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Жэй Ганеш Удаяасанкаран

Азийн цахим эрүүл мэндийн холбооны
Гүйцэтгэх захирал

Telemedicine: International Experiences and Best Practices

State Productivity Recovery

Digital Health Convergence Workshop

8-9 April 2024, Ulaanbaatar, Mongolia

Jai Ganesh Udayasankaran

Executive Director



Definitions and key terms

- **Telemedicine** is defined as “**the delivery of health-care services where distance is a critical factor, by all health-care professionals using information and communication technologies** for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries all in the interests of advancing the health of individuals and their communities”
- Telemedicine is a component of **telehealth**, which is a broader application of technologies for distance education and other applications wherein electronic communications and information technologies are used to support health-care services.
- “**Virtual health and care**” is another phrase to denote this area of work that highlights the delivery of health and care services remotely through digital means and technologies.

Source: World Health Organization, International Telecommunication Union. National eHealth strategy toolkit (2012)

What is telehealth? How is it different from telemedicine? In: HealthIT.gov (2021)

The future of virtual health and care: driving access and equity through inclusive policies. Geneva: Broadband Commission for Sustainable Development (2022)

Modalities of telemedicine

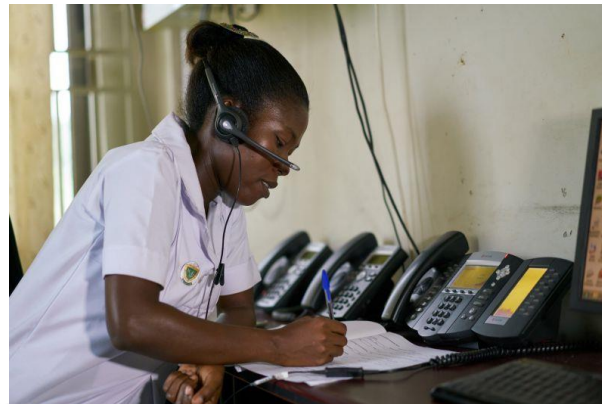
Store and forward

Consists of storing and sending information remotely, in which health data and images are submitted digitally for analysis by a health worker at a later time, usually a specialist. It is also described as an “asynchronous” or “deferred mode”.



Interactive consultations

Consists of communication between two or more actors in clinical practice for the purpose of diagnostic and treatment of clients/patients. Also described as a “real-time” “synchronous” or “teleconsultations.”



Remote patient monitoring

Also known as telemonitoring – enables health workers to monitor an individual’s condition remotely, using technologies such as connected medical devices and sensors.





Consolidated telemedicine implementation guide



<https://www.who.int/publications/i/item/9789240059184>

PHASE 01

SITUATIONAL ASSESSMENT

Form the team and establish goals	STEP 01	
Define health programme context and targets	STEP 02	
Conduct landscape analyses	STEP 03	
Assess the enabling environment	STEP 04	

PHASE 02

PLAN THE IMPLEMENTATION

Determine how the telemedicine system will operate	STEP 05	
Enforce mechanisms for patient and health worker safety and protection	STEP 06	
Establish standard operating procedures (SOPs)	STEP 07	
Invest in client/patient engagement and gender, equity and rights	STEP 08	
Develop a budget	STEP 09	

PHASE 03

MONITORING AND EVALUATION, AND CONTINUOUS IMPROVEMENTS

Determine monitoring and evaluation goals	STEP 10	
Plan for continuous improvements and adaptive management	STEP 11	

PHASE 01: SITUATIONAL ASSESSMENT**STEP
01****FORM THE TEAM AND ESTABLISH GOALS**

- Identify stakeholders that should be involved in the design, management and implementation of the telemedicine programme

**STEP
02****DEFINE HEALTH PROGRAMME CONTEXT AND TARGETS**

- Determine the programmatic and geographic scope of the telemedicine service.

**STEP
03****CONDUCT A LANDSCAPE ANALYSIS**

- Conduct a landscape analysis of software applications and channels
- Map hardware needs and availability

**STEP
04****ASSESS THE ENABLING ENVIRONMENT**

- Assess digital maturity to determine infrastructural and organizational needs
- Review availability and competency of health workers
- Assess regulatory and policy considerations
- Consider implications for cross-jurisdictional flow of information
- Explore reimbursement models and payment mechanisms

PHASE 02: PLAN THE IMPLEMENTATION

STEP 05	DETERMINE HOW THE TELEMEDICINE SYSTEM WILL OPERATE <ul style="list-style-type: none"><input type="checkbox"/> Define the functional and nonfunctional requirements<input type="checkbox"/> Update workflows reflecting the requirements<input type="checkbox"/> Conduct extensive user testing<input type="checkbox"/> Plan for change management
STEP 06	ENFORCE MECHANISMS FOR PATIENT AND HEALTH WORKER SAFETY AND PROTECTION <ul style="list-style-type: none"><input type="checkbox"/> Put systems in place for data privacy, access and protection of patient information<input type="checkbox"/> Enforce ways to verify licensing/accreditation of health workers<input type="checkbox"/> Determine and disclose if audio/video recording will be done
STEP 07	ESTABLISH STANDARD OPERATING PROCEDURES <ul style="list-style-type: none"><input type="checkbox"/> Clarify clinical protocols and identify potential liability considerations<input type="checkbox"/> Determine the training package and channels for support<input type="checkbox"/> Establish a process for confirming identification<input type="checkbox"/> Establish clear consent documentation<input type="checkbox"/> Explore whether changes to health worker remuneration are needed<input type="checkbox"/> Establish a plan for management of connected medical devices
STEP 08	INVEST IN CLIENT/PATIENT ENGAGEMENT AND GENDER, EQUITY AND RIGHTS <ul style="list-style-type: none"><input type="checkbox"/> Determine mechanisms for outreach<input type="checkbox"/> Assess implications on equity, gender and rights<input type="checkbox"/> Ensure accessibility for persons with disabilities
STEP 09	DEVELOP A BUDGET <ul style="list-style-type: none"><input type="checkbox"/> Define the budget for overall cost of ownership<input type="checkbox"/> Plan how to integrate telemedicine into routine health service delivery

PHASE 03

MONITORING AND EVALUATION, AND CONTINUOUS IMPROVEMENTS

PHASE 03: MONITORING AND EVALUATION (M&E), AND CONTINUOUS IMPROVEMENTS

STEP
10

DETERMINE M&E GOALS

- Define indicators for assessing performance and impact

STEP
11

PLAN FOR CONTINUOUS IMPROVEMENTS AND ADAPTIVE MANAGEMENT

- Embed mechanisms for routine monitoring and continuous improvement
- Mitigate potential risks

