

Advancing

Be He@lthy, Be Mobile

in the Eastern Mediterranean Region

Combating noncommunicable
diseases through mobile technology



World Health
Organization

REGIONAL OFFICE FOR THE Eastern Mediterranean

WHO Library Cataloguing in Publication Data

Names: World Health Organization. Regional Office for the Eastern Mediterranean

Title: Advancing be he@lthy, be mobile in the Eastern Mediterranean Region: combating noncommunicable diseases through mobile technology / World Health Organization. Regional Office for the Eastern Mediterranean

Description: Cairo: World Health Organization. Regional Office for the Eastern Mediterranean, 2021 | Includes bibliographical references.

Identifier: ISBN 978-92-9022-508-9 (pbk.)
ISBN 978-92-9022-522-5 (online)

Subjects: Telemedicine | Noncommunicable Diseases - prevention & control | Eastern Mediterranean Region

Classification: NLM W 83

© World Health Organization 2021

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercialShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO); <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>.

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services.

The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition". Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization.

Suggested citation. Advancing Be He@lthy, Be Mobile in the Eastern Mediterranean Region: Combating noncommunicable diseases through mobile technology. Cairo: WHO Regional Office for the Eastern Mediterranean; 2021. Licence: CC BY-NC-SA 3.0 IGO.

Sales, rights and licensing. To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <http://www.who.int/about/licensing>.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

CONTENTS

| | | |
|----|--------------------------------------|----|
| 01 | Introduction | 4 |
| 02 | mHealth for NCDs | 6 |
| 03 | Benefits of mHealth | 7 |
| 04 | Aims of mHealth | 8 |
| 05 | Implementation of mHealth programmes | 9 |
| 06 | Examples of mHealth | 12 |
| 07 | FAQs | 16 |
| 08 | References | 18 |

Introduction

Be He@lthy, Be Mobile (BHBM) is a global mobile health (mHealth) initiative, led by the World Health Organization (WHO) and International Telecommunication Union (ITU).

3.7
million
users

16
programmes

12
countries

It assists governments in using mobile technology to address priority health topics and reinforce existing national health activities to **prevent, manage and treat health conditions and diseases (1)**.

The initiative is in line with WHO's global and regional visions, and its 13th General Programme of Work, and the 2030 Agenda for Sustainable Development, especially Sustainable Development Goal 3 to "Ensure healthy lives and promote well-being for all at all ages".

Since its launch in 2013, the initiative has reached **3.7 million users** with evidence-based behaviour-change information and helped governments to design and integrate digital health services into existing health systems, through **16 programmes** in **12 countries**.

