The use of eHealth in support of universal health coverage

The aim of universal health coverage is that all people receive quality health services that meet their needs, without exposing them to financial hardship. The survey will explore how eHealth is contributing to this goal in Member States.

Global Observatory for eHealth

World Health Organization
Welcome

Thank you for agreeing to participate in the World Health Organization’s Third Global Survey on eHealth. Your contribution is greatly valued and will help build a global knowledge-base of evidence to support policy development and best practice in the application of eHealth.

Please note:

- The survey is available in all official WHO languages plus Portuguese. Please select the link below for your preferred language.
- The survey will be completed by a group of 5 – 10 national experts who will meet for a day to answer the questions as a group. Individual responses from experts are not required.
- Only ONE survey is to be completed per country to provide an overall national picture. The final survey form should be completed online by the survey coordinator.

Things to watch out for:

- Please use the "next" and "previous" buttons at the bottom of the screen to go to the next/previous page. Do not refresh the page. Do not use the browser’s next/back buttons.
- Your data is saved each time you click "next" or "previous".
- If you want to delete your answers and start from scratch, click the "exit and clear survey" button. Note that this will delete all your answers.
- Do not hit "enter" when adding data into the small text input fields. This will submit the whole page. If you accidentally do so you can use the "previous" button to go back to the submitted page where you can now complete the data.

Introduction

In 2005, all WHO Member States made the commitment to strive for universal health coverage (UHC). It was a collective expression of the belief that all people should have access to the health services they need without risk of financial ruin or impoverishment. Working towards universal health coverage is a powerful mechanism for achieving better health and well-being, and for promoting human development.¹

This, the third global survey on eHealth conducted by the WHO Global Observatory for eHealth (GOe)² has a special focus – the use of eHealth in support of universal health coverage. eHealth plays a vital role in promoting universal health coverage. For instance, it helps provide services to remote populations and underserved communities through telehealth or mHealth. It facilitates the training of the health workforce through the use of eLearning, and makes education more widely accessible especially for those who are isolated. It enhances patient diagnosis and treatment by providing accurate and timely

²Global Observatory for eHealth http://www.who.int/goe
patient information through electronic health records. Through the strategic use of ICT it improves the operations and financial efficiency of health care systems.

The results of the survey will be used to produce a global report with recommendations on how to enhance the progress being made towards achieving universal health coverage in countries through eHealth. It will be complemented by an Atlas of eHealth Country Profiles.

The survey is divided into nine thematic sections - each offering a different perspective on the contribution of eHealth to UHC.

Section 1 – eHealth foundations
Section 2 – mHealth
Section 3 – Telehealth
Section 4 – eLearning in health sciences
Section 5 – Electronic Health Records
Section 6 – Legal frameworks for eHealth
Section 7 – Social media
Section 8 – Big data
Section 9 - eHealth networks

Each national survey will be completed online by a group of subject experts representing the themes of the survey.

Help with the survey is available through:

- GOe website – http://www.who.int/goe/surveyfaqs
- Email goesurvey@who.int

Survey experts’ group registration

Please complete the details of all members of the expert survey group.

A0 Please indicate whether you are a national expert or survey coordinator.

[ ] National expert
[ ] Survey coordinator

A1 Country: Country drop down list

A2 Survey Co-ordinator (Officer managing the survey process for your country)

Last name
First name
Institutional affiliation
Email address
A3 Survey Chairperson (Expert who chaired the survey meeting)
  Last name
  First name
  Institutional affiliation
  Email address

List of Expert Participants (up to 10 per group)
A4 Expert Participant 1
  Last name
  First name
  Institutional affiliation
  Email address

A5 Expert Participant 2
  Last name
  First name
  Institutional affiliation
  Email address

A6 Expert Participant 3
  Last name
  First name
  Institutional affiliation
  Email address

A7 Expert Participant 4
  Last name
  First name
  Institutional affiliation
  Email address

A8 Expert Participant 5
  Last name
  First name
  Institutional affiliation
  Email address

A9 Expert Participant 6
  Last name
  First name
  Institutional affiliation
  Email address

A10 Expert Participant 7
Last name
First name
Institutional affiliation
Email address

A11 Expert Participant 8
Last name
First name
Institutional affiliation
Email address

A12 Expert Participant 9
Last name
First name
Institutional affiliation
Email address

A13 Expert Participant 10
Last name
First name
Institutional affiliation
Email address
Section 1 – eHealth foundations

National policies or strategies

1 Does your country have a national universal health coverage policy or strategy?
   [ ] Yes  Year of adoption __________
   [ ] No (go to question 3)
   [ ] Don’t know (go to question 3)

2 Does your national universal health coverage policy or strategy clearly refer to the use of ICT or eHealth to support universal health coverage?
   [ ] Yes
   [ ] No
   [ ] Don’t know

3 Does your country have a national eHealth policy or strategy?
   [ ] Yes  Year of adoption __________
   [ ] No (go to question 6)
   [ ] Don’t know (go to question 6)

4 Does your national eHealth policy or strategy refer to the objectives of universal health coverage or its key elements? (such as access, quality and cost of care)
   [ ] Yes
   [ ] No
   [ ] Don’t know

5 Please attach a copy or provide a link to your country’s most recent eHealth policy or strategy to be included in the GOe Global Directory of eHealth Strategies.
   Attachment: _______________________ or link: ________________________

6 Does your country have a national health information system (HIS) policy or strategy?
   [ ] Yes  Year of adoption __________
   [ ] No – no separate policy or strategy but is included in the national eHealth policy or strategy

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3 A national eHealth policy or strategy lays out the vision and objectives to promote the use of information and communication technologies (ICT) specifically for the health sector. For the purpose of this survey policy and strategy are used interchangeably although this is not strictly correct.

4 http://www.who.int/goe/policies/countries/en/

5 A national health information system policy or strategy lays out the vision and objectives for a national system to meet the health information needs of the country. It can include such elements as vital registration, notifiable diseases, private sector information such as insurance, and patient confidentiality guidelines.
Funding

Funding for eHealth programmes can come from any combination of sources including: public funding, private funding, donor/non-public funding, or public-private partnerships. Please complete the questions below on funding for eHealth in your country.

7 Public funding is financial support provided by government and can come from national, regional or district-levels.

Is this type of funding available for eHealth programmes?

[ ] Yes
[ ] No
[ ] Don’t know

8 Private or commercial funding is financial or in-kind support provided by the private or commercial sector.

Is this type of funding available for eHealth programmes?

[ ] Yes
[ ] No
[ ] Don’t know

9 Donor/non-public development funding is financial or in-kind support provided by development agencies, development banks, foundations or other non-public funding bodies for development work. It can be international, regional or national.

Is this type of funding available for eHealth programmes?

[ ] Yes
[ ] No
[ ] Don’t know

10 Public-private partnerships are joint ventures between public organizations and private sector companies to work together to achieve a common goal.

