Innovations in Cost-Disruptive Tools for Diagnosis and Screening
Grand Challenges South Africa
Request for Proposals

Applications due no later than June 23, 2026, -23h59 South Africa Standard Time

*The **South African Medical Research Council (SAMRC)**, through its Grand Challenges South Africa programme and in partnership with **the Gates Foundation**, invites proposals for innovative, cost-disruptive diagnostic and screening solutions targeting high-burden diseases in low- and middle-income settings.*

*This initiative forms part of a joint global effort led by the Grand Challenges Network Partners (Gates Foundation, Grand Challenges India, and Grand Challenges South Africa) titled: **"Grand Challenges for Cost-Disruptive Novel Diagnostics and Screening Tools."***

SAMRC's participation in this initiative is supported through co-funding from the National Department of Health, Department of Science, Technology and Innovation, and the Gates Foundation, enabling an expanded investment into South African-led innovation.

Background
Diagnostics Access, Affordability, and Point-of-Care Use

Limited access to affordable and accessible diagnostic tools remains a major barrier to effective disease control and equitable healthcare delivery in low- and middle-income countries (LMICs). Nearly half of the global population lacks essential diagnostic tests, and access is almost nonexistent for up to 81% of people in the poorest settings, driving delayed or missed disease detection at scale.

Diagnostics and screening underpin clinical care, surveillance, and disease control, yet many tools remain too costly, infrastructure-dependent, or operationally complex for use. The World Health Organization's (WHO) ASSURED principles, as well as the experience with malaria rapid diagnostic tests (RDTs) and community antigen testing during COVID-19, demonstrate how decentralization, low complexity, and affordability can expand reach and strengthen surveillance. Where mature, widely deployed diagnostic classes already meet programmatic needs, pathway-changing innovation is more likely to yield impact than incremental improvements to established formats.

Beyond lowering consumable costs, the economic model must support high-volume screening through very low per-test costs and rapid throughput. Durable device- or platform-based solutions that use minimal or no consumables and amortize capital costs across large volumes, enabling near-zero incremental cost per test, can be transformational. Such approaches may draw on cross-sector technologies including imaging, acoustics, breath or environmental analyzers, contactless physiological monitors, or modular hardware with interchangeable sensing or analyte capabilities and minimal consumable inputs. In some contexts, appropriate use of artificial intelligence (AI) may enhance performance, enable task-shifting, automate quality control, and reduce operator variability, supporting high-throughput deployment in real-world LMIC workflows.

Informed by stakeholder consultations and aligned to the national health priorities, the SAMRC has identified three priority areas for investment under this initiative: tuberculosis (TB), HIV and related diagnostics, and Maternal, Neonatal, and Child health (MNCH) and Women's Health.

The Challenge

This Grand Challenge seeks cost-disruptive tools for diagnosis and screening, defined as devices that amortize capital to near-zero incremental cost and consumable $1-class tests that materially reset the cost curve in LMICs while meeting real-world deployment constraints (see **Table 1**). For screening applications, cost targets should be interpreted per person screened; for diagnostic or monitoring applications, per test performed. Accordingly, this initiative aims to translate these cost-disruptive concepts into scalable solutions across high-priority disease areas.

The SAMRC seeks to support projects that demonstrate clear pathways to translation and impact within South Africa and similar LMIC settings. Particular emphasis will be placed on innovations that address local health system needs, strengthen research and innovation capacity, and enable local or regional manufacturing. Furthermore, *we* are particularly interested in transformative, high-risk, high-reward innovations that fundamentally rethink how diagnosis or screening is performed, including novel sensing modalities, software-defined diagnostics, and AI-enabled or software-only approaches that materially change performance, cost structure, or deployment models.

Table 2 outlines topic areas and use cases that are in scope for this RFP. However, applicants are not required to demonstrate existing disease-specific validation data for these use cases. Cross-sector or cross-disease innovations are explicitly encouraged. For example, platforms or technologies initially developed for non-health, non-diagnostic, or different disease applications are eligible, provided the proposal includes a clear, technically credible, milestone-based plan to adapt the technology to at least one relevant use case in **Table 2**.

The Challenge aims to:

- Source cost-disruptive devices and $1-class diagnostics for the priority conditions listed in Table 2, including cost-enabling manufacturing innovations.
- Advance cross-sector, platform, and multimodal solutions to enable scalable screening, same-visit decision-making, or reconfigurable use cases.
- Build a staged portfolio spanning high-risk early concepts to later-stage adaptation and scale, using milestone-based awards aligned to clear technology readiness level (TRL) criteria.

