

WHO & Intellehealth's Webinar Series (Telemedicine Thursdays): Telemedicine for Healthcare in Low-and Middle-Income Countries



Telemedicine In Action: Transforming healthcare in LMICs



*Brick-and-mortar to Brick-and-click - Designing & Implementing Quality,
Effective, and Impactful Telemedicine Programs*

Target Audience , Objectives and Outcomes

Telemedicine in Action: Transforming healthcare for LMICs

Brick-and-mortar to Brick-and-click - Designing & Implementing Quality, Effective and Impactful Telemedicine Programs



Register here

April 10th, 2025 | 14.00 IST

Join WHO SEARO and Intelheath for our monthly webinar series designed to equip healthcare leaders with insights into integrating telemedicine into national health systems. This session will explore how telemedicine is transforming healthcare equity particularly in resource-limited settings.



Context : Telemedicine has become an essential tool for healthcare delivery, particularly in regions with limited access to traditional healthcare services. This webinar aims to equip healthcare policymakers and professionals with the knowledge and practical insights required to design quality telemedicine programs.

Objectives: The session will draw from real-world experiences and lessons learned in various global settings, highlighting effective strategies, challenges, and key considerations for achieving impactful telemedicine programs that address local healthcare needs.

Expected Outcomes: By the end of the webinar, participants will:

- Understand the key components of quality and impactful telemedicine programs.
- Gain insights into real-world experiences from implementing telemedicine in diverse global settings.
- Learn about key performance metrics for assessing the impact and success of telemedicine programs.
- Receive practical guidance on how to design or scale telemedicine programs in their own regions.

This webinar will provide valuable insights and practical knowledge to support healthcare leaders in their efforts to leverage telemedicine for improving access and quality of care in their health systems.

LIST OF SPEAKERS

 <p>Dr. Filip Dumez MSc in Hospital Sciences MSc in International Healthcare Management & Health Service Research</p>	 <p>Mr. Jai Ganesh Udayasankaran Senior Manager - Healthcare Information Technology and Telehealth Sri Sathya Sai Central Trust, INDIA</p>	 <p>Dr. Saif Khairat, PhD, MPH Professor of Digital Health and AI Director of Center for VIVE at UNC Chapel Hill</p>	 <p>Dr. Neha Verma Co-founder and CEO of Intelheath. Telemedicine technology non-profit that delivers health services where there is no doctor.</p>
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Click here to register for the webinar:

https://us02web.zoom.us/join/register?WV_FPB0xQ8T10l6ggrdxdg9A

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Objectives:

The session will draw from real-world experiences and lessons learned in various global settings, highlighting effective strategies, challenges, and key considerations for achieving impactful telemedicine programs that address local healthcare needs.

Target Audience:

- Ministries of Health
- NGOs & Hospitals
- Academia
- Medical professionals

Expected Outcomes: By the end of the webinar, participants will:

- Understand the key components of quality and impactful telemedicine programs.
- Receive practical guidance on how to design or scale telemedicine programs in their own regions.
- Learn about key performance metrics for assessing the impact and success of telemedicine programs.
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Webinar Agenda

S.No	Time	Details	Speaker/Moderator
1	02.00 PM- 02.05 PM	Introductory Remarks	Dr. Neha Verma
2	02.05 PM- 02.20 PM	Telemedicine program design canvas Brick-and-mortar to Brick-and-click.	Dr. Neha Verma
3	02.20 PM- 02.35 PM	Remote Patient Monitoring post-surgery, how to design	Dr. Filip Dumez
4	02.35 PM- 02.50 PM	Designing and Implementing Quality, Effective and Impactful Telemedicine Programs	Dr. Saif Khairat
5	02.50 PM- 03.00 PM	Wrap Up	Dr. Neha Verma
6	03.00 PM- 03.25PM	Q&A	Dr. Neha Verma
7	03.25PM – 03.30PM	Closing Remarks	Dr. Neha Verma

Webinar Faculty



Dr. Saif Khairat

Dr. Saif Khairat is the Beerstecher-Blackwell Distinguished Professor at UNC-Chapel Hill, and the principal investigator of the NIH-funded Center for Virtual Care Value and Equity (ViVE). Dr. Khairat is an expert in digital health who has authored over 100 publications, secured \$7.5M in funding, and is a digital health advisor to the WHO. He holds a PhD in Health Informatics and master's degrees in Computer Science and Public Health.



Dr. Filip Dumez

Dr. Filip Dumez
Msc International Healthcare Management & Health Service Research (Aberdeen University, UK)
Msc Hospital Management (KU Leuven, Belgium)
Certified Prince 2 © Project Manager
Quality Excellence Coach in Healthcare and Services Sector
Strategic Officer in Hospitals and Senior Manager EU projects



Dr. Neha Verma

Neha is the Co-founder and CEO of Intelehealth, a telemedicine technology non-profit that delivers health services where there is no doctor. She is an entrepreneur and medical information engineer. She earned an MS in Applied Health Sciences and a PhD in Health Informatics from the Johns Hopkins University School of Medicine. Neha is also an active contributor for Women@Forbes, writing about women in tech, product development, organizational strategy, social impact and nonprofits.