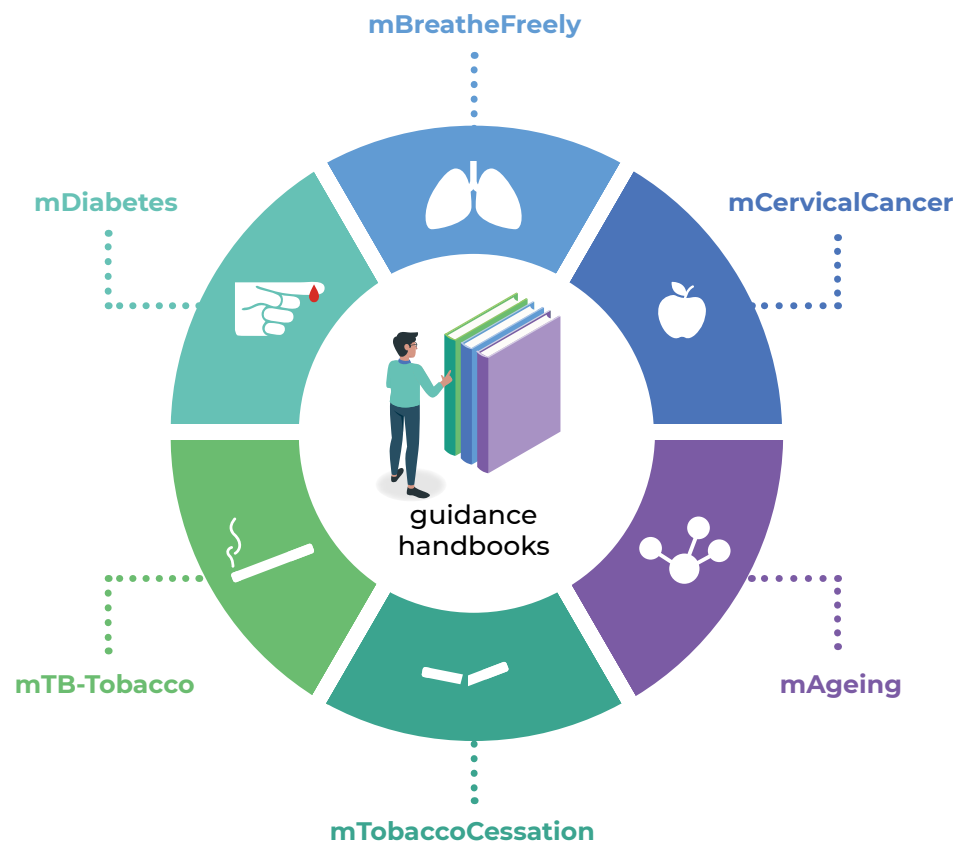


Source: Be He@lthy, Be Mobile: Fact pack (2).



“Ensure healthy lives and promote well-being for all at all ages”.

GOAL 3, 2030 Agenda for Sustainable Development



To support countries, BHM has developed **guidance handbooks** that provide evidence-based programme content in many health areas, including mDiabetes, mTobaccoCessation, mAgeing, mBreatheFreely, mCervicalCancer and mTB-Tobacco.

Even though BHM was initially developed for noncommunicable disease (NCD) prevention, it has expanded its scope to other health topics, while continuing to support NCD programmes.

It has already supported WHO and countries in responding to **Ebola virus disease** and this role has become even more vital during the COVID-19 pandemic. The BHM platform has been used to deliver reliable information to tens of millions of people on COVID-19 through SMS messages and mobile applications, and can also be used to ensure continuing **NCD essential services during the pandemic**, such as **disease prevention and management, health promotion and preventing complications**.



CHINA



PHILIPPINES

mHealth for NCDs

Mobile health, or mHealth, is the use of mobile technology for public health, including to help **prevent, manage and treat NCDs** and their risk factors.

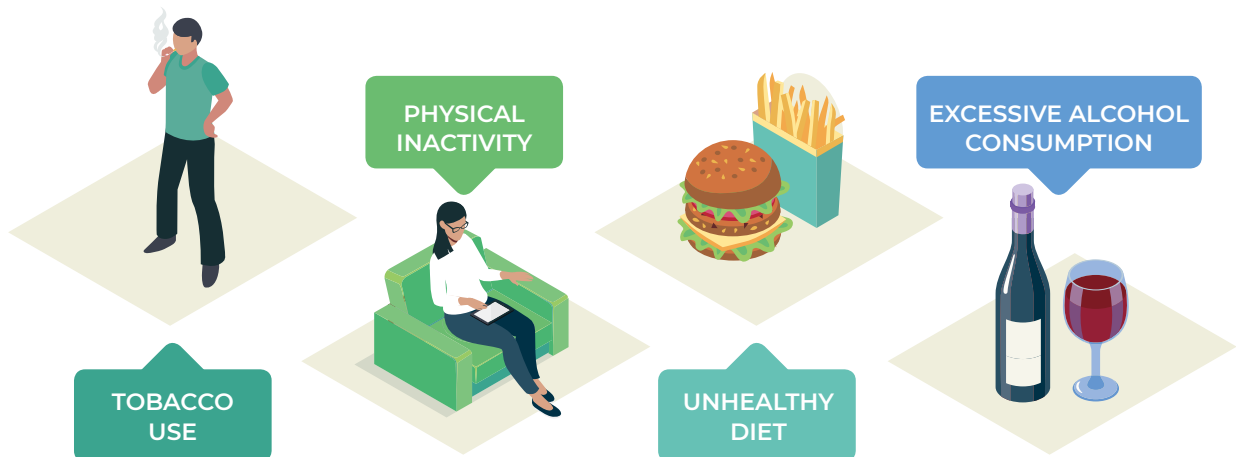


Chronic or lifestyle-related diseases, are the **world's biggest killers**

It does this by providing health care support to patients and technical support to health service providers. It includes the use of text messaging and mobile phone applications (2).

