This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

SECURE WEBINAR 17 Leapfrogging technologies for management of non-communicable diseases: Lessons from South Asia

PATH

Accelerating Innovation in Healthcare

Global presence and impact

A global nonprofit improving public health

70+ countries
where PATH is improving health

7 million lives saved
through PATH-pioneered malaria control

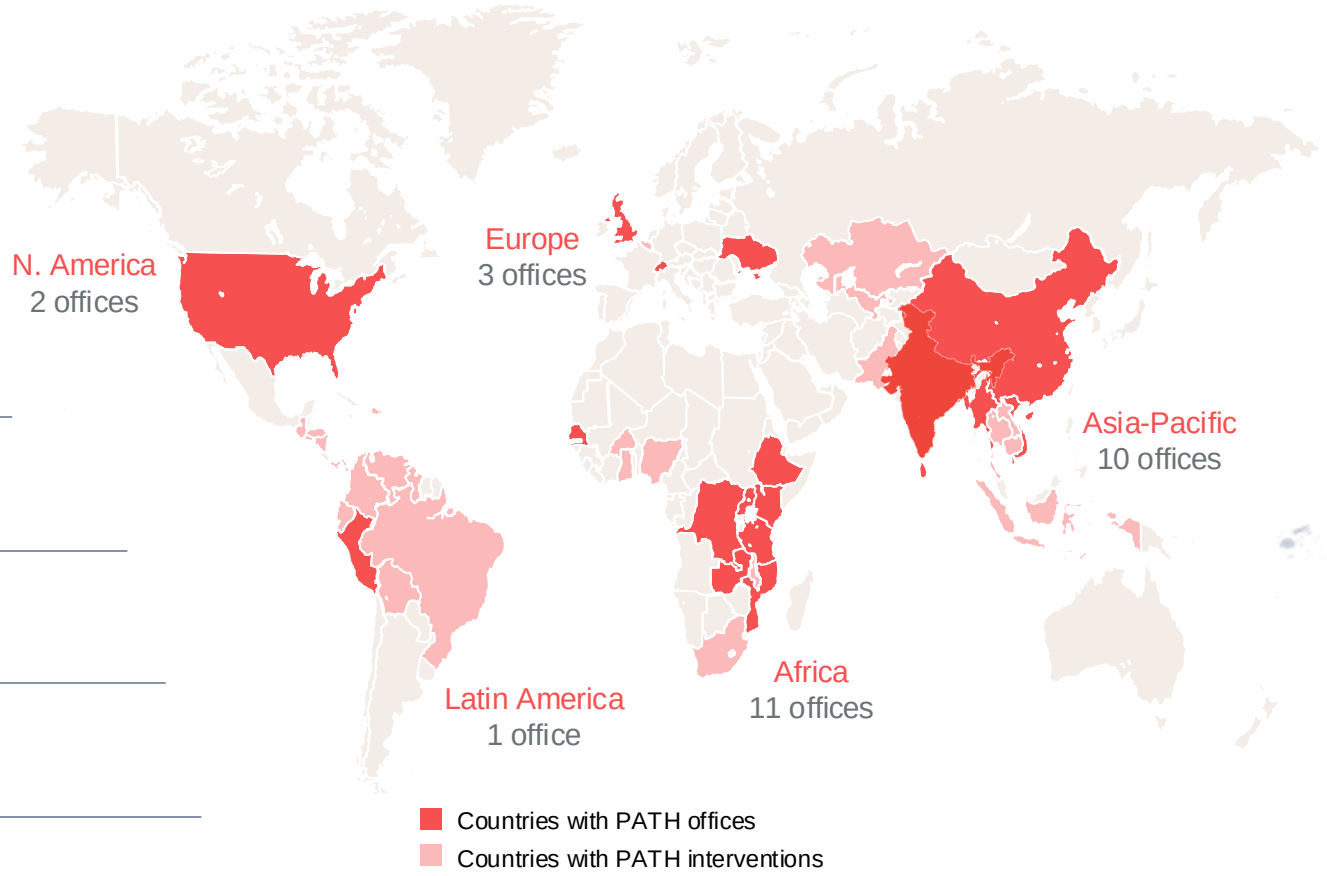
900 million people
reached with fortified rice

7 billion
vaccine vial monitors

3200 professionals
globally

World's first freeze-preventive cold box
Received WHO PQ (field trials in Nepal)