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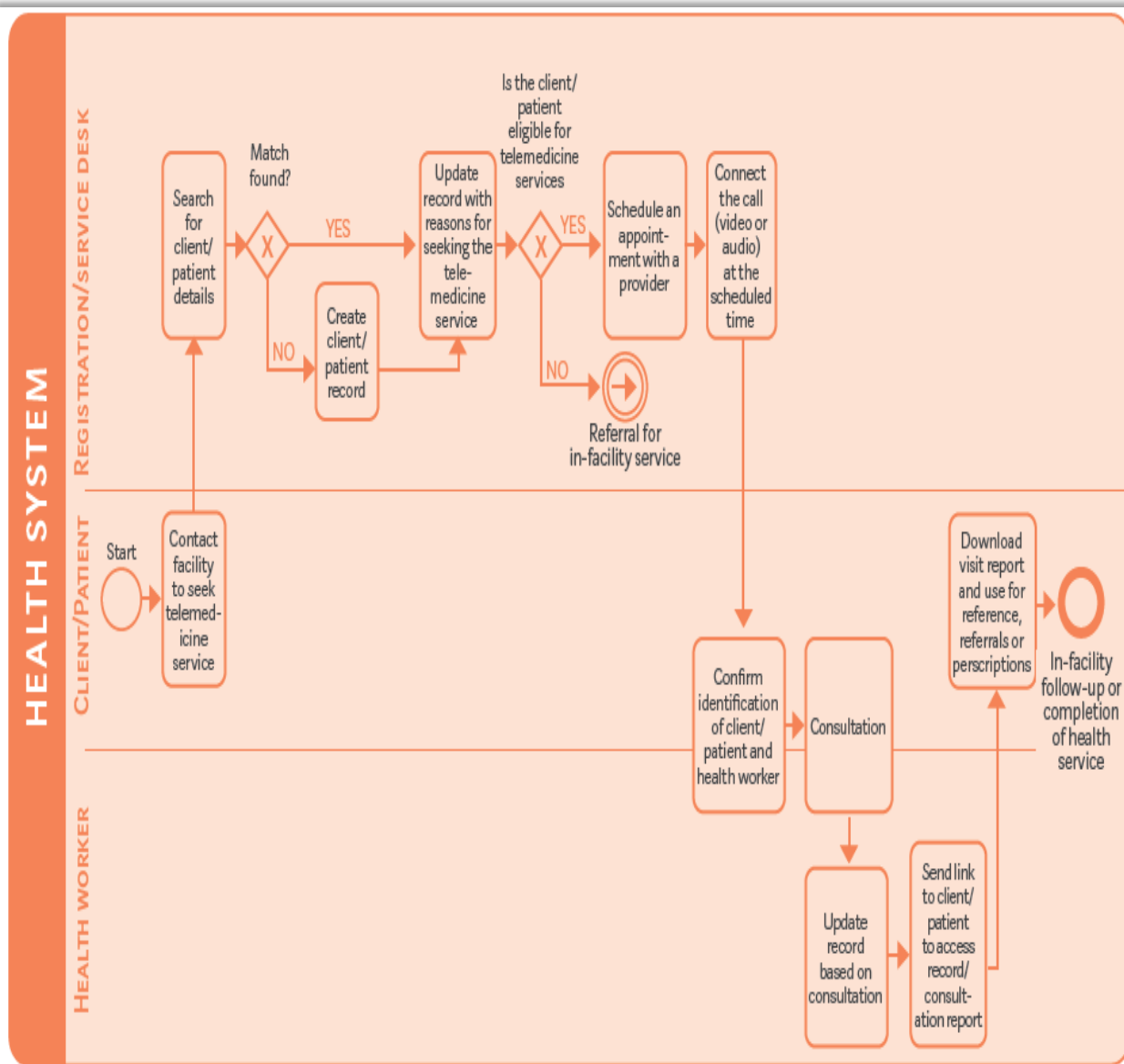
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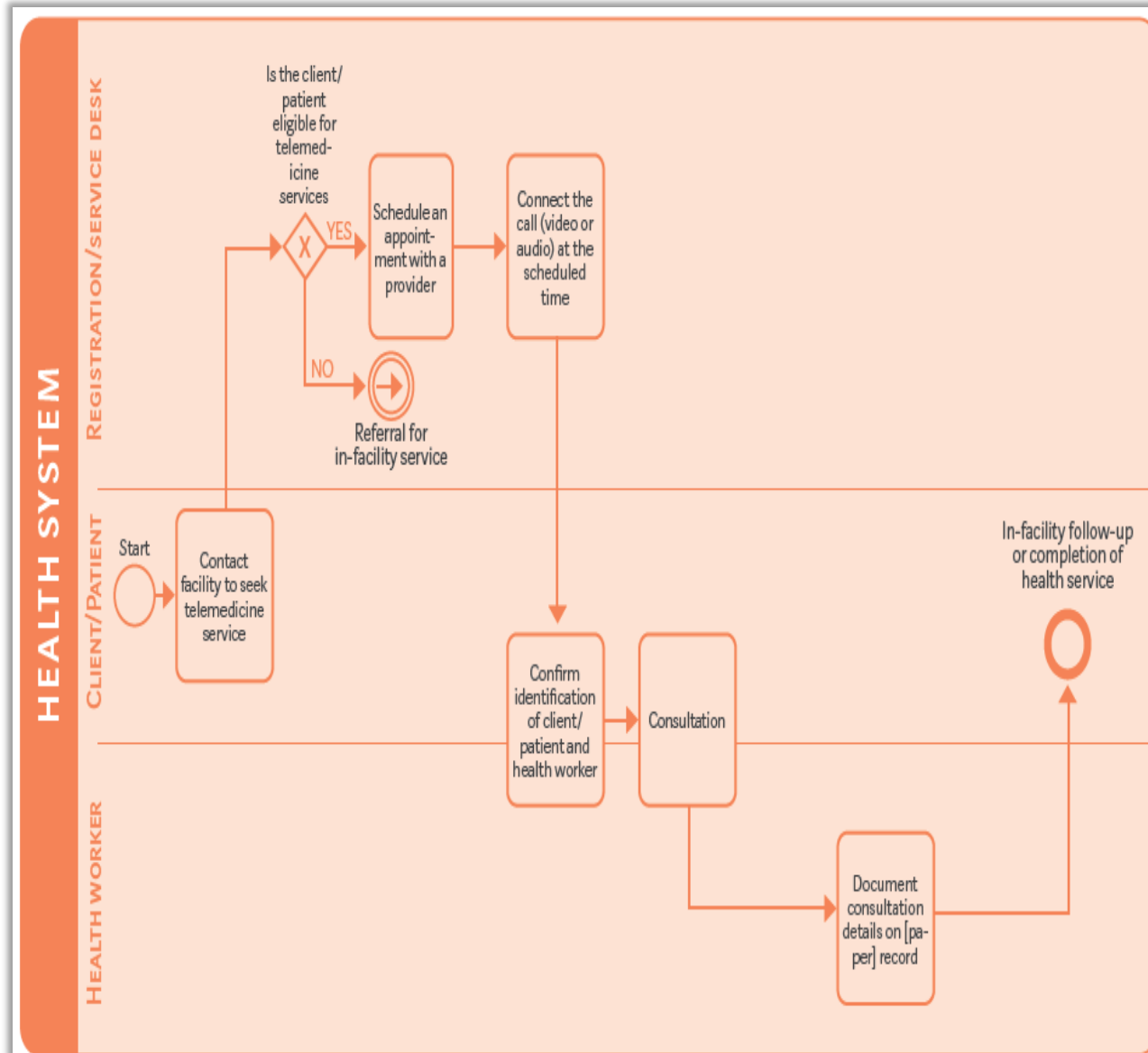
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 Embed mechanisms for routine monitoring and continuous improvement
 Mitigate potential risks



Teleconsultation with linkage to EMR



Teleconsultation with no linkage to EMR



TelemedKG, Kyrgyzstan



Photo Credit : InteleHealth

Geographic coverage: Nookat & Suzak districts in Kyrgyzstan

Implementing organization: Ministry of Health, Kyrgyzstan

Funding: UNICEF


Technical support – Intelehealth

Source:

<https://www.odess.io/en/initiative/telemedkg-in-kyrgyzstan/>

Provides access to specialised and general healthcare for children with disabilities and their families in the Kyrgyz Republic – primarily to those living in poverty in rural areas/nomads.