Webinar Topics and Dates

Sno	Date	Topic
1	06 March 2025	What is Telemedicine and How Are Health Systems Using It Globally? A Primer for Health System Leaders
2	10 April, 2025	Brick-and-mortar to Brick-and-click – Designing & Implementing Quality, Effective, and Impactful Telemedicine Programs
3	08 May, 2025	Evaluating telemedicine interventions: Evidence so far, and Methodologies
4	5 June, 2025	Creating a Telemedicine-Ready Healthcare Workforce: Training for Healthcare Providers
5	10 July, 2025	Telemedicine Policy: How Telemedicine is Regulated in Asia
6	7 August, 2025	Choosing a Telemedicine Software: The case for standards-compliant, interoperable & open-source Digital Public Goods (DPGs)
7	11 September, 2025	Ensuring Quality of Care & Patient safety in Telemedicine
8	9 October, 2025	Telemedicine Adoption by Communities – How Might We Drive Uptake of Telemedicine (TM) by Citizens?
9	6 November, 2025	Artificial Intelligence and Machine Learning in Telemedicine
10	4 December, 2025	Financing Telemedicine and ROI – The Business Case for Telemedicine
11	8 January, 2026	Telemedicine use cases to advance the SDGs – Part 1 Applications for Non-Communicable Diseases (Diabetes, Hypertension, Cardiovascular disease, Cancer and Mental Health)
12	5 February, 2026	Telemedicine uses to advance the SDGs – Part 2 Applications for Communicable Diseases (Tuberculosis, HIV)
13	12 March, 2026	Telemedicine use cases to advance the SDGs – Part 3 Applications for Primary Healthcare

Case Study I

Remote Patient Monitoring post surgery, how to design

FILIP DUMEZ
TOM IMBERECHTS
FILIP VANRYKEL

Definition

Telemonitoring or ‘**remote patient monitoring**’ (RPM) or ‘remote care’ or ‘care at a distance’: Measurements and queries are collected from the patient by means of **digital technologies** to monitor and capture medical and other **health data** from patients (at a distance) and electronically **transmit this information** to healthcare providers for assessment. It is a technology to enable monitoring of patients **outside of conventional clinical settings**, such as in the home or in a remote area.

(KCE report 354, 2022)

Remote patient monitoring (RPM) can be defined as “a mode of healthcare delivery that gathers and integrates patient data outside of traditional healthcare settings, allowing providers to **track, assess, and engage patients regardless of location**.” RPM can thus constitute an alternative (but also a complement) to conventional care, with potential **social and economic value** for both patients and providers.

(Miranda et al, 2023)

The (expected) Intervention outcomes when telemonitoring is implemented

Patient care and health outcomes => positive effect on :

- Self-care or patient empowerment
- Quality of care
- Patient education
- Symptoms of disease
- Quality of life

Organisation and system outcomes :

- Treat more patients (and reduce admission and visits)
- Reduce workload
- Reduce costs
- Improve adherence to guidelines
- Contribute to continuity of care

(Gijssbers et al,
2022)

The (expected) intervention outcomes when telemonitoring is implemented

BUT WE FIND MIXED RESULTS IN LITERATURE !

- ⇒ Methodological differences – Research
- ⇒ Methodological differences – Implementation
- ⇒ **Incomplete approach and lack of know how**
- ⇒ **No alignment with existing care process**

(Christensen et al 2018, Dawes et al 2021, Taylor et al 2021, KCE report 354 a, Verma et al 2022, Ekstedt et al 2023)

- Data collection
- Reliability and validity of data
- Interoperability

Challenges specific for RPM projects?

- Authorization, authentication, access
- Aggregation of data
- Relevant dashboard
- Clinical algorithms
- Threshold values
- Acceptance
- Effectiveness
- Digital literacy
- Reimbursement
- Legislation, GDPR, MDR
- Profitability
- Match with ecosystem

(Roderick et al 2016, Lakmini et al 2019, Thomas et al 2021, Gijsbers et al 2022, KCE report 354a 2022, De France et al 2023, Liljeroos et al 2023, Miranda et al 2023)

Solution?

Aspects of care

Organisational

- Have a central monitoring unit/dedicated professional monitoring RPM
- Integrate RPM into workflow with system to manage alerts
- Provide incentives to encourage uptake of RPM
- Enhance coordination between primary and secondary care

Interpersonal

- Encourage two-way interactive communication between pt and team
- Enhance pt self-management via support, education and feedback
- Use data from RPM to tailor and personalise care
- Ensure collaborative and multidisciplinary team involvement (including primary care to increase coordination and continuity)

Intrapersonal (patient or staff)

- Select patients at high risk of readmission (e.g. moderate-severe disease, high healthcare use, comorbidities)
- Motivate patients and staff to use RPM
- Increase adherence to RPM through routine data entry checks and frequent follow-ups

Intervention (RPM design)

- Co-design with target population
- Make it simple and easy to use
- Ensure accurate and sensitive measurements to enable early detection
- Patient-specific measurements need to be used
- Enhance self-management (e.g. monitor medication adherence)

Success factors in interventions

Solution?

DESIGN AND ALIGN:

1. DEFINE THE CONCEPT
2. INITIATE THE PROJECT
3. DEVELOP THE CARE PATH
4. TEST AND IMPLEMENT

TELEMEDICINE PROGRAM DESIGN CANVAS

Designed by:

Date:

Version:

Problems

What problem am I solving for patients?
What problem am I solving for the health system?
What are the costs/consequences of not solving this problem?

Patients

Who are my patients?
What is my target population - Rural patients, Urban patients, Children, women, elderly?
Describe the persona of your target patients groups
What kind of access do they have to the internet, mobile devices, power?
What is their level of technical literacy?
Do they trust/accept telemedicine?

Providers

Who are my providers?
What are the types of providers I will need to recruit?
(eg: nurses, midwives, community health workers, general physicians, specialists, counsellors)
Where would they be based?
Ideal characteristics (eg: speak the same language, retired doctors, international specialists)?

Channels

How might I reach patients?
Directly (D2P) - IVR, Call center, mobile app, website, chat (Whatsapp / Facebook)?
Via an intermediary (HW2D) - health worker assisted telemedicine
Indirectly (P2P) - doctor consulting with specialist

Patient workflow

What will the teleconsultation workflow be?
How will I manage patient consent?
What is the patient journey?
What will be the indications for referral, i.e. what cases will not be managed over telemedicine?
Where will they be referred to?

