Status of eHealth in Benin republic

Yao Amevi Amessinou Sossou

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Executive Summary

The Benin Republic's National eHealth Strategy intends to improve the country's healthcare sector by leveraging information and communication technology (ICT). Establishing an eHealth infrastructure, boosting human resources for health, expanding access to healthcare services, improving healthcare quality and patient safety, and developing a legal and regulatory framework are all part of the approach. Best practices in the Benin Republic's eHealth strategy include strong government commitment, a favorable institutional and legislative framework, and the development of a national eHealth master plan. However, the strategy's implementation confronts various challenges, including a lack of money, insufficient technical human resources, delays in legal and regulatory elements, poor user confidence, and limited access to health structures. Despite these obstacles, Benin has a good institutional environment, a solid legislative framework, and a qualified human resource pool to drive the approach.

The country has a national telemedicine development strategy in place, and both the government and the corporate sector are dedicated to it. The government has also formed an independent team to gather and analyze impact indicators to track the strategy's execution. Lessons learnt from earlier projects and initiatives are being applied to the eHealth strategy's execution.

Background

Benin is a country in Western Africa. It has about 13 million people and is noted for its rich cultural legacy, diversified animals, and gorgeous scenery. "With a population of 12.12 million in 2020, Benin's population is expected to surpass 30 million in 2030 and reach 46.83 million by 2099, more than tripling its current population." The country is classified as a low-income country by the World Bank, with a gross national income (GNI) per capita of $1,200 in 2020. The country's economy is mostly centred on agriculture, which employs more than 70% of the people, and it is a major producer of cotton and palm oil. However, Benin confronts enormous economic issues, including high levels of poverty, unemployment, and insufficient infrastructure. Benin's healthcare system has major obstacles, including limited access to healthcare services, poor facilities and equipment, and a labour deficit.

According to the World Bank, Benin had only 0.4 physicians and 1.1 nurses and midwives per 1,000 people in 2020, which was significantly lower than the global average. Furthermore, communicable diseases like malaria, HIV/AIDS, and tuberculosis are common, as are noncommunicable diseases like hypertension and diabetes.

According to the United Nations Development Programme, while the government of Benin has made efforts to improve the healthcare system, such as increasing funding for health services and expanding health insurance coverage, progress has been gradual due to insufficient resources and capacity (UNDP).

To effectively address the issue of access to health care, the Benin government adopted a national eHealth policy that will be executed from 2018 to 2022. The primary goal was to improve the delivery of healthcare services through the use of digital technologies.

What is the status in Benin in terms of digital healthcare services? Can we provide an overview of the current position in Benin about eHealth by outlining the situational setting that gave birth to the national eHealth plan in a chronologically acceptable manner? We would also like to describe what that plan entails and how it is supposed to be applied. What are the best practises that should be promoted?

Situational context

E-health has been used in Benin for a number of years, mostly through private projects supported by non-governmental organisations, international organisations, or bilateral cooperation. However, the Ministry of Health has minimal engagement in these programmes, and the majority of them fade away as financing runs out, with little assessment of their influence on the health system.

To institutionalise the use of digital health, the Ministry of Health has tasked the Department of Information Technology and Pre-archiving with developing a national e-health plan, while the National Directorate of Hospitals is in charge of telemedicine. Two strategic documents on the use of ICT in health have been created.

In terms of health structure connection, a 2015 review indicated a lack of a nationwide and uniform network for the Ministry of Health, with some structures having access provider subscriptions. The central administration has 17 internet connections, and buildings are linked by local fibre optic or copper

networks. There is no such thing as a conventional DATACENTER. Some structures are linked by WAN, and ideas for a national VPN network have been made; nonetheless, finance and execution remain challenges. Health care facilities are rarely connected to the Internet at the primary level.

For numerous years, the Ministry of Health has used WHO-defined eHealth services. Traditional services such as Health Information Systems, National Health Information and Management System (SNIGS), which covers the entire country for electronic, semi-electronic, and manual transmission of health data centralised at the Directorate of Programming and Forecasting level, Prospective, and software such as DHIS2 and LOGIHOSP, which are used for data entry at the health facility level, are among those offered. The Ministry of Health also employs automated administrative, financial, and medical management systems such as Perfecto, LOGI-GRH, ITODJOU, PITA, SHA2, SIGFIP, and SIRGIP-ARP.

The France-funded telemedicine project began in 2009 with the connecting of ten health structures via a VSAT network with a central node at the Ministry. Despite financial challenges, the St. John of God Hospital in Tanguieta employs telemedicine in medical imaging, cardiology, and anatomical pathology. In August 2016, the Indian government started another telemedicine project in collaboration with the African Union, covering 53 African Union countries using VSAT lines and undersea cables.