NCDs, commonly known as **chronic or lifestyle-related diseases**, are the world's biggest killers and a leading cause of death in the WHO Eastern Mediterranean Region. In **2012**, more than **2.2 million people** in the Region died from NCDs (3), and it is projected that this will increase to **2.4 million** deaths in **2025** unless serious action is taken (4). Many of these deaths could be prevented through simple lifestyle-related changes and cost-effective interventions implemented by national governments.

These lifestyle-related changes target four of the **risk factors** for developing NCDs: **tobacco use, unhealthy diet, physical inactivity and excessive alcohol consumption**.



2.2 million
people in the Eastern Mediterranean
Region died from NCDs

2.4 million
people will die unless
serious action is taken

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Benefits of mHealth

Harnessing mobile technology to reduce the burden of NCDs, mHealth should be viewed as a component of a **comprehensive NCD strategy and programme**; it is not a stand-alone programme.

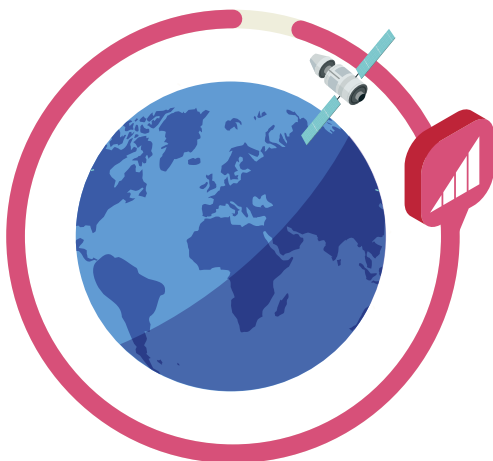
It uses the advantages of mobile technology, including the broad reach of mobile phones and their ease of use, regardless of age, education, culture or socioeconomic level. Mobile network coverage reaches the most remote places and most people are never very far from their phone.

These advantages mean that mobile technology offers a great opportunity if incorporated into national health interventions and is of particular benefit in low- and lower-middle income countries where expenditure on health interventions is already stretched and overburdened (2). More than half the countries in the Region fall into this category.

mHealth can help advance progress towards universal health coverage and enables the health system to use technology to increase the coverage and quality of services. Furthermore, it contributes to the provision of patient-centred care.

In 2016–2017, according to ITU, there were almost **half a billion subscriptions for mobile phones in the Eastern Mediterranean Region**, for a population of 583 million people. **People have greater access to mobile phones than they do to clean water or toothbrushes (2,5).**

Moreover, it is easy to deploy and implement mHealth compared to other digital health approaches, as it requires mobile network coverage rather than Internet coverage.



In 2015,

95%

of the world had **mobile network coverage**, meaning that even **people living in remote areas can benefit from mHealth (2).**

Aims of mHealth

By using mobile technology in a **direct, low-cost** and **engaging manner**, mHealth seeks to:

Promote health by empowering citizens to intervene in their own health care at an early stage through **simple lifestyle-related changes**

Increase NCD prevention for those at high risk through **creating awareness about NCDs and their risk factors**

Improve self-management of disease through empowering patients to self-manage and prevent complications by **identifying their early signs and symptoms**

Educate patients on how to manage **emergency cases**

Provide services directly to patients for the **prevention and management** of NCDs

Provide technical support to health service providers

Help governments implement national policy on NCDs



Implementation of mHealth programmes

To implement mHealth, several **critical success factors** need to come together.

These include: an enabling environment; partnerships; governance and programme management; resource allocation; toolkits and handbooks; health and technical content; monitoring and evaluation; sustainability; and communications, advocacy and promotion (2,6,7,8)





An enabling environment

Creating an enabling environment for mHealth is essential. This is achieved by ensuring sufficient interest and appetite from government and the relevant bodies in mHealth interventions. Government commitment and ownership ensures that resources are made available and that the programme is sustainable in the long term.



