# PATH

## Accelerating Innovations for Healthcare

November 2023

PATH

With expertise in science, health, economics, technology, advocacy, and  dozens of other specialties, PATH develops and scales solutions to strengthen health systems worldwide.


Vaccines

Diagnostics

Drugs


Devices

Health Systems

# About PATH

## A global nonprofit improving public health

**70+ countries**
where PATH is improving health

**150+ million lives**
improved every year by our work

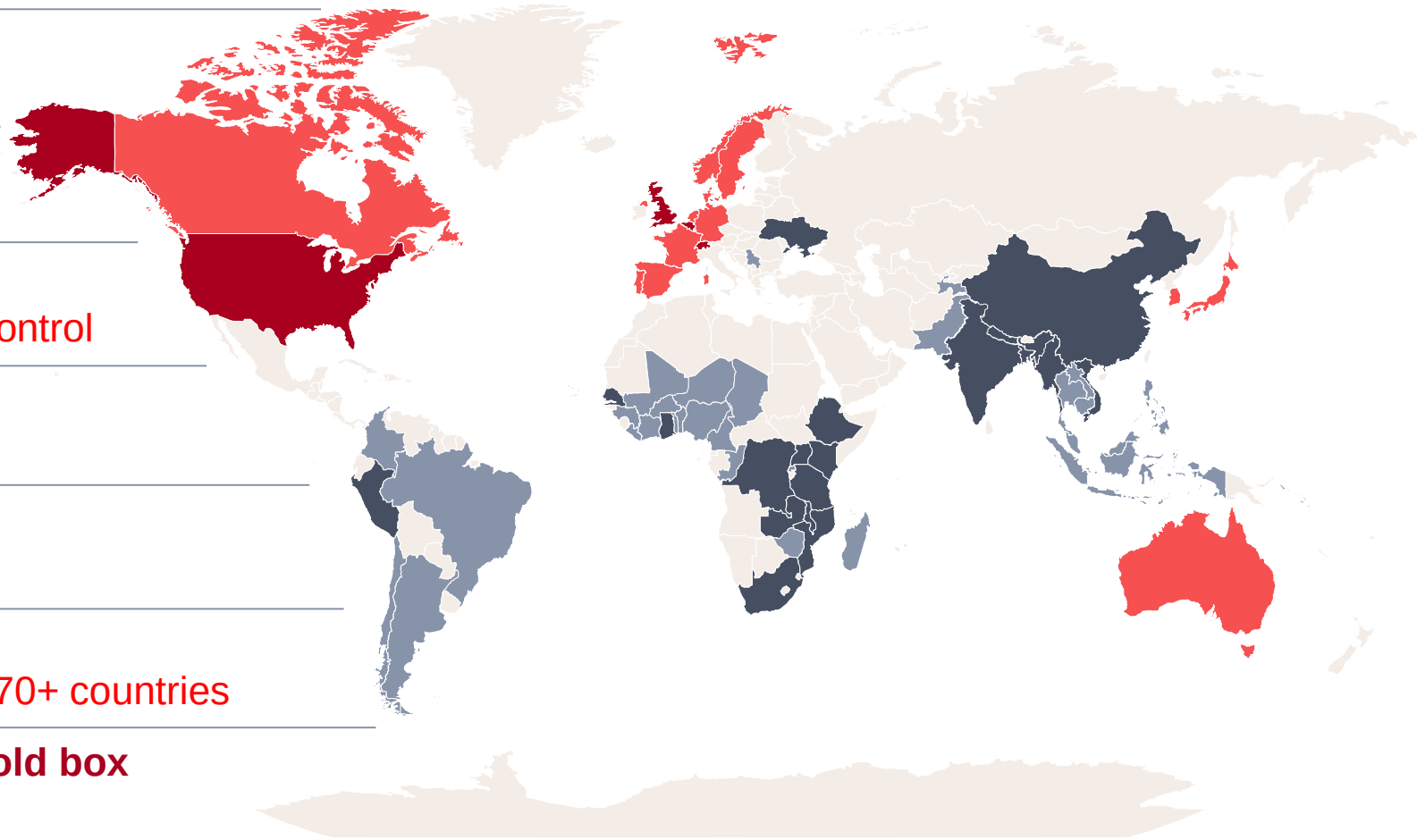
**7 million lives saved**
through PATH-pioneered malaria control