Is this type of funding available for eHealth programmes?

[ ] Yes
[ ] No
[ ] Don’t know

11 Policy or strategy implementation funding is financial support specifically provided to help with the implementation of a national eHealth policy or strategy.
Is there special funding allocated for the implementation of your country’s eHealth policy or strategy?

[ ] Yes
[ ] No
[ ] No – a national eHealth policy or strategy does not exist
[ ] Don’t know

Please indicate the proportion of funding contribution for eHealth programmes provided by the following funding sources over the past 2 years.

12 Public funding

[ ] No funding
[ ] Low - less than 25% of funding
[ ] Medium - more than 25% less than 50% of funding
[ ] High - more than 50% - less than 75% of funding
[ ] Very high - more than 75% of funding

13 Private funding

[ ] No funding
[ ] Low - less than 25% of funding
[ ] Medium - more than 25% less than 50% of funding
[ ] High - more than 50% - less than 75% of funding
[ ] Very high - more than 75% of funding

14 Donor/non-public development funding

[ ] No funding
[ ] Low - less than 25% of funding
[ ] Medium - more than 25% less than 50% of funding
[ ] High - more than 50% - less than 75% of funding
[ ] Very high - more than 75% of funding

15 Public-private partnerships

[ ] No funding
[ ] Low - less than 25% of funding
[ ] Medium - more than 25% less than 50% of funding
[ ] High - more than 50% - less than 75% of funding
[ ] Very high - more than 75% of funding

Multilingualism in eHealth

Providing health services and information for all people means offering language support. A national multilingualism policy or strategy promotes linguistic diversity and cultural identity. Its scope should include the provision of health information respectful of cultures and in relevant community languages as well as offering eHealth products, services and applications in multiple languages to support the linguistic groups in your country.
16 Does your country have a policy or strategy on multilingualism?

[ ] Yes  Year of adoption__________
[ ] No
[ ] Not applicable due to language situation in country
[ ] Don’t know

17 Do government-supported health Internet sites in your country provide information in multiple languages?

[ ] Yes
[ ] No
[ ] Not applicable due to language situation in country
[ ] Don’t know

Capacity building - Human resources knowledge and skills

Information and communication technologies (ICT) skills and knowledge are key to developing eHealth capacity. They contribute to building capacity through the education and training of students and health professionals. A well trained and committed body of health workers is fundamental to providing quality and accessible services to communities and therefore a pillar of universal health coverage.

Pre-service training - Health sciences students

18 Do any tertiary institutions (universities or technical colleges) in your country provide students of health sciences⁶ training on the use of ICT for health (eHealth)?

[ ] Yes
[ ] No (go to question 20)
[ ] Don’t know (go to question 20)

19 What proportion of tertiary institutions in your country (public and private) offer these courses?

[ ] None
[ ] Low - less than 25%
[ ] Medium - more than 25% less than 50%
[ ] High - more than 50% - less than 75%
[ ] Very high - more than 75%

20 Do tertiary institutions (universities or technical colleges) in your country teach students of health sciences in the use of social media for health?

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⁶ For the purpose of this survey students of health sciences include the following faculties: medicine, nursing and midwifery, dentistry, pharmacy, public health, biomedicine/life sciences.
21 What proportion of tertiary institutions in your country (public and private) offer these courses?

[ ] None
[ ] Low - less than 25%
[ ] Medium - more than 25% less than 50%
[ ] High - more than 50% - less than 75%
[ ] Very high - more than 75%
[ ] Don’t know

In-service training - Health professionals

22 Do any institutions or associations in your country offer in-service training in the use of ICT for health as part of the continuing education of health professionals?

[ ] Yes
[ ] No (go to question 25)
[ ] Don’t know (go to question 25)

23 What proportion of these institutions or organizations in your country offer these courses?

[ ] None
[ ] Low - less than 25%
[ ] Medium - more than 25% less than 50%
[ ] High - more than 50% - less than 75%
[ ] Very high - more than 75%

24 Please indicate which professional groups are offered this training? Check as many as apply.

[ ] Medicine
[ ] Nursing and midwifery
[ ] Dentistry
[ ] Pharmacy
[ ] Public health
[ ] Biomedical/Life sciences researchers
[ ] Medical informatics
[ ] Other - Please specify: 

25 Do any institutions or associations in your country offer in-service training in the use of social media for health as part of the continuing education of health professionals?
26 Please indicate which professional groups are offered this training? Check as many as apply.

[ ] Medicine
[ ] Nursing and midwifery
[ ] Dentistry
[ ] Pharmacy
[ ] Public health
[ ] Biomedical/Life sciences researchers
[ ] Other - Please specify: __________

27 Does your country have a national policy to govern the use of social media in the health professions?

[ ] Yes
[ ] No
[ ] Don’t know
Section 2 – mHealth

mHealth (also known as mobile health) is the use of mobile devices, such as mobile phones, patient monitoring devices, Personal Digital Assistants (PDAs), and wireless devices, for medical and public health practice. mHealth applications include examples such as treatment adherence, community mobilisation, collecting community and clinical health data, wellness and self-care, chronic disease management, and remote patient monitoring. mHealth can contribute to achieving universal health coverage through making services available to remote populations and underserved communities and providing mechanisms for data exchange on patients.

28 Are any government-sponsored mHealth programmes being conducted in your country?
   [ ] Yes
   [ ] No (go to question 30)
   [ ] Don’t know (go to question 30)

29 Which policies or strategies guide your mHealth programmes?
   [ ] National eHealth policy or strategy
   [ ] National mHealth policy or strategy
   [ ] National telehealth policy or strategy
   [ ] No specific guidance available
   [ ] Don’t know
   [ ] Other, please specify ----------------------------

30 What is the role or function of health authorities in your country in respect to the development and adoption of mHealth? Check as many as apply.
   [ ] Regulating mobile devices and software for quality, safety and reliability
   [ ] Promoting standards and interoperability
   [ ] Providing guidance for privacy and security
   [ ] Providing oversight and enforcement of data ownership
   [ ] Promoting the development and adoption of mHealth in the health sector
   [ ] No role
   [ ] Don’t know
   [ ] Other, please specify ----------------------------

Mobile applications

The number and scope of health-related mobile applications (apps) have grown exponentially over recent years. Many are available for free and others for relatively small sums. With their increasing popularity, however, comes the growing risk of consumer exposure to products that may not have been adequately tested for their accuracy, reliability and quality.

31 Is there an entity in your country responsible for the regulatory oversight of mobile health apps for quality, safety and reliability?
32 Is there an entity in your country that provides incentives and guidance for innovation, research and evaluation of health apps?

[ ] Yes
[ ] No
[ ] Don’t know

Country overview of mHealth programmes

The table below lists common types of mHealth programmes. Please complete the table as it applies to your country situation. Where you have more than one programme per category, please describe the most advanced.