Provider training

What training will they need?
What is their current level of training and education?
What skills do they need - clinical skills, technology skills?
What refresher/continuous training will they need?

Technology

What technology will I use?
What key features do I need in my software?
What point of care diagnostics will I need?
What clinical protocols will be needed?
Who will maintain the technology?
What safeguards do I need to maintain data privacy & security?

Ecosystem

Where will this project be implemented?
(eg: rural villages, conflict zones, urban areas)
Describe the current health system - how do patients currently access care for this issue?
What is the availability of internet & mobile connectivity?
What regulation exists?
Are there any telemedicine laws and guidelines I have to comply with?

Patient engagement & trust

How will patients find out about the telemedicine project?
How will I generate trust and acceptability so that they will use the service?
How do I keep them coming back?

Provider engagement

How will I keep a ready pool of health providers?
How will I recruit them?
How will I retain them?

Medicines & Diagnostics

How will patients get medicines after the teleconsultation?
Where will they be able to access diagnostic tests?
Will the project require any point of care diagnostic devices?
(eg: providing patients with a blood pressure monitor at home, providing a local health worker with a point of care diagnostic kit)

Costs

What are the various cost components of the project?

Revenue

Who pays?
Patient / Insurance / Government / Donor?

Desired outcomes

What will success look like?
How will I monitor that the project is meeting its goals?
How will I monitor and maintain clinical quality?
eg: Reduction of time, distance, money to access healthcare
Improvement in hypertension status of patients
Increase in number of children receiving treatment for illness
Number of patient visits
Profit per teleconsultation
Population covered

Use cases

Large bowel surgery

From start to implementation:

- 1st time: 9 months; Now: 6 months
- 3 months is achievable through a structured approach

Outcome large bowel surgery

- 75 patients included.
- Length of stay: Median from 6 to 2 days, Average from 9 to 3 days.
- Safety: No false positives or negatives
- Patient satisfaction: +90% overall patient satisfaction.

Other use cases (FOD innovation project)

Bariatric surgery / Kidney surgery / Bladder surgery / Pancreatic surgery / Anti reflux surgery

Implementing RPM:

Take away messages

- Use a conceptual framework (TPDC is useful at organizational level)
- Be aware of barriers and enablers
- Align with existing care pathways
- Use an implementation strategy (projectmanagement)
- Pay attention to Change management (process redesign)
- Contract with partners and stakeholders
- Cave health equity

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TOTeM

Integrating technology
in healthcare

Case Study II

Brick & Mortar to Brick & Click

Designing and Implementing Quality,
Effective and Impactful
Telemedicine Programs

Prof. Dr. Saif Khairat

University of North Carolina at Chapel Hill

Center for Virtual Care Value and Excellence (ViVE)



Presentation Overview



Phase 1

- Needs Assessment

Phase 2

- Design & Development

Phase 3

- Monitoring & Evaluation

Telehealth was essential in maintaining continuity of care during the COVID-19 pandemic, particularly in **low- and middle-income countries (LMICs)** where healthcare resources were scarce and unevenly distributed.