**7 billion**
vaccine vial monitors

**450 million people**
reached with fortified rice

**2000+ professionals**
Mobilizing support globally across 70+ countries

**World's first freeze-preventive cold box**
evaluation underway in Nepal



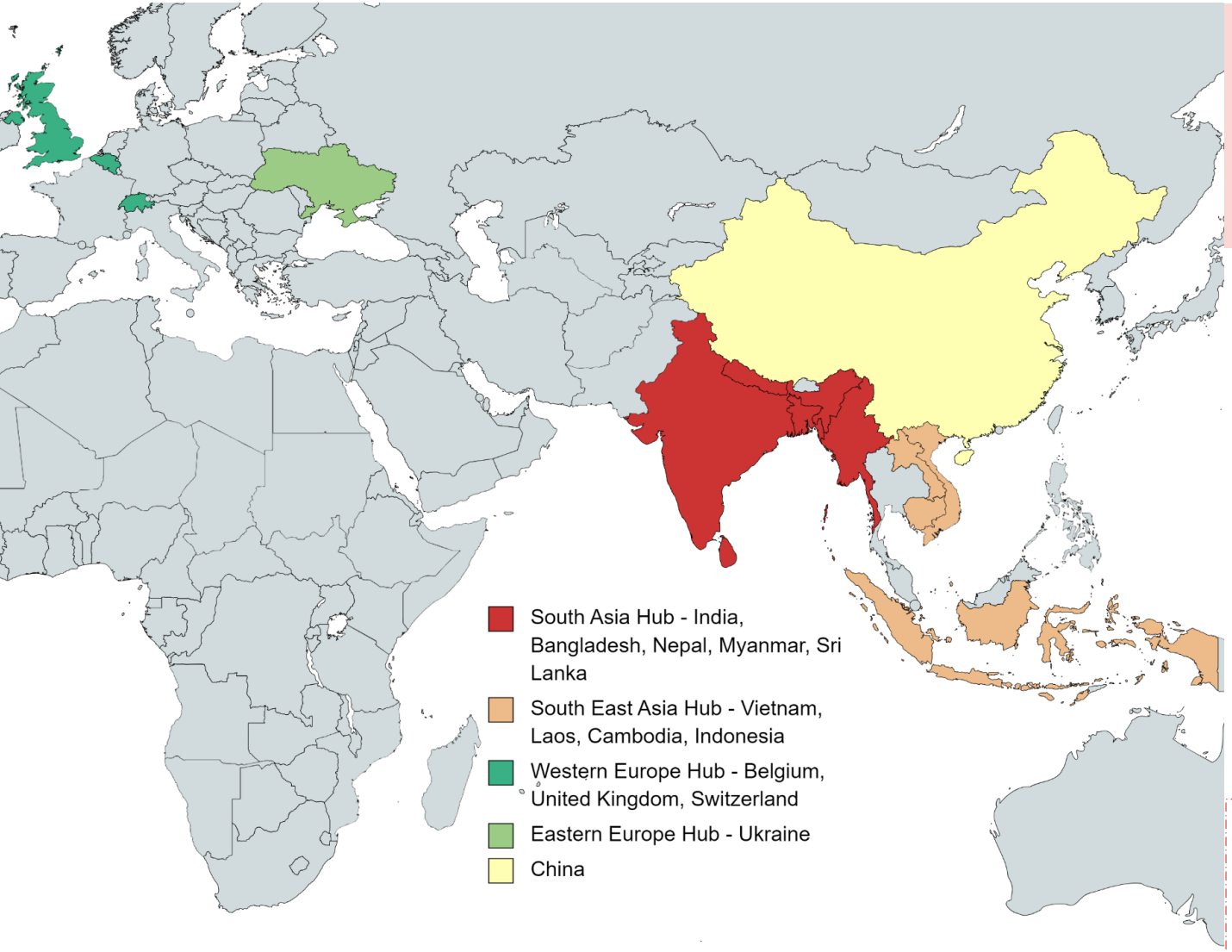
Country based projects, with PATH offices

Country based projects, but no PATH office

Global partnerships and donors, with PATH offices

Global partnerships and donors, but no PATH office

# PATH in Asia, Middle East and Europe (AMEE)




**PATH has been working alongside leaders, communities, and local changemakers to develop sustainable systems for tackling shifting health challenges in AMEE for 40+ years.**

Working across 14 countries

8 Offices

700+ Staff

50+ Active Projects

**Key support areas in public health include health systems strengthening, NCD management, infectious diseases elimination, strengthening maternal and child health, supply chains, digital health, among others.**

# PATH
# Impact Lab

Established in 2018, the Impact Lab provides end-to-end support for development of breakthrough technological innovations for addressing priority health gaps in low resource settings.