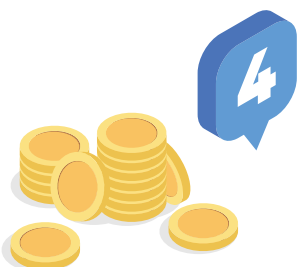
Partnerships

In order to implement mHealth, a multisectoral partnership model is needed, whereby different stakeholders collaborate to develop the mHealth programme. In this way, mHealth can showcase the synergy between United Nations agencies, governmental bodies, the private sector, academia and civil society. Partners can provide funding, knowledge, advocacy and country-specific support. This multisectoral partnership model ensures that the programme is robust, sustainable and can be adapted to achieve its objectives.



Governance and programme management

WHO and ITU experts work at a global and regional level to provide high-level support to mHealth programmes at the national level. The governance structure of the mHealth programme is formed by an mHealth steering committee, which typically includes representatives from WHO, ITU and ministries of health and communications, along with a technical advisory group made up of the relevant stakeholders, who devise the legal, technical and financial framework. At the national level, the management structure consists of a project management team/person and national programme leaders. The project management team/person is designated by the government to act as a focal point for the programme. The national programme leaders and their teams are responsible for day-to-day programme activities across five areas: operations; technology specifications; content development and adaptation; promotion and recruitment; and monitoring and evaluation.



Resource allocation

In addition to the human resources outlined, sufficient financial resources are needed from governments. This ensures government ownership and the sustainability of the programme if donors cease to provide funds. In the first year of operations a country will need US\$ 500 000 to cover the initial investment in the platform and setup costs.



Toolkits and handbooks

There are several toolkits and handbooks to facilitate the effective implementation of mHealth. These have been prepared by experts from WHO, ITU and other stakeholders. They present all the information needed to implement an mHealth programme in the form of ready-to-use options.



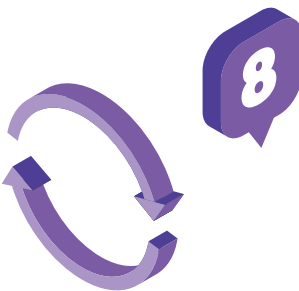
Health and technical content

At the heart of mHealth lies the health content, which needs to be developed for the specific target audience(s) identified by the programme. Typically, this content needs to be based on research, tailored to the needs of users and validated by WHO or its affiliated expert groups. It is useful to identify a focal point in the ministry of health to lead this work. On the technical side, it is key to work with the national authorities responsible for the planning and provision of information technology. Legal, regulatory and technical issues should be identified early in the process and resolved. It is useful to identify a focal point in the ministry of communications to lead this work.



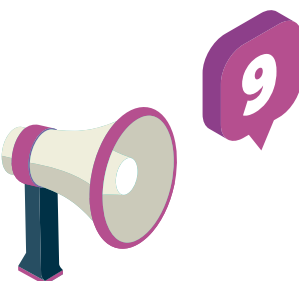
Monitoring and evaluation

Adopting a monitoring and evaluation framework for the mHealth intervention in the planning and implementation phases is essential for measuring its performance, effectiveness and impact. Existing national groups or institutions can be used to lead this work or an existing monitoring and evaluation framework can be adapted for use. A dedicated budget amounting to about 10% of the intervention budget should be designated for monitoring and evaluation.



Sustainability

Developing a plan for sustainability should be considered from the early stages of every mHealth programme. Countries should use their initial experience with mHealth to inform the sustainability and scale up of further digital health interventions. Once the first mHealth programme is underway, BHBM can support countries to develop workplans for sustaining and scaling up the existing programme and developing new programmes to cover additional health topics. Lessons learned from a country's first mHealth programme and other similar programmes from around the world can be applied to improve existing and future programmes.



