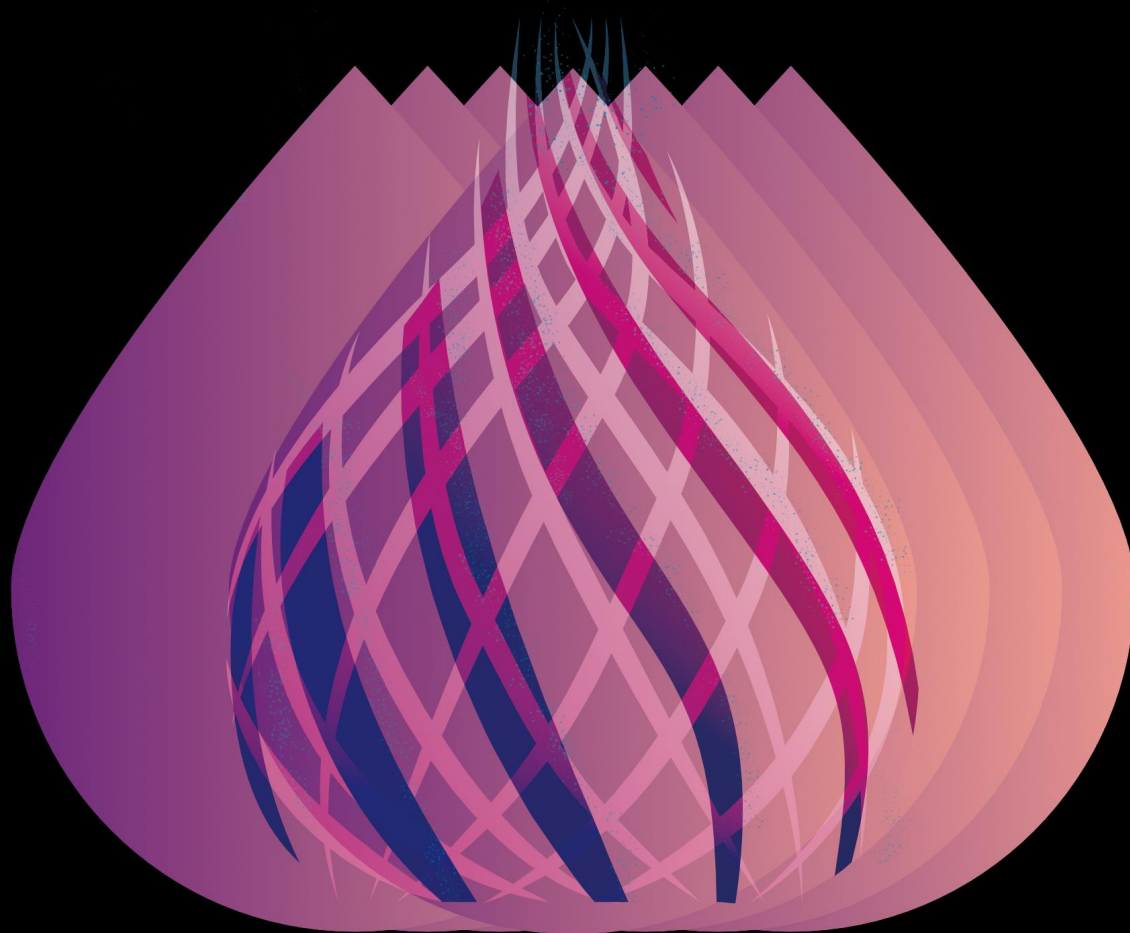
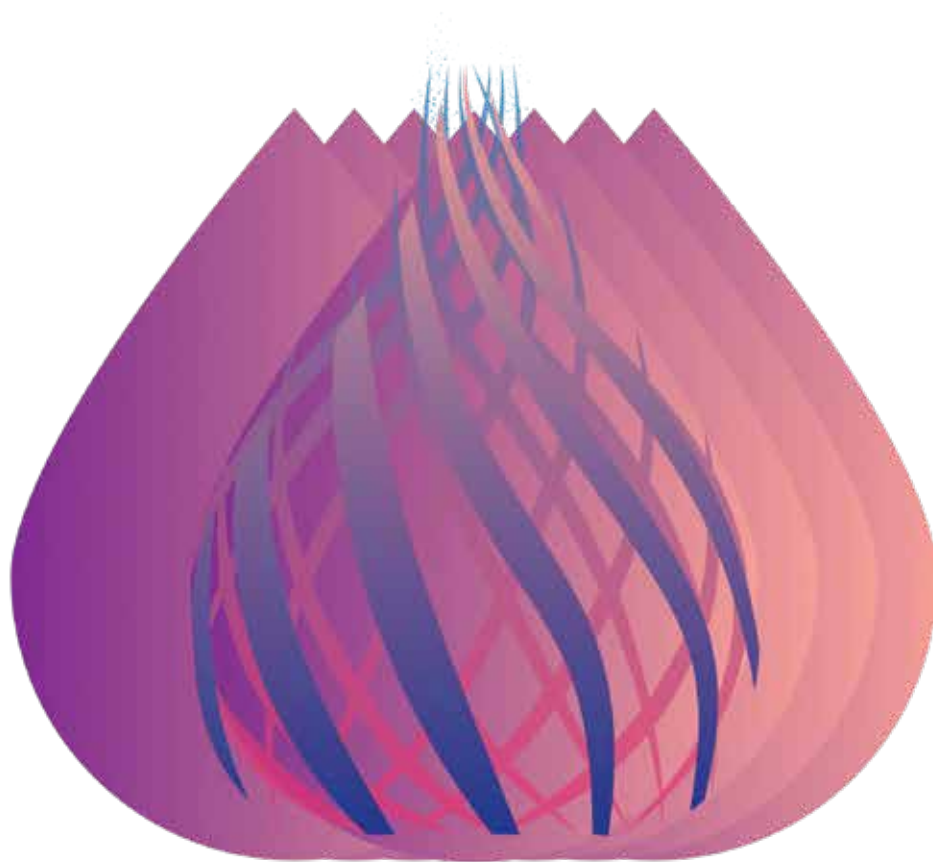