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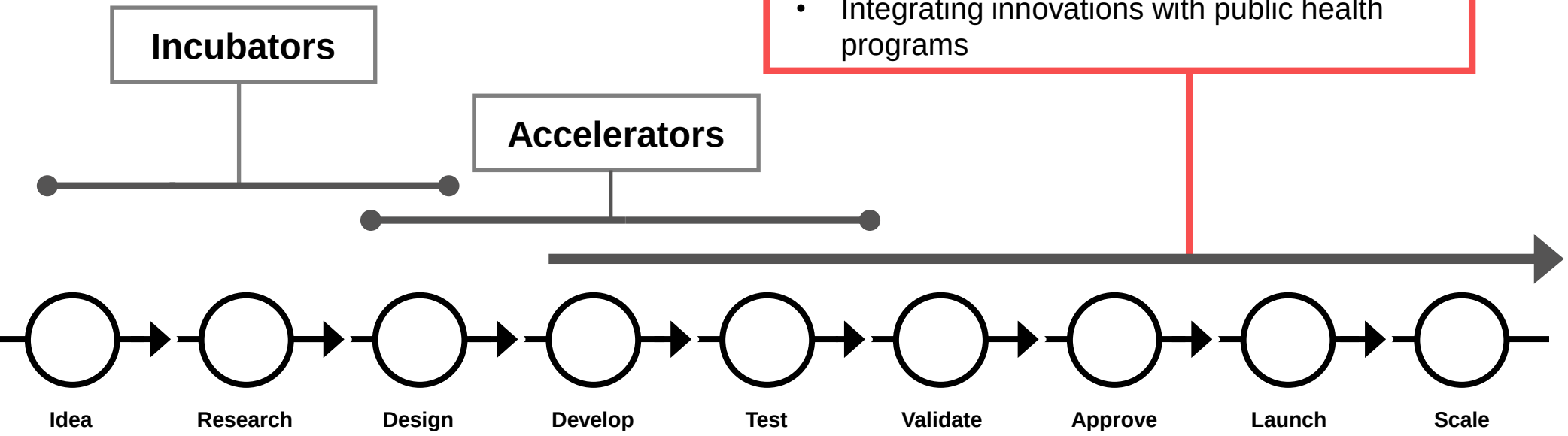
# Impact Lab: Bridging the Ecosystem Gap

**In India, most innovation hurdles arise later in the value chain. There are a limited number of players in late-stage support**

## IL: Product Development to Scale

Help innovators overcome late-stage hurdles to achieve scale:

- Scaling manufacturing
- Clinical studies, approvals, PQ, registrations
- Market Access
- Integrating innovations with public health programs




**100+**
Domain experts and mentors

**40+**
Innovative products

**10**
Knowledge platforms delivered

**800+**
Innovators interfaced

# Technologies Supported by Impact Lab: Quest Cohort 2018 -19

## Valetude Primus Healthcare

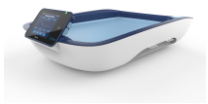
**Device upgrading existing microscope sensitivity to 90% for TB diagnosis through fluorescence imaging**

## Crimson Healthcare

**A Continent Ostomy Management Syster for improving the quality of life of ostomates**

## Sensivision Health Technologies

**Medical device to treat Hypoxic Ischemic Encephalopathy in Neonates**



## Module Innovation

**Device called USense for rapid, low cost and point of care diagnostic test for bacteria causing Urinary Tract Infections**


## Jeevtronics

**World's first hand cranked defibrillator which can be charged completely in a few seconds with easy cranking.**

## Alfaleus Technology

**Portable visual field perimeter, based on a VR headset, for vision testing for Glaucoma**

## Periwinkle Technologies

**Screening device for cervical health with biomarking hardware and automated image-based identification of abnormality**

## Bioscan Research

**Fast, portable, non-invasive brain hemorrh detector that can detect an intracranial bleed within 2 minutes**

## Yostra Labs

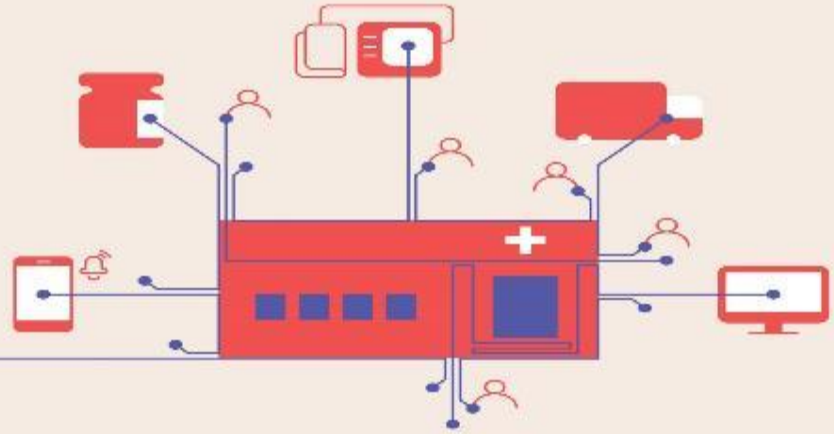
**Device for treatment of Diabetic Foot Ulcer based on Warm Oxygen Therapy**