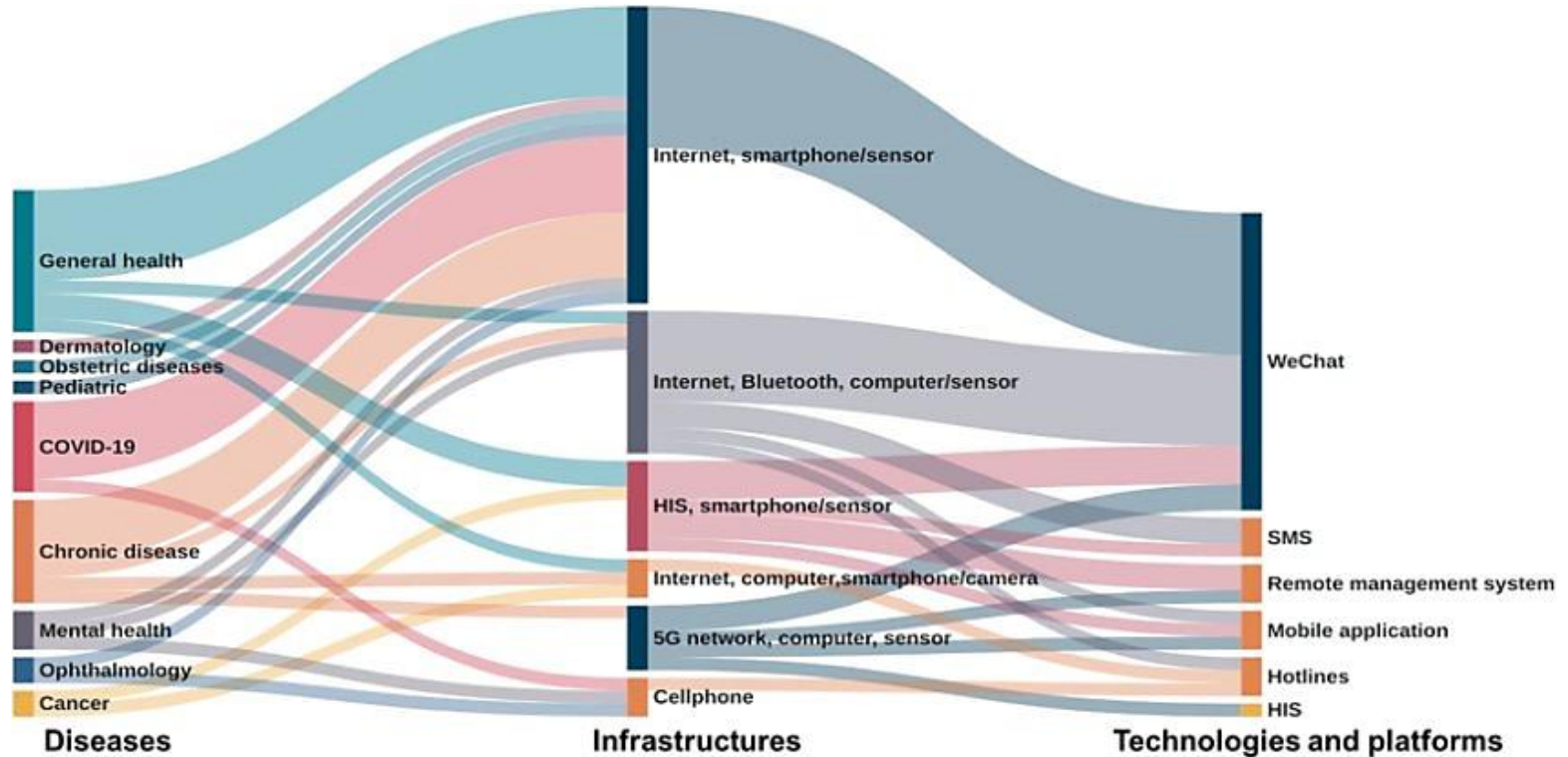


Figure 1. Sankey diagram with diseases, infrastructure, and technologies/platforms of telehealth system in China. Adapted from Ye, Jing, Lei He, and Michael Beestrum. "Implications for Implementation and Adoption of Telehealth in Developing Countries: A Systematic Review of China's Practices and Experiences." NPJ Digital Medicine, vol. 6, 2023, article no. 174. <https://doi.org/10.1038/s41746-023-00908-6>.

Needs Assessment

Question:

Is your organization ready to offer telehealth services?

Key Considerations:

- 1 Infrastructure
- 2 Processes
- 3 Outcome Metrics

Tools / Frameworks:

NFAR-ATTC Telehealth
Capacity Assessment Tool

Macro level
Overarching
Framework



Meso level
Community



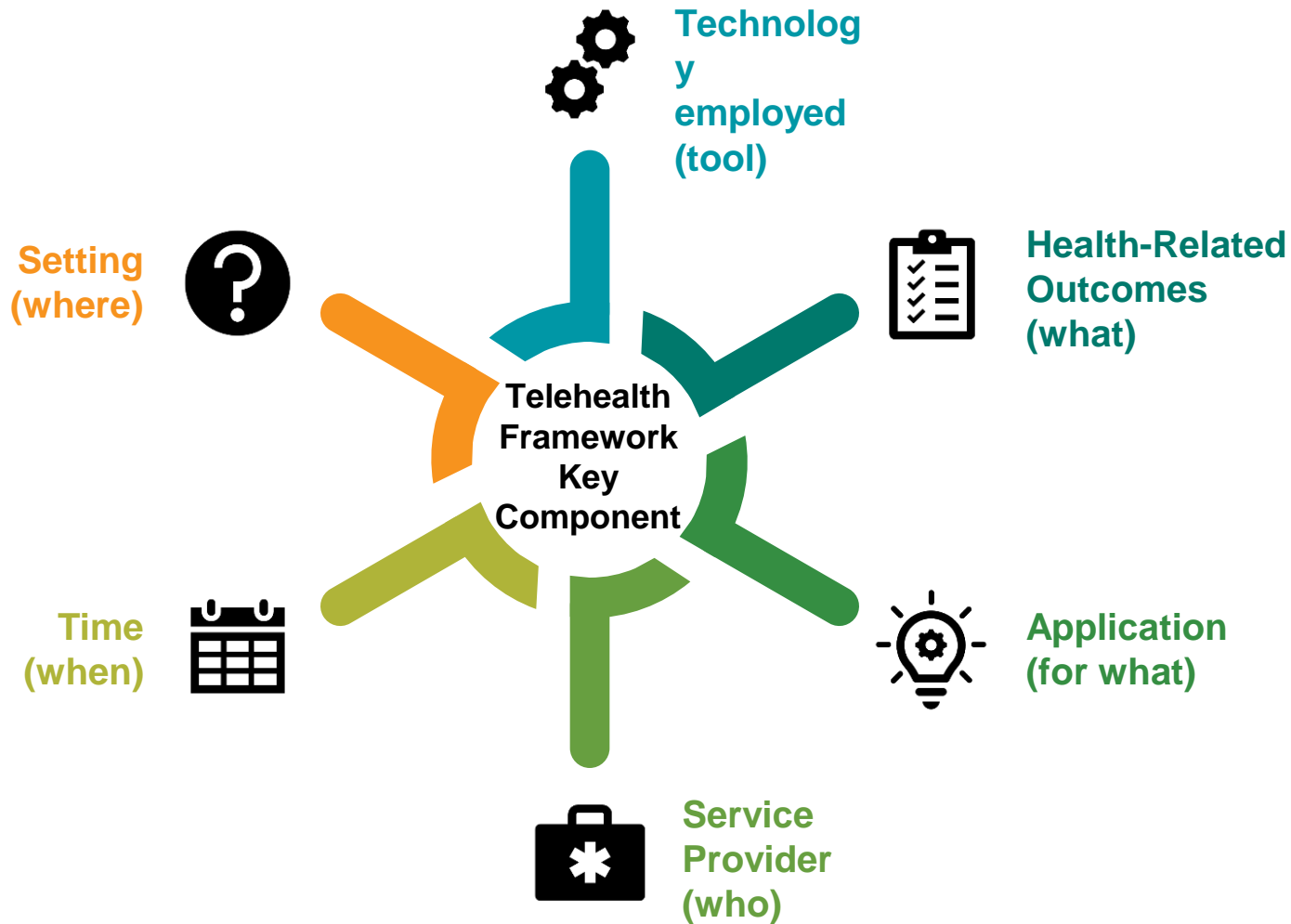
Micro level
Individuals



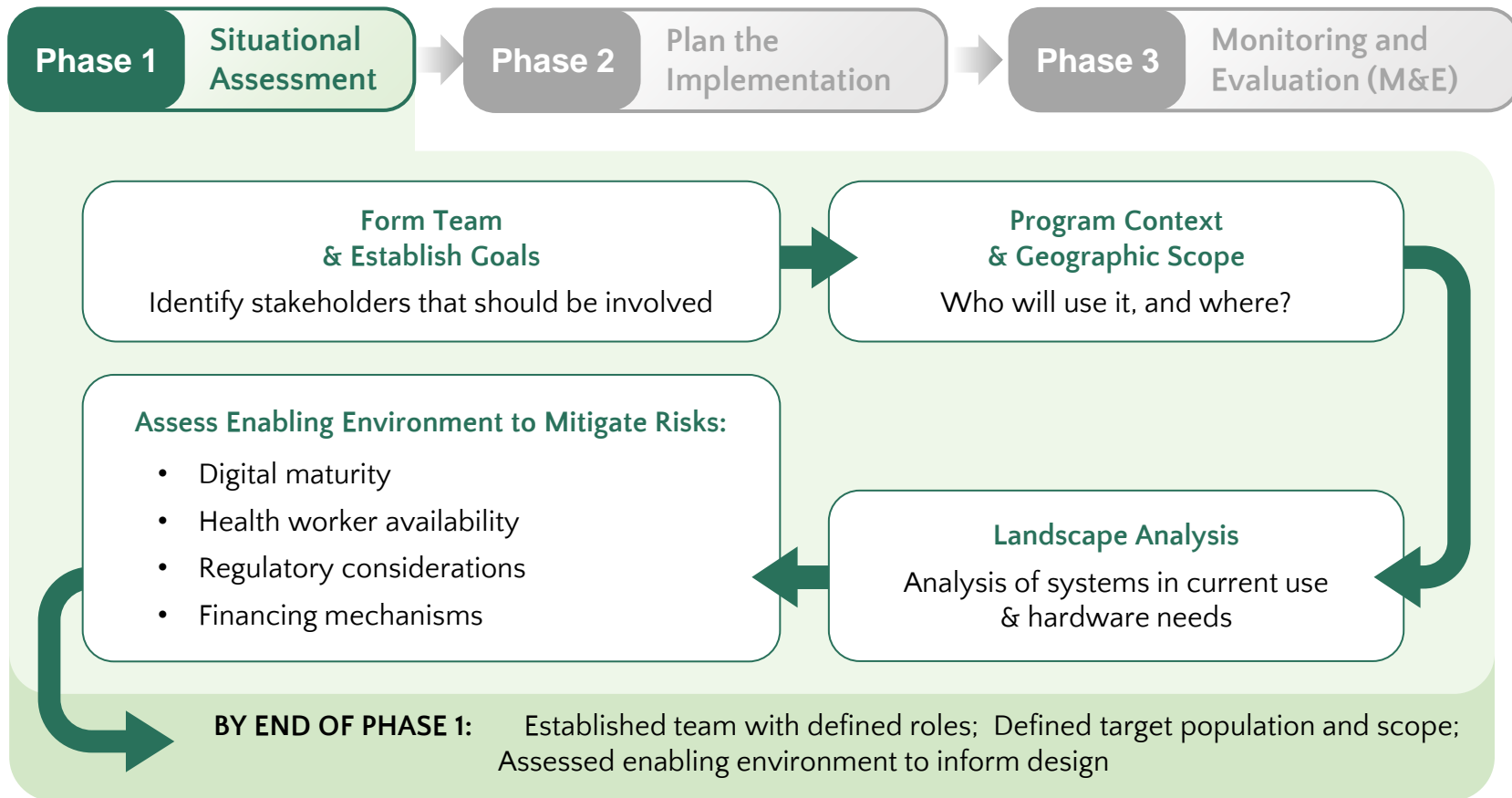
Patients

Providers

Institution



Telehealth Implementation Phases



Design & Implementation

Question:

What is needed to prepare?

Key Considerations:

- 1 **Modality** (Synchronous or asynchronous)
- 2 **Features Needed**
- 3 **Specificity** (Disease-specific or not)
- 4 **Integration** (HIE)

Tools / Framework:

Framework for the
Implementation of a
Telemedicine Service
(WHO / PAHO)

