World Health Organization

WHO Consolidated Telemedicine Implementation Guide

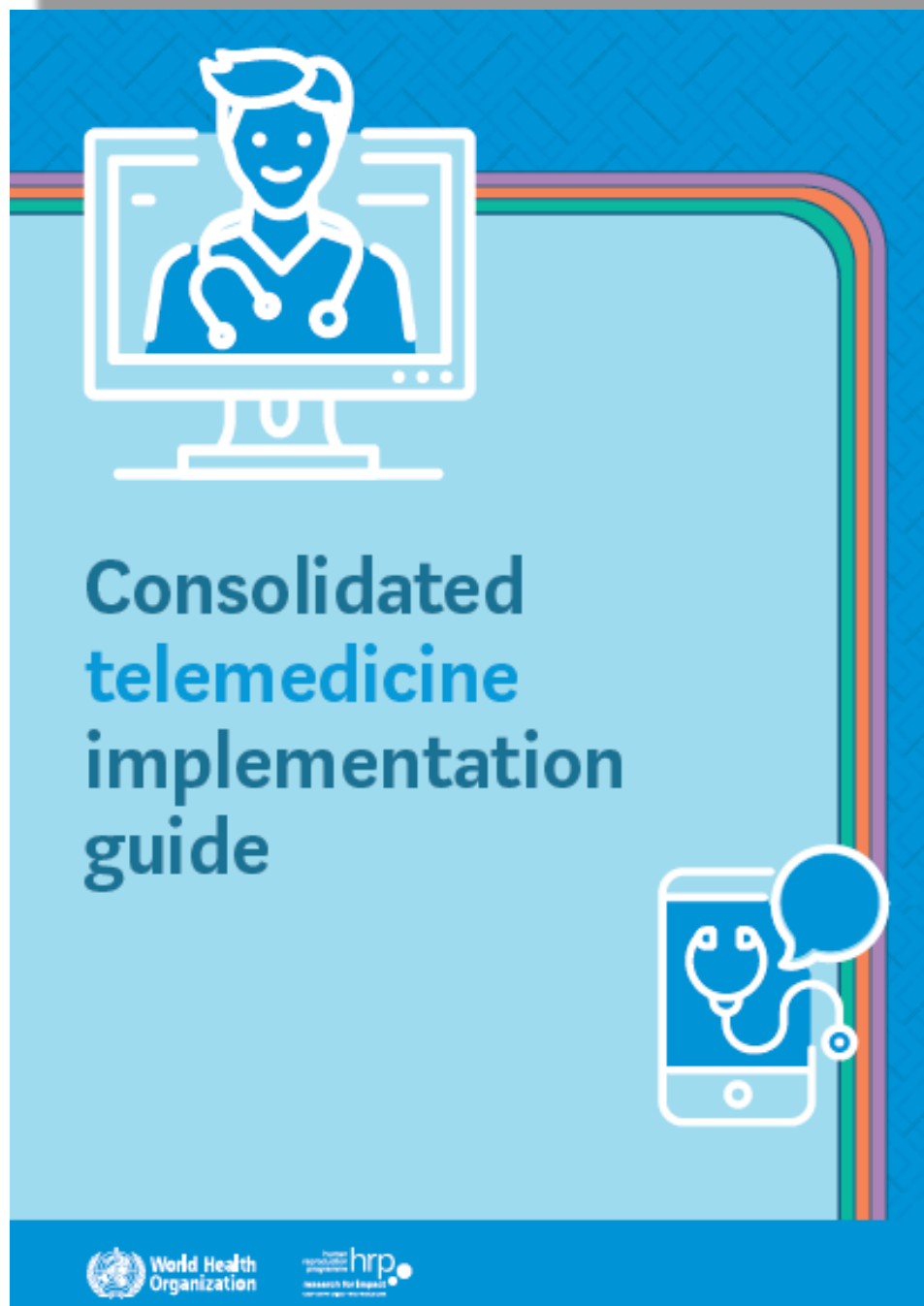**Tigest Tamrat, on behalf of WHO telemedicine working group**

Technical officer, digital health and innovations/Department of Sexual and Reproductive Health

Twitter **@HRPresearch**

World Health Organization

human reproduction programme **hrp**

research for impact

UNDP · UNFPA · UNICEF · WHO · THE WORLD BANK

Consolidated telemedicine implementation guide

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

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.

Modalities of telemedicine

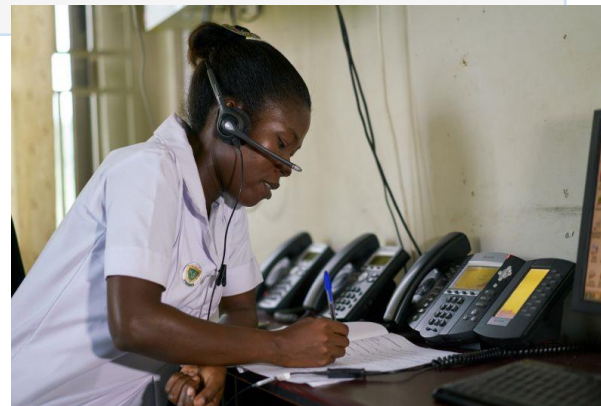| Store and forward	Interactive consultations	Remote patient monitoring
• Consists of storing and sending information remotely, in which health data and images are submitted digitally for analysis by a health worker at a later time, usually a specialist. It is also described as an asynchronous or deferred mode.	• 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."	• Also known as telemonitoring – enables health workers to monitor an individual's condition remotely, using technologies such as connected medical devices and sensors.