27 offices in 24 countries



INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Our global innovations and interventions

Developing and advancing innovative medical devices and technologies

1996
Uniject
155 million

1998
Vaccine vial monitor
7 billion

2006
Chlorhexidine for umbilical cord care
20 million doses

2013
Caya diaphragm
150,000 in 40+ countries

2015
C1 Common Interface
10+ different product lines

2016
Nifty cup
80k in 40+ countries

2018
Freeze-Safe Vaccine Carrier
2 different products
E004/050 & E004/051

2020-21
Tools for Integrated Management of Childhood Illnesses

1998
SoloShot syringe
7 billion

2013
MSR SE 200 Community Chlorine Maker
Thousands in 40+ countries

2014
LifeWrap Non-Pneumatic Anti-Shock Garment
15,000 in 11+ countries

2016
Woman's Condom

2017
Intradermal Adapter
4 million

2018
Tropis
5 million

2019
Ellavi Uterine Balloon Tamponade
CE Mark May 2019
Approval in Kenya, Ghana 2020

2020-21
Hyperfine

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate pe... ...n.

Impact Lab: ‘Go-to-Platform’ for Scaling-up Innovations

Impact lab ecosystem comprises:

- Public sector
- Regulatory bodies
- Innovators/Researchers
- Incubators/Accelerators
- Industry

Impact lab supports:

- Validation
- Usability, Feasibility, Acceptability Evaluation
- Deployment
- Evidence generation
- Market access and Scale-up of health technology innovations
- Conduct knowledge convenings, workshops and roundtables

Programmatic Areas:

Primary Healthcare - NCDs

AI enabled Stethoscope

Smart Spirometer

Maternal, Newborn and Child Health

Smart fetal monitoring

Non-invasive Hb testing

Infectious Diseases

Immunization & Cold Chain Devices

Climate X Health

Community Health Integrated Platform

Medical grade portable refrigerators

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Primary Care Technologies for NCDs

Burden of NCDs in Asia Pacific

63%

contribution of noncommunicable diseases (NCDs), including mental health conditions, to the overall disease burden*[1]

* Measured using the disability-adjusted life year (DALYs)

$47 trillion

the global cost of lost productivity from the four major NCDs** plus mental health conditions, between 2011 and 2030 [2]

** Cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases

NCDs, including mental health conditions, account for:

74%
of the world's deaths [3]

69%
of deaths in Southeast Asia [3]

89%
in the Western Pacific [3]

[1] *WHO, 2019. the Global Health Estimates 2019*

[2] *WHO. 2022. Invisible Numbers: The True Extent of Noncommunicable Diseases and What to Do about Them. Geneva.*

[3] *WHO. 2023. Noncommunicable Diseases: Key Facts. 16 September*

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Challenges in NCDs Management at Primary Care

Inadequacy of infrastructure

High cost

Scarcity of trained human resources

Limited access to specialist care

Poor adherence to medication

Lack of integration of health services

A strengthened, technology-enabled, and comprehensive primary health care system

- Provides cost-effective quality of care in resource-limited settings
- Achieves universal health coverage (UHC) and Sustainable Development Goals

Medical devices and innovative health technologies is critical in the fight against NCDs

[Global Action Plan for the Prevention and Control of NCDs (2013–2020, extended until 2030)]

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

Areas of Health Technology Interventions

Screening and early detection

Rapid point-of-care tests and digital health tools often enabled by AI –

- Improves access to early detection, and
- Allows timely interventions for better health management

EHR and health information exchange platforms

Streamlines patient data storage

Improves data management

Ensures accessibility and easily transferability of patient records

Assists health-care providers in enhancing overall quality of care

Wearable devices and remote monitoring

Enable patients to **track health indicators** and **share real-time data** with their health-care providers

Instant biofeedback, especially with NCDs, through continuous monitoring

Innovative technologies for health workforce training

Technology innovations drive change in the PHC system's workforce.

