



Harnessing Artificial Intelligence for HIV: Breakthrough or Buzzword?

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Declaration:

I am not an AI expert



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Session Outline

- **AI in HIV Programming**
- **When AI Becomes a Risk**
- **Investing in AI**
- **Rebuild, Rethink, Rise with AI**

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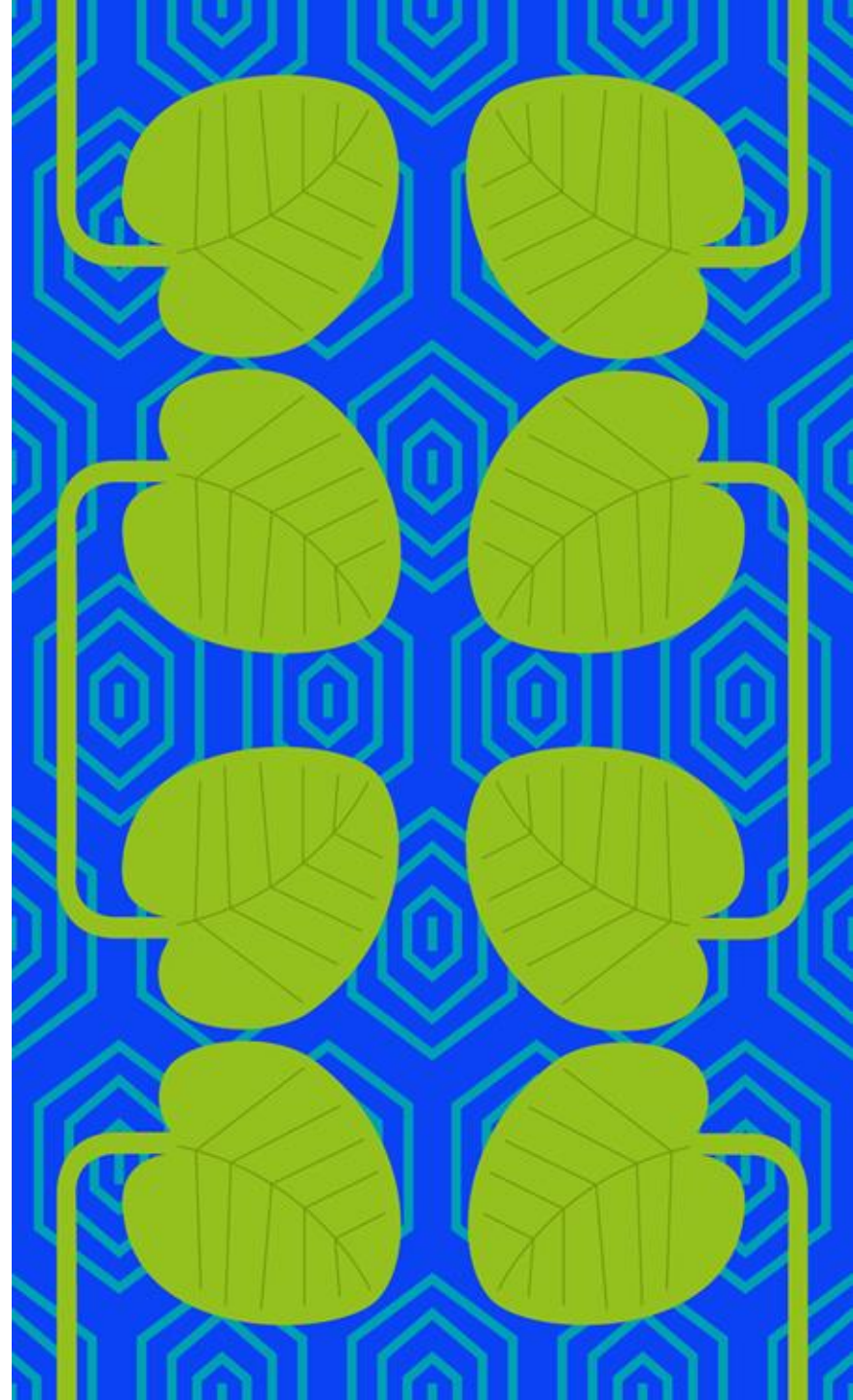


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What is AI

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Types of AI



See **Computer Vision**

Computer aided detection for
TB Screening
HealthPulse AI - HIVST



Hear **Automatic Speech** **Recognition**

Ambient AI scribes



2-way Communication

Language Models
(LLM and NLP)
AI Chatbots



Reason
Big Data Analytics
Supply chain forecasting,
predictive risk scoring

Artificial General Intelligence (AGI) & Multimodal AI

Using multiple AI types together produces richer, more human-like outputs



Ada Lovelace 1815-1852

The AI You Didn't Notice ~200 years in the making

Not one technology, but a stack of capabilities that, together, change people's daily experiences

What we call it

What it actually is

Google Maps route suggestion	Predictive optimisation algorithm
Autocomplete on your phone	Natural language prediction model
"Going paperless" at the clinic	AI-led point-of-care digitisation
Automated SMS/Calls to missed patients	AI-driven patient communication
Treatment interruption priority list	Predictive ML on adherence data
Stock-out alert	AI-driven supply chain forecasting

AI in HIV Programming: A Longer History Than the Current Debate Suggests



Algorithmic Modelling

- UNAIDS Spectrum / EPP
- Epidemic projection in 170+ countries
- Powers PEPFAR & Global Fund allocations