HANDBOOK FOR THE USE OF DIGITAL TECHNOLOGIES TO SUPPORT TUBERCULOSIS MEDICATION ADHERENCE.



World Health
Organization

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ABBREVIATIONS

aDSM	active TB drug safety monitoring and management
AI	artificial intelligence
ART	antiretroviral therapy
BMGF	Bill & Melinda Gates Foundation
BMU	basic management unit (smallest administrative unit registering TB patients, e.g. district)
DOF	dose observation fraction
DOT	directly observed therapy for TB
DR-TB	drug-resistant tuberculosis
DS-TB	drug-susceptible tuberculosis
EMM	event monitoring device for medication support
ERS	European Respiratory Society
FDC	fixed-dose combination
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HIPAA	Health Insurance Portability and Accountability Act
HIS	health information system
HIV	human immunodeficiency virus
HMIS	health management information system
ICT	information and communication technology/-ies
IMEI	International Mobile Equipment Identity
LED	light-emitting diode
LIS (LIMS)	laboratory information (management) system
LTBI	latent tuberculosis infection
M&E	monitoring and evaluation
MDR-TB	multidrug-resistant tuberculosis
MoH	Ministry of Health
MSF	Médecins Sans Frontières
NGO	nongovernmental organization
NTP	national tuberculosis programme
PHC	primary health care
RCT	randomized controlled trial
SDG	Sustainable Development Goals
SIM card	subscriber identity module card (used to connect cell-phones, tablets and EMM to a mobile phone network)
SMS	short message service (mobile phone texting)
SOP	standard operating procedure
SWOT	analysis of strengths, weaknesses, opportunities, threats
TB	tuberculosis
TPP	target product profile
VOT	video-supported treatment for TB
WHO	World Health Organization

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INTRODUCTION

Advances in mobile technologies, network coverage and Internet access have transformed the way we interact with each other in our daily life. Instant access to information and rapid sharing of news are becoming the norm in our professional, social and personal environments. These developments have created new, exciting possibilities to improve patient care by turning data into useful information for individuals and for programme management. For example, social media channels and mobile text messaging campaigns can promote and raise awareness on health and disease. Mobile phones can help community health-care workers communicate better with patients. Faster feedback from laboratories can be achieved by automating the transmission of diagnostic test results to clinicians and electronic health records. Guidelines, training material and educational content can be shared and updated more efficiently in digital format than on paper.

The various applications of digital health are relevant for major disease programmes such as those focused on tuberculosis (TB) prevention and care. They have the potential to transform the delivery of different dimensions of services, bringing the notion of patient-centred care within reach, even under very basic conditions.

In 2015 and 2017, the Global TB Programme of the World Health Organization (WHO) convened technical consultants to explore how innovative digital technologies could be integrated more systematically into the various aspects of its End TB Strategy (1–3). A conceptual framework was developed, grouping different digital health products into four areas relevant to TB: patient care, surveillance and monitoring, programme management and e-learning (4).

One important application of digital health in TB patient care is the support that it can lend to medication adherence. TB programmes have already been using short message service (SMS), video-supported treatment (VOT) and event monitoring device for medication support (EMM)¹ to help patients complete treatment and health-care workers to monitor both daily dosing and treatment continuity (Map 1). In April 2017, WHO released its first evidence-based recommendations for the use of digital technologies in support of the administration of TB treatment and medication adherence, using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology to assess the quality of evidence (6). With the release of these guidelines, there was a surge in demand by national TB programmes for clearer instructions on how to choose the best suited interventions and

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