*Health system levels are defined as:*

- **International level**: health entities in other countries in the world
- **Regional level**: health entities in countries in the same geographic region
- **National level**: referral hospitals, laboratories and health institutes (mainly public, but also private)
- **Intermediate level**: covering district or provincial facilities: public, private for-profit and private not-for-profit (e.g. religious) hospitals and health centers
- **Local or peripheral level**: health posts, health centers providing basic level of care

For the purpose of this survey, types of mHealth programmes are defined as:

- **Informal** - Early adoption of mobile ICT for health purposes in the absence of formal processes and policies
- **Pilot** - Testing and evaluating the use of mHealth in a given situation
- **Established** - An ongoing programme using mHealth that has been conducted for a minimum of 2 years and is planned to continue and has funding support for at least 2 more years.

<table>
<thead>
<tr>
<th>mHealth programme category</th>
<th>At what level(s) of the health system is this</th>
<th>Type of programme</th>
<th>Programme description</th>
<th>Programme URL (optional)</th>
</tr>
</thead>
</table>

7 Mobile ICT refers to mobile devices or handheld computers such as mobile phones, laptops, tablets or Personal Digital Assistants (PDAs) which can be used for text, voice or image communication, and can collect, process and report data.
<table>
<thead>
<tr>
<th>Programme operating?</th>
<th>Programme contributes to the achievement of universal health coverage. (Maximum 500 characters)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Communication between individuals and health services**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Operating level</th>
<th>Contribution level</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 Health call centres / health care telephone hotline</td>
<td>International level</td>
<td>Informal level</td>
</tr>
<tr>
<td>Health care advice and triage provided by trained personnel and pre-recorded messages; accessible on mobile phones or fixed lines.</td>
<td>Regional level</td>
<td>Pilot level</td>
</tr>
<tr>
<td></td>
<td>National level</td>
<td>Established level</td>
</tr>
<tr>
<td></td>
<td>Intermediate level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local level</td>
<td></td>
</tr>
<tr>
<td>34 Emergency toll-free telephone services</td>
<td>International level</td>
<td>Informal level</td>
</tr>
<tr>
<td>Free telephone hotlines for health emergencies provided by trained personnel and pre-recorded messages and linked to response systems; accessible on mobile phones or fixed lines.</td>
<td>Regional level</td>
<td>Pilot level</td>
</tr>
<tr>
<td></td>
<td>National level</td>
<td>Established level</td>
</tr>
<tr>
<td></td>
<td>Intermediate level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local level</td>
<td></td>
</tr>
</tbody>
</table>

**Communication between health services and individuals**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Operating level</th>
<th>Contribution level</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 Treatment adherence - Reminder messages provided by health services to patients aimed at achieving medication adherence using mobile ICT. Messages can be text, voice or multimedia.</td>
<td>International level</td>
<td>Informal level</td>
</tr>
<tr>
<td></td>
<td>Regional level</td>
<td>Pilot level</td>
</tr>
<tr>
<td></td>
<td>National level</td>
<td>Established level</td>
</tr>
<tr>
<td></td>
<td>Intermediate level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local level</td>
<td></td>
</tr>
<tr>
<td>36 Reminder to attend appointments – Reminder messages provided by health services to patients to make or attend an appointment using mobile ICT. Message can be text, voice, or multimedia.</td>
<td>International level</td>
<td>Informal level</td>
</tr>
<tr>
<td></td>
<td>Regional level</td>
<td>Pilot level</td>
</tr>
<tr>
<td></td>
<td>National level</td>
<td>Established level</td>
</tr>
<tr>
<td></td>
<td>Intermediate level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Local level</td>
<td></td>
</tr>
<tr>
<td>37 Community mobilization / health promotion campaigns</td>
<td>International level</td>
<td>Informal level</td>
</tr>
<tr>
<td>Health promotion campaigns conducted using</td>
<td>Regional level</td>
<td>Pilot level</td>
</tr>
<tr>
<td></td>
<td>National level</td>
<td>Established level</td>
</tr>
</tbody>
</table>

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8 International level: health entities in other countries in the world
Regional level: health entities in countries in the same geographic region
National level: referral hospitals, laboratories and health institutes (mainly public, but also private)
Intermediate level: covering district or provincial facilities: public, private for-profit and private not-for profit (e.g. religious) hospitals and health centres
Local or peripheral level: health posts, health centres providing basic level of care
| Mobile telehealth – Consultation between health care practitioners or between practitioners and patients using mobile ICT. | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Inter-sectoral communication in emergencies | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Health monitoring and surveillance | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Surveillance – Routine, emergency and targeted data collection, management and reporting for public health surveillance using mobile ICT. May involve any combination of networked mobile devices. | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Patient monitoring - Data capture and transmission for monitoring a variety of conditions in a range of settings using mobile ICT. | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Access to information and education for health care professionals | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Access to information, resources, databases and tools - Access to health sciences literature, resources and databases using mobile ICT | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
| Clinical decision support systems - Access to decision support systems using mobile ICT. | [ ] International level | [ ] Regional level | [ ] National level | [ ] Intermediate level | [ ] Local level | [ ] Informal | [ ] Pilot | [ ] Established |
Evaluation

47 Have any government-sponsored mHealth programmes in your country been evaluated?
   [ ] Yes
   [ ] No (go to question 57)
   [ ] Don’t know (go to question 57)

48 If yes, please complete the following evaluation summary chart for one mHealth programme in your country of your choice.
Name of programme .................................................................
Responsible organization(s) ............................................................
Please attach a copy of the evaluation study/studies or provide a link.
Attachment: __________________________________ or link: _________________

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
<th>Not Measured/ Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>49 Access – Is there evidence that the programme improved access to care for the target groups?</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
<tr>
<td>50 Quality – Is there evidence that the programme improved the quality of care for the target groups?</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
<tr>
<td>51 Cost-effectiveness (providers) – Is there evidence that the programme improved the cost-effectiveness of the service delivery for the providers?</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
<tr>
<td>52 Cost-effectiveness (target groups) – Is there evidence that the programme improved the cost-effectiveness of the service for the target groups?</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
<tr>
<td>53 Programme acceptance (providers) – Is there evidence that the programme was accepted and used by the providers?</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
<td>[]</td>
</tr>
</tbody>
</table>
54 **Programme acceptance (target groups)** - Is there evidence that the programme was accepted and used by the target groups?

55 **Health outcome** - Is there evidence that the programme improved health outcomes?

56 **Sustainability** – Has the programme been incorporated into the Ministry of Health’s programmes?