Brown T et al., AIDS 2014; 28(S4):S415

1990s

mHealth & Adherence AI

- WeTel SMS platform (Kenya/Uganda)
- ML-based defaulter tracing algorithms
- OpenMRS clinical decision support

Lester RT et al., Lancet 2010; 376:1838

2010s

LLMs & Foundation Models

- Chatbot-driven adherence support
- Computer vision for TB/HIV screening
- NLP on national EHR datasets at scale

Rajpurkar P et al., Nat Med 2022; 28:31
Obermeyer Z et al., Science 2019; 366:447

Now

2000s

Supply Chain Forecasting

- USAID / GHSC-PSM ML forecasting
- ARV demand prediction, 40+ countries
- Documented reduction in stockout rates

USAID / GHSC-PSM Annual Report, 2023

2020s

Integrated Decision Support

- PEPFAR DATIM predictive analytics
- Jembi record deduplication (South Africa)
- AI-powered early infant diagnosis (Nigeria)

PEPFAR, 20th Anniversary Report, US Dept of State, 2023
Rajpurkar P et al., Nat Med 2022; 28:31

The current generation of large language models represents an acceleration, not the origin of AI in the HIV response



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Moving from Pilots to Implementation at Scale

Where have all the innovations gone?

Promising results at small scale

No transition plan. No budget line.



Funding ends. Champion leaves.

No transition plan. No budget line.

Innovation shelved. Patients lose.

The cycle repeats.

The Innovation Graveyard





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"Pilotitis": When Innovations Fail to Scale

WHAT WAS SAID

WHAT ACTUALLY HAPPENED

"The pilot worked"

It worked for 200 patients with a dedicated research team

"The data is there"

The data existed. No one acted on it

"Staff were trained"

Training happened once; staff turned over; knowledge left

"The community wants it"

We asked the community after we built it

"Pilotitis" isn't a technology failure. It's a system failure. Three root causes- every time:

1

Designed for a grant.

No support for scale or sustainability

2

Bolted on, not built in.

Technology added as a parallel system.

3

Data collected, not used.

Used for reporting and not for decision making



Lessons From Past HIV Innovations that Succeeded:

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What Separates Breakthroughs from Buzzwords?

ART + PEPFAR 1.0

Political will, sustained financing, system-embedded delivery. 21m+ on treatment.

AI needs the same: not a tool, but infrastructure with a mandate.

Elimination of Vertical Transmission

Task-shifting, simplified protocols, community integration drove vertical elimination.

AI tools must be equally embedded, not parallel systems.

U=U

HPTN 052 and PARTNER proved viral suppression prevents transmission. Program fidelity still lags behind the science. Science is not implementation.

The same risk applies to AI.

Breakthroughs happen when: Structural Enablers, Science, Standards AND Systems Align



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The Other Side of AI

The Risks We Can't Ignore

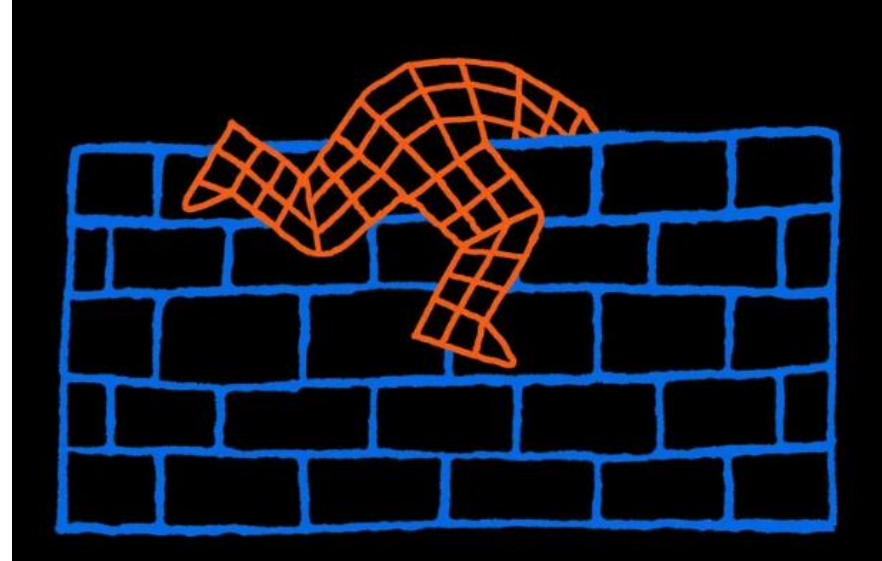
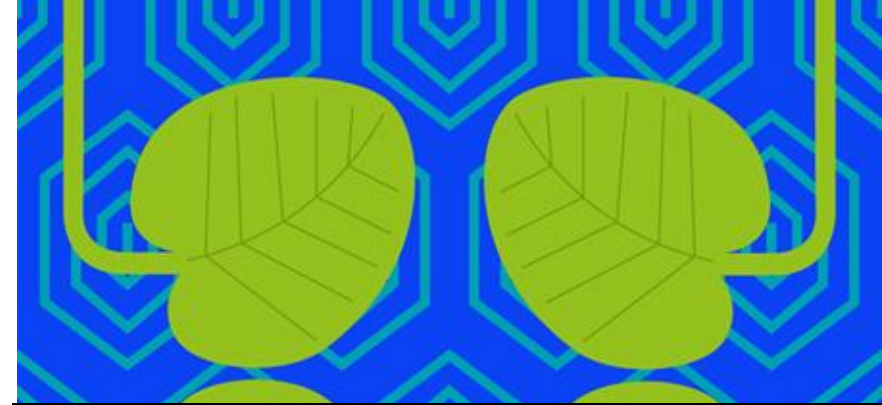
Science & technology | Outside the box

Why the OpenAI escape is the most worrying AI mishap yet

Containing the technology is getting harder

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The Economist



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Navigating AI Risks:

Risk is not avoided by avoiding AI

Governance

Who sets the guardrails?