- About 1.3% of the children in Kyrgyzstan have disabilities.
- it is estimated that 70% of disabilities in the Kyrgyz Republic are preventable.
- The country lacks healthcare workers in rural areas.
- The ratio of doctors to community members is 1:18000 in some regions.
- The nomadic lifestyle of many families also poses problems for healthcare providers




Training and capacity building for **156 primary care doctors** in 150 medical establishments




Contact with a group of 23 specialist doctors in tertiary care centres



More than 400 consultations carried out for disabled children



According to figures provided by the project leader, households **saved \$56** in travel and associated costs for each telemedicine consultation



Substantial time savings: teleconsultations avoid the need to travel from Suzac / Jalal Abad to Bishkek, where the road is relatively dangerous, and the time needed to get to Bishkek and back takes several days

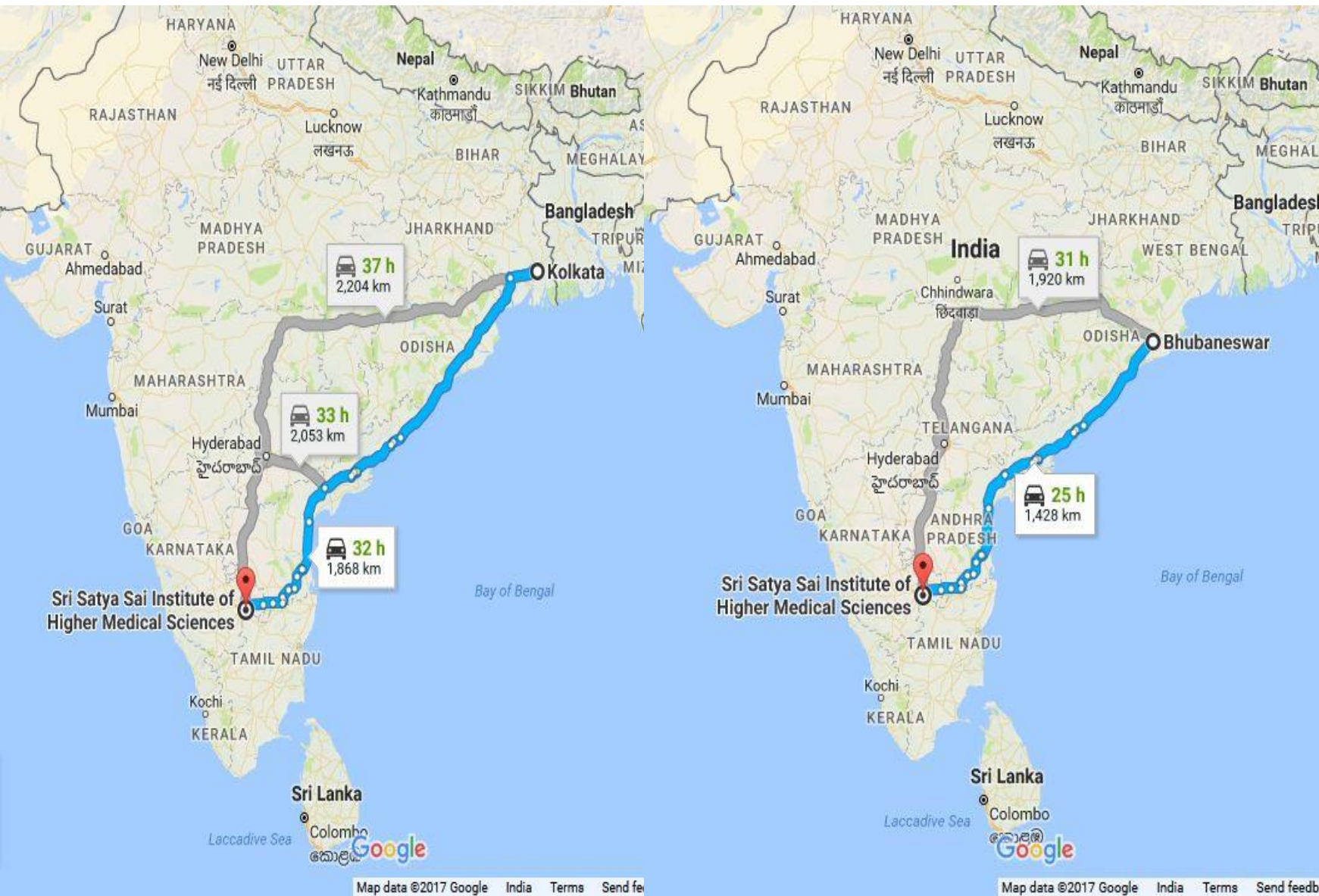
- The telemedicine platform comprises a Provider-to-Provider app, a Direct-to-Patient app, and a Direct-to-Patient Helpline, powered by a digital assistant called Ayu.
- Ayu is a decision support system that contains 150+ evidence-based protocols that helps shift the crucial task of clinical history taking from a qualified doctor to a semi-skilled health worker.
- For conditions beyond the capacity of the health worker, it can connect the health worker and patient with a virtual doctor over telemedicine.
- All three modes of communication – text chat, audio & video calls are supported by the telemedicine platform.

Sri Sathya Sai Telemedicine Program, India

Scope: Specialist tele-consultation services for post-operative cardiac, neuro surgery patients and tele-education of health and allied health professionals.