Communications, advocacy and promotion

A key factor in the success of mHealth interventions is the communications, advocacy and promotion component. Advocacy is needed to keep governments engaged in the programme and to attract funding from potential donors and partners. To launch an mHealth intervention, it is first necessary to specify the target audience, such as diabetes patients or tobacco users who want to quit. Through a promotional campaign, participants can self-enrol or are enrolled by a health care worker or family member through a missed call, website and/or SMS. As with all elements of the programme, it is important to monitor and evaluate the promotional campaign and its effectiveness to be able to adjust it as needed.

Examples of mHealth

Globally, a growing number of countries have implemented BHBM interventions, including the following examples.

2014

SENEGAL



In 2014, Senegal implemented **mDiabetes** to use mobile technology to:

- ✓ increase awareness about diabetes (through SMS messages)
- ✓ train health workers
- ✓ provide remote consultation services
- ✓ provide treatment and management support for people with diabetes.

In 2016, **mDiabetes** saw an increase in uptake, with roughly 50 000 users signing up for the service, and a clinical trial found that people who received the SMS messages had better glycaemic control (9).

mDiabetes

2016



50 000

users signing up

Hundreds of thousands of people have been enrolled in the annual **mRamadan** campaign to send SMS messages on diabetes during Ramadan.

mRamadan

2017



117 834

diabetic patients

5 000

health care providers

The programme has consistently seen an increase in its subscriber base since its launch (2).




Additionally, Senegal has used the **mDiabetes** partnerships and platform to **combat Ebola virus disease** by encouraging people to alert health authorities of anyone showing signs of a fever and bleeding, using a toll-free number (2).

2016

INDIA

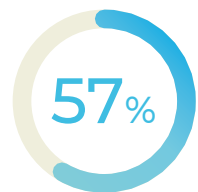
In 2016, **mTobaccoCessation** was officially launched in India.

As of the first quarter of 2018, it had 2.1 million users. The programme has achieved a 19% self-reported quit rate, compared to an estimated baseline population quit rate of around 5%, and of current tobacco users who subscribed to the programme,

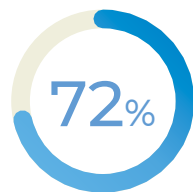
 **77%** reported that the programme was **helpful** or **very helpful** in quitting tobacco ⁽¹⁰⁾.

Within six months of the launch of the mTobaccoCessation programme, an **mDiabetes** programme was launched.

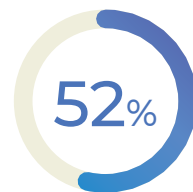
EVALUATION OF THE PROGRAMME IN 2017



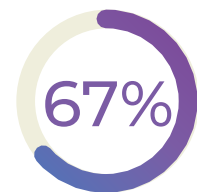
following a healthy diet



following advice on physical activity



had been screened for diabetes



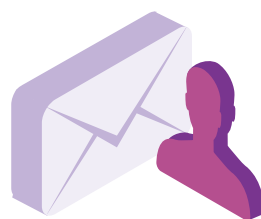
had checked their glycaemic status ⁽¹¹⁾

The Indian Ministry of Health and Family Welfare is looking to introduce **mAgeing** and **mTB-tobacco** programmes ⁽²⁾.

2016

ZAMBIA

In 2016, Zambia created a national **mCervicalCancer** programme that was incorporated in the Zambian national cancer control strategic plan for 2017–2021.



More than

600 000

users received SMS on the launch day

and since February 2017, messages have been sent to 500 000 men and women in Lusaka province ⁽²⁾.

In the **WHO Eastern Mediterranean Region**, the following countries have also initiated mHealth interventions.

2016

EGYPT

In 2015, Egypt, one of the top 10 countries worldwide for the number of people living with diabetes, launched a national **mDiabetes** programme using mobile technology, through a one-way SMS service, to:

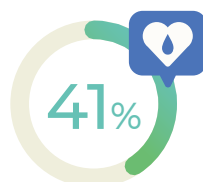
- ✓ provide awareness about diabetes and preventive lifestyle behaviours
- ✓ educate diabetes patients on their condition and empower them to self-manage and prevent complications, identify early signs and symptoms of complications and manage emergency cases
- ✓ track insulin levels
- ✓ provide reminders to take their medication.