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

WHO recommendations and existing guidance

World Health Organization

Assessment and implementation tools for telemedicine

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)
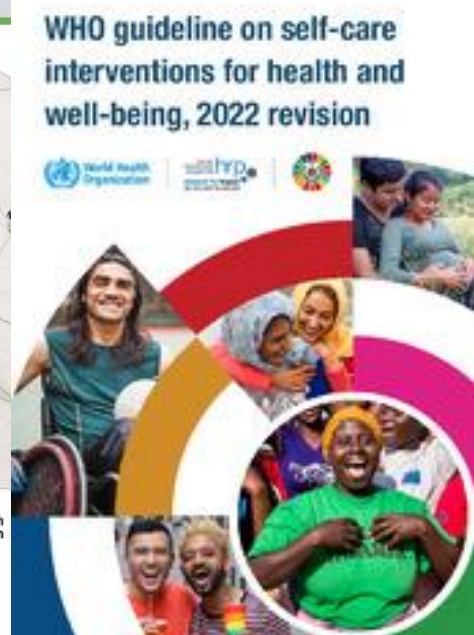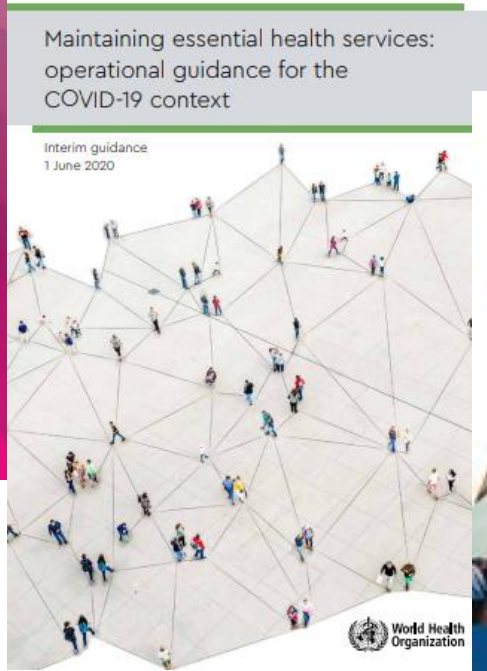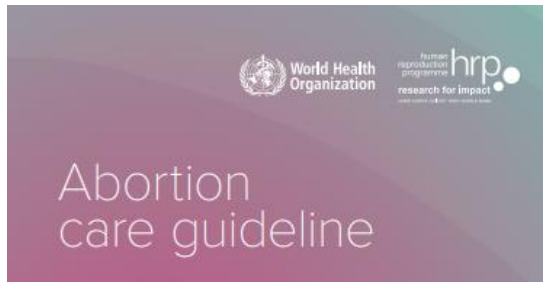

COVID-19 and telemedicine tool for assessing the maturity level of health institutions to implement telemedicine services (2020)

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

WHO recommendations and existing guidance

World Health Organization

BOX 1. *WHO guideline recommendations on telemedicine*

General recommendations

+ **Client-to-provider telemedicine:** WHO recommends the use of client-to-provider telemedicine to complement, rather than replace, the delivery of health services and in settings where patient safety, privacy, traceability, accountability and security can be monitored. In this context, monitoring includes the establishment of standard operating procedures (SOPs) that describe protocols for ensuring patient consent, data protection and storage, and verifying provider licensing and credentials *(1)*.

+ **Provider-to-provider telemedicine:** WHO recommends the use of provider-to-provider telemedicine in settings where patient safety, privacy, traceability, accountability and security can be monitored. In this context, monitoring includes the establishment of SOPs that describe protocols for ensuring patient consent, data protection and storage, and verifying provider licensing and credentials *(1)*.

Recommendations related to specific health domains and use cases

+ **Good practice statement on telemedicine and self-care interventions:** Client-to-provider telemedicine to support self-care interventions can be offered to complement face-to-face health services *(9)*.

+ **Telemedicine for abortion services:** WHO recommends the option of telemedicine as an alternative to in-person interactions with the health worker to deliver medical abortion services in whole or in part. This recommendation applies to assessment of eligibility for medical abortion, counselling and/or instructions relating to the abortion process, providing instruction for and (active) facilitation of the administration of medicines, and follow-up post-abortion care, all through telemedicine. Hotlines, digital applications, or one-way modes of communication (e.g. reminder text messages) that simply provide information were not included in the review of evidence for this recommendation *(10)*.

World Health Organization

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

World Health Organization   hrp

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

World Health Organization

GOVERNANCE

These include digital health leads at national and local implementation level, policy-makers, health regulatory bodies, telecommunications regulatory bodies, and relevant bodies for health financing for reimbursement and payment of services, among others.

MANAGEMENT

These include health/telemedicine administrators, digital health national coordinators, health programme coordinators, clinical services leads (for example, family planning; safe abortion; maternal, newborn and child health; noncommunicable diseases, etc.), and focal points in health management and information services for incorporating service delivery statistics, among others.

OPERATIONS

These include business analysts, software developers, end-user trainers, help desk support/systems maintenance and implementation coordinators, among others. It may be useful to consider the operations category in two subgroups: (i) individuals responsible for the technology, such as the software, hardware, database, and its maintenance, and (ii) implementers, such as trainers and programme coordinators.

END-USER REPRESENTATIVES

These include clients/patients and their family members, patient groups, relevant professional bodies, and health workers, among others.