<table>
<thead>
<tr>
<th>Barriers to implementing mHealth programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are various factors as to why mHealth programmes may not be contributing successfully to universal health coverage in countries. From the list below, please rate each suggested barrier according to how important it is in your country in relation to mHealth supporting universal health coverage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Not a barrier</th>
<th>Slightly important barrier</th>
<th>Moderately important barrier</th>
<th>Very important barrier</th>
<th>Extremely important barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>57 Capacity</strong> – lack of trained human resources and/or technical support for mHealth programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>58 Infrastructure</strong> - lack of equipment and/or connectivity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>59 Funding</strong> - lack of funding to develop and support mHealth programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>60 Effectiveness</strong> – lack of evidence on effectiveness of programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>61 Cost-effectiveness</strong> – lack of evidence on cost-effectiveness of programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>62 Demand</strong> - lack of demand for mHealth programmes by health professionals or target groups.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>63 Legal</strong> - lack of legislation or regulations covering mHealth programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>64 Policy</strong> - national policies do not recognise mHealth in</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lessons learned

Please share any lessons learned through the evaluation of the programme.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Additional comments

If you have further comments about any of the topics covered in this section, please add them below:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Section 3 – Telehealth

Telehealth refers to the delivery of health care services, where patients and providers are separated by distance. Telehealth uses ICT for the exchange of information for the diagnosis and treatment of diseases and injuries, research and evaluation, and for the continuing education of health professionals. Telehealth can contribute to achieving universal health coverage by improving access for patients to quality, cost-effective, health services wherever they may be. It is particularly valuable for those in remote areas, vulnerable groups and aging populations.

National telehealth policy or strategy

A national telehealth policy or strategy lays out the vision and objectives for the provision of national and cross-border services using telehealth. It may refer to such issues as standards, credentialing and reimbursement.

69 Does your country have a dedicated national telehealth policy or strategy?
  [ ] Yes         Year of adoption ____________
  [ ] No – but telehealth is referred to in the overall national eHealth policy or strategy
  [ ] No (go to question 71)
  [ ] Don’t know (go to question 71)

70 Does your policy or strategy include objectives that address how telehealth can contribute to universal health coverage (such as by making a second medical opinion available, or improving access to health care)?
  [ ] Yes
  [ ] No
  [ ] Don’t know

Please attach a copy or provide a link to your country’s national telehealth policy or strategy.
Attachment: _______________________ or link: ________________________

National overview of telehealth programmes

The table below lists common telehealth programmes. Please complete the table as it applies to your country situation. Where you have more than one programme per category, please describe the most advanced.

Health system levels are defined as:

- **International level**: health entities in other countries in the world
- **Regional level**: health entities in countries in the same geographic region
• **National level**: referral hospitals, laboratories and health institutes (mainly public, but also private)
• **Intermediate level**: covering district or provincial facilities: public, private for-profit and private not-for profit (e.g. religious) hospitals and health centers
• **Local or peripheral level**: health posts, health centers providing basic level of care

For the purpose of this survey, types of telehealth programmes are defined as:

• **Informal** - Early adoption of telehealth in the absence of formal processes and policies
• **Pilot** - Testing and evaluating the use of telehealth in a given situation
• **Established** - An ongoing programme using telehealth that has been conducted for a minimum of 2 years and is planned to continue for at least 2 more years.

<table>
<thead>
<tr>
<th>Telehealth programme category</th>
<th>At what level(s) of the health system is this programme operating?</th>
<th>Type of programme</th>
<th>Programme description</th>
<th>Programme URL (optional)</th>
</tr>
</thead>
</table>
| 71 Teleradiology is a field of telehealth using ICT to transmit digital radiological images for diagnosis or consultation. | [ ] International level  
[ ] Regional level  
[ ] National level  
[ ] Intermediate level  
[ ] Local level | [ ] Informal  
[ ] Pilot  
[ ] Established | Briefly describe how the programme contributes to the achievement of universal health coverage. (Maximum 500 characters) | |
| 72 Teledermatology is a field of telehealth using ICT to transmit medical information concerning skin conditions for the purpose of diagnosis or consultation. | [ ] International level  
[ ] Regional level  
[ ] National level  
[ ] Intermediate level  
[ ] Local level | [ ] Informal  
[ ] Pilot  
[ ] Established | | |
| 73 Telepathology is a field of telehealth using ICT to | [ ] International level  
[ ] Regional level  
[ ] National level  
[ ] Intermediate level  
[ ] Local level | [ ] Informal  
[ ] Pilot | | |

---

9**International level**: health entities in other countries in the world  
**Regional level**: health entities in countries in the same geographic region  
**National level**: referral hospitals, laboratories and health institutes (mainly public, but also private)  
**Intermediate level, covering district or provincial facilities**: public, private for-profit and private not-for profit (e.g. religious) hospitals and health centres  
**Local or peripheral level**: health posts, health centres providing basic level of care
transmit digitized pathological results, such as microscopic images of cells, for the purpose of diagnosis or consultation.

<table>
<thead>
<tr>
<th>Transmitted data</th>
<th>Level of health system</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Regional level</td>
<td>[ ] National level</td>
<td>[ ] Local level</td>
</tr>
<tr>
<td>[ ] Intermediate level</td>
<td>[ ] Established</td>
<td></td>
</tr>
</tbody>
</table>

**74 Telepsychiatry** is a field of telehealth using ICT to provide mental health services.

<table>
<thead>
<tr>
<th>Telepsychiatry</th>
<th>Level of health system</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] International level</td>
<td>[ ] Regional level</td>
<td>[ ] Local level</td>
</tr>
<tr>
<td>[ ] National level</td>
<td>[ ] Intermediate level</td>
<td>[ ] Established</td>
</tr>
<tr>
<td>[ ] Established</td>
<td></td>
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</tr>
</tbody>
</table>

**75 Remote patient monitoring** is an increasingly important field of telehealth where patients, often at home, transmit information about their condition from sensors and monitoring equipment to external monitoring centres.

<table>
<thead>
<tr>
<th>Remote patient monitoring</th>
<th>Level of health system</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] International level</td>
<td>[ ] Regional level</td>
<td>[ ] Local level</td>
</tr>
<tr>
<td>[ ] National level</td>
<td>[ ] Intermediate level</td>
<td>[ ] Established</td>
</tr>
<tr>
<td>[ ] Local level</td>
<td>[ ] Informal</td>
<td>[ ] Pilot</td>
</tr>
<tr>
<td>[ ] Pilot</td>
<td>[ ] Established</td>
<td></td>
</tr>
</tbody>
</table>

**Other telehealth services**

Your country may be offering additional telehealth services for diagnosis, consultation or intervention. Please describe up to five other established services in your country.\(^\text{10}\)

<table>
<thead>
<tr>
<th>Telehealth programme category</th>
<th>At what level(s) of the health system is this programme operating?(^\text{11})</th>
<th>Type of programme</th>
<th>Programme description (optional)</th>
<th>Programme URL (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>76 Telehealth service 1</td>
<td>[ ] International level</td>
<td>[ ] Informal</td>
<td>Briefly describe the objectives of the programme and the target group(s) (Maximum 500 characters)</td>
<td></td>
</tr>
<tr>
<td>Name of programme</td>
<td>[ ] Regional level</td>
<td>[ ] Pilot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[ ] National level</td>
<td>[ ] Established</td>
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</tr>
</tbody>
</table>

\(^\text{10}\)Established - An ongoing health-related programme using telehealth that has been conducted for a minimum of 2 years and is planned to continue for at least 2 more years.