Bias

Skewed data, skewed outcomes



Inequity

Who gets left behind?



Engagement

Built without its users



Privacy

Whose data, whose control?



Trust

Hard to earn, easy to lose





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Governance:

Who sets the guardrails? Who owns the AI tools applied to public health data?

The gap: AI is being deployed faster than it is governed.

- Governance should be defined prior to deployment and not retrofitted after an incident
- Risk of void that can be exploited in the current competitive environment to scale quickly, commercial interests and lack of AI literacy

Governance supports:

- Accountability – clear ownership of every AI-informed decision, and who answers when it gets something wrong.
- Decision rights & Oversight – an approval gate, audit trail, human checkpoints to approve, monitor and, where needed, withdraw a tool.
- Standards – alignment to recognised norms: WHO AI ethics guidance, regional policy makers, national data laws



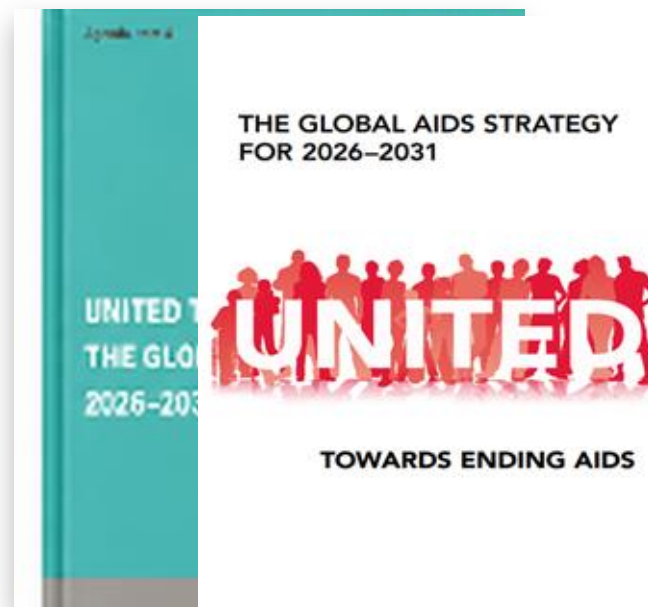
Key AI & HIV Policy Documents

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WHO Guidance

Global guidance on the ethics and governance of AI for health. Emphasizes human rights, transparency, accountability, and public benefit.



Global AIDS Strategy 2026–2031

Sets the global HIV agenda for 2026–2031. Prioritizes sustainability, equity, community leadership, and access to innovation.



2026 UN HLM Political Declaration

Political declaration adopted by UN Member States to guide the next phase of the HIV response. Includes commitments on rights, equity, digital health, and AI.

The guiding documents already exist — as advocates, we should lean into their broader use to govern how AI is introduced and scaled across the HIV response.

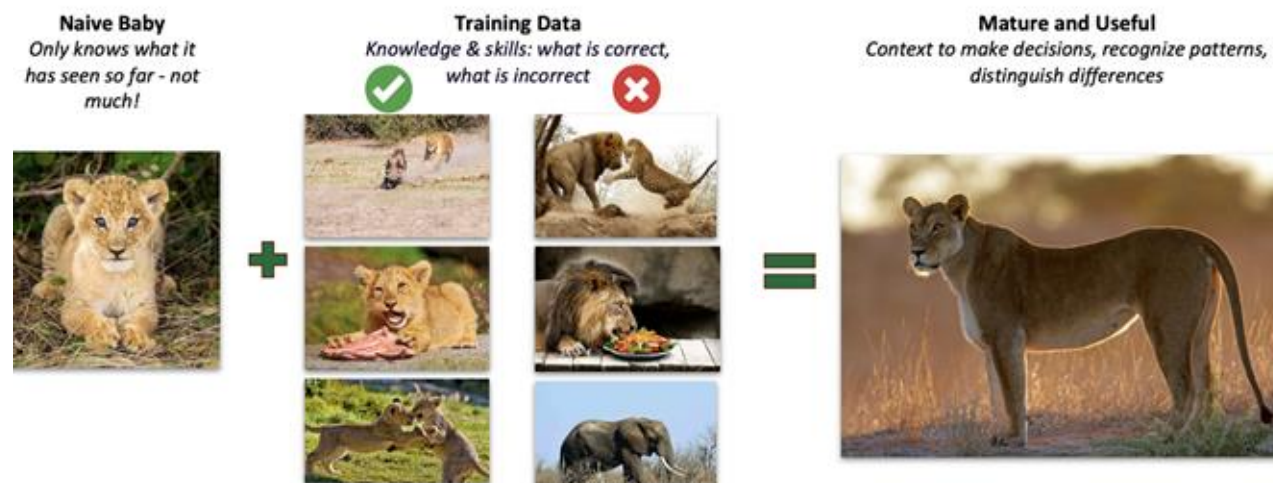


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Bias

Skewed data, Skewed outcomes

- **Biased data produces biased AI** – a model only learns from what we feed it. Train a lion on the wrong data and it forgets how to be a lion.
- **In the HIV response:** a tool built mainly on data from men or high-income settings can under-serve women, adolescents and key populations.
- **The hard question:** how do we teach AI to recognise its own biases when we, as humans, struggle to recognise our own?
- **What reduces bias:** representative, local data; community input; bias audits and validation before scale-up; and human oversight of every AI-informed decision.