The programme has reached over 180 000 people and in 2016 an **mDiabetes (mRamadan)** campaign was initiated, sending 16 million SMS messages to those who enrolled; an evaluation found that 41% of tested users had improved glycaemic control and 70% had found the programme useful (10).

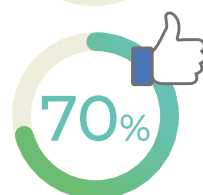


16 000 000
SMS

180 000
people



improved
glycaemic
control



found the
programme
useful

Future plans include making the service interactive and not just a one-way SMS and expanding its reach to the general population.

The programme will also be integrated into the national universal health coverage system being developed and the campaign to screen 20 million adults for NCDs and their risk factors.

An **mTB-Tobacco** programme will also be launched to help tuberculosis patients quit tobacco use and help them manage the disease (10).



2017

TUNISIA

In 2017, Tunisia launched a national **mTobaccoCessation** programme called **Yakfi! (Enough!)** to enable Tunisians to quit tobacco use.



an estimated

50%

of the adult male population smoke tobacco

To ensure the success of the programme, a tailored approach was taken to different target audiences, such as adolescents, young adults and middle-aged smokers. The programme was disseminated by two-way text messaging algorithms and **has reached more than 70 000 tobacco users (10)**. The launch phase saw the use of mass media campaigns and various promotions to get people on board.

In 2018, building on the **mTobaccoCessation** programme, an **mDiabetes (mRamadan)** programme was launched.

Between 1 May and 20 June 2018, the Ramadan period, **20 000 people** with diabetes or their family members joined the programme (10).

2018

SUDAN

In 2018, Sudan embarked on an **mHealth** programme with an **mDiabetes** project. The project aims to increase awareness about prevention and management of diabetes (10).

More than **70 000 subscribers** receive daily text messages on their mobile phones to raise awareness on diabetes, including on COVID-19 and diabetes and on fasting and other practices during Ramadan.

In a post-campaign evaluation phone survey, **96% of responders expressed satisfaction** with the **mDiabetes** and **mRamadan** services.



10%

of the population in Sudan has diabetes

Currently, about 10% of the population in Sudan has diabetes, which is estimated to be **more than 2 million people** living with diabetes.

Sudan plans to implement **mCervicalCancer** and **mBreast** cancer initiatives in the near future.



Q: What are the mHealth tools?



There are several types of mHealth tool. The first is mobile SMS messaging, including both one-way push text messaging and two-way interactive messaging. In the case of SMS messaging, participants self-enrol to receive messages or are enrolled by a health care worker or family through a missed call, website and/or SMS. Additional tools to deliver mHealth programmes include IP messaging services (such as WhatsApp and Facebook Messenger), unstructured supplementary service data (USSD), interactive voice response systems (IVRS) and mobile applications (2).

Q: What toolkits are available to facilitate the implementation of mHealth?



There is the BIBM fact pack for NCDs that provides details of how to go about implementing an mHealth intervention. In addition, there are specific toolkits for the effective implementation of different mHealth interventions (1,2,12). In the Eastern Mediterranean Region, manuals have been developed for the national implementation of mDiabetes, mTobaccoCessation, mBreatheFreely, mCervicalCancer and mAgeing programmes (12). These manuals can be adapted by countries to suit their specific needs.

Q: What channels can be used for communication, advocacy and the promotion of mHealth?



Depending on the target audience, **several channels can be utilized to promote mHealth**. These include the **national media** (newspapers, radio and television), **social media** (such as Facebook, Twitter and YouTube), **public places** (such as train and metro stations), and **existing health care facilities** and **service delivery points**.

Q: What is a typical timeline for implementation of an mHealth programme?



A typical timeline would include a **period of two months** (depending on the technical readiness of the government) for **engagement between the national government and the WHO/ITU programme, the selection of the mHealth intervention, and country-based self-assessment and research**, if needed. In the following **three to six months, countries agree on an implementation plan, carry out technical testing and develop a promotion and recruitment campaign, with an official launch of the mHealth intervention in the seventh month**. The **first phase of implementation** then begins with national promotion of the programme and the recruitment of participants. This phase should be concluded with a **first round of monitoring and evaluation** so that the programme can be adjusted further, as needed.