Design & Implementation

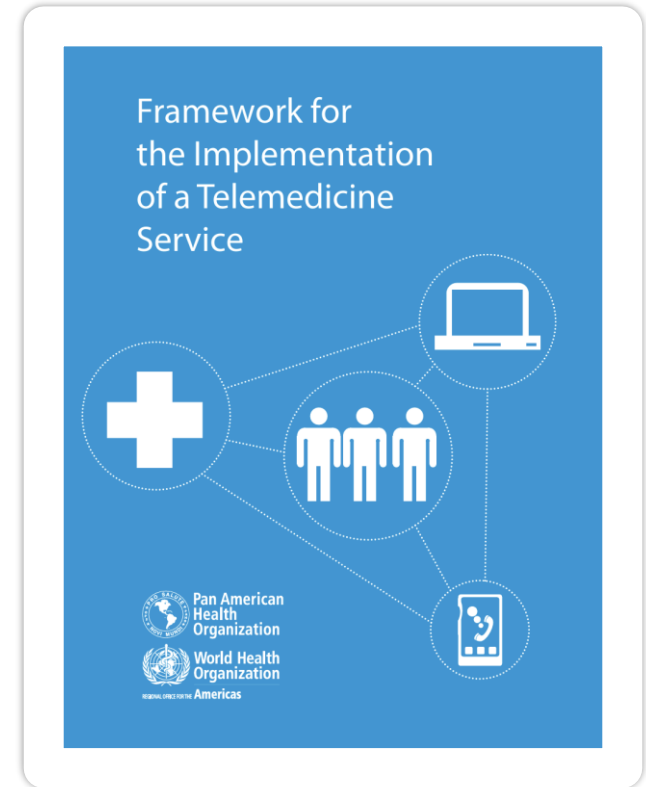
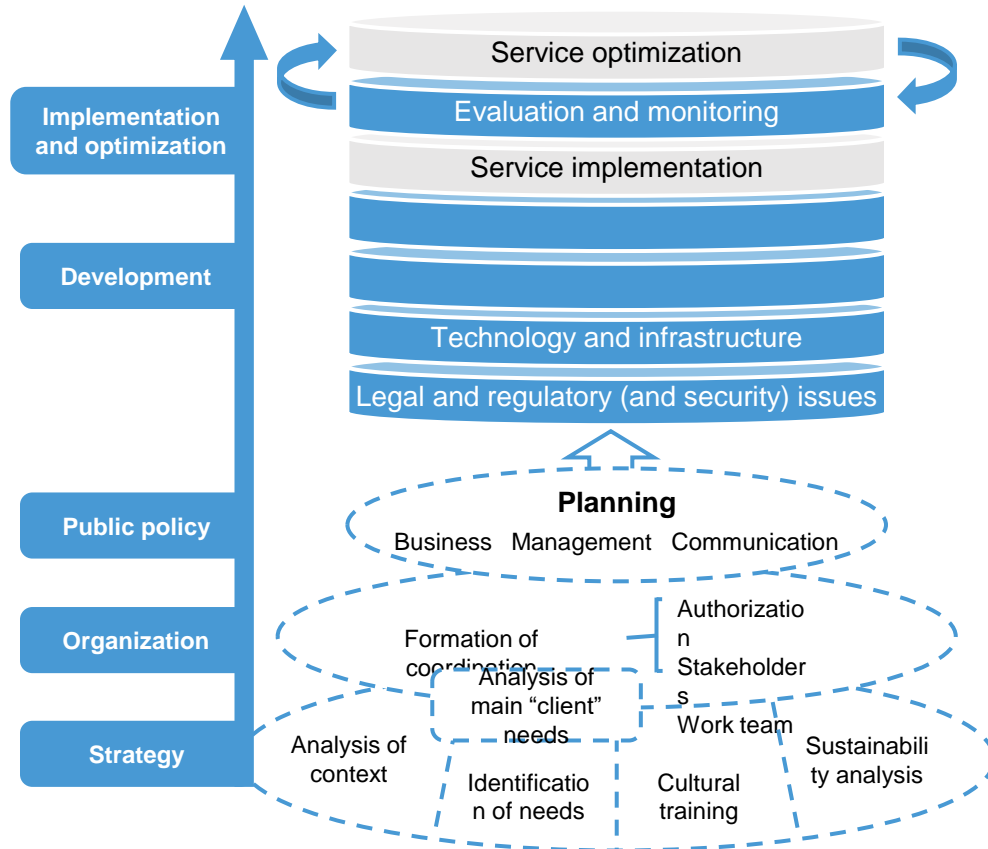
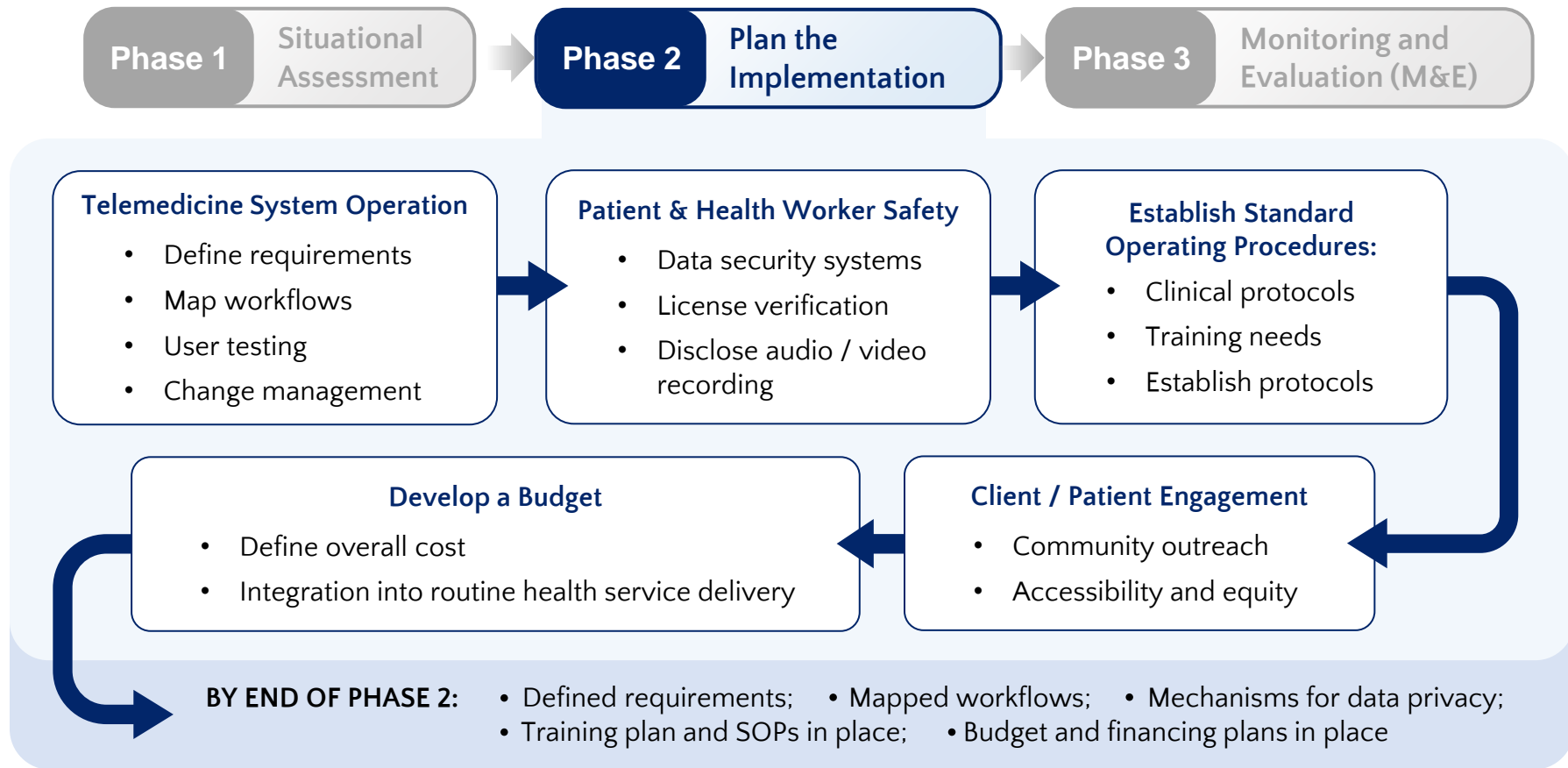