Use of human-centred design approaches and co-design of interventions should be considered for increasing usability, enhancing user experience and facilitating long-term adoption.
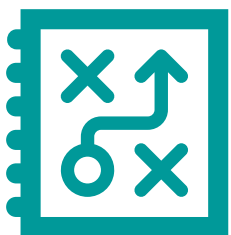
World Health Organization | hrp

STEP
02
DEFINE HEALTH PROGRAMME
CONTEXT AND TARGETS

PHASE 01 SITUATIONAL ASSESSMENT

World Health
Organization

❏ Examine **current processes and workflows and identify health system challenges and bottlenecks** that you seek to address. This would include asking what specific health problems the telemedicine programme could address, as well as what the prevalence is of a health problem and/or the geographic area of action.

❏ Determine who the **targeted end-users would be** – for example, health worker type, individuals, or other potential end-users of the system. What are their health needs?

❏ How many **health facilities, health workers, or clients/patients are targeted** for the implementation? In which geographic areas? Is the target population likely to use the telemedicine service?

❏ How will the **telemedicine service fit with the larger context of service delivery needs**? For example, will there be **integration with ambulance services**, **biological sample collection at home or primary health centres**, delivery of medicines at home through community health workers, referral pathways for continuum of care?
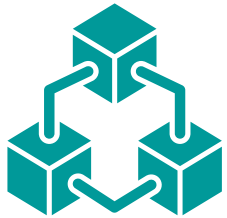
World Health
Organization   hrp

STEP
03
CONDUCT LANDSCAPE
ANALYSES

PHASE 01 SITUATIONAL ASSESSMENT

World Health
Organization

Conduct a landscape analysis of software applications and channels

❑ Map the current scope of the telemedicine services available in other settings or other health domains, with the aim to expand/adapt to meet requirements.

❑ WHO Digital Health Atlas (digitalhealthatlas.org) is one resource for identifying telemedicine implementations and associated applications that can be leveraged.

Map hardware needs and availability

❑ Assess the type of hardware available and needed. The hardware can include computers, tablets, monitors, audio-conferencing equipment (e.g., headsets), servers and connected medical devices.

❑ The mapping of hardware will also need to align with procurement guidelines (if available) and consider the reliability and availability of devices.

World Health Organization hrp

Domains for assessing the enabling environment

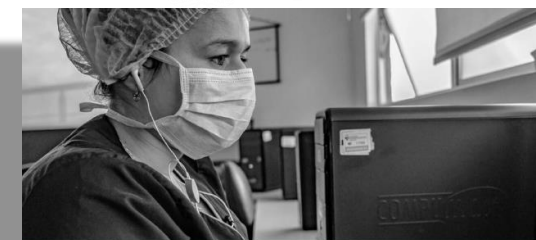| I Organizational readiness	II Processes	III Digital environment	IV Human resources	V Regulatory issues	VI Expertise
Foundational basis to identify issues to be resolved before moving forward with telemedicine services	Set of operations and functions that must be taken into consideration	Necessary technological infrastructure, including hardware and software	Institutional capacity in the areas of health services and of information technology and communications	Rules and procedures that must be considered when providing telemedicine services	Additional know-how that could benefit the effective implementation of telemedicine services

COVID-19 AND TELEMEDICINE
Tool for assessing the maturity level of health institutions to implement telemedicine services

Version 3.0, July 2020

PAHO · Pan American Health Organization · World Health Organization · Americas

IDB · Inter-American Development Bank

https://www.paho.org/en/documents/covid-19-and-telemedicine

World Health Organization hrp

STEP
04
ASSESS THE ENABLING ENVIRONMENT

I. Organizational readiness

1	Is senior man... services?
2	Is it clearly un... telemedicine?
3	Have the serv...
4	Is there a bud...
5	Is the IT staff... telemedicine?
6	Do the nation... telemedicine...
7	Does the insti...
8	Does the insti... program in op...
9	Does the insti... messaging or...
10	Does the insti... through virtua...

II. Processes

33	Have the duties, r... telemedicine serv... involved?
34	Have the duties, r... telemedicine serv...
35	Have procedures... considerations re... responsibility?
36	Have procedures... confidentiality, an... by telemedicine s...
37	Are procedures in... with telemedicine...
38	Are notification p... adverse events du...
39	Are there standar... technical failures... outcome?
40	Are there formal... from patients?

III. Digital environment

45	Is a regula...
46	Does the a... telemedic...
47	Is the insti... providing...
48	Is the nec...
49	If the scor... budget av...
50	Is there te... connectivi...
51	Is there a...
52	Are techni... issues?
53	Is there a... connectivi...

IV. Human resources

72	Is there staff ava...
73	Has it been clear... telemedicine ser...
74	Have the minimu... telemedicine ser... telemedicine?
75	Has the possibilit... considered for st...
76	Is there access to... if necessary?
77	Are there plans t... face-to-face hou...
78	What is the level... services?
79	Is there in-house...

V. Regulatory issues

Question	Level of maturity				Requests technical support
	1	2	3	4	
84	Are all the legal issues associated with the delivery of telemedicine services clear?					
85	Is there a procedure in place to keep staff who provide telemedicine services up to date on possible changes in regulations, statutes, federal and subnational policies, and legislation related to telemedicine services?					
86	Does the institution have in-house legal advisory services? Does it have access to a specialized consultancy to receive expert advice on legal, ethical, privacy, and security issues?					
87	Is it known for certain that the patients are located within the same catchment area (e.g. state, province, or municipality) as the institution providing the telemedicine services?					
88	Are the malpractice issues related to the telemedicine services well understood?					
89	Has a process been put in place for obtaining and documenting the consent of patients before they participate in a telemedicine visit?					