Geoffrey Hinton – Nobel Prize recipient argues that we must teach AI systems to have a “nurturing” attitude towards humans; like a mother towards an infant



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Inequity

Who gets left behind?

Inequity is a design choice, not an inevitability.

- **Same tool, opposite outcomes** – how AI is built, priced and governed decides whether it includes people or leaves them behind.
- **Who gets left behind:** rural communities, women, adolescents and key populations – least represented in data and least able to reach the device, connectivity or language a tool assumes.
- **The last mile fails first:** excluding those at highest risk undermines our 95-95-95 and equity.
- **Design for inclusion:** build for low-bandwidth and local languages, co-design with communities, use equitable access and funding models, and track disaggregated equity metrics.

Endalamaw et al. *BMC Public Health* (2024) 24:1815
<https://doi.org/10.1186/s12889-024-19329-5>

BMC Public Health

RESEARCH

Open Access

Explaining inequity in knowledge, attitude, and services related to HIV/AIDS: a systematic review



Aklilu Endalamaw^{1,2*}, Charles F Gilks¹, Fentie Ambaw², Wondimeneh Shibabaw Shiferaw^{1,3} and Yibeltal Assefa¹

Sanchez et al. *International Journal for Equity in Health* (2025) 24:123
<https://doi.org/10.1186/s12939-025-02481-8>

International Journal for Equity
in Health

RESEARCH

Open Access

Systemic inequities, dignity, and trust in the context of HIV care: a qualitative analysis



Amanda L. Sanchez^{1*}, Chynna Mills^{2,3}, DeAuj'Zhane Coley⁴, Katelin Hoskins⁵, Florence Momplaisir^{6,9}, Robert Gross^{6,7}, Kathleen A. Brady⁸ and Rinad S. Beidas³



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Engagement

Built without its users

Caswell G et al. *Journal of the International AIDS Society* 2021, **24**(S3):e25724
<http://onlinelibrary.wiley.com/doi/10.1002/jia2.25724/full> | <https://doi.org/10.1002/jia2.25724>



COMMENTARY

The continuing role of communities affected by HIV in sustained engagement in health and rights

Georgina Caswell¹, Vuyiseka Dubula², Solange Baptiste³ , Helen Etya'ale^{3,4} , Omar Syarif⁴ and David Barr⁵ 

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“...neither HIV nor other health and development targets can be met if [community members’] contributions are not adequately recognized, valued and funded.”

- HIV has a strong tradition of involvement of community activism and involvement.
- Yet, we have had to progress from Greater involvement to Meaningful involvement.
- Human-centered design approach / co-creation is also needed to design AI interventions
- Communities have been central to drug access, funding, service delivery and peer care, stigma reduction, and every other component of HIV gains.



Privacy

Whose data, whose control?

AI related breaches of sensitive health information can erode community trust

- Privacy is a right to protect, not a barrier to work around.
- Re-exposing individuals already navigating HIV- related stigma, criminalization and structural vulnerability
- Regional frameworks such as the African Unions Data policy framework and Rwanda's health data policy – supporting advancement of AI
- **Design for privacy:** build in informed consent, data minimization, de-identification and community data governance from the start.





Trust *Hard to gain, easy to lose*

When trust breaks: the molecular HIV surveillance backlash

U.S. agencies mapped HIV transmission networks from patients' genetic-sequence data — without consent. In 2022 the Presidential Advisory Council on HIV/AIDS demanded reform and HIV networks petitioned the CDC, warning it risks re-identification, criminalisation, and lost trust in the very communities AI must serve. *PACHA Resolution on Molecular HIV Surveillance & Cluster Detection and Response, 2022; Center for HIV Law & Policy petition to CDC, 2023.*

Explainability

When people can't see how a model flags them, they can't contest it — the hidden logic of surveillance algorithms is what fueled the community backlash.

Reproducibility

Results that can't be independently reproduced can't be audited by the communities they affect, leaving harmful inferences to go unchecked.

Observability

Monitoring must extend to how HIV data is reused — surveillance quietly repurposed clinical data for tracking, with no one watching the watchers.

Privacy + security

HIV status can be criminalised, so genetic-sequence data that re-identifies networks becomes a legal threat unless privacy and security are absolute.

Bias mitigation

Models trained on surveillance data over-target the most policed populations, deepening stigma instead of closing gaps in care.

Empathy

Trust is earned by building with affected communities, not on them — the reforms demanded consent and a seat at the table first.