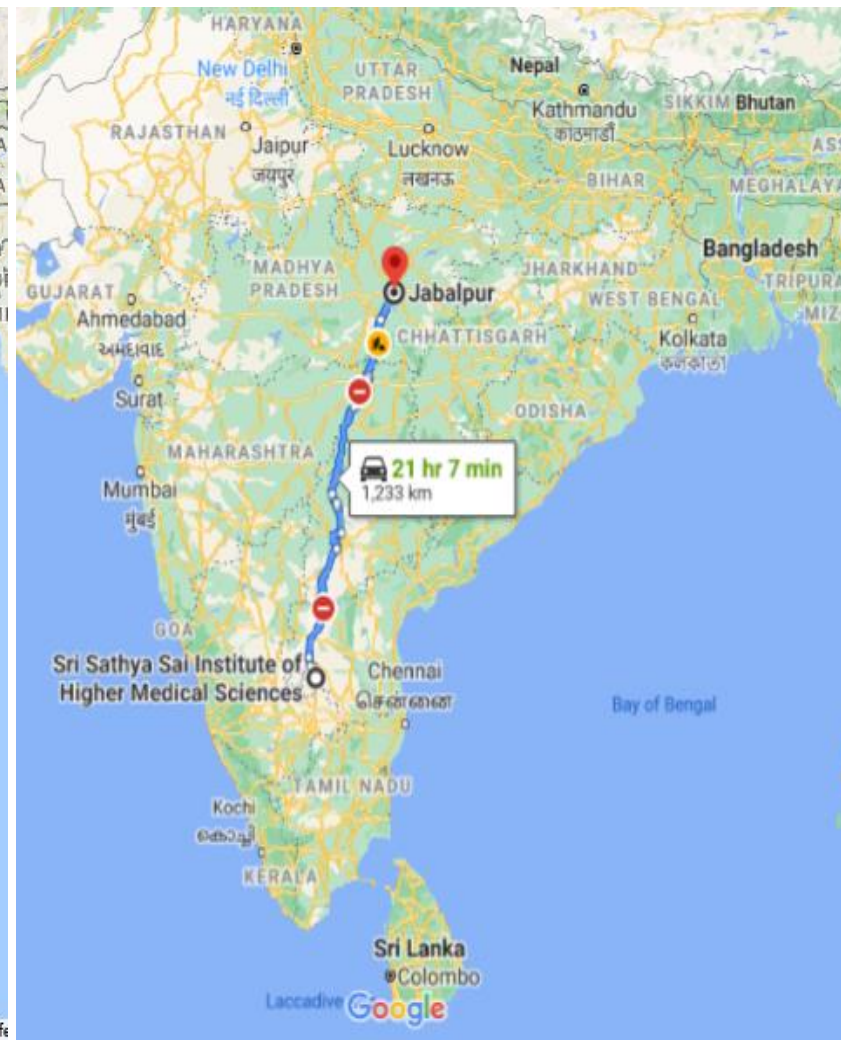
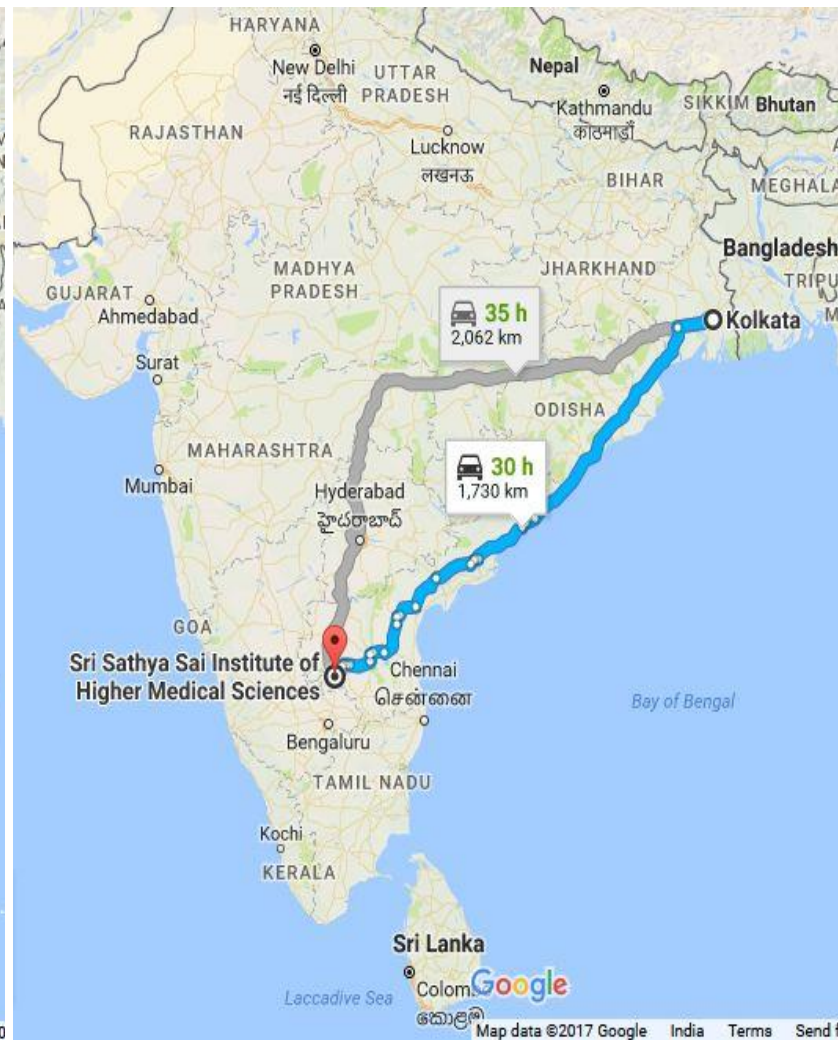
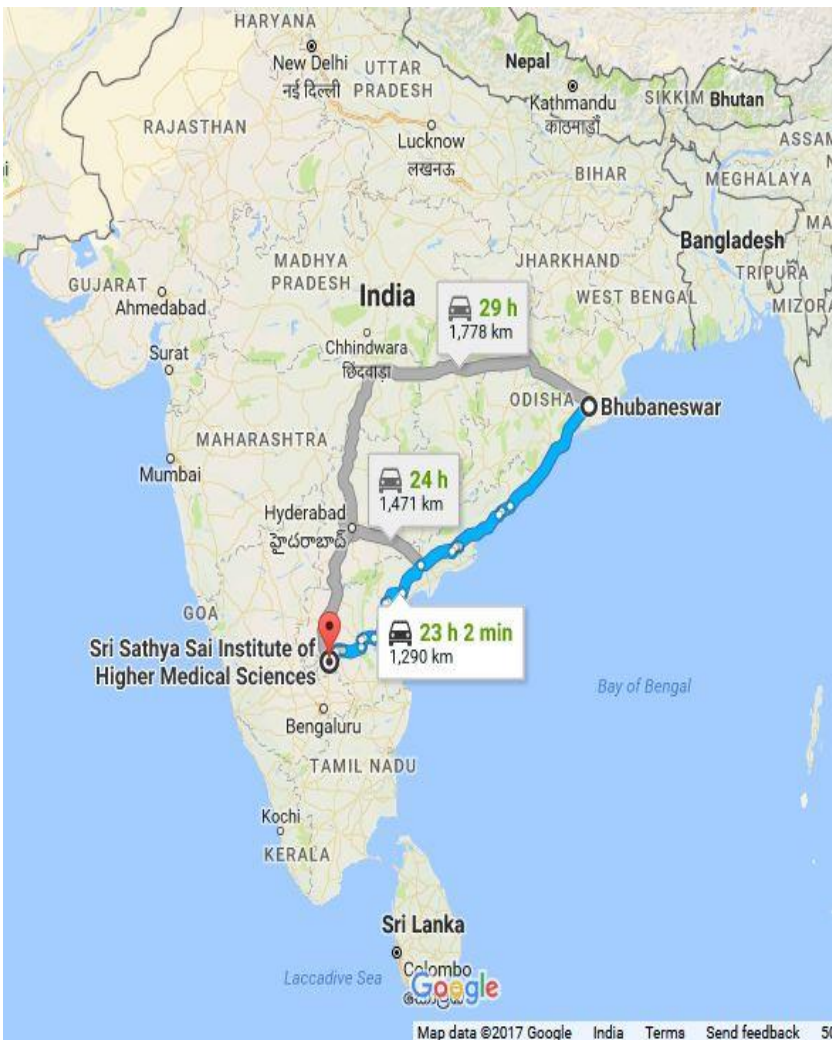
Established in 2007 by Sri Sathya Sai Central Trust, a public charitable trust with implementation sites located in 5 different States in India.

- **Sri Sathya Sai Institute of Higher Medical Sciences, Prasanthigram, Puttaparthi, Andhra Pradesh (300 bedded tertiary care hospital with 7 clinical specialties) – Specialist hospital/hub site**
- **Sri Sathya Sai Institute of Higher Medical Sciences, Whitefield, Bangalore, Karnataka (333 bedded tertiary care hospital with 4 clinical specialties) - Specialist hospital /hub site**
- **Sri Sathya Sai Seva Kendra, Barrackpore, West Bengal - Remote/spoke site**
- **Sri Sathya Sai Seva Samithi, Bhubaneswar, Odisha – Remote/spoke site**
- **Sri Sathya Sai Prashanthi Seva Kendra, Jabalpur, Madhya Pradesh - Remote/spoke site**



Distance from Kolkata, West Bengal to SSSIHMS, Whitefield, Bengaluru, Karnataka: 1,868 kms

Distance from Bhubaneswar, Odisha to SSSIHMS, Whitefield, Bengaluru, Karnataka: 1,428 kms