COVID-19 AND TELEMEDICINE
Tool for assessing the maturity level of health institutions to implement telemedicine services

Version 3.0, July 2020

PAHO
Pan American Health Organization
World Health Organization

IDB
Inter-American Development Bank

https://www.paho.org/en/documents/covid-19-and-telemedicine

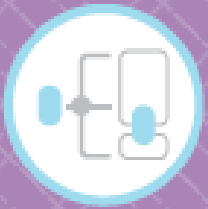World Health Organization   hrp

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

- ❑ Supervising authority responsible for regulating telemedicine in the country
- ❑ When telemedicine is an appropriate standard of care
- ❑ Which entities would be involved in telemedicine and the types of heath 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.
- ❑ Record-keeping and reporting standards
- ❑ Data privacy and security standards
- ❑ Technology standards for hardware, software and interoperability
- ❑ Training requirements and certifications
- ❑ Quality assurance and quality control measures
- ❑ Purchasing arrangements (e.g., financing, reimbursement)
- ❑ Cross-jurisdictional provision of services via telemedicine

PHASE 02: PLAN THE IMPLEMENTATION

STEP 05 — DETERMINE HOW THE TELEMEDICINE SYSTEM WILL OPERATE

- ❏ Define the functional and nonfunctional requirements
- ❏ Update workflows reflecting the requirements
- ❏ Conduct extensive user testing
- ❏ Plan for change management

STEP 06 — ENFORCE MECHANISMS FOR PATIENT AND HEALTH WORKER SAFETY AND PROTECTION

- ❏ Put systems in place for data privacy, access and protection of patient information
- ❏ Enforce ways to verify licensing/accreditation of health workers
- ❏ Determine and disclose if audio/video recording will be done

STEP 07 — ESTABLISH STANDARD OPERATING PROCEDURES

- ❏ Clarify clinical protocols and identify potential liability considerations
- ❏ Determine the training package and channels for support
- ❏ Establish a process for confirming identification
- ❏ Establish clear consent documentation
- ❏ Explore whether changes to health worker remuneration are needed
- ❏ Establish a plan for management of connected medical devices

STEP 08 — INVEST IN CLIENT/PATIENT ENGAGEMENT AND GENDER, EQUITY AND RIGHTS

- ❏ Determine mechanisms for outreach
- ❏ Assess implications on equity, gender and rights
- ❏ Ensure accessibility for persons with disabilities

STEP 09 — DEVELOP A BUDGET

- ❏ Define the budget for overall cost of ownership
- ❏ Plan how to integrate telemedicine into routine health service delivery
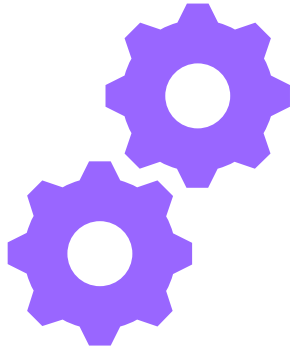
STEP
05
DETERMINE HOW THE
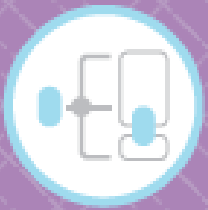TELEMEDICINE SYSTEM
WILL OPERATE

PHASE 02   PLAN THE IMPLEMENTATION
Organization

✓ **Define the functional and nonfunctional requirements of the telemedicine system.**
✓ **Common considerations for developing functional and nonfunctional requirements include:**

❑ Will the telemedicine functionality be conducted as asynchronous or synchronous communication?
❑ Will the telemedicine system be used between patients and health workers, among health workers, or both?
❑ What channels will the telemedicine system use (e.g., text, audio, images, video, sensors, applications)?
❑ Will the telemedicine system use an already developed application?
❑ Will the telemedicine system allow for multiple modes of delivery (e.g. personal devices, through community health workers, etc)?
❑ Will the telemedicine system need to exchange data with or link to other digital systems (e.g. electronic medical record or health management information system) to ensure continuity of care and accountability?