Figure 3. Telemedicine Implementation Model ("Telemedicine Hat"). Adapted from Framework for the Implementation of a Telemedicine Service. Pan American Health Organization and World Health Organization, 2016. https://iris.paho.org/bitstream/handle/10665.2/28414/9789275119037_eng.pdf. Accessed 1 Apr. 2025

Telehealth Implementation Phases



Monitoring & Evaluation

Question:

What are key performance indicators?

Key Considerations:

- 1 Clinical Outcomes
- 2 Effectiveness
- 3 Efficiency and Cost
- 4 Cost
- 5 Satisfaction

Tools / Frameworks:

WHO Europe Telehealth Quality of Care Assessment Tool (TQoCAT)

National Quality Forum (NQF)

Agency for Health Research and Quality (AHRQ)

Monitoring & Evaluation

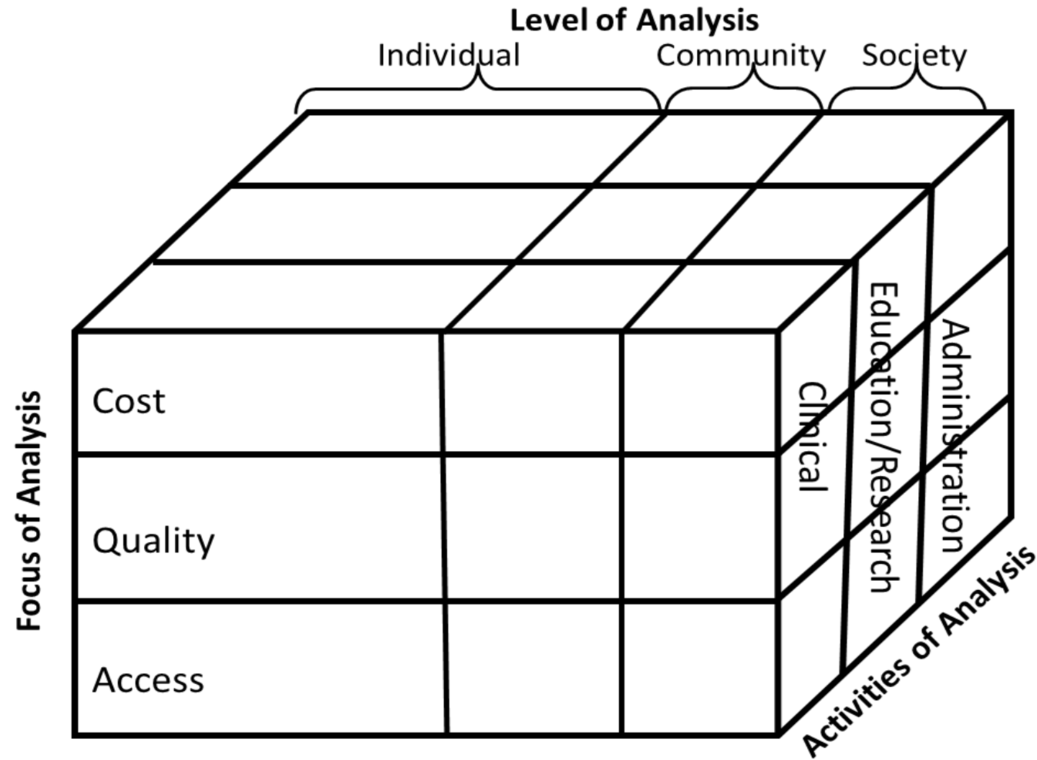
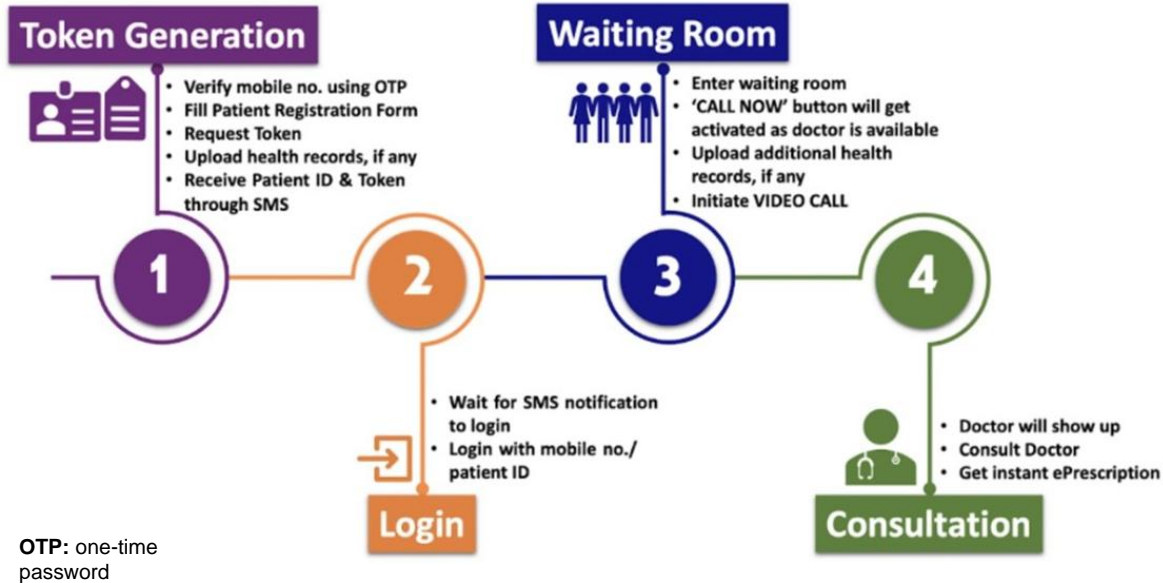