We are looking for proposals that:

- Clearly articulate the disease focus area and intended use case from Table 2, especially transformative approaches with a technically credible adaptation pathway where disease-specific validation does not yet exist.
- Describe operational feasibility for LMIC settings (see Table 1), including explicit attention to high-throughput screening workflows, where applicable.
- Include a feasible workplan and milestones appropriate to the maturity of the technology.
- Provide clear evidence to justify the requested funding level.

- Present a credible pathway to population-scale economics (approximately US$1 or near zero incremental cost), including key assumptions. For platform-based solutions, describe how multiple use cases can improve economics and sustainability.
- Commit to independent evaluation participation and appropriate ethical, regulatory and Gates Foundation open access policy, and the Intellectual Property Rights from Publicly Financed Research and Development Act 51 of 2008 (IPR Act (No. 51 of 2008).

Table 1: Cross-Cutting Design Criteria	
Criterion	**Expectation**
Rapid results	Provides actionable results during a single patient encounter.
Ease of use	Operable by minimally trained users in decentralized settings.
LMIC robustness	Functions reliably in low-resource environments (heat, dust, intermittent power, limited infrastructure).
Cold-chain independence	Minimizes or eliminates cold-chain requirements through thermostable reagents and temperature-stable device design.
Consumables minimization	Reduces reliance on disposables and favors durable, reusable hardware architectures with negligible incremental cost per screening.
Cost	Demonstrates a credible pathway to approximately US $1 per test or near zero incremental cost per person screened for devices.
Transformative innovation	Incorporates novel architectures such as multimodal sensing, high-order multiplexing, software-defined diagnostics, AI-enabled interpretation, or software-only approaches.
Additional Desirable Attributes	
Attribute	**Expectation**
Multi-disease capability	Enables testing for multiple diseases from a single platform or workflow
Data traceability and surveillance integration	Ensures diagnostic results generated at the point of care are digitally structured, traceable, and interoperable with national and global surveillance systems, enabling secure transmission from test execution through aggregation and public-health use.
Modularity	Supports expansion to additional analytes or conditions without major redesign.
Environmental sustainability	Minimizes environmental impact through biodegradable or recyclable consumables and responsible end-of-life disposal strategies, and climate change-related measures to be described and reported where feasible.

For this challenge, we are not seeking proposals that:

- Are implementation, procurement, delivery, or roll-out projects without substantive R&D or primarily consisting of large clinical trials or definitive field studies (limited, development-oriented evaluation may be appropriate).
- Are discovery-only biomarker projects without a clear pathway to a deployable prototype within three to five years, or that propose only incremental modifications of well-established approaches without a plausible step-change in cost, scalability, or screening value.
- Request funding levels that are not supported by commensurate technical readiness, feasibility evidence, and a credible pathway to validation.
- Lack a plausible pathway to meet cost and operational constraints, including reliance on expensive consumables or complex infrastructure without a credible mitigation plan.
- Are unwilling to share prototypes, reagents, and/or data as needed for third-party assessment under appropriate governance and legal arrangements.

Award Structure

To accommodate different stages of innovation, this Challenge has multiple award sizes commensurate with technology maturity. For example:

- **Option A:** Smaller proof-of-concept awards (up to R 5 million for each selected project, with a grant term of up to 24 months) to support early feasibility and prototyping, inclusive of technically risky, out-of-the-box concepts.
- **Option B**: Mid-level awards (up to R 8 million for each selected project, with a grant term of up to 24 months) to support product refinement and early validation.
- **Option C**: Larger awards (one award of up to R16,5 million, with a grant term of up to 36 months) to support mature platforms or advanced adaptation toward verification and field readiness, with commensurate evidence of technical readiness, feasibility, and a clear pathway to validation.

Final award amounts, number of awards at each level, and duration will depend on proposal quality and strategic fit. Applicants should request funding aligned with the scope and maturity of their proposed work and include a clear milestone plan proportionate to the support requested.

Funding will be subject to the **SAMRC Terms and Conditions of funding**.

Eligibility

This initiative is open to investigators or innovators from South African universities and other public research organizations, non-profit organizations, and for-profit companies registered in South Africa. The institution or organization of the lead investigator or innovator needs to be registered in South Africa. Collaborators from international organizations are eligible, except teams based in countries where cooperation with South Africa is suspended through ministerial directives. Projects must be based in South Africa and led by principal investigators who are citizens or permanent

residents working at eligible institutions or organizations registered in South Africa. Applicants are encouraged to build upon existing or complementary projects, studies, or trials, and to engage in collaborations with other institutions.