STEP
05
DETERMINE HOW THE
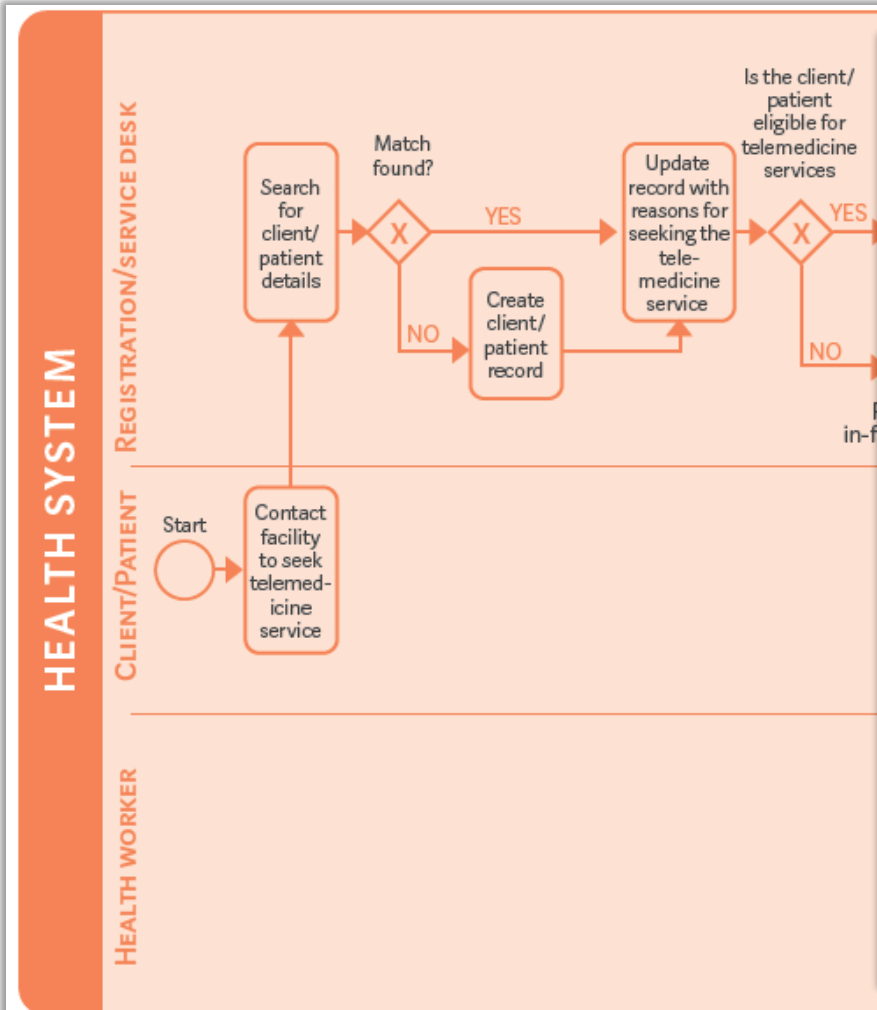TELEMEDICINE SYSTEM
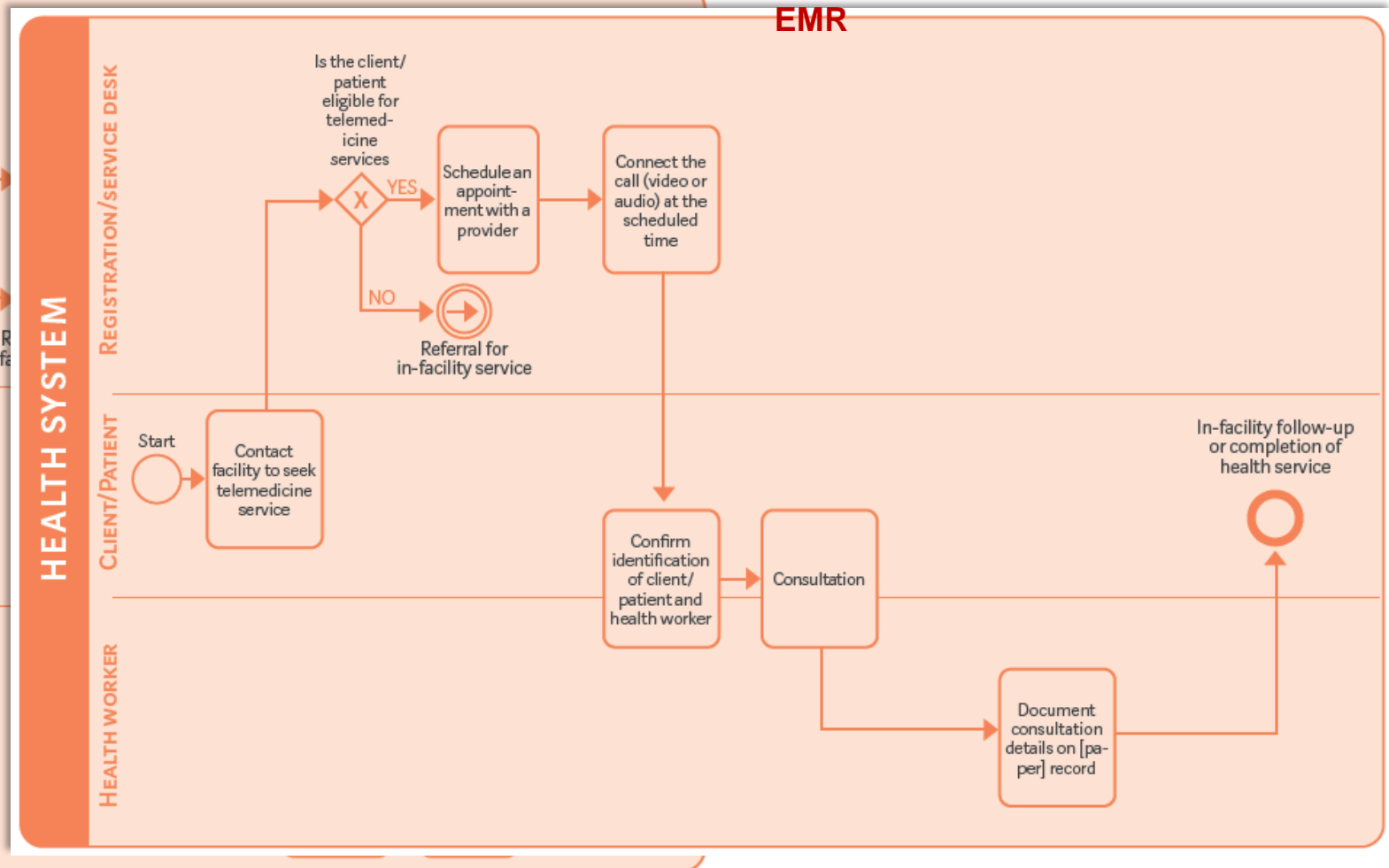WILL OPERATE

PHASE 02   PLAN THE IMPLEMENTATION

Organization

Review and update workflows reflecting identified requirements

Teleconsultation with linkage to EMR
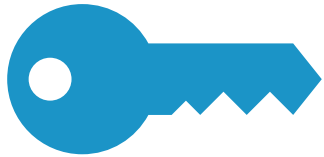
Teleconsultation with no linkage to EMR

Put systems in place for data privacy, access and protection of patient information

❑ Identify a mechanism to clearly identify which of the end-users who are linked to the telemedicine service are authorized to have access to the information.