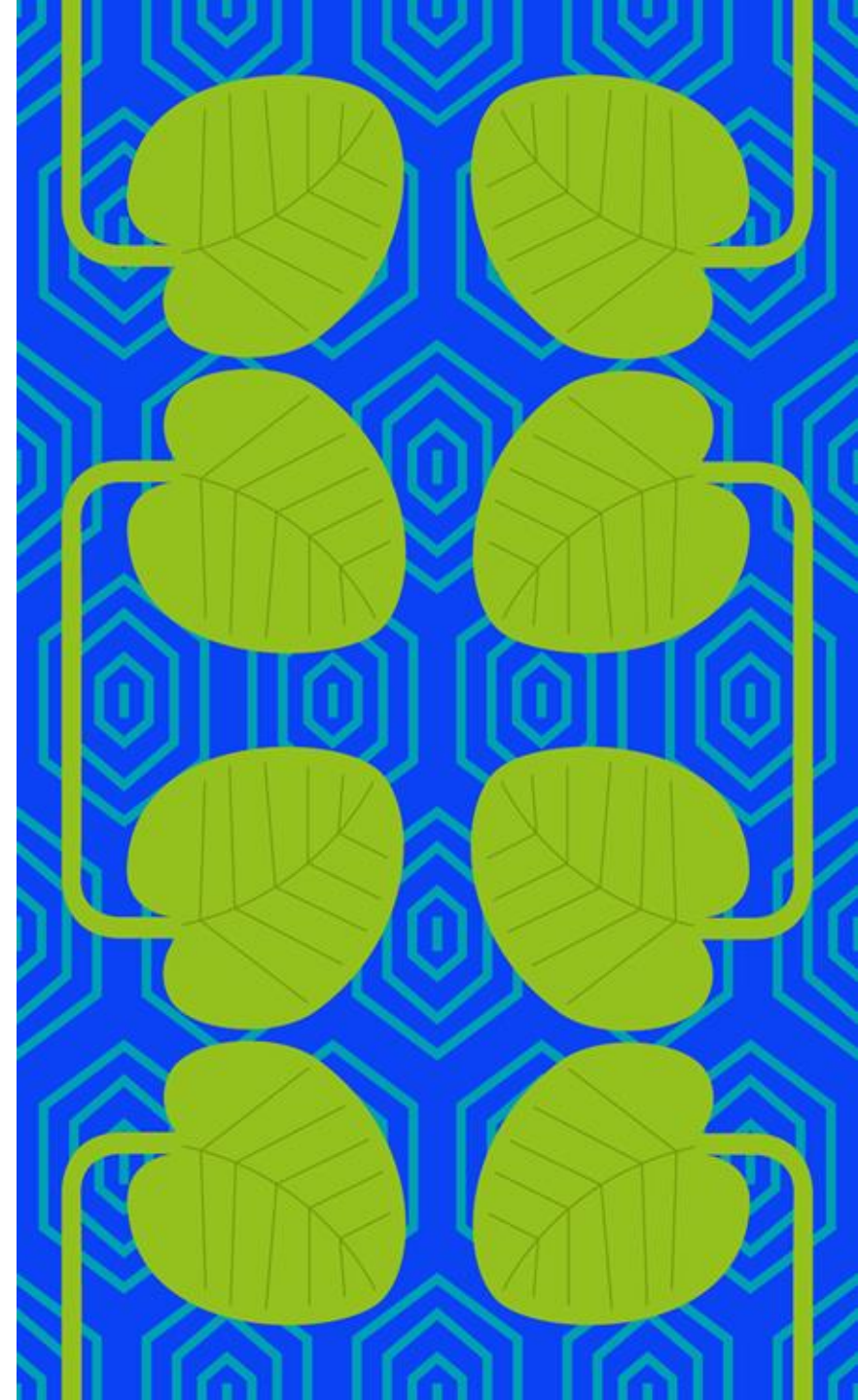


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Use Case Examples

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Self-Care from Anywhere: A Health AI Platform

One platform programme, Continuous care between visits, providing value to users, clinicians, and MoHs



Meet people where they are

24/7, multilingual, reduced stigma, increased access



Understand what is going on

120+ signals, AI vulnerability scoring, barrier detection



Connect people to care

Clinician portal, human escalation, referrals

ONE INFRASTRUCTURE



Lower cost

shared across partners, programmes, MoH's



Shared value

features accrue to all



Safety-first

24/7 monitoring



100,000+

users across programmes

1.5M+

user inquiries received

58%

meaningfully engage

120+

health, behavioural, social indicators collected per user

Co-designed and monitored with the communities we serve. Platform figures as of June 2026.



MINISTRY OF HEALTH AND CHILD CARE



REPUBLIC OF SOUTH AFRICA



audere Africa





Gender-based Violence: upstream signal behind access to HIV services

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The AI companion surfaces gender-based violence that clinics may not see, and the downstream HIV, SRH, and mental-health need it carries, including greater demand for long-acting PrEP (LEN).

THE UPSTREAM SIGNAL

1 in 10

engaged clients surface a GBV indicator in conversation

9.5% of (~60k at analysis time, March'26)

Highest in young women: 14.8% of ages 12 to 17; 11.9% of all women (known gender).

A private, judgement-free space surfaces what clinics may miss.