\(^\text{11}\)International level: health entities in other countries in the world

Regional level: health entities in countries in the same geographic region

National level: referral hospitals, laboratories and health institutes (mainly public, but also private)

Intermediate level, covering district or provincial facilities: public, private for-profit and private not-for-profit (e.g. religious) hospitals and health centres

Local or peripheral level: health posts, health centres providing basic level of care
<table>
<thead>
<tr>
<th>Service</th>
<th>Name of programme</th>
<th>[ ] International level</th>
<th>[ ] Regional level</th>
<th>[ ] National level</th>
<th>[ ] Intermediate level</th>
<th>[ ] Local level</th>
<th>[ ] Informal level</th>
<th>[ ] Pilot</th>
<th>[ ] Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>77 Telehealth service 2</td>
<td>[ ] Intermediate level</td>
<td>[ ]</td>
<td>[ ] National level</td>
<td>[ ] Intermediate level</td>
<td>[ ] Local level</td>
<td>[ ] Informal level</td>
<td>[ ] Pilot</td>
<td>[ ] Established</td>
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</tr>
<tr>
<td>78</td>
<td>78 Telehealth service 3</td>
<td>[ ] Intermediate level</td>
<td>[ ]</td>
<td>[ ] National level</td>
<td>[ ] Intermediate level</td>
<td>[ ] Local level</td>
<td>[ ] Informal level</td>
<td>[ ] Pilot</td>
<td>[ ] Established</td>
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</tr>
<tr>
<td>79</td>
<td>79 Telehealth service 4</td>
<td>[ ] Intermediate level</td>
<td>[ ]</td>
<td>[ ] National level</td>
<td>[ ] Intermediate level</td>
<td>[ ] Local level</td>
<td>[ ] Informal level</td>
<td>[ ] Pilot</td>
<td>[ ] Established</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>80</td>
<td>80 Telehealth service 5</td>
<td>[ ] Intermediate level</td>
<td>[ ]</td>
<td>[ ] National level</td>
<td>[ ] Intermediate level</td>
<td>[ ] Local level</td>
<td>[ ] Informal level</td>
<td>[ ] Pilot</td>
<td>[ ] Established</td>
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</tr>
</tbody>
</table>

**Evaluation**

81 Have any government-sponsored telehealth programmes in your country been evaluated?

[ ] Yes  
[ ] No (go to question 91)  
[ ] Don’t know (go to question 91)

82 If yes, please complete the following evaluation summary chart for one telehealth programme in your country of your choice.

Name of programme ............................................................................................................
Responsible organization (s) ..............................................................................................
Please attach a copy of the evaluation study/studies or provide a link.
Attachment: ______________________ or link: ______________________  

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
<th>Not Measured/Not</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Third Global Survey on eHealth 2015
### Barriers to implementing telehealth programmes

There are many reasons why telehealth programmes may not be successfully implemented in countries. From the list below, please rate each suggested barrier according to how important it is in your country in relation to telehealth supporting universal health coverage.

<table>
<thead>
<tr>
<th>Barrier Description</th>
<th>Not a barrier</th>
<th>Slightly important barrier</th>
<th>Moderately important barrier</th>
<th>Very important barrier</th>
<th>Extremely important barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>91 Capacity – lack of trained human resources and/or technical support for telehealth programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92 Infrastructure - lack of equipment and/or connectivity.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93 Funding - lack of funding to develop and support telehealth programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94 Effectiveness – lack of evidence on effectiveness of telehealth programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lessons learned

101 Please share any lessons learned through the evaluation of the programme.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Additional comments

102 If you have further comments about any of the topics covered in this section, please add them below:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Section 4 – eLearning in health sciences

eLearning refers to the use of ICT for training and education. It can be used to improve the quality of education and increase access to learning for geographically isolated people or those who have poor local training facilities. It can make health sciences education available to a broader audience as well as make better use of existing educational resources. It is increasingly used for the pre-service education of health sciences students and for the continuing education of health professionals. eLearning can contribute to achieving universal health coverage by improving the knowledge and skills of the health workforce to provide better quality health care and contributing to increasing the number of trained professionals with specialised or general skills.

Target group: Health sciences students (pre-service)

103 Is eLearning used to help teach health sciences students in pre-service education in your country?

[ ] Yes
[ ] No (go to question 118)
[ ] Don’t know (go to question 118)

104 What are the main reasons for using eLearning in pre-service education in your country? Check as many as apply.

[ ] Reducing the cost associated with delivering educational content
[ ] Improving access to content and experts
[ ] Enabling access to education where learning facilities are limited
[ ] Other – Please specify: ______________

105 Which of the following student groups are offered eLearning as part of their pre-service education? Check as many as apply.

[ ] Medicine
[ ] Nursing and midwifery
[ ] Dentistry
[ ] Pharmacy
[ ] Public health
[ ] Biomedical/Life sciences researchers
[ ] Other – Please specify: ______________

106 How are health sciences teaching institutions in your country using eLearning? Check as many as apply.
[ ] Developing courses for use by their own students
[ ] Developing courses for use by other institutions
[ ] Using courses developed by other institutions
[ ] Teaching pre-clinical subjects
[ ] Teaching clinical subjects
[ ] Teaching subjects where specialists are not available in the institution
[ ] Other – Please specify: _____________

107 Do any of your country’s universities offer a health sciences degree which can be gained entirely online?
   [ ] Yes
   [ ] No
   [ ] Don’t know

108 Do any of your country’s universities offer certification in specific health sciences subjects which can be gained entirely online?
   [ ] Yes
   [ ] No
   [ ] Don’t know

109 Have any eLearning programmes for pre-service health sciences education in your country been evaluated?
   [ ] Yes
   [ ] No (go to question 106)
   [ ] Don’t know (go to question 106)

110 If yes, please complete the following evaluation summary chart for ONE, (preferably most successful) eLearning programme in your country.
   Name of programme ………………………………………………………………………..
   Responsible organization (s) ………………………………………………………………………………
   Please attach a copy of the evaluation study/studies or provide a link.
   Attachment: _______________________ or link: ________________________

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
<th>Not Measured/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>111 Access</strong> - Is there evidence indicating the eLearning programme made the learning more accessible to target groups?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>112 Cost-effectiveness (providers)</strong> - Is there evidence indicating the programme improved the cost-effectiveness for the programme providers?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>113 Cost-effectiveness (learner)</strong> - Is there evidence indicating the programme improved the cost-</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
effectiveness of the educational experience for the learner?