Applications from teams led by women and/or researchers at **historically black universities** or involving collaboration with women-led or **historically black universities**, as well as academic-private sector collaborations are strongly encouraged and will be prioritized. Only individuals who are South Africa citizens or permanent residents applying through a legally recognized corporate entity registered in South Africa are eligible.

Individuals and organizations classified as individuals for U.S. or R.S.A. tax purposes are not eligible. All applicants are expected to comply with the South African IPR Act (No. 51 of 2008) and the Gates Foundation's global access requirements.

Table 2: In-Scope Topic Areas, and Opportunities	
Topic area	**Tuberculosis (TB)**
Background	Tuberculosis requires highly scalable and extremely low-cost tools (including assays and durable device-based technologies) for both community-level, symptom-agnostic screening and accessible near-patient diagnosis.
Opportunity	A. Community and primary-care symptom-agnostic screening tools (non-sputum approaches prioritized).
	B. Diagnostic tools or devices aligned with WHO TB diagnostic TPPs, including true POC tests that enable rapid confirmation outside centralized laboratories.
	Additional information: TB
Topic area	**Human Immunodeficiency Virus (HIV)**
Background	Sustained epidemic control hinges on decentralized viral-load (VL) monitoring, timely early infant diagnosis (EID), and reliable identification of advanced HIV disease (AHD).
Opportunity	A. Near-POC or decentralized quantitative HIV viral-load testing.
	B. POC tool for EID for infants <18 months to enable same-visit diagnosis and treatment initiation.
	C. Near-POC CD4 or AHD triage tests to identify people needing the AHD package of care.
	Additional information: HIV
Topic area	**Sexually Transmitted Infections (STI) and Women's Health**

Background	Syndromic management leaves many STIs undetected and drives overtreatment. HPV screening and triage that enable same-visit screen-and-treat pathways are additional high-impact prevention priorities.
Opportunity	A. POC diagnostics for gonorrhea (NG), chlamydia (CT), and trichomonas (TV) in symptomatic adults.
	B. POC diagnostics for active adult and congenital syphilis with ≥90% sensitivity ≥95% specificity in populations, including neonates to inform treatment.
	C. POC tools for high-risk HPV primary screening, with ≥95% sensitivity for CIN2+ and ≥99% specificity for ≤CIN 1, enabling same-visit screen-and-treat for cervical precancer.
	D. Platforms supporting modular expansion to additional STI analytes (e.g., BV) and programmatic throughput.
	Additional information: STI
Topic area	**Maternal and Newborn Health**
Background	Timely detection of pregnancy complications, (e.g., fetal growth restriction, preeclampsia, gestational hyperglycemia, and anemia) and neonatal infections are essential to prevent avoidable maternal and neonatal morbidity and mortality.
Opportunity	A. Preeclampsia screening and diagnostics: biomarker-based approaches such as quantitative PlGF/sFlt-1 ratios or retinal biomarkers measured with tools such as fundoscopy.
	B. Cuffless or low-burden blood pressure measurement approaches that reduce reliance on traditional cuffs and consumables and enable earlier detection and management of hypertensive disorders across routine antenatal care (ANC).
	C. Simplified, non-fasting or minimally invasive new biomarker-based approaches for gestational hyperglycemia detection/monitoring.
	D. Non-invasive, device-based gestational glucose monitoring approaches that eliminate fingersticks and consumables, enabling scalable repeat or longitudinal monitoring through durable, low-cost sensing platforms suitable for routine ANC.
	E. Rapid POC tools for neonatal sepsis triage to guide treatment escalation decisions and/or identify neonates who can safely avoid or step down from intensive care.
	F. Tools for earlier identification of infectious disease outbreak clusters in neonatal intensive care units (NICU).
	Additional information: Maternal and Newborn Health

Application Submission
All applications must be submitted **directly through the Grand Challenges South Africa online portal (RedCap)**: GC_NovelDiagnostics. (Submissions via email or any other method will **not** be accepted).

Applicants are required to complete the following within the portal:

1. **Project Proposal** – Complete all registration fields, including the **Applicant Profile.**
2. **Uploads** – Applicants must provide the following documents:
    - **Full Proposal** (Signed by the institution) - Upload as a Microsoft Word or PDF file using the **official proposal template**.
    - **Budget** – Upload as a Microsoft Excel or PDF file using the **official budget template.** provided in the RFP.
    - **Curriculum Vitae (CVs)** – Upload CVs for the Principal Investigator and all Co-investigators.