The average duration of a project is 12–18 months. Future campaigns can be implemented within a shorter timeframe once the infrastructure is available.

Q: How can countries interested in mHealth move forward?

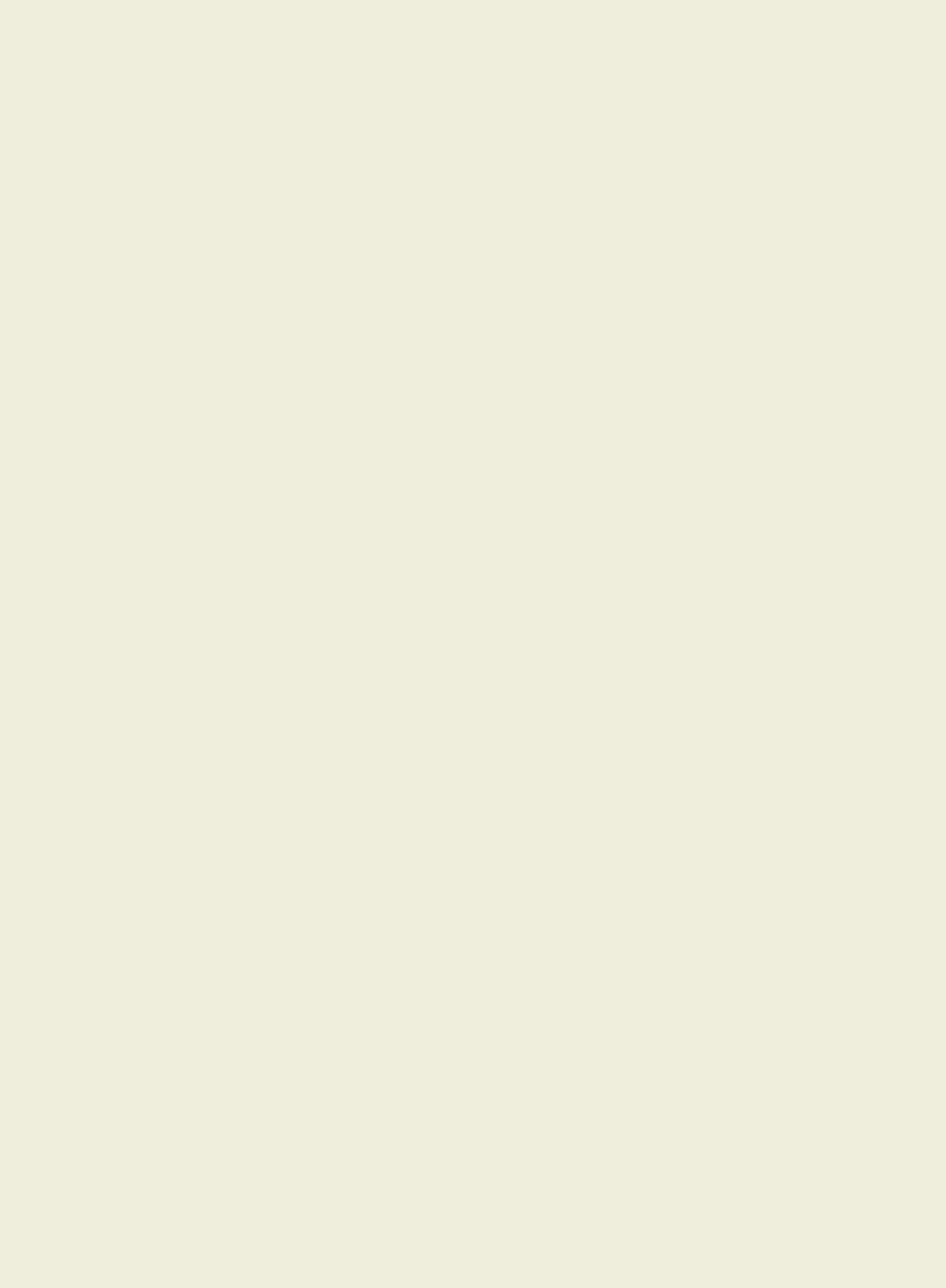


Countries interested in mHealth need to go through the following steps.