TCIL manages the project, which includes tele-education, telemedicine, and VVIP connectivity for diplomatic communication. Several cell phone-based projects have evolved in the country to combat maternal and newborn mortality. A call for life (CARE-BENIN-TOGO), the COMCARE project, drug stock management on the Android platform, and the national mobile message alert system are among them (SYNAM developed by ABSU-CEP). There are also various web and social network platforms in the country that deal with public health issues.

In Benin, the legislative framework for e-health is being developed, with certain legislation currently in existence and others awaiting finalization. One crucial statute is the law on the use and protection of health data, which is currently being written. The recently passed digital code law addresses a variety of e-health issues, including personal data protection, digital trust and signature, cybersecurity, cybercrime, and sanctions for offences.

Other extant legislation includes the Personal Data Protection Act, the Code of Ethics and Deontology for Health Research, and the Electronic Communications and Post Office Act. These rules create a framework for the protection of personal data in communication networks and computerized data processing, and the National Commission for Information Technology and Civil Liberties oversees ensuring that they are followed.

There are now no defined provisions for the practice of medical acts via e-health, which is required to determine the roles of physicians, transmission network operators, and terminal equipment providers.

Benin National eHealth Strategy

There are eHealth initiatives in Benin aimed at improving the delivery of healthcare services through the use of digital technologies. These initiatives are still in the early stages, but they hold promise for improving access to healthcare services, particularly in remote areas of the country.

On June 22, 2016, the Council of Ministers approved the creation and implementation of Benin's national cybersecurity strategy (Release n^10/PR/SGG/CM/OJ/ORD). This strategy falls under pillar 1, axis 2 of the government's action program (PAG) 2016-2025, which aims to "improve governance" through component 1, "energizing and modernizing the administration" (smart Gouv). Additionally, it aligns with pillar 2, axis 6 that focuses on "strengthening basic social services and social protection" through component 2, which involves "reorganizing the health system for a more efficient healthcare system."

Adopted in November 2017, the national eHealth strategy aimed at using information and communication technologies (ICT) to improve healthcare services. The strategy includes several components, including the development of a national health information system, the use of telemedicine to improve access to specialist care, and the development of eLearning programs to support the training of healthcare workers.

The creation of a national health information system (NHIS) aimed at increasing data collection and analysis is a significant component of the national eHealth plan. The NHIS is meant to give a complete assessment of the population's health status as well as to aid policymakers and healthcare practitioners in making decisions. The system comprises electronic medical records, disease surveillance systems, and data collection and analysis tools. Overall, the goal is to provide better healthcare to all residents by 2022 by removing barriers to quality, equity, equality, accessibility, availability, and speed through the use of e-health. The use of ICTs will increase care quality and accessibility, as well as make health-care management more efficient.

The strategy's backbone is comprised of seven strategic objectives, which include enhancing illness prevention and control, encouraging improved health education in communities, and strengthening health system management and administration. Between 2018 and 2022, an action plan has been prepared to achieve these goals in areas such as ICT infrastructure, services, applications, standards, and interoperability, legislation, health professional capacity building, and governance.

Between 2018-2022, an action plan was developed to structure a strategy with 3 main programs and 9 components, divided into 26 projects. The programs are infrastructure, applications and services, and an environment conducive to the development of e-health. The projects cover areas such as the connectivity of health structures, a national digital health network, telemedicine, and capacity building for health professionals. The estimated cost of implementing the plan is $14 million and the majority of the infrastructure will be financed by the MENC as part of the SMART-GOUV program. The maximum amount of funds are programmed for 2019 due to the rollout of the ICT National Digital Health Network Health (RNNS) planned for 2018.

In addition to the national eHealth strategy, there are also several other eHealth initiatives in Benin, including the use of mobile health (mHealth) technologies to improve access to healthcare services in remote areas. For example, the government has implemented a pilot program using mobile phones to provide healthcare workers with access to clinical guidelines, as well as to enable patients to receive reminders for appointments and medication.

Implementation of the Benin National eHealth Strategy

Successful implementation of projects involving multiple parties requires thorough planning and coordination. To avoid excessive centralization and reduce operating costs, the following structures were adopted:

a) Coordinating Committee: Responsible for coordinating all implementation activities, this committee should meet quarterly and at least twice a year to validate budgets and evaluate achievements.
b) Permanent Technical Secretariat: Coordination should be carried out by the DIP of the Ministry of Health.
c) Implementing Structures: To involve the structures benefiting from the services, these structures should be involved in the implementation of the projects.
d) Technical Advisory Groups: The Coordinating Committee may create working groups on specific issues and themes within the framework of project implementation. Administrative and financial management will be defined in a procedure manual based on funding sources.