## Shira Medtech

**Shira Clamp, a surgical instrument for making microvascular surgery easier, safer and faster**

# PHC Tech Challenge - 2021

**Vision:** To accelerate deployment of near-ready solutions in public health settings to improve access to primary health care in India and similar low- and middle-income countries

PHC Tech Challenge provides innovators with a platform to accelerate deployment of new, groundbreaking solutions in public health settings. This year we have a whopping **17 winners** across three health categories!

**MedTech**

- Sohum Innovation Lab
- Remidio
- AI Health Highway
- Med Aisha
- Niramai
- Scanbo
- Arogyam

**Digital Health**

- Khushi Baby
- Simprints
- Argusoft India Ltd
- Saathealth
- Delft Imaging
- Dimagi
- Nurithm Labs Private Limited

**Cold Chain**

- Tagbox Solutions Private Limited
- Bagmo Private Limited
- Qingdao Haier Biomedical Co. Ltd.

सत्यमेव जयते
Office of Principal Scientific Adviser to the Government of India

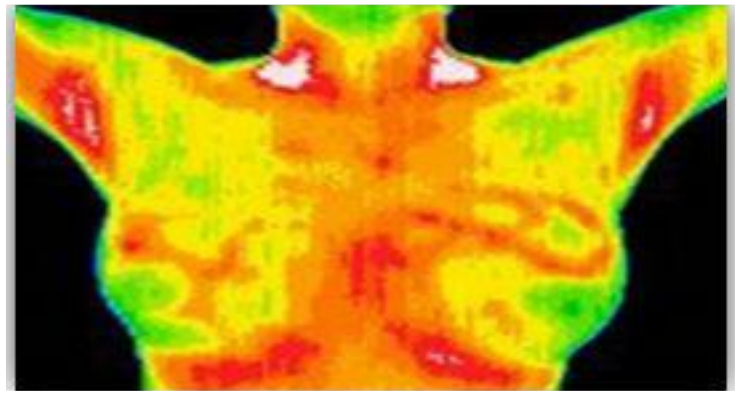
C-CAMP
Centre for Cellular and Molecular Platforms

SOCIAL alpha

STANFORD CENTER FOR INNOVATION IN GLOBAL HEALTH

STANFORD BYERS CENTER FOR BIODESIGN

# Strengthening Comprehensive Primary Healthcare



**Mythri** – Thermal Imaging and AI - Implementation pilot of mobile screening app particularly suited for GPs and gynecologists for early detection of breast abnormalities


**AiSteth** – Next-gen smart stethoscope that helps see the sound - on smartphone - detects anomalies with Ai/ML integration - Implementation pilot for screening of CVDs


**Alveofit –** PoC devices providing clinical solutions, by making spirometry testing easy and accessible at grass route level through the medical and paramedical staff

**Smart Scope** – Cervical health screening device with digital image storage capabilities and AI enabled risk level assessment to generate color coded report

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# Technologies in Maternal, Newborn & Child Health