- ✓ Read about the BHBM programme and its aims (1).
- ✓ Select the intervention for mHealth.
- ✓ Express interest in receiving support from the BHBM programme.
- ✓ Complete a country-based self-assessment questionnaire.
- ✓ Submit a formal letter requesting support from WHO and ITU.
- ✓ Sign a letter of intent.
- ✓ Develop a project initiation document (PID) for the mHealth intervention.

References

- 1. Addressing mobile health [website].**
Geneva: World Health Organization; 2020
<https://www.who.int/activities/Addressing-mobile-health>
Accessed 26 April 2020
- 2. Be He@lthy, Be Mobile: Fact pack.**
Geneva: World Health Organization and International Telecommunications Union; 2018
<http://apps.who.int/iris/bitstream/handle/10665/275456/WHO-NMH-PND-18.10-eng.pdf?ua=1>
Accessed 20 February 2020
- 3. Global status report on noncommunicable diseases 2014.**
Geneva: World Health Organization; 2014
<https://www.who.int/nmh/publications/ncd-status-report-2014/en/>
Accessed 6 April 2020
- 4. Noncommunicable disease surveillance in the WHO Eastern Mediterranean Region.**
Cairo: WHO Regional Office for the Eastern Mediterranean; 2020
<https://applications.emro.who.int/docs/9789290223139-eng.pdf?ua=1&ua=1>
Accessed 26 April 2020
- 5. ITU-D ICT Statistics. Data and analytics: taking the pulse of the information society [website].**
Geneva: International Telecommunications Union; 2020
<https://www.itu.int/en/ITU-D/Statistics/Pages/default.aspx>
Accessed 20 February 2020
- 6. Be He@lthy, Be Mobile report: January 2013 to December 2014.**
Geneva: World Health Organization and International Telecommunication Union; 2014
<https://www.who.int/ncds/prevention/be-healthy-be-mobile/annual-report-2014/en/>
Accessed 20 February 2020
- 7. Be He@lthy, Be Mobile: report January 2015 to December 2015.**
Geneva: World Health Organization and International Telecommunication Union; 2015
https://www.itu.int/en/ITU-D/ICT-Applications/eHEALTH/Be_healthy/Documents/BHBM-AnnualReport-2015.pdf
Accessed 20 February 2020
- 8. Be He@lthy, Be Mobile: annual report 2016.**
Geneva: World Health Organization and International Telecommunication Union; 2016
<https://www.who.int/ncds/prevention/be-healthy-be-mobile/report-2016/en/>
Accessed 20 February 2020
- 9. Wargny M, Kleinebreil L, Diop SN, Ndour-Mbaye M, Ba M, Balkau B, et al. SMS-based intervention in type 2 diabetes: clinical trial in Senegal.** *BMJ Innovations*. 2018;4(3):142–146
<https://innovations.bmj.com/content/4/3/142>
Accessed 20 February 2020
- 10. Be He@lthy, Be Mobile: annual report 2018.**
Geneva: World Health Organization and International Telecommunication Union; 2019
<https://apps.who.int/iris/bitstream/handle/10665/326497/9789241516259-eng.pdf?ua=1>
Accessed 26 April 2020
- 11. Ramachandran A, Kumar R, Nanditha A, Raghavan A, Snehalatha C, Krishnamoorthy S, et al. mDiabetes initiative using text messages to improve lifestyle and health-seeking behaviour in India.** *BMJ Innovations*. 2018;4(4):155–62
<https://innovations.bmj.com/content/4/4/155>
Accessed 20 February 2020
- 12. Be He@lthy, Be Mobile handbooks [website].**
Geneva: World Health Organization; 2020
<https://www.who.int/ncds/prevention/be-healthy-be-mobile/handbooks/en/>
Accessed 20 February 2020





Be He@lthy,
Be Mobile



World Health
Organization

REGIONAL OFFICE FOR THE Eastern Mediterranean



9 789290 225089