Best practices and recommendations for digital inclusion through resilient infrastructure

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Improving resilience in developing countries: Digital health provision through telemedicine ecosystem against pandemic, epidemics and natural disasters in Sub-Saharan Africa

Theme: Digital Inclusion – Health

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Presentation Outline

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Introduction

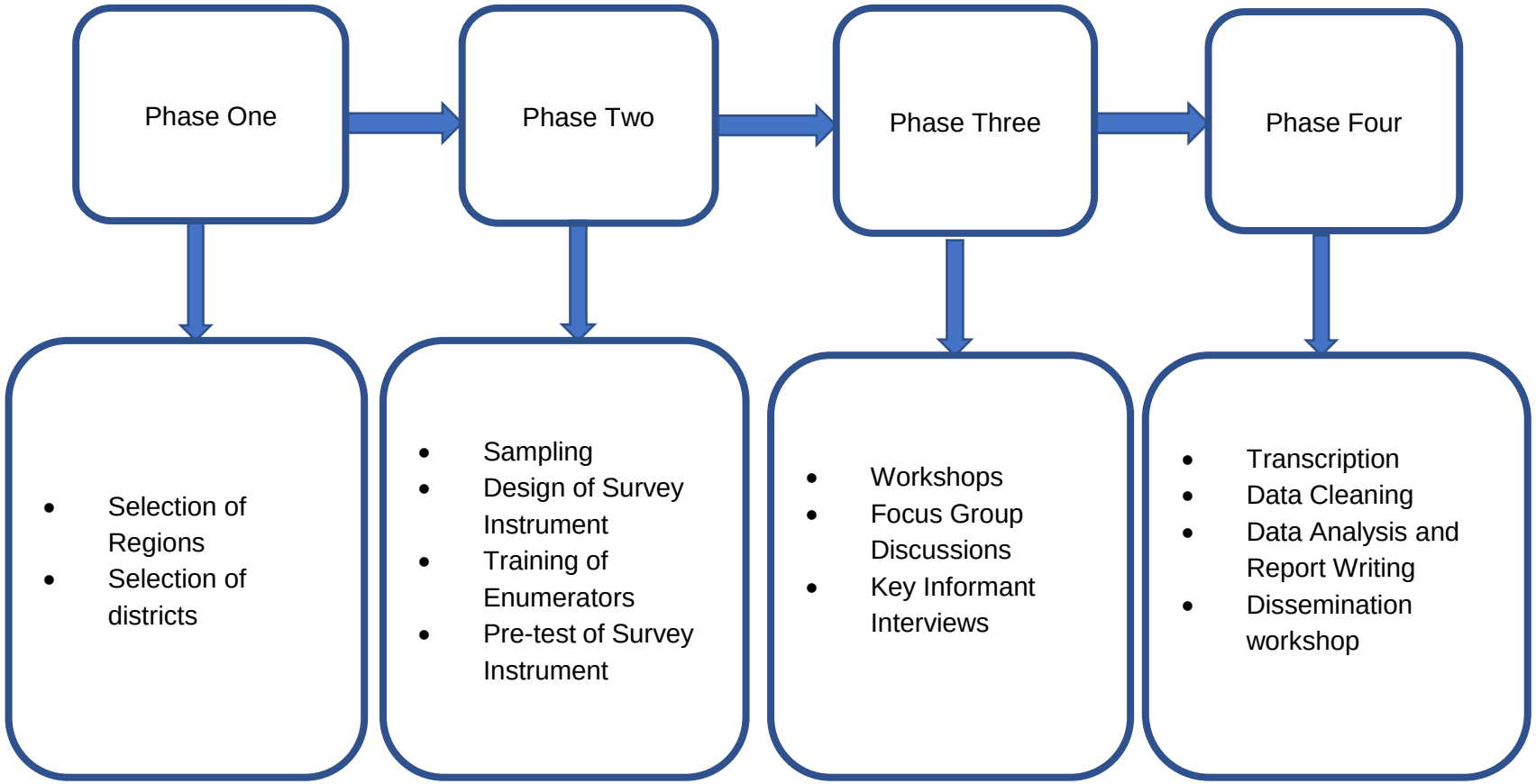
- Global health shocks, including the Covid pandemic have become rampant in the past few decades.
- The economic and social consequences of such events, even though nontrivial for many countries, are much dire for many developing countries.
  - poor health infrastructures
- Telemedicine ecosystems can be leveraged to expand health service delivery particularly to the poor and the vulnerable (children, women and the elderly) in remote communities.

Objectives

- Examine the state of the telemedicine ecosystem in sub-Saharan Africa (SSA)
- Assess the challenges with digital health provision with relevant stakeholders during and post the COVID-19 pandemic from vulnerable groups' perspectives
- Carry out in-depth review of secondary data and exploratory approaches in sub-Saharan Africa broadly and Ghana, specifically.
- Undertake deep-dive studies on the utilization of telemedicine and digital health to improve resilience to pandemic events and natural disasters
- Propose some recommendations to develop a telemedicine ecosystem to enable better use of digital health provision in Sub-Saharan Africa.