❑ Develop a data security plan for storing, transferring and processing sensitive health information, as well as on how to manage access to clinical records for use during the telemedicine service implementation.

❑ **Secure a location** for conducting the telemedicine intervention, such as a secure closed room, cubicle, or other secure environments to minimize overhearing/sharing of health information.

❑ Determine **if personal devices, such as health workers' own** phones, will be used as part of the delivery of telemedicine services, and policies for data protection or limitations on what can be recorded or stored on a personal device.

Determine training package and support channels

☐ Identify topics the training should include, e.g.:
  ☐ familiarity with the digital components
  ☐ clinical skills and adaptations for telemedicine services
  ☐ remote patient management/communication skills, etc.

Continuously refine training package based on the cases and scenarios that end-users are facing.

☐ Ensure training and support are available through different channels, including individual training sessions, as well as through help desks and easily accessible tools for end-users to seek information on navigating the technological aspects of the telemedicine system.

Enforce verification of health workers

❏ Clarify legal framework for the implementation of telemedicine, including licensing and regulation of health workers providing telemedicine services.

❏ Provide redressal mechanisms to deal with fraud and abusive situations to protect health workers. Similarly, there should also be systems for medical liability and auditing of services

Determine and disclose if audio/video recording will be done

❏ Determine if calls may be recorded and stored for monitoring and quality assurance purposes, with appropriate patient consent.

❏ Ensure patients are made aware of and consent to a recording of the telemedicine consultation for potential auditing and monitoring purposes.

❏ Develop a plan for safe and protected archival of the recordings.

Establish plan for management of connected medical devices to be used for remote patient monitoring (as appropriate)

✓ How will clients/patients obtain the connected medical devices?

✓ Will the connected medical devices be provided as a loan? If so, how will these be monitored?

✓ If clients/patients purchase the connected medical devices, will they be eligible for reimbursement?

✓ How will malfunctions and technical issues with the medical devices be handled? How will maintenance of the medical devices be handled?

✓ What plans are in place if patients do not return the loaned medical device?

✓ How will devices be calibrated and tested prior to distribution? Will the connected medical devices need to be vetted against regulatory standards?

STEP

08

INVEST IN CLIENT/PATIENT
ENGAGEMENT AND GENDER,
EQUITY AND RIGHTS

PHASE **02**   PLAN THE IMPLEMENTATION

**World Health
Organization**

Determine the mechanisms for outreach and raising awareness

- Investment in community outreach, awareness, such as through social media, mass media communication and community outreach, how to access the intervention (such as pamphlets, health portals, health facilities, etc.)

Assess the implication for equity, gender and rights

- Ensure there are multiple ways to access communication channels for the telemedicine intervention, as well as allowing for different access points, such as through community health workers or kiosks.

Ensure accessible services for persons with disabilities

- For example, people with vision impairment might not be able to read text or use online platforms if not compatible with assistive devices.
- People with hearing impairment may be unable to communicate with a health worker if captioning and volume control not available
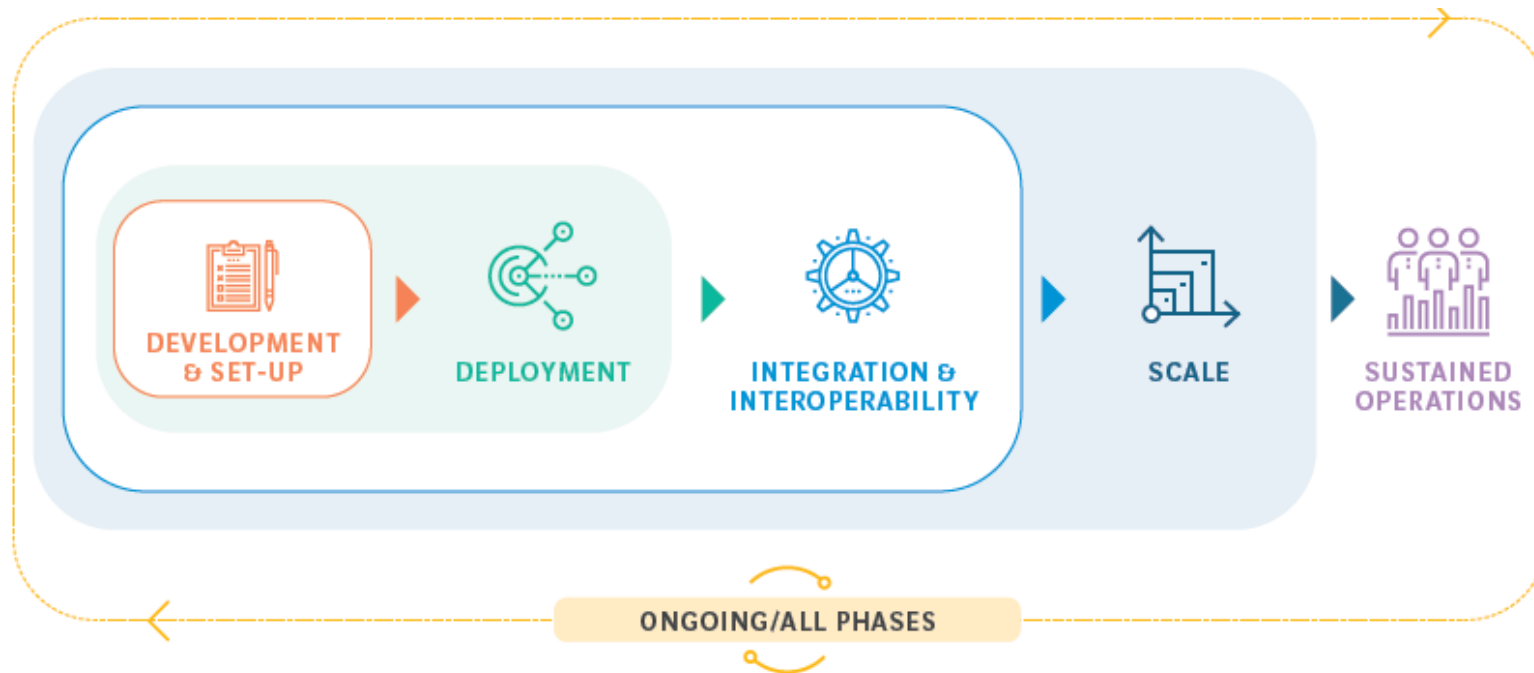
WHO-ITU Global standard for
accessibility of telehealth services