| Learning outcome | 114 - Is there evidence indicating the programme improved learning outcomes? | [ ] | [ ] | [ ] | [ ] |
| Quality | 115 - Is there evidence indicating the programme improved the quality of learning? | [ ] | [ ] | [ ] | [ ] |
| Programme acceptance (providers) | 116 - Is there evidence indicating the programme was accepted and used by the providers? | [ ] | [ ] | [ ] | [ ] |
| Programme acceptance (learner) | 117 - Is there evidence indicating the programme was accepted and used by the recipients? | [ ] | [ ] | [ ] | [ ] |

**Target group: Health professionals (in-service training)**

**118** Is eLearning used for the in-service training of health professionals in your country?
- [ ] Yes
- [ ] No (go to question 131)
- [ ] Don’t know (goto question 131)

**119** What are the main reasons for using eLearning for in-service education? Check as many as apply.
- [ ] Reducing the cost associated with delivering educational content
- [ ] Improving access to content and experts
- [ ] Enabling access to education where learning facilities are limited
- [ ] Other – Please specify: _____________

**120** Are eLearning courses accredited by continuing medical education (CME) or professional licensing bodies in your country?
- [ ] Yes
- [ ] No
- [ ] Don’t know

**121** Which professional groups in your country have adopted eLearning as an approach to in-service training? Check as many as apply.
- [ ] Medicine
- [ ] Nursing and midwifery
- [ ] Dentistry
- [ ] Pharmacy
- [ ] Public health
- [ ] Biomedical/Life sciences researchers
Medical informatics
Other - Please specify: __________

122 Have any eLearning programmes for in-service training of health professionals been evaluated in your country?
[ ] Yes
[ ] No (go to question 131)
[ ] Don’t know (go to question 131)

123 If yes, please complete the following evaluation summary chart for ONE (preferably most successful) eLearning programme in your country.
Name of programme ..........................................................
Responsible organization (s) ..................................................
Please attach a copy of the evaluation study/studies or provide a link.
Attachment: ___________________ or link: ____________________

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
<th>Not Measured/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>124 Access</strong> - Is there evidence indicating the eLearning programme made the learning more accessible to target groups?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>125 Cost-effectiveness (providers)</strong> - Is there evidence indicating the programme improved the cost-effectiveness for the programme providers?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>126 Cost-effectiveness (learner)</strong> - Is there evidence indicating the programme improved the cost-effectiveness for the educational experience for the learner?</td>
<td>[ ]</td>
<td>[ ]</td>
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</tr>
<tr>
<td><strong>127 Learning outcome</strong> - Is there evidence indicating the programme improved learning outcomes?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>128 Quality</strong> – Is there evidence indicating the programme improved the quality of learning?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>129 Programme acceptance (providers)</strong> - Is there evidence indicating the programme was accepted and used by the providers?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>130 Programme acceptance (learner)</strong> - Is there evidence indicating the programme was accepted and used by the recipients?</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
Barriers to implementing eLearning programmes

There are many reasons why eLearning programmes may not be successfully implemented in countries. From the list below, please rate each suggested barrier according to how important it is in your country in relation to eLearning supporting universal health coverage.

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Not a barrier</th>
<th>Slightly important barrier</th>
<th>Moderately important barrier</th>
<th>Very important barrier</th>
<th>Extremely important barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>131 Capacity – lack of trained human resources and/or technical support to develop or administer eLearning programmes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>132 Infrastructure - lack of equipment and/or connectivity.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>133 Funding - lack of funding to develop and support eLearning programmes.</td>
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</tr>
<tr>
<td>134 Limitation – it is not possible to gain a health sciences degree entirely through eLearning.</td>
<td></td>
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</tr>
<tr>
<td>135 Effectiveness – lack of evidence on effectiveness of eLearning programmes.</td>
<td></td>
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</tr>
<tr>
<td>137 Demand - lack of demand by providers or target groups for eLearning programmes.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>138 Availability–lack of suitable eLearning courses for use (for example, due to content, language or cultural reasons).</td>
<td></td>
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</tr>
<tr>
<td>139 Policy–educational institutions do not include eLearning as an approach to teaching health sciences.</td>
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<tr>
<td>140 Priorities - competing educational priorities.</td>
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</tr>
<tr>
<td>141 Other – Please</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lessons learned

142 Please share any lessons learned through the evaluation of the programme.

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

Additional comments

143 If you have further comments about any of the topics covered in this section, please add them below:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________


Section 5 – Electronic Health Records

A robust EHR system plays a vital role in universal health coverage through supporting the diagnosis and treatment of patients by providing rapid, comprehensive and timely patient information at point of care.

Electronic health records (EHRs) are real-time, patient-centred records that provide immediate and secure information to authorised users. EHRs typically contain a patient’s medical history, diagnoses and treatment, medications, allergies, immunizations, as well as radiology images and laboratory results. A National Electronic Health Records system is most-often implemented under the responsibility of the national health authority and will typically make a patient’s medical history available to health professionals in health care institutions and provide linkages to related services such as pharmacies, laboratories, specialists, and emergency and medical imaging facilities.

144 Does your country have a national EHR system (according to the definition above)?

[ ] Yes
[ ] No (go to question 153)
[ ] Don’t know (go to question 153)

145 What year was it first introduced?
Year _____________

146 Does your country have specific legislation governing the use of the national EHR system?

[ ] Yes
[ ] No
[ ] Don’t know

Please complete the table below to indicate the types of health facilities, as well as their levels of uptake, that use the national EHR system in your country.

<table>
<thead>
<tr>
<th>Health facility</th>
<th>Use national EHR system</th>
<th>Proportion of facilities using national EHR system</th>
</tr>
</thead>
<tbody>
<tr>
<td>147 Primary care facilities</td>
<td>[ ] Yes</td>
<td>[ ] Low – less than 25%</td>
</tr>
<tr>
<td>(e.g. clinics and health care centres)</td>
<td>[ ] No</td>
<td>[ ] Medium – more than 25%; less than 50%</td>
</tr>
<tr>
<td></td>
<td>[ ] Don’t know</td>
<td>[ ] High – more than 50%; less than 75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ ] Very high – more than 75%</td>
</tr>
<tr>
<td>148 Secondary care facilities</td>
<td>[ ] Yes</td>
<td>[ ] Low – less than 25%</td>
</tr>
<tr>
<td>(e.g. hospitals, emergency care)</td>
<td>[ ] No</td>
<td>[ ] Medium – more than 25%; less than 50%</td>
</tr>
<tr>
<td></td>
<td>[ ] Don’t know</td>
<td>[ ] High – more than 50%; less than 75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ ] Very high – more than 75%</td>
</tr>
</tbody>
</table>