Submission Requirements:

- Proposals must comply with all formatting and file size limits specified in the RFA.
- Applications must be complete, responsive, and submitted by the deadline.
- Applicants must meet all SAMRC eligibility criteria (e.g., South African PIs, citizens, or permanent residents).

For questions regarding the RFP, selection criteria, or application instructions, applicants can contact **GIPD RFA GIPD.RFA@mrc.ac.za** for South Africa-specific guidance.

Budget Guidelines

- Budgets submitted must include all applicable taxes.
- South African applicants must prepare budgets in South African Rands (ZAR).
- All direct line items must be auditable.

Allowable costs:

- Personnel: Soft-funded posts for individuals working on the project (e.g., post-docs, students, technicians, project managers) will be funded, provided an accurate estimation of time allocation is provided, and they are not already funded by other means.
- Consultants: Local and/or foreign consultants providing a service or capability not available among project partners but essential for the completion of project deliverables.
- Equipment: Partial or full support for the cost of equipment directly required for the project. Budget limitations may apply.
- Supplies, consumables, and other direct laboratory or research costs.
- Sub-contracts: Any local or international organization providing essential services or capabilities not available among project partners.
- Travel and accommodation directly related to the project's execution.

Non-Allowable Costs:

- Salaries of permanent or fixed-term staff, e.g., tenured staff, professors, etc. that are fully covered by the host institutions.
- Purchase or construction of buildings.
- Rental costs for space owned by the institutions participating in the project.
- Recruitment or retrenchment costs for staff.

- Purchase of office furniture.

Review and Evaluation of Proposals

Eligibility Screening:

- All applications will be screened by SAMRC and Grand Challenges funding partners for completeness and responsiveness to the call and its administrative requirements and provisions.
- Incomplete or non-responsive applications, or those submitted after the deadline, will not be processed further.

Evaluation:

All eligible applications will be reviewed by local and international experts, considering at least the following criteria:

- **Significance / Relevance / Impact:** Potential impact on public health outcomes.
- **Approach:** Innovation, rationale, work plan, and cost-effectiveness.
- **Team:** Size, reach, experience, and complementarity of project partners.
- **Environment:** Availability of infrastructure, equipment, and resources; unique features of the project environment, subject populations, or collaborative arrangements.

Timeline

Milestone	Date
RFP Launch	12 May 2026
Application Close	23 June 2026, 23h59 SAST
Review & Approvals	July – August 2026
Notification of Awards	October 2026
Anticipated Project Start	December 2026

Additional Information

- Ethics and regulatory approvals must be obtained before disbursement.
- Funders may verify information provided by applicants.
- The SAMRC takes no responsibility for costs incurred in preparing applications.
- Funders may amend or withdraw the RFP at any time.
- Successful applicants may be asked to address reviewer comments or negotiate budgets.

POPIA Compliance

As of the 1st of July 2021, the new Protection of Personal Information Act (POPIA) came into full effect (see https://popia.co.za / for full details on the act). The law is designed to protect how all juristic persons use, store and process data. The SAMRC as a responsible statutory science council complies with POPIA. The SAMRC will receive personal information through the applications submitted to the SAMRC in response to this RFA. The personal information requested on the application template is necessary for the SAMRC to fully evaluate the application for funding. This information will be shared with external reviewers, where applicable, local and international funders, the relevant steering committee as well as the SAMRC management for the purposes of

processing the application. The SAMRC will process this personal information strictly in accordance with POPIA. The SAMRC undertakes specifically to process the personal information on the basis that (a) it was provided voluntarily and (b) the information will be processed only as far as may be necessary and within the limitation and ambit of the purpose of evaluating the application for funding (i.e., the purpose for which the personal information was received). The SAMRC confirms that it is lawfully processing the information since the purpose of processing is to seek quality applications for funding which the SAMRC is mandated to do in terms of Section 4 of the SAMRC Act 58 of 1991, thus the SAMRC is fulfilling its legislated and lawful mandate, and strategic objectives as provided for in the SAMRC Act.

By submitting your application to the SAMRC, you acknowledge and agree to the use of your personal information as outlined above. Should you not approve of such use of your personal information then please refrain from submitting an application.

Contact for queries:
GIPD RFA GIPD.RFA@mrc.ac.za