDAS 2018. Jakarta, Kementerian Kesehatan RI
3. WHO (2010). Telemedicine: Opportunities and Developments in Member States. e-Health series. Geneva, WHO
4. Ministry of Health, Republic of Indonesia (2019). Peraturan Menteri Kesehatan No. 20 Tahun 2019 tentang Penyelenggaraan Pelayanan Telemedicine Antar Fasilitas Pelayanan Kesehatan. Jakarta, Kementerian Kesehatan RI
5. Ministry of Health, Republic of Indonesia (2019). Laporan Kinerja. Jakarta, Direktorat Pencegahan dan Pengendalian Penyakit Tidak Menular
6. Mathavan J, Pinatih GNI (2017). Gambaran tingkat pengetahuan terhadap hipertensi dan kepatuhan minum obat pada penderita hipertensi di wilayah kerja Puskesmas kintamani I, Bangli-Bali. Intisari Sains Medis, 8(3), 176-180
7. Badan Perencanaan Pembangunan Nasional (2018). Penguatan Pelayanan Kesehatan Dasar di Puskesmas. Jakarta, Direktorat Kesehatan dan Gizi Masyarakat
8. Republic of Indonesia (2011). Undang Undang No. 24 Tahun 2011 tentang Badan Penyelenggara Jaminan Sosial. Jakarta, Sekretariat Negara
9. Badan Penyelenggara Jaminan Sosial (2020). Laporan Pengelolaan Program Tahun 2019 dan Laporan Pengelolaan Keuangan Tahun 2019 (Auditan),

Jakarta, The Social Security Organizing Agency Kesehatan
10. Ministry of Health, Republic of Indonesia (2020). Rakernas Pembiayaan Kesehatan dalam Penguatan Promotif Preventif. Jakarta, Kementerian Kesehatan
11. Badan Pemeriksa Keuangan Republik Indonesia (2021). Pendapat BPK. Pengelolaan atas Penyelenggaraan Program Jaminan Kesehatan Nasional 2021. Jakarta, BPK RI
12. Ryu S (2010). History of Telemedicine: evolution, context, and transformation. Healthc Inform Res, 16(1), 65
13. Nurhayati H (2020). Smartphone users in Indonesia 2015-2025. Statista
14. Ariyanti S, Kautsarina K (2017). Kajian Tekno Ekonomi pada Telehealth di Indonesia. Buletin Pos dan Telekomunikasi, 15(1), 43-54
15. Prabowo SA, Rizky M, Mashuri MA (2020). Imple-mentasi E-Health sebagai alternatif antrian online di Puskesmas Kalirungkut kota Surabaya. Jurnal Syntax Transformation, 1(2)
16. Ho LLK, Li WHC, Cheung AT (2020). Impact of COVID-19 on the Hong Kong youth quitline service and quitting behaviors of its users. Int J Environ Res Public Health, 17, 8397
17. Gafi A, Hidayat W, Tarigan F (2020). Pengaruh penggunaan media sosial whatsapp dan booklet terhadap pengetahuan dan sikap siswa tentang rokok di SMA Negeri 13 Medan. Jurnal Muara Sains, Teknologi, Kedokteran dan Ilmu Kesehatan, 3(2), 281
18. Wijesooriya NR, Mishra V, Brand PL, et al (2020). COVID 19 and telehealth, education, and research adaptations. Paediatr Respir Rev, 35, 38-42
19. Jatmiko W, Masum M, Isa S, et al (2015). Developing a smart telehealth system in Indonesia: Progress and challenge. In: International Conference on Advanced Computer Science and Information Systems 2015. Depok, Institute of Electrical and Electronics Engineers Inc, 29-36
20. Combi C, Pozzani G, Pozzi G (2016). Telemedicine for developing countries. Appl Clin Inform, 7(4), 1025-1050
21. Wang JG, Li Y, Chian YC, et al (2021). Telemedicine in the management of hypertension: evolving technological platforms for blood pressure telemonitoring. J Clin Hypertens, 23(3), 435-439
22. Turana Y, Tengkawan J, Soenarta AA (2020). Asian management of hypertension: Current status, home blood pressure, and specific concerns in Indonesia. J Clin Hypertens, 2020(22), 483–485
23. Wernhart A, Gahbauer S, Haluza D (2019). eHealth and telemedicine: Practices and beliefs among healthcare professionals and medical students at a medical university. Plos One, 14(2), e0213067