**CAREMOTHER FETOSENSE**

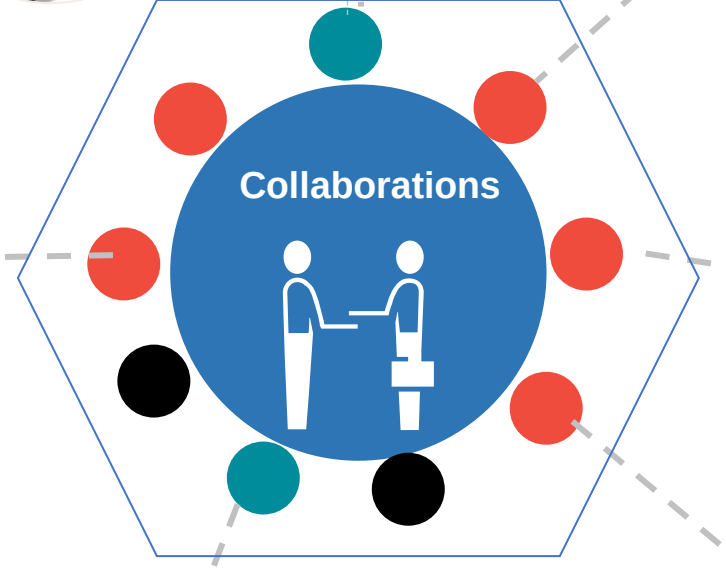
Fetal Heart Rate monitoring

**WRIG NANOSYSTEMS**

True Hb for anaemia detection

**SCINTIGLO**

Point of care solution for identification of Pre-eclampsia




**Bosch**

Vivaray: Non-invasive Hbmeter


**JANITRI**

Labour Monitoring

**EzeRx**

EzeCheck: Non-invasive Hbmeter

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# Clinical Validation, Operational Validation, Usability and Feasibility Testing for Introducing Technology Innovations in Health Systems: Some Recent Examples

# G6PD Testing: SD Biosensor, Republic of Korea


The SD Biosensor STANDARD G6PD
Based on an enzymatic colorimetric assay intended for the semi-quantitative measurement of G6PD activity and total hemoglobin (T-Hb) concentration.

## Need

Point-of-care (POC) quantitative G6PD tests that can be used in resource-limited settings can improve health outcomes on multiple fronts. This test differentiates between normal, intermediate, and deficient levels of G6PD activity, which facilitates the identification of glucose-6-phosphate dehydrogenase (G6PD) deficiency in individuals and the assessment of hemoglobin levels. Furthermore, this test is a handheld device which is easy to use and designed to provide fast turnaround compared to the other existing laboratory assays. This test guides appropriate clinical care of patients with *P. vivax* malaria who also have a hereditary deficiency of the G6PD enzyme.

## PATH's role

Assess the clinical performance and usability of a POC G6PD test for the detection of G6PD activity and hemoglobin (Hb) concentration to support WHO Prequalification of the test.

## Outcome

First quantitative G6PD point-of-care test available in a malaria-endemic country namely India. The successful performance and feasibility study can support the government to assess the implementation of POC testing in public health system.

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# Low field Portable MRI: Hyperfine Inc, United States

## Need

Brain MRI to assess early brain development in neonates and infants less than two years of age is critical to better understand how to optimize nutrition and growth during this formative time, in addition to diagnosis and management of birth asphyxia, sepsis, encephalitis, meningitis, and other neurological diseases. However, MRI is typically not widely available nor accessible in LMICs, and new technologies are often targeted toward adult markets and are not suitable for infant use.

## PATH's role

PATH is responsible for coordinating with the partners and study sites for the delivery of Hyperfine Research MR imaging devices along with the regulatory approvals for the import of the device. Neuroimages will be collected in 10 sites in LMICs over a 1-year period.


Hyperfine Inc
Portable, low-cost device using low-field MRI technology using permanent magnet.

## Outcome

- Devices to be imported and distributed to 3 facilities
- Training coordination for medical officers and paramedical staff for the use of Hyperfine – low field MRI machine
- determine the feasibility of obtaining high-quality neuroimaging that provides useful anatomic and functional brain data in healthy neonates and infants 0-2 years old

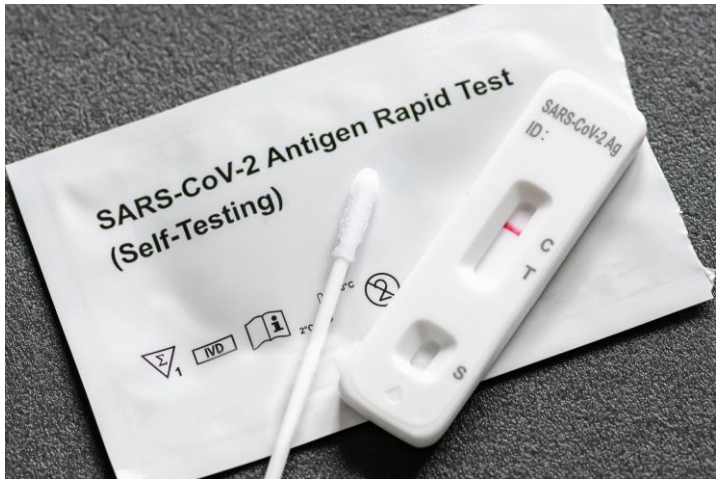
# Infectious Disease Self Testing: Global Solutions


HIV self testing kit

To generate evidence for decision-making, enabling environment and catalyzing the global market for HIVST


Hepatitis C Virus Self Testing

The acceptability and usability of HCVST among study population to inform policymaking in India.




C-19 Self testing

Evidence generation on acceptability, feasibility, cost and cost effectiveness of C-19 services and delivery models



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# Thank You