Challenges and opportunities

Are the saying goes, "where there is a lack there is a need". And when there is a need this represent and opportunity to innovate to tackle issue and growth at the same moment. In term of challenges regarding the implementation of the national eHealth strategy in Benin we can note the fact that:

- The country faces a low rate of ICT usage, hindering access to e-health services due to the high cost of connectivity.
- There is instability and low coverage of electrical energy, especially in rural areas, which makes it difficult to progress in telemedicine, computerization of hospital structures, and mobile health.
- The incomplete codification of medical and pathological acts, particularly in e-health, is also a challenge that needs to be addressed.
- There is a significant deficit of human resources working in the public sector, which is hindering the implementation process.
- The connectivity of health structures in ICT infrastructures is weak and precarious, and there is a delay in implementing the ICT master plan.
- Additionally, there are insufficient internal skills for ICT infrastructure maintenance.

Best practices overview

The Benin Republic's National eHealth Strategy intends to improve the country's health system by leveraging information and communication technology (ICT). The following major components are included in the strategy:

- Establishing an eHealth infrastructure: The strategy intends to create an eHealth infrastructure that will allow for the efficient collection, storage, and sharing of health data. This infrastructure will include a national health information system, electronic health records, and telemedicine.
- Strengthening human resources for health: The strategy intends to strengthen the capabilities of health workers in the use of ICT to better healthcare delivery. This will be accomplished through the implementation of training programmes and the creation of eLearning platforms.
- Improving access to healthcare services: Through the deployment of telemedicine systems, the policy aims to improve access to healthcare services, particularly in remote and disadvantaged areas.
- Enhancing healthcare quality and patient safety: The strategy's goal is to employ ICT to improve healthcare quality and patient safety. This will be accomplished by implementing electronic prescribing and medication management systems.
- Establishing a legal and regulatory framework: The strategy's goal is to create a legal and regulatory environment that would make it easier to adopt eHealth solutions. This will include the creation of data protection and privacy legislation.

The following are some of the best practises that may be gleaned from the Benin Republic's eHealth strategy:

- Strong government commitment: The plan has significant government support, which is critical for its success.
- Favourable institutional and legal environment: The Benin Republic has an advantageous institutional and legislative environment that will facilitate the introduction of eHealth solutions.
- National eHealth master plan: The creation of an eHealth master plan that addresses the country's unique needs and difficulties is a best practise that other countries can emulate.
- Engaging health professionals and the private sector: Engaging health professionals and the private sector is part of the strategy to ensure their active participation and contribution to the process.

In term of sustainability, transparency and accountability, the national strategy has enabled a monitoring and evaluation system that can ensure that the implementation of projects and their impact on the health system including achievement indicators in stages throughout the implementation phase, analyzed by implementing structures, and reported to the Coordinating Committee. Impact indicators are being developed to measure the rate of use of project services by health professionals and users of the health system. An independent team was meant collect and analyze these indicators under the guidance of the Coordinating Committee. The Steering Committee is then in charge of analyzing the indicators and decide on actions to remedy any discrepancies or gaps. Impact indicators on the health system are planned to be measured through surveys of the population and health professionals.

Conclusion

In Benin, there is a favorable international environment and a favorable technological evolution that support the implementation of e-health. The World Health Organization (WHO) and the International Telecommunication Union (ITU) are committed to the process. The government, especially both the Ministry of Digital Economy and its operators, and the Ministry of Health, show strong commitment to the process. Health professionals and the population are receptive to the use of Information and Communication Technologies (ICTs). Online training is available to address the HR gap and the problem of medical deserts.

Implementation of the strategy faces several risks that, if not assessed and addressed to minimize their impact on project implementation. The main risks identified at the early stage are lack of funding, weak technical human resources to support the process, low involvement of professionals in the implementation, delays in legal and regulatory aspects, lack of involvement of decision-makers, lack of ICT infrastructure (especially in some rural areas), problems with electrical energy, and sustainability of e-health services provided.

There is a noticeable lack of coordination of the implementation of the strategy by the actors involved. Additionally, there is a lack of a Computer Emergency Response Team (CERT) to address any cybersecurity issues. Funding is weak and uncertain, which could limit the progress of the project. There is a lack of user confidence in the new system, and low accessibility of populations to health structures is another major challenge that needs to be addressed.

Nonetheless, as evidenced by the government's strong dedication to the cause, Benin is a country committed to using e-health to improve its health system. Furthermore, the country has a national telemedicine development strategy in place and is working to create a unique national identification for each individual. The lessons learned from numerous projects, programmes, and initiatives are being used to improve the e-health strategy's implementation. The country has a favourable institutional environment as well as a strong legislative framework, including a digital code. On the plus side, the government has qualified human resources to guide the strategy, and the private sector is vibrant, with isolated good efforts in the private health sector. Finally, the country enjoys political stability, and ICT operators are eager to participate.

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