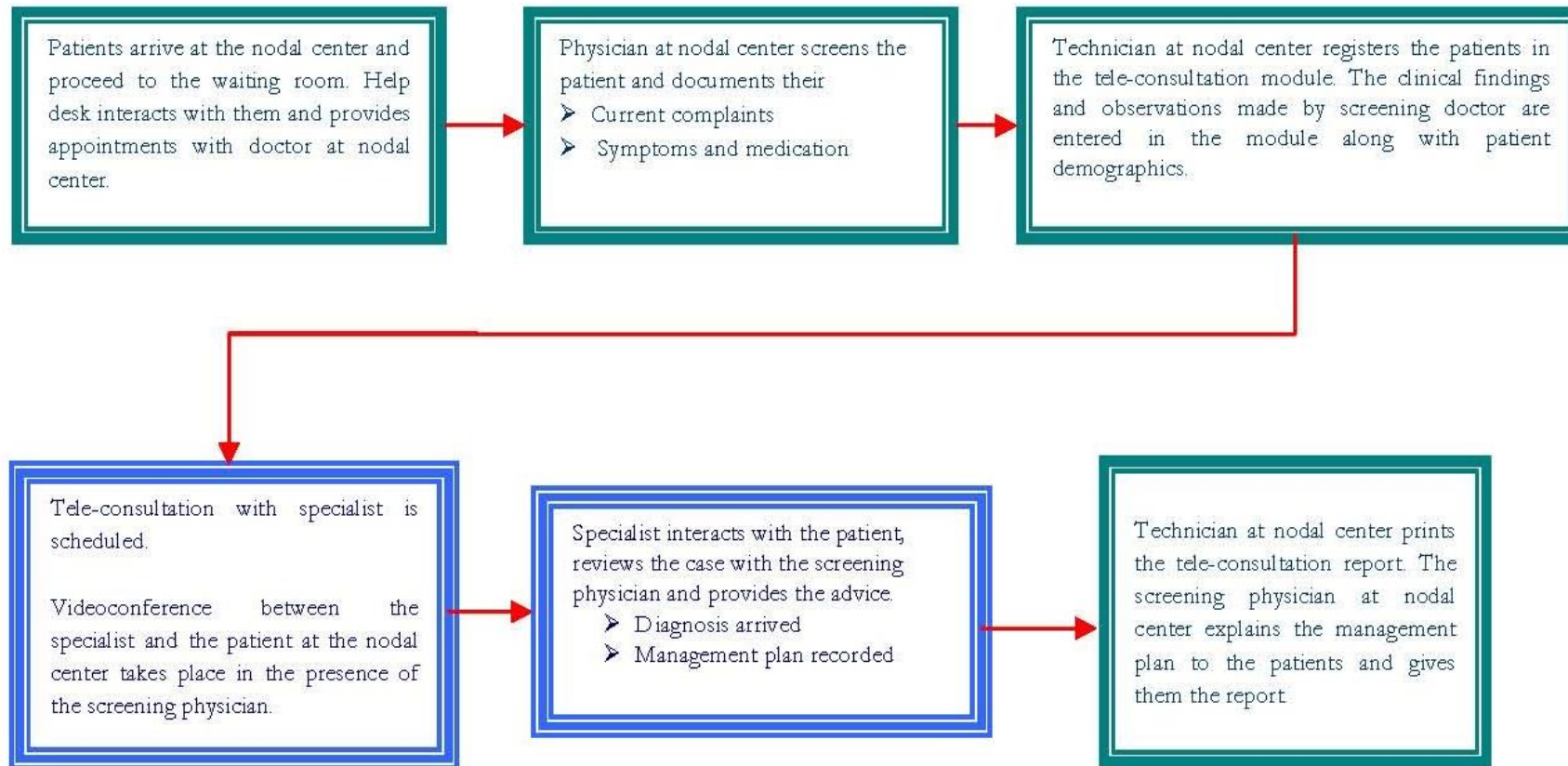


Distance from Bhubaneswar, Odisha to SSSIHMS, Prasanthigram, Puttaparthi, Andhra Pradesh: 1,290 kms

Distance from Kolkata, West Bengal to SSSIHMS, Prasanthigram, Puttaparthi, Andhra Pradesh: 1,730 kms

Distance from Jabalpur, Madhya Pradesh to SSSIHMS, Prasanthigram, Puttaparthi, Andhra Pradesh: 1,233 kms

Tele-consultation Workflow



Nodal Center



Specialist Center

Tele-consultation Intervention Categories

- **Routine follow-up**
- **Clarification on admission dates**
- **Change in clinical condition***
- **Advised on drug modifications**
- **Advised for tests/ scans for further evaluation***
- **Advised on performed tests/ scans**
- **Non-Neurological/Cardiac symptoms**
- **Non-Treatable Neurological/Cardiac condition**

*** Might require physical evaluation at SSSIHMS (Specialist Hospital)**

Socio-Economic Impact

Estimates for the duration: 11 September 2007 to 31 March 2020

Total no of video tele-consultations: 23,692

Neuro surgery: 11,528 ; **Cardiac surgery:** 12,164

Total no of video tele-consultation days: 2,754 (about 9 patients a day)

Estimated cost savings for the patients: INR 153,998,000 ~ MNT 6,536,605,339

Estimated cost savings per patient: INR 6500 ~ MNT 275,899

* travel and associated expenses for the patients + an attendant (accompanying them) would have otherwise incurred for physical visits to the hospital. This is exclusive of the loss of income for the patient/earning member of the family being away from work esp. those on daily wages.

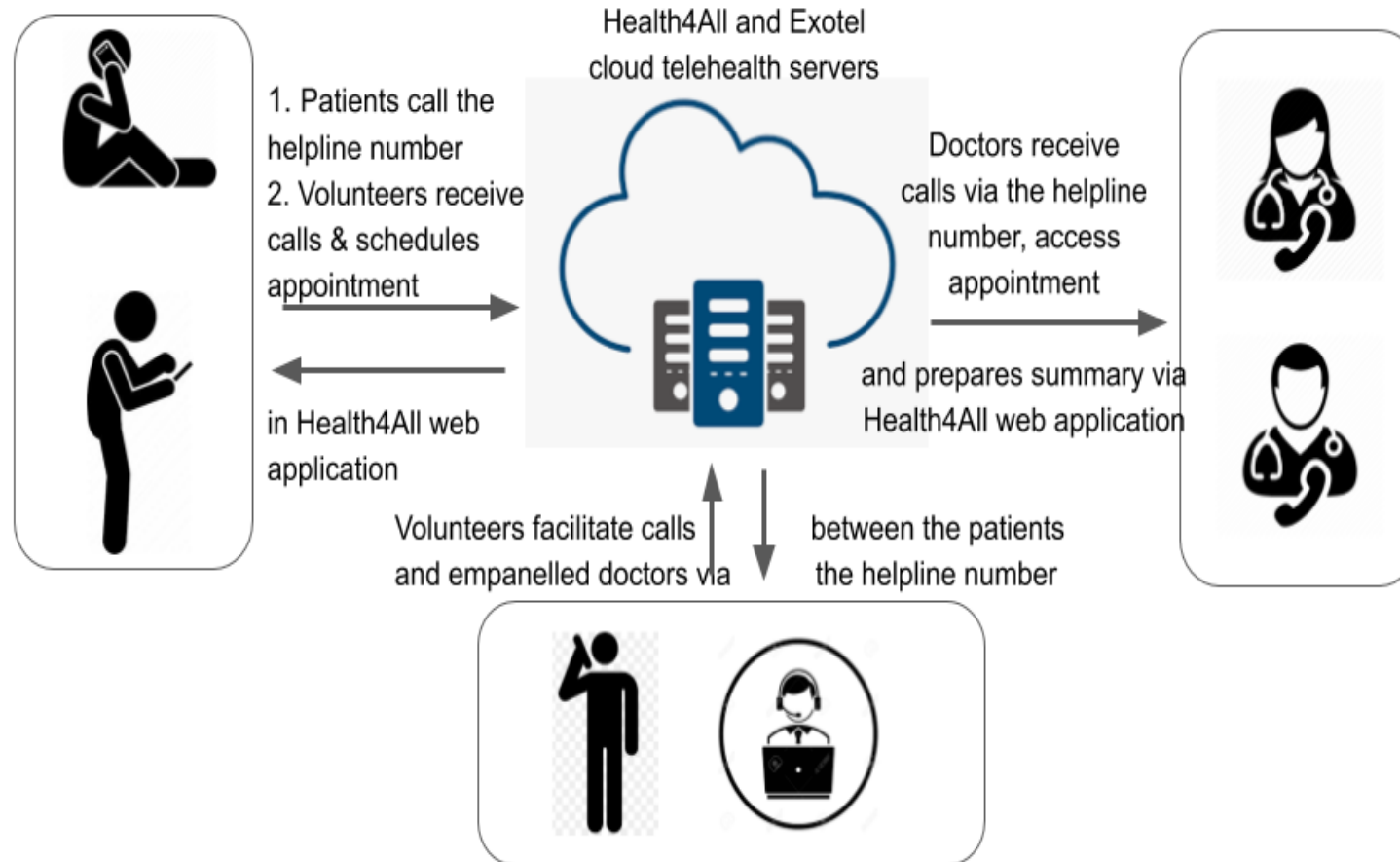
Note: The cost savings for patients is significant since over 90% of them have declared income of about