Define budget for overall cost of ownership across all phases of implementation

Note costs to patients may not be reflected in the budget but should be considered, particularly if these are expected to be out-of-pocket expenses.

Plan integration of telemedicine into routine health service delivery and management of payments in the long term.

Common cost categories for consideration for patient to health worker telemedicine

Cost category	Description
ONGOING/ALL PHASES	
Governance	» Personnel for partnership-building (such as Technical Working Group operators) » Meeting costs (transportation, pers » Governance body to oversee standa
Management and staffing	» Personnel to oversee overall progra » Clerical staff to answer and triage i also do the call intake) » Clinical staff to provide consultatio particularly expensive if the service » Access to referral specialists in case clinical staff (such as dermatology » Personnel for routine monitoring o calls and use of the service » Personnel for system set-up and en
DEVELOPMENT AND SET-UP	
Outreach and raising awareness	» Development of materials on how t health portals, health facilities disp » Dissemination to clients/patients a phone bank of numbers to commu » Stakeholder meetings/engagement development and acceptance feed
Technology adaptation	» Software customization for commu modalities/communication channe of data/images, voice calls, text me » Security features, such as end-user demographic and health informatic » Cloud-based solutions with encryp

DEPLOYMENT	
Equipment/ hardware	» Computer with dedicated software system for audio workers to conduct consultations » Audio or videoconferencing equipment, which may in (central lines that can direct voice calls, images and vi different network operators) » Access to authorized or recommended medical devices to appropriate.
Initial training	» Development/adaptation of training protocols and SO referral processes » Initial training to end-users (e.g. health workers and c telemedicine system.
INTEGRATION AND INTEROPERABILITY	
Technology adaptation	» Design of technology architecture to link the telemed such as targeted client/patient communication » Software customization to reflect integration.
Human resources	» Additional personnel to define interoperability require » Additional personnel to ensure the ongoing maintena » Additional personnel for increased coordination with integrations and governance.

SCALE	
Training and adaptive management	» Additional training for health workers conducting the telemedicine » Additional training for supervisory personnel on continuous monitoring » Additional training for ICT support staff to provide end-user support, troubleshooting, back-up and recovery » Periodic review meetings to discuss feedback on system performance and challenges.
Equipment/ hardware	» Additional computer with dedicated software system for audio and/or video connections for health workers to conduct the consultation » Additional audio or videoconferencing equipment, which may include headsets and trunk lines (central lines that can direct voice calls, images and videos to multiple lines and across different network operators) » Access to authorized or recommended medical devices to capture clinical data needed as appropriate.
SUSTAINED OPERATIONS	
Refresher training and adaptive management	» Refresher training and continuous support to health workers on how to use the telemedicine system » Periodic review meetings to discuss system performance and workflow integration.
Communication/ data exchanges	» Airtime and/or transmission of data files, depending on the volume and modality of the communication (modalities/communication channels may include videoconferencing, transmission of data or images, web-based platforms, voice calls and interactive voice response; the caller may incur these costs unless there are provisions for the service to be toll-free, enabling costs to be absorbed by the organization/facility providing the remote consultation) » Support line for client/patient experiences and feedback.
Technology maintenance	» Software maintenance and licence fees » Hardware maintenance, including insurance and repair/replacement of hardware.

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

World Health Organization   hrp

STEP
10
DETERMINE M&E GOALS

PHASE 03

MONITORING AND EVALUATION,
AND CONTINUOUS IMPROVEMENTS

Organization

Define indicators for assessing performance and impact. Illustrative indicators below:

Domain	Definition	Illustrative subdomains	Illustrative indicators
Reach	The number of people who are willing to participate in a given telemedicine programme.	» Coverage » Equity » Accessibility	Coverage: » Percentage o[...] performed us[...] » Percentage o[...] enrolled in te[...] » Number/perc[...] monitored by[...] Equity/accessibil[...] » Number of pe[...] economic lim[...] access to car[...]