Digital tools will reengineer the health systems

Huge potential for enhancing the capacity of the health workforce

Telemedicine

Malaysia's **MYSejahtera –** initially a COVID-19 contact tracing app – has integrated teleconsultation services

India's **eSanjeevani** is enabling digital health equity and achieving UHC

Social media platforms are used in many countries for appointment scheduling, teleconsultations, and e-prescriptions

cessible to ADB Management and Staff. It may be shared ou

Scaling Technology Innovations: PATH South Asia Experience

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate

1. PATH TA to ADB: Technology for Noncommunicable Diseases and Mental Health

Landscaping of Existing Technologies in Asia Pacific

NO. 301
MAY 2024

ADB BRIEFS

KEY POINTS

- Major noncommunicable diseases, including mental health conditions, contribute to 74% of deaths globally every year, 69% of deaths in Southeast Asia, and 89% of deaths in the Western Pacific, thereby causing a high burden to the health systems and societal welfare.
- Strengthening primary health care with quality and affordable medicines and health technologies is crucial for achieving universal health coverage and Sustainable Development Goals. Integration of digital technology can also promote networks between primary care and specialist health-care providers.
- Technology-driven initiatives at primary care broadly include screening and early detection, telemedicine, wearable devices for remote monitoring, electronic health records and health information exchange platforms, and technologies for health workforce training.
- This repository of health technologies is intended as a guide for developing member countries in Asia and the Pacific to identify potential solutions that can bridge gaps in the continuum of care in noncommunicable diseases and mental health management at the primary care level.

ISBN 978-92-9270-713-2 (print)
ISBN 978-92-9270-714-9 (PDF)
ISSN 2071-7202 (print)
ISSN 2218-2675 (PDF)
Publication Stock No. BRF240278-2
DOI: http://dx.doi.org/10.22617/BRF240278-2

Integrated Primary Care Technologies for Noncommunicable Diseases and Mental Health in Asia and the Pacific

Vasoontara S. Yiengprugsawan
Jae Kyoun Kim
Michelle Apostol
Patrick Osewe
Human and Social Development Office
Asian Development Bank

Priyanka Bajaj
Divya Wahi Malik
Rachana Parikh
Swati Mahajan
India Country Office
PATH

INTRODUCTION

The Global Health Estimates 2019 of the World Health Organization (WHO) indicates that noncommunicable diseases (NCDs), including mental health conditions, contribute about 63% to the overall disease burden, measured using the disability-adjusted life year. The global cost of lost productivity from the four major NCDs—cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases—is estimated to be $30 trillion between 2011 and 2030, and increases to $47 trillion with the addition of mental health conditions.[1] NCDs, including mental health conditions, account for 74% of the world's deaths,[2] 69% of deaths in Southeast Asia, and 89% in the Western Pacific.

The burden from NCDs and mental health is rising rapidly in the Asia and Pacific region. A strengthened, technology-enabled, and comprehensive primary health care (PHC) system is a cornerstone in providing cost-effective quality of care in resource-limited settings and in achieving universal health coverage (UHC) and Sustainable Development Goals.

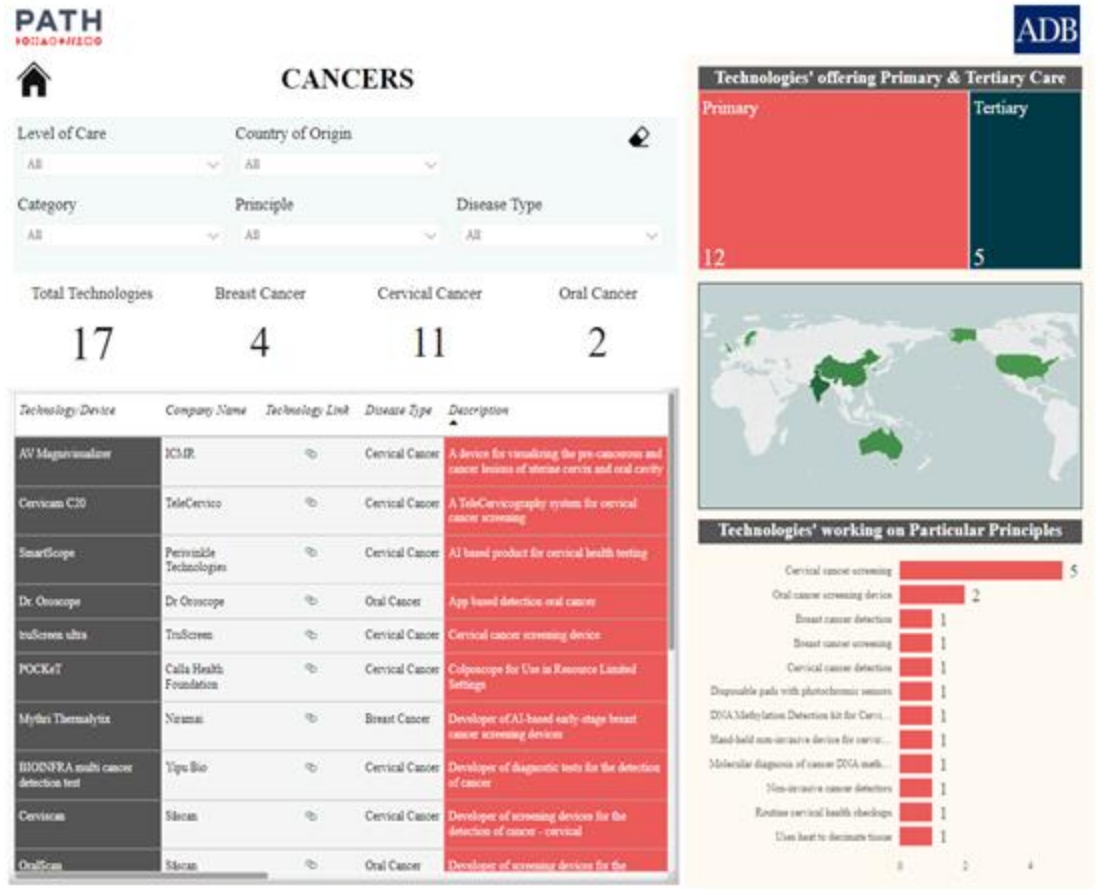
Note: In this publication, "$" refers to United States dollars.