Research methodology

Four Phases involved:



Nature of Respondents

- NHIA Staff
- Ministry of Health Staff
- Ministry of Communication Staff
- Ghana Health Service Staff
- Private mobile health companies
- Health NGOs
- People from old pilot communities
- Vulnerable people (elderly, disabled, etc)

Research findings and outcomes

Categories	Main themes	Sub themes
Relating to the main study objectives	The state of the telecommunication and telemedicine ecosystems	• Status of Ghana's telemedicine ecosystem • Status of Ghana's telecommunication sector
	Mode of diffusing telemedicine to the vulnerable group	• Voice and video calls • Pre-recorded voicemails in the local dialects • Community sensitization • Opinion leaders
	How the telemedicine ecosystem has been leveraged to improve resilience to pandemics, epidemics, and natural disasters.	The telemedicine ecosystem and COVID-19 pandemic
	Challenges and successes of expanding access to telemedicine	Success factors • Digital penetration • Trust • Convenience • Structure of the country Challenges • Poor network (road and telecommunication) and infrastructure deficit • Low ICT literacy and low capacity of healthcare professionals • Financial constraints
Other themes not relating to the main objectives of the study	Prevalent disease in Ghana	• Malaria; Tuberculosis; Typhoid fever; Diarrhoea; Cholera; High mortality rate; Malnutrition; Anaemia; High blood pressure and diabetes; HIV-AIDS and kidney-related diseases; Teenage pregnancy
	Focal areas for upscaling telemedicine	• Emergency services; Antenatal services and child health; OPD consultations; Tuberculosis; Tropical disease (malaria)
	Sources of financing telemedicine	• Government; NGOs and philanthropists; Collaboration among stakeholders

Research findings and outcomes

- The telemedicine ecosystem in Ghana is in its infant stage but some progress has been made over the years.

  - ✓ There is mobile network connectivity in every district capital in the country.
  - ✓ Voice calls can be made without any hindrance in those communities.

- However, there are major infrastructure issues including the following:

  - ✓ There are places in the country, most especially the rural areas where there is no network connectivity at all or there is poor network coverage.
  - ✓ The cost of investment required to extend telecommunication service is huge, hence the service providers do not extended services to communities where they are less likely to recoup their investment.

- Laws and regulations pertaining to the sector are not favorable and more taxes have been imposed on the sector.

Research findings and outcomes

Telemedicine was very useful during the Covid 19 pandemic!!

"… I receive calls from people about their health issues, and also during COVID-19 people called with various symptoms and I had to direct them to go to the clinic for testing."

(Respondent CT021– A Mental health officer in Ghana)

"During COVID-19, people called me for education on the prevention protocols."

(Respondent CT022– A disease control officer in Ghana)

"… during COVID-19 I also received calls from clients about some symptoms they are feeling."

(Respondent CT019– A public health nurse)

Recommendations

- Effective collaboration between Healthcare policymakers and academia—for an implementable healthcare policy in Ghana.
- A national telemedicine policy should be developed in consultation with stakeholders to aid in the implementation of a telemedicine.
- Healthcare professionals and community members should be sensitized on the need to mainstream telemedicine into the healthcare delivery system.
- Government should work with the telecommunication companies to address outstanding inefficiencies such as poor communication networks.
- GHS is entreated to consult, design and implement appropriate training modules on telemedicine to build the capacity of healthcare professionals.

Recommendations

- Government should work with the telecommunication companies to implement a toll-free system for telemedicine related services.

- Ghana Investment Funds for Electronic Communication (GIFEC) should expedite action to ensure that telecommunication services are extended to rural communities to support the adoption of telemedicine.

- The GHS through district health directorates should work with the National Communications Authority (NCA) to organize ICT clinics to enhance ICT literacy in rural communities.

Conclusion

- Telemedicine is an efficient tool for the delivery of healthcare especially to the marginal community and should be integrated in the healthcare system of Ghana to supplement the quality service delivery.

Recommendations for future studies

- Investigate data governance models and their importance in telemedicine in Africa.
- Investigate the ethical implications of telemedicine in Africa.
- Investigate and develop skills and capacity required to manage telemedicine related data in Africa, including building and using quality telemedicine datasets.
- The role of big data and artificial intelligence in predicting healthcare issues, including pandemics and epidemics, providing early warning signs of disease conditions, and helping discover strategies to improve lives.
- Investigate how big data and artificial intelligence can help in efficient allocation of healthcare resources in Africa.

Next Step

- Investigate the ethical and cybersecurity implications, and sustainability of telemedicine ecosystem in Africa.
- Investigate and develop a framework that would serve as a guide to ensure better data governance and integrity in telemedicine.
- Build capacity for and the creation of openly available healthcare AI models and training datasets.
- Investigate best practices and strategies in telemedicine in other jurisdictions such as the United Kingdom; and lessons that African economies can learn from them.