DOWNSTREAM HEALTH IMPACTS



SRH barriers

~8x

barrier to condom use; partner refusal is the top reason



HIV exposure

2.6x

recent exposure 14.3% vs 5.2%; 15x partner concurrency reported vs gen pop



Mental health

4.3x

suicidal thoughts; counselling advised 47% vs 8% gen pop



Demand for LEN

1.7x

want injectable PrEP, 10.0% vs 5.9% gen pop: protection a partner cannot control

They report seeking and uptaking care more, not less: 69.2% reported or confirmed connected to care vs 58.7% in general population. The companion turns a hidden signal into demand for long-acting PrEP.

Source: South Africa programs Coach Mpilo + Self-Cav, powered by Audere Africa's Self-Care from Anywhere Platform

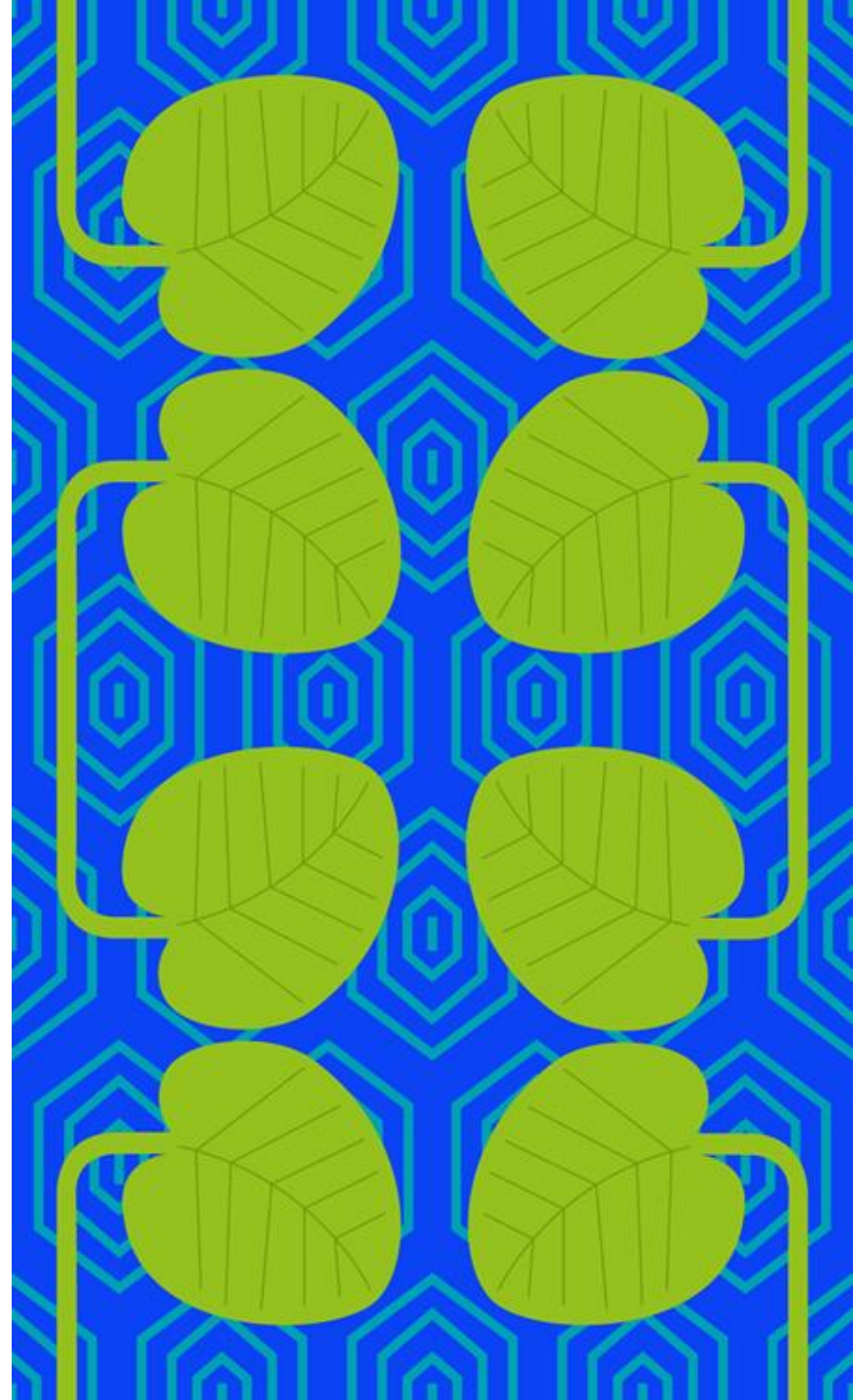




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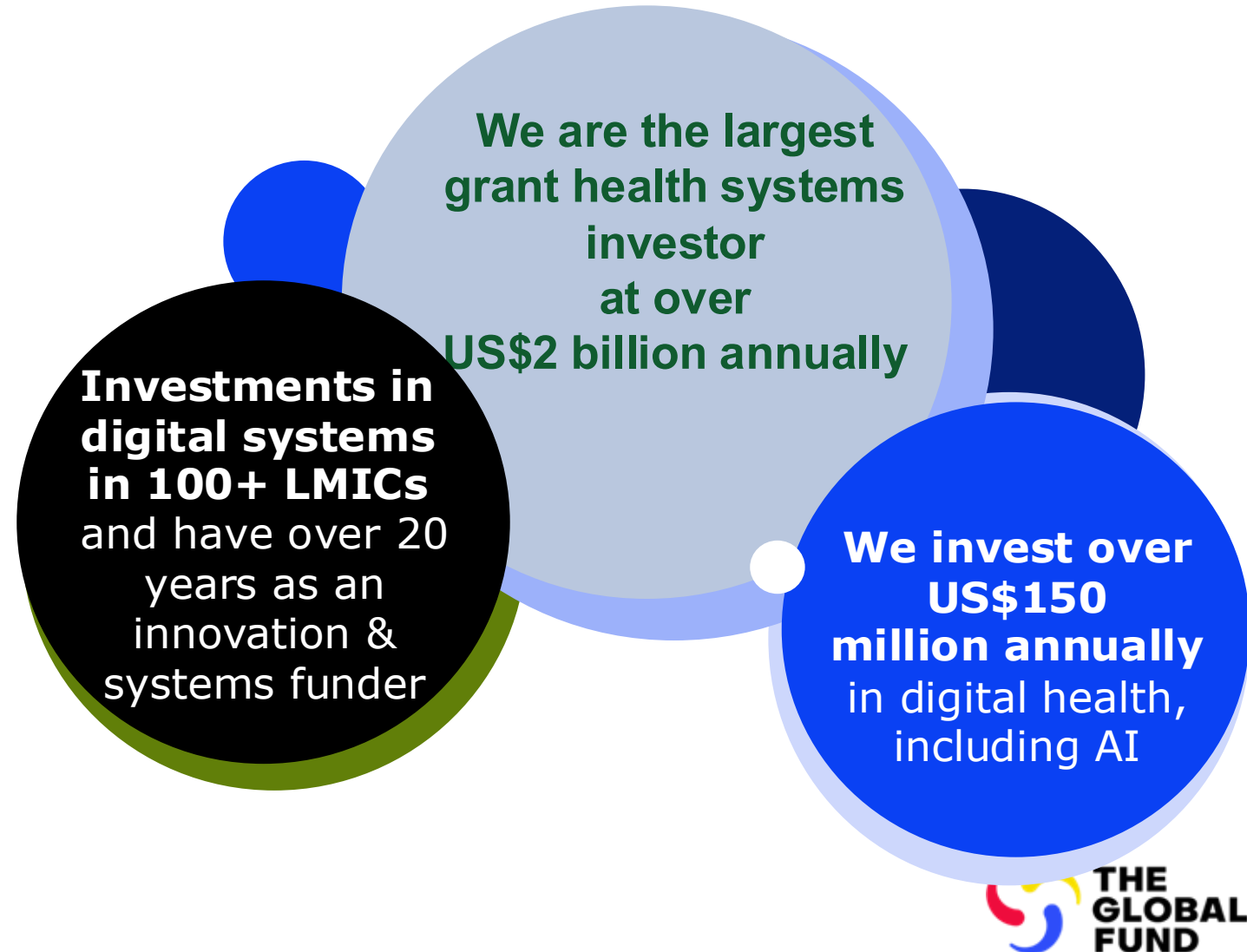
The Global Fund's Investment in AI

Working with Governments to strengthen digital health systems to accelerate progress towards ending HIV, Tuberculosis and Malaria epidemics



Digital investment is a core priority for the Global Fund

- Largest grant financier of digitization at over US\$150 million annually.
 - Support countries to digitize and integrate national, regional and local health data,
- We invest in supply chain management systems, laboratory information systems, electronic health records, early warning systems, community health and health information systems.



The Global Fund's Investments in AI

Largest investment: TB Computer-aided diagnosis

2021-2025, **over 20 countries invested US\$170 million in computer-aided diagnosis of TB (CAD4TB)**

Spotlight: Zambia

- Zambia is using **AI-powered CAD4TB**, deployed via a fleet of 7 mobile vans funded by the Global Fund.