Note: for the purpose of this survey and for gross comparisons, the terms electronic health records (EHR) and electronic medical records (EMR) will be used interchangeably, although this is not strictly correct.
149 Tertiary care facilities
(e.g. specialized care, referral from primary/secondary care)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

150 Other. Please specify:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

[ ] Low – less than 25%
[ ] Medium – more than 25%; less than 50%
[ ] High – more than 50%; less than 75%
[ ] Very high – more than 75%

151 What other systems does your national EHR system link to?. Check as many as apply.

- Laboratory information systems
- Pathology information systems
- Pharmacy information systems (e.g. national ePrescription system)
- Picture archiving and communications systems (PACS)
- Automatic vaccination alerting system
- None
- Other. Please specify: ________________________________

152 Which of the following international standards are being used to support your country’s national EHR system? Please check all that apply

- CEN/TC 251 published standards
- Continuity of Care Record - ASTM International Continuity of Care Record standard
- DCMI (Dublin Core Metadata Initiative)
- DDI (Data Documentation Initiative)
- DICOM (Digital Imaging and Communications in Medicine)
- HL7 Messaging (Health Level 7)
- ICD (International Classification of Diseases)
- ISO TC 215 - provides international technical specifications for EHRs.
- ISO 18308 - describes EHR architectures
- IXF Messaging (UN Indicator Transmission Format)
- LOINC (Logical Observation Identifiers Names and Codes)
- SDMX (Statistical Data and Metadata Exchange)
- SNOMED CT (Systematized Nomenclature of Medicine-Clinical Terms)
- Other – Please specify: __________

**Barriers to implementing electronic health records**

There are many reasons why electronic health record systems may not be successfully implemented in countries. From the list below, please rate each suggested barrier according to how important it is in your country.
| 153 **Capacity** – lack of trained human resources and/or technical support for EHR programmes. |
| 154 **Infrastructure** - lack of equipment and/or connectivity. |
| 155 **Funding** - lack of funding to develop and support EHR programmes. |
| 156 **Effectiveness** – lack of evidence on effectiveness of EHR programmes. |
| 157 **Cost-effectiveness** – lack of evidence on cost-effectiveness of EHR programme. |
| 158 **Demand** - lack of demand by health professionals or patients for EHR programmes. |
| 159 **Legal** - lack of legislation or regulations covering EHR programmes. |
| 160 **Policy** - national policies do not promote the adoption of EHR. |
| 161 **Standards** - lack of national or international information standards for interoperability. |
| 162 **Priorities** - competing health system priorities. |
| 163 **Other** – Please specify |
Other applications

ICT is being increasingly used to support complex processes and functions in the health sector thereby making systems more efficient and secure. Applications are as diverse as supporting payments to service providers to managing supply chains in hospitals. The following questions relate to the use of these kinds of applications in your country.

Which of the following ICT-assisted functions in the health sector are being used in your country?

164 Electronic medical billing - is the process by which a health care provider submits a bill electronically to a health insurance company (or payer) for the rendering of services.

Are electronic medical billing systems being used in the health sector in your country?

[ ] Yes
[ ] No
[ ] Don't know

165 Supply chain management information systems for health - are software solutions that support the complex tracking and reporting of materials, information, and finances as they move from supplier to manufacturer to wholesaler to health facilities to health consumer.

Are supply chain management information systems for health being used in the health sector in your country?

[ ] Yes
[ ] No
[ ] Don't know

166 Human resources for health information systems - provide up-to-date information on a country’s health workforce for evidence-based decision-making and deployment of human resources.

Are human resources for health information systems being used in the health sector in your country?

[ ] Yes
[ ] No
[ ] Don't know

Additional comments

167 If you have further comments about any of the topics covered in this section, please add them below:
Section 6 – Legal frameworks for eHealth

This section of the survey focuses on an increasingly important area of eHealth - the protection and degree of sharing of patient data in the Health domain. Many countries are putting in place the necessary legal and ethical frameworks to ensure that patients can feel safe knowing that their data are well protected and will not be abused. UHC requires extensive data collection and processing of all people in order to deliver quality services and monitor progress. Collecting and using, or reusing, these data requires legal frameworks to help protect the privacy and security of patient data.

168 Does your country have policies or legislation to define medical jurisdiction, liability or reimbursement of eHealth services such as telehealth?
   [ ] Yes
   [ ] No
   [ ] Don’t know

169 Does your country have policies or legislation to address patient safety and quality of care based on data quality, data transmission standards, or clinical competency criteria?
   [ ] Yes
   [ ] No
   [ ] Don’t know

170 Does your country have legislation to protect the privacy of personally identifiable data\(^\text{13}\) of individuals irrespective of whether it is in paper or digital format?
   [ ] Yes
   [ ] No
   [ ] Don’t know

171 Does your country have legislation to protect the privacy of individuals' health-related data\(^\text{14}\) held in electronic format in an EHR\(^\text{15}\)?
   [ ] Yes
   [ ] No
   [ ] Don’t know

172 Does your country have legislation which governs the sharing of digital data between health professionals in other health services in your country through the use of an EHR?

\(^{13}\)Personal identifiable data is information which can specifically identify an individual. This can include, but is not limited to, names, date of birth, addresses, telephone numbers, occupations, photographs, fingerprints - regardless of the format or medium in which it is held.

\(^{14}\)Health-related data is information recorded about an individual including their illnesses, and prescribed treatments. It generally includes details of prescribed medication, and any medical or surgical procedures undertaken as well as treatments received from other health care providers.

\(^{15}\)Note: for the purpose of this survey and for gross comparisons, the terms electronic health records (EHR) and electronic medical records (EMR) will be used interchangeably, although this is not strictly correct.
(such as public or private health care entities, social services, insurance companies and pharmaceutical companies)
   [ ] Yes
   [ ] No
   [ ] Don't know

173 Does your country have legislation which governs the sharing of digital data between health professionals in health services in other countries through the use of an EHR? (such as public or private health care entities, social services, insurance companies and pharmaceutical companies)
   [ ] Yes
   [ ] No
   [ ] Don't know

174 Does your country have legislation which allows for the sharing of personal and health data between research entities?
   [ ] Yes
   [ ] No
   [ ] Don't Know

175 Does your country have legislation which allows individuals electronic access to their own health-related data when held in an EHR?
   [ ] Yes
   [ ] No
   [ ] Don't Know

176 Does your country have legislation which allows individuals to demand their own health-related data be corrected when held in an EHR if it is known to be inaccurate?
   [ ] Yes
   [ ] No
   [ ] Don't Know

177 Does your country have legislation which allows individuals to demand the deletion of health-related data from their EHR?
   [ ] Yes
   [ ] No
   [ ] Don't Know

178 Do individuals have the legal right to specify which health-related data from their EHR can be shared with health professionals of their choice?
   [ ] Yes
   [ ] No
   [ ] Don't Know