Notes: This brief is part of the regional technical assistance of the Asian Development Bank (ADB), Strengthening Integrated Primary Health Care Management of Noncommunicable Diseases, under ADB's Human and Social Development Office, Sectors Group. Authors team acknowledges the review comments provided by ADB colleagues, Najibullah Habib and William Parr; as well as the overall assistance from the team's analyst, Sheela Rances; and the support of ADB's Department of Communications and Knowledge Management in the production process. The authors are also grateful to Gaurav Deshmukh, Joy Quitazol-Gonzalez, and Peter Sbirakos for their various inputs.

[1] WHO. 2022. *Invisible Numbers: The True Extent of Noncommunicable Diseases and What to Do about Them.* Geneva.
[2] WHO. 2023. Noncommunicable Diseases: Key Facts. 16 September.

ADB

Digital Directory of Available Technologies



PATH

ADB

CANCERS

Level of Care: All
Country of Origin: All
Category: All
Principle: All
Disease Type: All

Technologies' offering Primary & Tertiary Care

Primary 12
Tertiary 5

Total Technologies	Breast Cancer	Cervical Cancer	Oral Cancer
17	4	11	2

Technology/Device	Company Name	Technology Link	Disease Type	Description
AV Magnavisualizer	ICMR		Cervical Cancer	A device for visualizing the pre-cancerous and cancer lesions of uterine cervix and oral cavity
Cervicam C20	TeleCervico		Cervical Cancer	A TeleCervicography system for cervical cancer screening
SmartScope	Perivinkle Technologies		Cervical Cancer	AI based product for cervical health testing
Dr. Otoscope	Dr Otoscope		Oral Cancer	App based detection oral cancer
truScreen ultra	TruScreen		Cervical Cancer	Cervical cancer screening device
POCKeT	Calla Health Foundation		Cervical Cancer	Colposcope for Use in Resource Limited Settings
Mythri Thermalytix	Niramai		Breast Cancer	Developer of AI-based early-stage breast cancer screening devices
BIODNFRA multi cancer detection test	Yipu Bio		Cervical Cancer	Developer of diagnostic tests for the detection of cancer
Cervascan	Sikcan		Cervical Cancer	Developer of screening devices for the detection of cancer - cervical
OralScan	Sikcan		Oral Cancer	Developer of screening devices for the

Technologies' working on Particular Principles

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

‘Technologies Beyond Borders’ Innovation Challenge to Scout New Technologies

Winner

BRIOTA

NON-COMMUNICABLE DISEASES

SAVE™ from Briota

Point of care solution for Chronic Respiratory Diseases such as COPD, Post TB Asthma and ILD at primary health *care.*

FINALISTS

- NeoDocs
- Qure.ai
- Neopenda
- AiSteth
- BrainCapture
- Scanbo
- Population NCD AiHealth
- Alveofit

Feasibility Assessment

To evaluate the **usability**, **acceptability**, and **feasibility** of SAVE™ platform from an **end-user and programmatic perspective**.