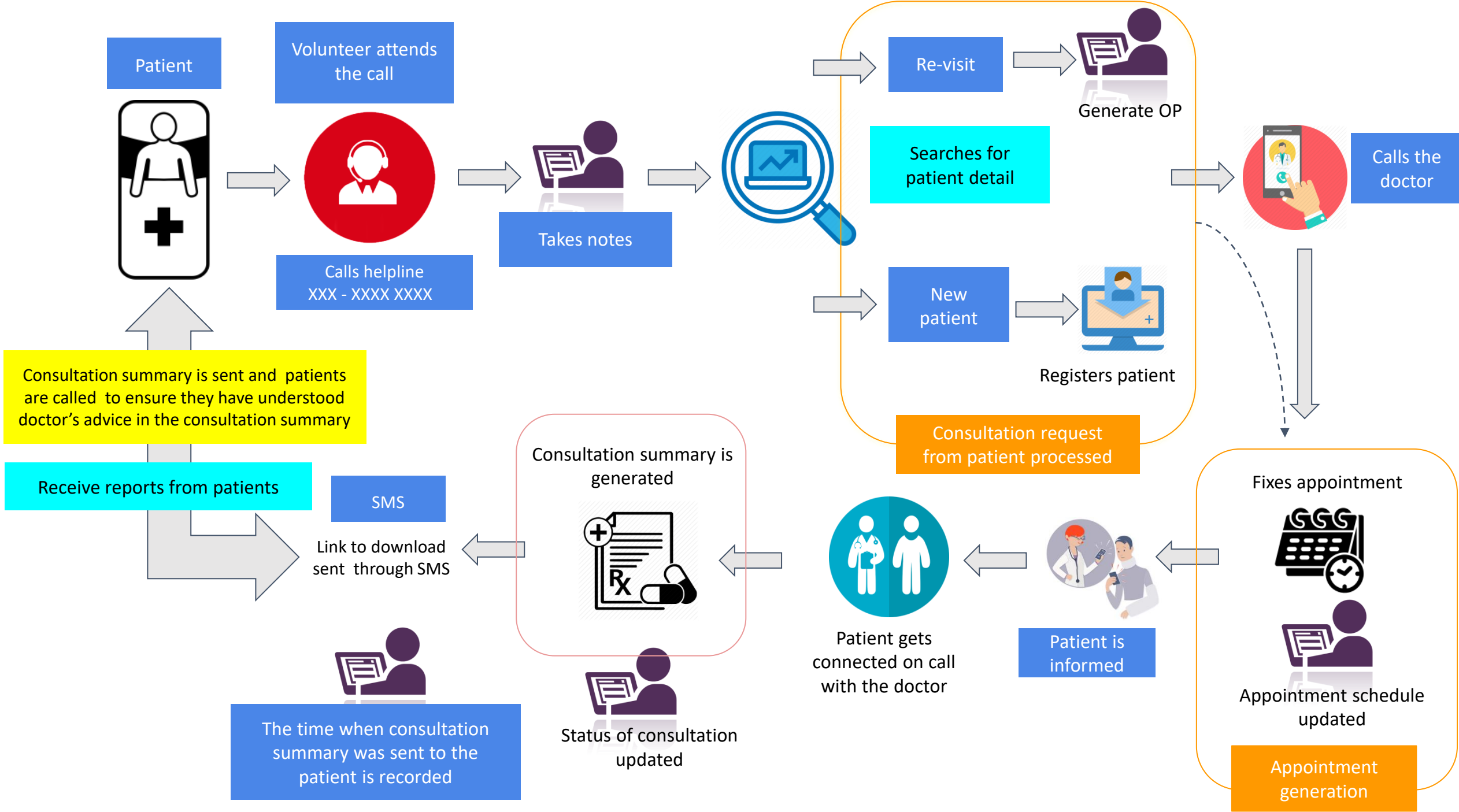
INR 1,00,000 (4,141,803) per annum.

Cloud telephony-based consultation services

(April 2020 onwards during COVID)

Schematic of cloud telehealth solution





Regardless of jurisdiction, the following best practices are nearly universal, and are recommended for any global teleconsultation service.



Physicians delivering teleconsultation services should be appropriately licensed in the patient location, and working in compliance with local health regulations.



Physicians should be permitted to prescribe remotely to the patient (when clinically required), with a detailed knowledge of local drug names, availability and prescribing regulations.



Patients should be told the benefits and risks of services delivered via teleconsultation, and give their consent to such care.



Personal health information related to the teleconsultation should be managed in accordance with relevant local data protection regulations.



The organisation providing, or coordinating, the teleconsultation services should be certified to appropriate quality management standards, such as ISO/TS 13131 Telehealth Services.



The standard of care should be the same whether the patient is seen in-person, through teleconsultation, or other methods of electronically enabled health care.



If the physician cannot competently and confidently diagnose or treat the patient via teleconsultation, the physician should refer the patient to an in-person examination before rendering a diagnosis or prescribing therapeutic treatment.



The undertaking of a teleconsultation should not be considered in isolation, and should include the capability of facilitating the patient's necessary medical care and assistance requirements post-teleconsultation.



The physician should be fluent in the local language at the patient location, to ensure appropriate documentation and referral pathways when necessary.

Global Best Practices



Source: Teleconsultation Services for the Mobile Workforce - Considerations and Guidelines for the Provision of Global Services in Compliance with Regulations and Best Practice Clinical Standards of Care by International Society for Telemedicine & eHealth (ISfTeH) and International SOS Foundation

Available @ <https://www.matrc.org/wp-content/uploads/2021/06/International-Teleconsultation-Services-white-paper-1.pdf>

WHO recommendations and existing guidance in telemedicine/telehealth



Defining evaluation indicators for telemedicine as a tool for reducing health inequities: study and results of a community of practice (2016)



Implementing telemedicine services during COVID-19: guiding principles and considerations for a stepwise approach (2021)



Framework for the implementation of a telemedicine service (2017)



Leveraging telehealth for efficient delivery of primary health care in the WHO South-East Asia Region (2021)



COVID-19 and telemedicine tool for assessing the maturity level of health institutions to implement telemedicine services (2020)

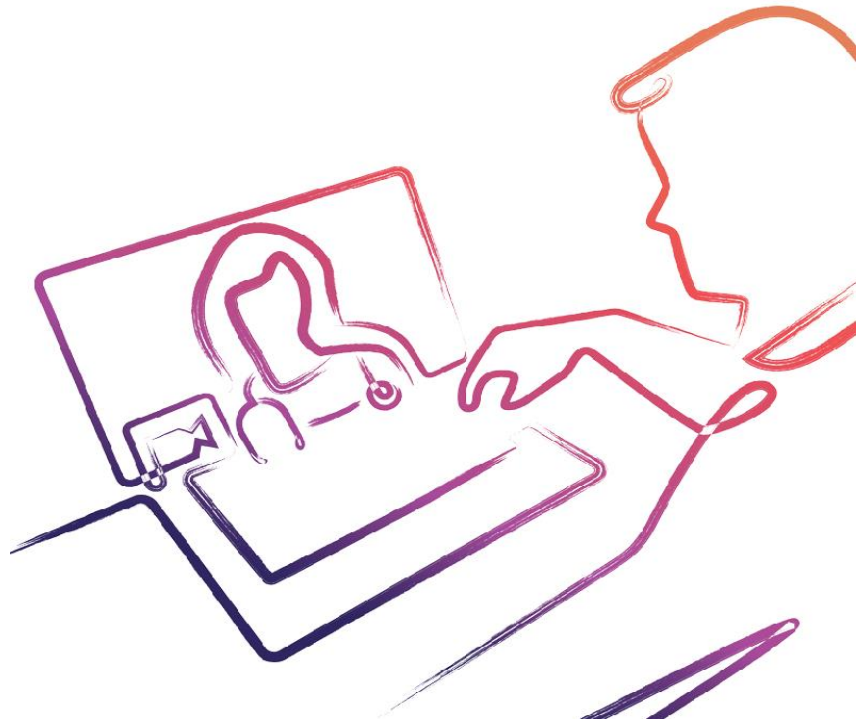


WHO-ITU global standard for accessibility of telehealth services (2022)

WHO-ITU Global standard for accessibility of telehealth services



WHO-ITU Global standard for accessibility of telehealth services



Specific requirements (25 in total) are provided for people with seven types of impairments

1. Requirements for persons with vision impairment and blindness
2. Requirements for deaf and hard of hearing persons
3. Requirements for persons with speech difficulties
4. Requirements for persons with mobility impairments
5. Requirements for persons with mental health conditions and psychosocial disabilities
6. Requirements for persons with developmental and intellectual disabilities
7. Requirements for persons with learning disabilities

The requirements in this document are intended for adoption by Member States as regulations or legislation and should also be voluntarily implemented by healthcare professionals and manufacturers.