- **TB case notifications increased by over 65%, from 36,000 in 2017 to 54,346 in 2023.**
- Zambia aims to **expand this fleet** to further integrate AI into healthcare delivery.

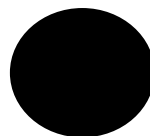


Other AI investments: Pandemic response & HIV

2024-2026: investments in AI tools across other diseases and systems.

Pandemic preparedness using AI-enabled skin tests for Mpox in Rwanda

- Mpox **skin image detection AI** tool.
- Used by health workers on mobile devices.
- Deployed at key points of entry from Rwanda's borders to identify cases and support client tracking.



HIV prevention for 14 countries in Eastern Europe and Central Asia

- A multi-country grant supporting development of AI tools:
- **A chat platform** for accessing HIV services and support.
 - **An AI-driven educational tool** for civil society.
 - **An AI-supported continuity management** framework for HIV response.





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The Global Fund's approach for 2027-2029 (GC8)

Scale & embed AI solutions that drive efficiency, integration & effectiveness in LMIC health systems

What GC8 will fund

- Expanded digital health and AI interventions part of GC8 funding guidance.
- AI embedded in HIV programs: predictive analytics, client-facing chat and self-care, treatment-continuity tools.
- Digital infrastructure foundations: interoperable data, electronic health records

The conditions GC8 sets

- National ownership and data sovereignty, aligned to country priorities.
- Transition pathways to self-reliance — exit plans and domestic co-financing from the start.
- Equity and rights safeguards for key populations: privacy and protection from surveillance.