Figure 4. Comprehensive Model. Adapted from Hicks, Lanis L., and Keith E. Boles. "A comprehensive model for evaluating telemedicine." *E-Health: Current Status and Future Trends*. IOS Press, 2004. 3-13.

Telehealth Design & Implementation Use Case

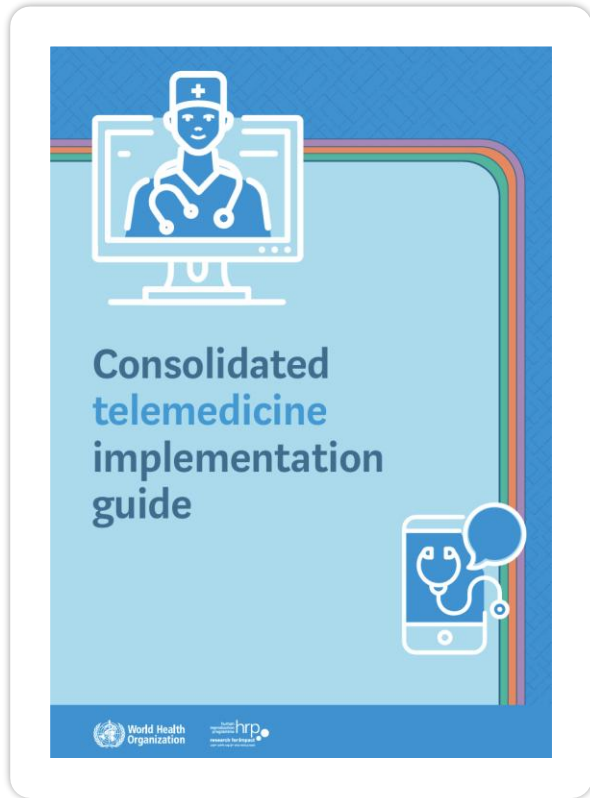
Workflow of eSanjeevaniOPD



- The processes must **mimic a hospital-based OPD**.
- The user interface must be **simple and intuitive**.
- The system must ensure the security of citizens' **health information**.
- **End-to-end services** from development, deployment and operationalization to capacity-building and maintenance must be provided by **one technical team**.

As of July 2022, the **National Telemedicine Service** had served over **50.5 million patients**. Of these, eSanjeevaniHWC had served over **42.3 million** across 98 571 HCWs as spokes served by over 11,000 hubs; eSanjeevaniOPD had served **8.2 million patients** (3).

Policy Implications



► Box 2. Common components for telemedicine guidelines and regulations (13)

Although telemedicine guidelines and regulations are still emerging, they should generally contain information on the following:

- + Authority responsible for regulating telemedicine in the country.
- + When telemedicine is considered to be an appropriate standard of care.
- + Which entities would be involved in the telemedicine services and the types of health workers that can provide telemedicine-based treatment (e.g. doctors, nurses, midwives, community health workers, paramedics, therapists, counsellors, practitioners of alternative medicine).
- + Responsibility and accountability for patient outcomes.
- + Patient consent that includes an explanation of the risks, benefits and limitations of telemedicine.
- + Data privacy and security standards.
- + Technology standards for hardware, software and interoperability.
- + Training requirements and certifications.
- + Quality assurance and quality control measures.
- + Reimbursement of health services delivered via telemedicine.

Figure 7. Box 2. Common components for telemedicine guidelines and regulations. Adapted from Consolidated Telemedicine Implementation Guide. World Health Organization, 9 Nov. 2022, <https://www.who.int/publications/i/item/9789240059184>. Accessed 1 Apr. 2025.

Thank You!

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Case Study III

Webinar Evaluation and Feedback

Thank You for Attending!

We greatly appreciate your participation in today's webinar. To help us improve future sessions and ensure we're meeting your needs, we would love to hear your thoughts.

Please take a few minutes to fill out our feedback form – your input is invaluable!

<https://forms.gle/Ek3PvGqNzKUvVmZB6>

Q&A session



Thank you for joining us !



We Appreciate Your Time and Participation!

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