Source: <https://www.who.int/publications/i/item/9789240050464>

A GUIDE TO TELEMEDICINE IN PRIMARY HEALTHCARE



OCTOBER 2022

Analysing the Appropriateness of Teleconsultation

- Assessing the need for remote consultation
- Analysing of the medical context.
- Deciding on the appropriateness of teleconsultation

Teleconsultation Categories

- Types of teleconsultation and ways of carrying them out
- Teleconsultation versus in-office consultation

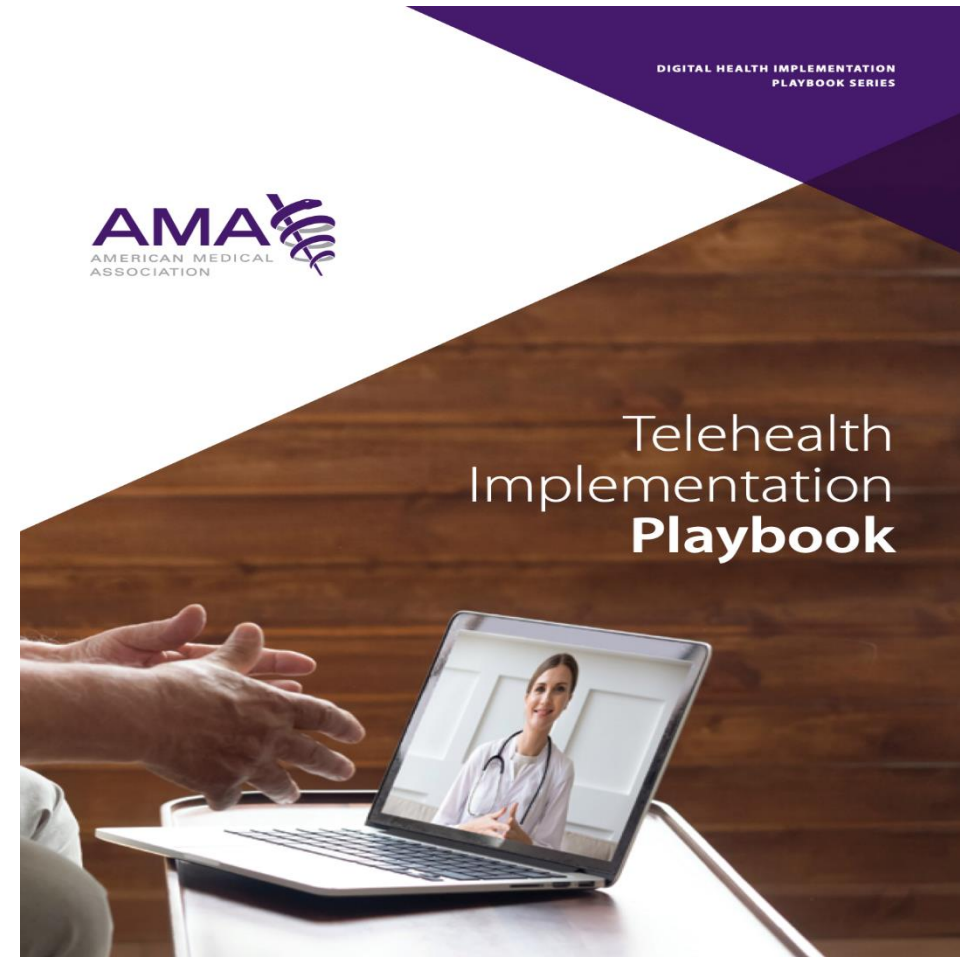
Planning and Organising a Teleconsultation

- Scheduling remote consultations
- Physical environment
- Preparing technical devices
- Preparing the consultation
- Informed consent
- Communication with the patient
- Recording the information (clinical documentation)
- Prescribing medication

Steps to Follow During a Teleconsultation

This guide meant for family doctors is available @
<https://www.unicef.org/romania/reports/guide-telemedicine-primary-healthcare>

The Implementation Path



Telehealth Implementation Playbook

Available @ <https://www.ama-assn.org/system/files/ama-telehealth-playbook.pdf>



ISO 13131:2021

Health informatics

Telehealth services

Quality planning guidelines

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ICS : 35.240.80

This document provides processes that can be used to analyze the risks to the quality and safety of healthcare and continuity of care when telehealth services. These include but are not limited to the following domains:

- management of telehealth quality processes by the healthcare organization;
- strategic and operational process management relating to regulations, knowledge management (best practice) and guidelines;
- healthcare processes relating to people such as healthcare activities, planning, and responsibilities;
- management of financial resources to support telehealth services;
- management of information management and security used in telehealth services;
- processes related to the planning and provision of human resources, infrastructure, facilities and technology resources for use by telehealth services.

This document provides a set of example guidelines containing quality objectives and procedures for each domain. Organizations can apply the quality and risk management processes described in Clauses 5 and 6 to develop quality objectives and procedures appropriate to the telehealth services they provide.

Annex A provides procedures for the implementation of telehealth services by a large organization.

Annex B provides use cases for the application of quality planning guidelines in different types of real-world telehealth services.

Source: <https://www.iso.org/standard/75962.html>

Telehealth around the world

Select a topic



Select countries



Go

- Overview of the current state of telehealth in 56 countries
- Interactive site for cross-jurisdictional comparison,
- Ability to download a PDF version of the information

Topics:

- ❖ Telehealth Availability
- ❖ Telehealth Regulation
- ❖ Healthcare Fields
- ❖ Telehealth Costs
- ❖ Privacy and Data Protection
- ❖ Cross-border Data Transfer
- ❖ Data Security Obligations
- ❖ Anticipated Reforms
- ❖ Key Contacts

The current state of global telehealth regulations

There are enormous opportunities in the telehealth space for businesses already operating in this field, businesses considering expanding into telehealth, and start-ups. This global comparison guide provides an overview of the current state of telehealth regulations worldwide and assists readers to identify the opportunities, challenges and risks, on a country-by-country basis. The guide is an easy to use interactive comparison site that simplifies cross-jurisdictional comparison, and you can also download a PDF of the information you require.



Broadband Commission Working Group Report on Virtual Health and Care



Chairs



Broadband Commissioners



External Experts



Source: https://www.broadbandcommission.org/wp-content/uploads/dlm_uploads/2022/06/The-Future-of-Virtual-Health-and-Care_2022-Broadband-Commission-Working-Group-Report.pdf

Six key policy pillars and fifteen policy elements for a virtual health and care policy maturity framework

Governance and regulatory

Provide essential administrative and regulatory structure through strategies, plans, and guidelines.

Policy elements: governance, regulation, licensing, liability, quality assurance

Data and technology

Ensure the flow of data by blending hardware with evolving software and delivery standards.

Policy elements: infrastructure, data governance, interoperability

People and workforce

Equip different stakeholders with the required know-how through trainings, continuing education, skill upgrades, and competency building.

Policy element: digital skills building

Design and processes

Encourage user-friendly solutions by focusing on the individual through research and development and effective use of data in decision-making.