The evaluation consisted of two broad activities:

1. Simulated use and interviews with health care workers in the different levels of healthcare facilities and in the different administrative zones of Bangladesh - to obtain feedback on the use experience and potential acceptability.

2. Stakeholder interviews with technical and programmatic stakeholders - to explore the potential feasibility and fit in the public health program in Bangladesh

o ADB Management and Staff. It may be shared outside ADB with appropriate permission.

2. Impact Lab: Leapfrogging Healthcare Challenges Through Technology Innovations

Most innovation hurdles arise later in the value chain. There are a limited number of players to support deployment readiness

Sufficient representation from technology business incubators, impact investors and angel investors

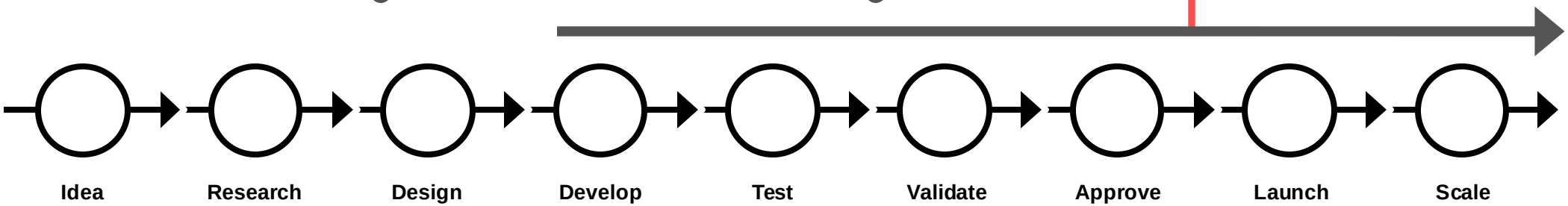
Incubators

Accelerators

Impact Lab: Product Development to Scale

Help innovators overcome late-stage hurdles to achieve scale:

- Deployment readiness
- Operational Validation
- Feasibility Assessment
- Market Access
- Integrating innovations with public health programs



INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

3. PATH Supported Deployments for NCD Screening and Management at Primary Health Care

By uniting global stakeholders including governments, health agencies, donors, and private sector entities, PATH provides a vital platform for advancing impactful solutions and driving positive change in public healthcare systems worldwide.

Connecting innovations to impact

Mythri Lite (Niramai Health Analytix) - Non-invasive Breast cancer screening

Alveoair (Alveofit)*- AI based Spirometer

qXR (Qure.ai) - AI based CAD for Chest X-ray

AiSteth (Ai Health Highway) - AI based Stethoscope

SAVE (Briota Technologies)* - PFT in a Box – Spirometer with Teleconsultation

Smartscope (Periwinkle Technologies) - Cervical screening

AH-MX (Acare Technology) – Handheld Pulse Oximeter

EzeCheck (EzeRx Health Tech)* - Non-invasive point-of-care Hb testing

Swoop (Hyperfine, Inc)* - Portable ultra-low field MRI for brain imaging

*Assessments supported by PATH

INTERNAL. This information is accessible to ADB Management and Staff. It may be shared outside ADB with appropriate permission.

The way forward

- **Promoting human-centered design approach for technology adoption and implementation**
- **Building a sustainable and fit-for-purpose health workforce**
- **Providing incentives for adoption**
- **Integrating the health information systems**
- **Strengthening the care continuum through telehealth and telemedicine**
- **Supporting public-private partnerships**
- **Understanding the prerequisites for introducing innovative technologies**
- **Investing in research and development**

INTERNAL. This information is accessible to ADB Management and Staff. It may

PATH

Finding of the landscape assessment published as ADB Briefs No. 301 May 2024
Link: https://www.adb.org/sites/default/files/publication/967041/adb-brief-301-integrated-primary-care-technologies.pdf

Digital Directory of Innovations in Asia-Pacific for NCDs and Mental Health at PHC Level path.org/our-impact/resources

TECHNOLOGIESBEYOND BORDERS. Compendium of innovations for noncommunicable diseases and mental health
https://media.path.org/documents/Compendium_of_innovations_for_NCDs_and_Mental_Health_LR.pdf

For more information: Dr. Priyanka Bajaj (pbajaj@path.org)

© All technology image credit to the respective manufacturers