179 If your country has introduced eHealth legislation, or equivalent policies, please attach a copy or provide a link.
   Attachment: _______________________ or link: ________________________
180A Does your country have policies or legislation on civil registration and vital statistics?
   [ ] Yes
   [ ] No
   [ ] Don't know

181A If your country has introduced civil registration and vital statistics legislation, or equivalent policies, please attach a copy or provide a link.
   Attachment: _______________________ or link: ________________________

182A Does your country have policies or legislation on national identification management systems?
   [ ] Yes
   [ ] No
   [ ] Don't know

183A If your country has introduced national identification management legislation, or equivalent policies, please attach a copy or provide a link.
   Attachment: _______________________ or link: ________________________

Additional comments

180 If you have further comments about any of the topics covered in this section, please add them below:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Section 7 – Social media

Social media, such as Facebook, Twitter or YouTube are changing the dynamics and nature of interactions between healthcare consumers, health professionals and healthcare organizations. They generate interactive platforms for individuals, communities and organizations to share and discuss content, debate issues and promote new ideas. Social media impacts on universal health coverage as it extends the involvement of healthcare consumers in their own health as well as promotes healthcare

181 Does your country have a national policy or strategy on the use of social media by government organizations?

[ ] Yes Year of adoption __________
[ ] No (go to question 183)
[ ] Don’t know (go to question 183)

182 Does the policy or strategy make specific reference to its use in the health domain?

[ ] Yes
[ ] No
[ ] Don’t know

The following questions relate to the use of social media for health. They look at its use from the perspective of healthcare organizations as well as individuals or communities.

Healthcare organizations in your country are using social media to:

183 Promote health messages as a part of health promotion campaigns

[ ] Yes
[ ] No
[ ] Don’t know

184 Help manage patient appointments

[ ] Yes
[ ] No
[ ] Don’t know

185 Seek feedback on services

[ ] Yes
[ ] No
[ ] Don’t know
186 Make general health announcements
[ ] Yes
[ ] No
[ ] Don't know

187 Make emergency announcements
[ ] Yes
[ ] No
[ ] Don't know

188 Other - Please specify: __________

Individuals and communities in your country are using social media to:

189 Learn about health issues
[ ] Yes
[ ] No
[ ] Don't know

190 Help decide on what health services to use
[ ] Yes
[ ] No
[ ] Don’t know

191 Provide feedback to health facilities or health professionals
[ ] Yes
[ ] No
[ ] Don’t know

192 Run community-based health campaigns
[ ] Yes
[ ] No
[ ] Don’t know

193 Participate in community-based health forums
[ ] Yes
[ ] No
[ ] Don't know

194 Other - Please specify: __________

Additional comments

195 If you have further comments about any of the topics covered in this section, please add them below:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Section 8 - Big data

Big data essentially refers to extremely large data sets. The data are normally distributed, as are the analytics, which means processing using traditional computational methods may be difficult or not effective. In health care, big data encompasses a range of data including: clinical data from electronic health records; the phenotype; genomic information; and data on other determinants of health such as environment and lifestyle. The use of big data can range from providing a powerful overview into trends and patterns in population health, to identifying individuals who are at risk from specific conditions. Further, big data is expected to help target early warning signs as well as enhance patient safety. Big data contributes to universal health coverage through the provision of new and unique data on populations and individuals that will support better health care for all. As the use of big data is relatively new in the health sector in many countries, questions have been kept to a minimum.

196 Does your country have a national policy or strategy regulating the use of big data in the health sector?

[ ] Yes  Year of adoption__________
[ ] No
[ ] Don’t know

197 Does your country have a national policy or strategy regulating the use of big data by private companies?

[ ] Yes  Year of adoption__________
[ ] No
[ ] Don’t know

Barriers to adopting big data for health

There are various factors as to why big data may not yet be contributing to universal health coverage in countries. From the list below, please rate each suggested barrier according to how important it is in your country in relation to big data supporting universal health coverage.

<table>
<thead>
<tr>
<th></th>
<th>Not a barrier</th>
<th>Slightly important barrier</th>
<th>Moderately important barrier</th>
<th>Very important barrier</th>
<th>Extremely important barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>198</td>
<td>Promotion of standards – effective standards and best practices for data capture need to be established and operational for big data to be realised its potential.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>199</td>
<td>Information sharing – incentives need to be provided to the public and private</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
sectors to accelerate information sharing and to avoid information remaining in silos.

200 **Building capacity**—new demands for appropriately skilled computing scientists are emerging and appropriate training will need to be provided.

201 **Privacy and security**—appropriate data privacy and security laws need to be in place to ensure that patient data is not misused or abused.

202 **New analytical methods**—research into new analytical methods needs to be supported to meet the challenges of new data and emerging research scenarios.

203 **Lack of integration**—limited integration between different health services and other systems collecting relevant data.

204 **Other barriers**

If you have further comments about any of the topics covered in this section, please add them below:

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
Section 9– eHealth networks
The Global Observatory for eHealth is developing an electronic resource of key eHealth organizations and contact persons in countries to promote networking and knowledge sharing in eHealth. Please help us make this a valuable global tool by providing relevant information for your country.

eHealth support and advocacy
Please provide details on professional associations or industry-related groups which provide leadership in your country in eHealth. (Up to three entities).

206 Name of entity
Name of contact person
Email
URL
Please indicate if the entity is:
[ ] Public
[ ] Private
[ ] Public-Private Partnership
[ ] Non-Governmental Organization

207 Name of entity
Name of contact person
Email
URL
Please indicate if the entity is:
[ ] Public
[ ] Private
[ ] Public-Private Partnership
[ ] Non-Governmental Organization

208 Name of entity
Name of contact person
Email
URL
Please indicate if the entity is:
[ ] Public
[ ] Private
[ ] Public-Private Partnership
[ ] Non-Governmental Organization

eHealth national governance and guidance
Please provide details on any entities in your country such as an eHealth task force, advisory board, or similar, that provide advice and guidance in areas such as policy/strategy, programme implementation, legal issues, and evaluation in eHealth? (Up to three entities).

209 Name of entity
Name of contact person
Email
URL
Please indicate if the entity is:
[ ] Public
[ ] Private
[ ] Public-Private Partnership
[ ] Non-Governmental Organization

210 Name of entity
Name of contact person
Email
URL
Please indicate if the entity is:
[ ] Public
[ ] Private
[ ] Public-Private Partnership
[ ] Non-Governmental Organization

211 Name of entity
Name of contact person
Email
URL
Please indicate if the entity is:
[ ] Public
[ ] Private
[ ] Public-Private Partnership
[ ] Non-Governmental Organization

THANK YOU - THIS IS THE END OF THE SURVEY
The WHO Global Observatory for eHealth wishes to thank you for your generous contribution as a national expert group in completing this work. We hope that the survey findings and recommendations will not only help support eHealth development in your country, but will also promote the advancement of eHealth worldwide.