Policy elements: human- and equity-centric, innovation, health outcomes

Business models

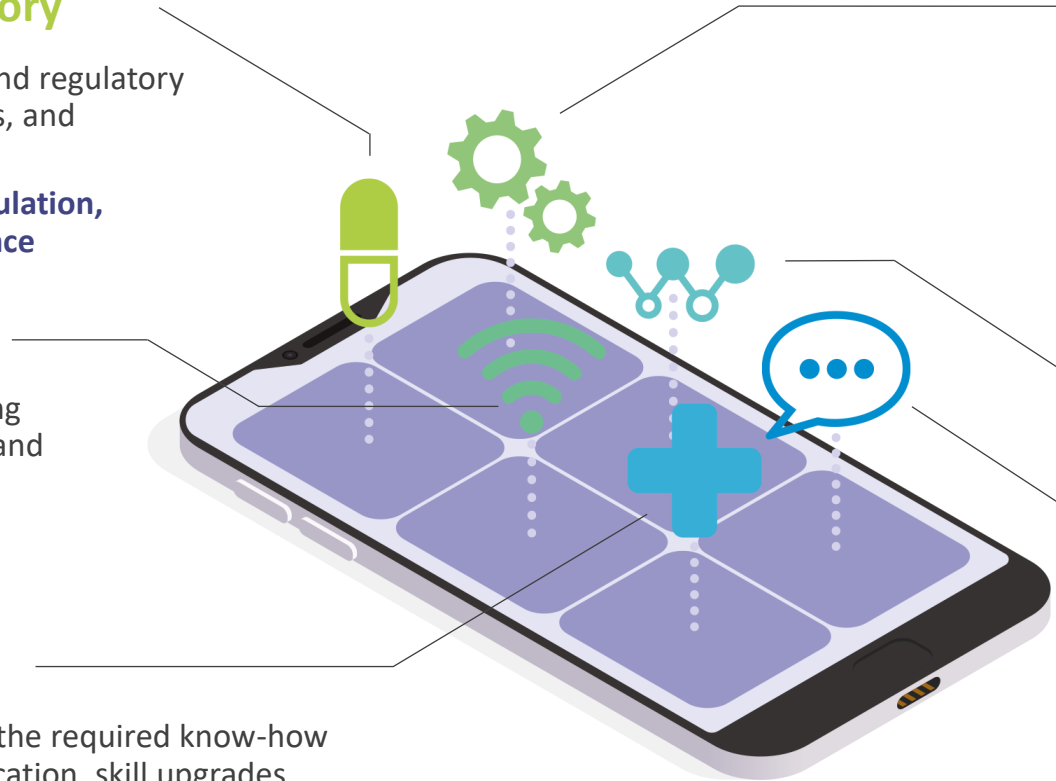
Supply financing and coverage through different funding sources, sustainable investments, and innovative pricing models.

Policy elements: financing, reimbursement

Partners and stakeholders

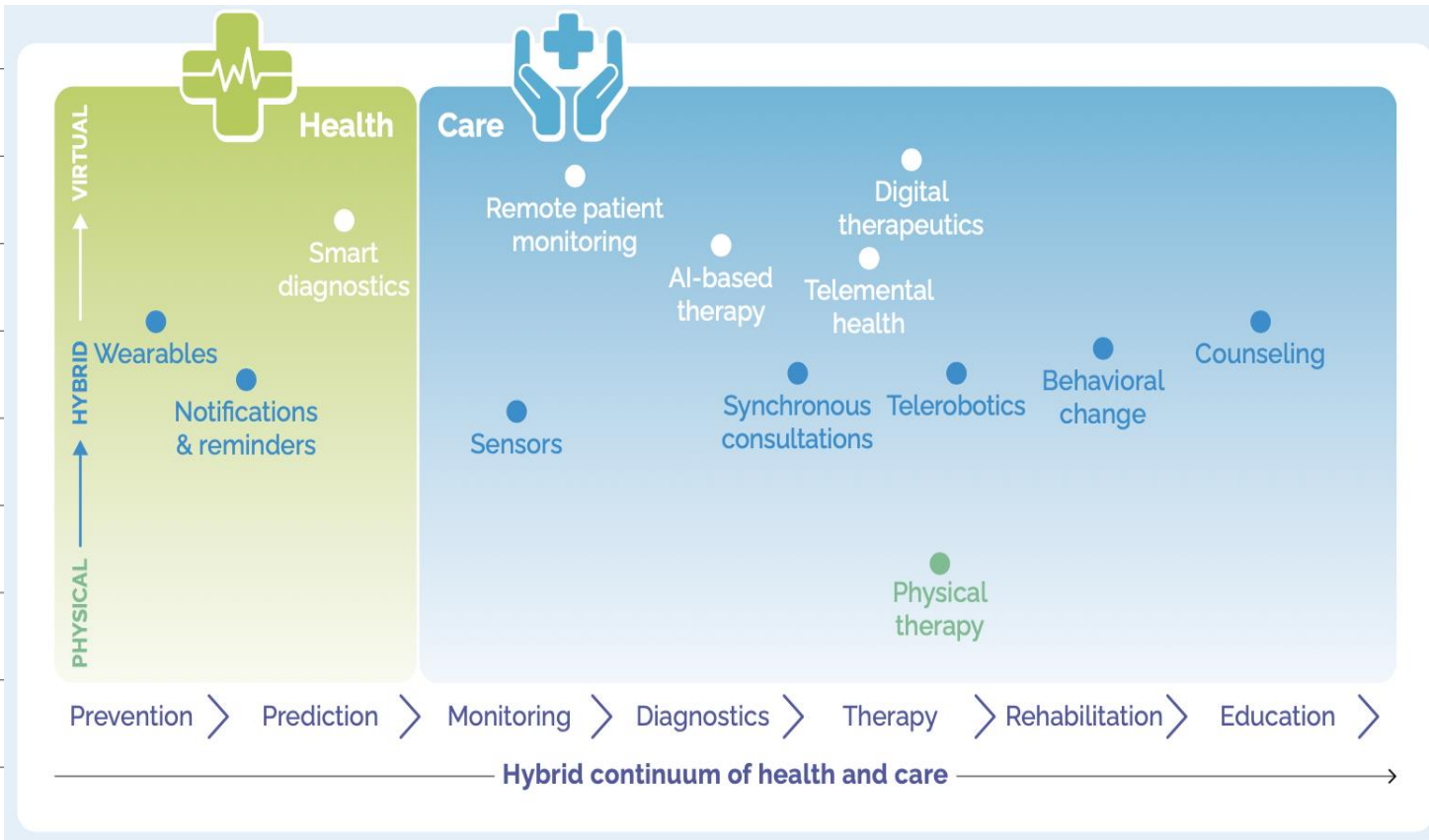
Bring together different players in the ecosystem through partnerships and teamwork.

Policy element: collaboration



Key policy developments across the examined countries include:

Policy element	Virtual health and care key policy development
Governance	Creation of local leadership teams for integrating digital health and virtual health and care in hospitals, clinics, communities, and households.
Regulation	Specification of virtual delivery use cases for various medical scenarios such as primary care, specialties, and outpatient care.
Licensing	Development of national health and care provider licensing mechanisms linked to reimbursements for virtual delivery of health and care.
Liability	Provisions for establishing liability in several use cases such as device malfunction, patient non-compliance, and misdiagnosis.
Quality assurance	Specification of requirements and conditions of quality for offering virtual delivery services.
Human- and equity-centric	Provisions and initiatives for inclusive representation of minority and tribal groups as well as remote, inaccessible regions.
Innovation	Emphasis on developing and demonstrating evidence-based virtual health and care solutions.
Health outcomes	Provisions for generating evidence using virtual health and care solutions within a specific time frame.
Infrastructure	Development of a uniform and distributed infrastructure for virtual health and care data.
Data governance	Specification of minimum data compliance requirements for protection of user health and care data.
Interoperability	Specification of standards for virtual health and care data management and governance.
Financing	Investment programs for delivering health and care virtually in rural and underserved communities.
Reimbursement	Payment mechanisms for virtual delivery of health and care based on an individual's socio-economic status.
Digital skills building	Special financial packages for workforce transformation in virtual delivery of health and care.
Collaboration	Creation of a virtual health and care maturity assessment toolkit aligned with national health and care goals.



Thank you

Баярлалаа