Domain	Definition	Illustrative subdomains	Illustrative indicators
Effective-ness	The impact of a telemedicine programme on important outcomes, including potential negative effects, quality of life, and economic outcomes. Heterogeneity of effects and reasons for success or lack of success.	» Timeliness of care » Quality of care » Financial implications for clients/patients	Timeliness of care: » Time required to obtain health service via telemedicine versus non-telemedicine (17). » Decrease in wait times for clients/patients (18,19). » The amount of time to check in for a visit (19). Quality of care: » Medication adherence/care plan compliance among patients (18,19). » Percentage change in admission and readmission rates (16). Financial implications – clients/patients: » Private or out-of-pocket transport costs to access service (18-20). » Non-transport costs to clients/caregivers, such as time off work/school, cost of childcare (18-20). » Travel distance to service or health worker's office and distance saved from not travelling (18,20,21).

Organization

Define indicators for assessing performance and impact. Illustrative indicators below:

Adoption	The absolute number, proportion and representativeness of: (a) settings; and (b) intervention agents (people who deliver the telemedicine programme) who are willing to initiate a telemedicine programme.	» Adoption by geographic area » Adoption by type of health worker » Utilization of telemedicine services » Health worker satisfaction » Client/patient satisfaction » Acceptance and trust	Adoption by geographic area or facility: » Percentage of units (municipalities,

Implemen-tation	At the setting level, this refers to the intervention agents' fidelity to the various elements of a telemedicine programme's protocol, including consistency of delivery as intended and the time required.	» Usability » Stability » Fidelity of	Usability: » Percentage of completed telemedicine encounters affected by a technical issue (7)

Maintenance	The extent to which: (a) the programme is sustained after the initial intervention; or (b) a telemedicine programme or policy becomes institutionalized or part of routine organizational practices and policies. This includes proportion and representativeness of settings that continue the intervention and reasons for maintenance, discontinuation or adaptation.	» Sustainability » Institutional changes » Costs to health system	Sustainability: » Percentage of clinical services delivered via telemedicine (21). Institutional changes: » Percentage of patient encounters for which no subsequent in-person encounter was necessary (17). » Change in access to specialty health workers (19). Costs to health system: » Percentage of telemedicine services reimbursed (17).

Mitigate potential risks

Domain	Potential risks/ challenges	Mitigation strategies
Leadership and governance	Lack of governance mechanisms for oversight and implementation	» Establish a team and governance struc... strategic direction necessary for long-t... including payment for services.
Strategy and investment	Insufficient resources for maintenance of the telemedicine service, including for software updates and cybersecurity coverage	» Communicate funding needs and plan... term costs.
	Unclear payment processes and reimbursement mechanisms for telemedicine services	» Plan for integration of telemedicine int... and inclusion into service delivery pack... » Establish policies for reimbursement o... recognition of telemedicine as reimbur...
Legislation, policy and compliance	Lack of telemedicine regulations to provide oversight and recognition for telemedicine services to be reimbursed or recognized as an official health service	» Establish regulatory guidelines for tele... can include through review and adapta... guidelines.
	Legal liability in cross-jurisdiction telemedicine	» Engage stakeholders across the differe... clarify regulatory guidelines, including... legal liability, data exchange, and paym...
	Data protection and privacy	» Establish SOPs that delineate access to... patient data, including recordings from... consultations and data from connected... used in remote patient monitoring.
Infrastructure	Inaccessibility by clients/patients due to technology, network and data connectivity, technology quality, failure to meet clinical expectations)	» Develop different modalities for access... telemedicine service, including through... health workers and different types of d...

Workforce	Resistance from health workforce and low morale due to unfamiliar workflow and technologies	» Engage health workforce in the design and introduction of the telemedicine service.
	Low levels of engagement or uptake by health workforce	» Allocate resources for training and continuous support and coaching, including through help desks and other channels for technical support. » Conduct trial runs of new workflows to allow for familiarity.
	Lack of physical contact may impact quality of care and raise concerns about medical liability	» Develop policies on what services should be done in person and what can be delivered via telemedicine. » Consult health programme leads and health workers for guidance on what services can be adapted for telemedicine. » Provide training on adapting clinical interventions for telemedicine.
Services and applications	Risk of privacy or security breach due to inadequate or non-compliant privacy and security safeguards	» Ensure terms and conditions of applications address privacy and data-hosting considerations. » Conduct background checks on vendor supporting the software application (as appropriate).
Standards and interoperability	Limited continuity of care and scale of implementation due to fragmentation of digital health landscape	» Use of data exchange standards for use within electronic medical records. » Leveraging available shared services, such as health worker registry, facility registry, unique identifiers.

Summary

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
- ❑ Define the functional and nonfunctional requirements
- ❑ Update workflows reflecting the requirements
- ❑ Conduct extensive user testing
- ❑ Plan for change management

STEP 06
ENFORCE MECHANISMS FOR PATIENT AND HEALTH WORKER SAFETY AND PROTECTION
- ❑ Put systems in place for data privacy, access and protection of patient information
- ❑ Enforce ways to verify licensing/accreditation of health workers
- ❑ Determine and disclose if audio/video recording will be done

STEP 07
ESTABLISH STANDARD OPERATING PROCEDURES
- ❑ Clarify clinical protocols and identify potential liability considerations
- ❑ Determine the training package and channels for support
- ❑ Establish a process for confirming identification
- ❑ Establish clear consent documentation
- ❑ Explore whether changes to health worker remuneration are needed
- ❑ Establish a plan for management of connected medical devices

STEP 08
INVEST IN CLIENT/PATIENT ENGAGEMENT AND GENDER, EQUITY AND RIGHTS
- ❑ Determine mechanisms for outreach
- ❑ Assess implications on equity, gender and rights
- ❑ Ensure accessibility for persons with disabilities

STEP 09
DEVELOP A BUDGET
- ❑ Define the budget for overall cost of ownership
- ❑ Plan how to integrate telemedicine into routine health service delivery

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