The Opportunities

- Build from proven TB computer-aided diagnosis toward predictive, sovereign, equity-by-design AI for HIV.
- AI funded as infrastructure with a mandate — connective tissue between communities and health systems.
- Measured by infections prevented and people kept in care, not tasks automated.

Sources: The Global Fund — Eighth Replenishment outcome (US\$12.64bn) & Grant Cycle 8 investment guidance, 2025–2026; Global Fund Digital Health; Eighth Replenishment Investment Case, 2025.

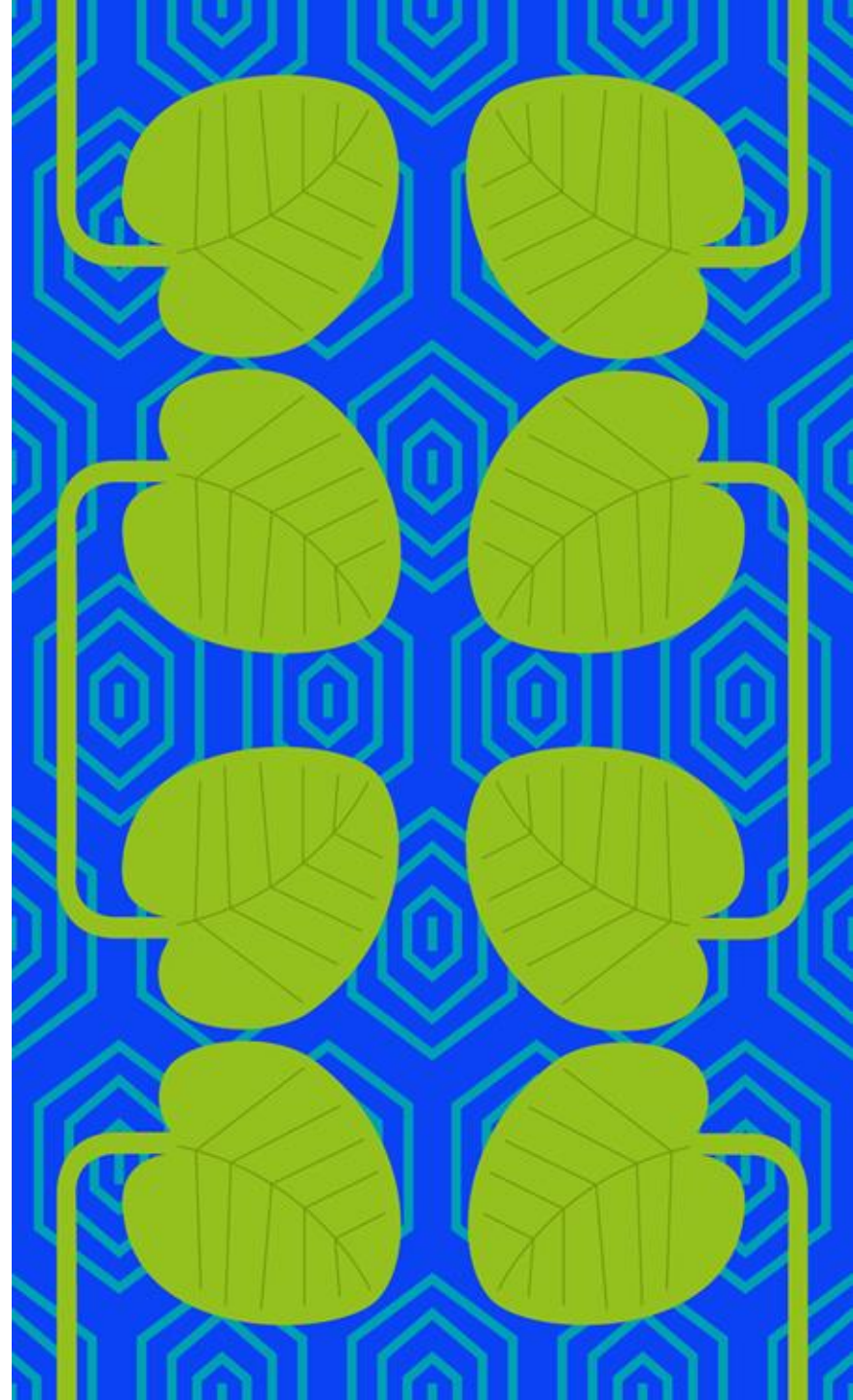


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Rebuild Rethink Rise

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Rethink. Rebuild. Rise.

An agenda for AI as shared health infrastructure — built to attain our global HIV targets.

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RETHINK

What AI must be

- Shared infrastructure for public good like a power grid and not as a tool
- Designed for equity from the start — equitably distributed and held to universal standards.
- AI supplements and does not replace human interaction
- Owned by health systems, not layered on top.

REBUILD

What we must build

- Designed with dignity and trust
- Rebuild with communities and institutions
 - Co-development not extraction
- Shared digital foundations: interoperable data, connectivity and open standards.
- Governance and accountability designed in, not bolted on

RISE

The promise of AI in HIV programming

- A true partner to all stakeholders – addresses various needs, from client driven self-care to predictive analytics that forecasts new infections
- AI that journeys with us to close the last mile
- Sovereign by default: nationally-integrated, MoH-owned AI application driving HIV programmes.

WHERE WE'RE HEADED

AI as owned public-health infrastructure: predictive, not reactive; sovereign by default; equity by design.

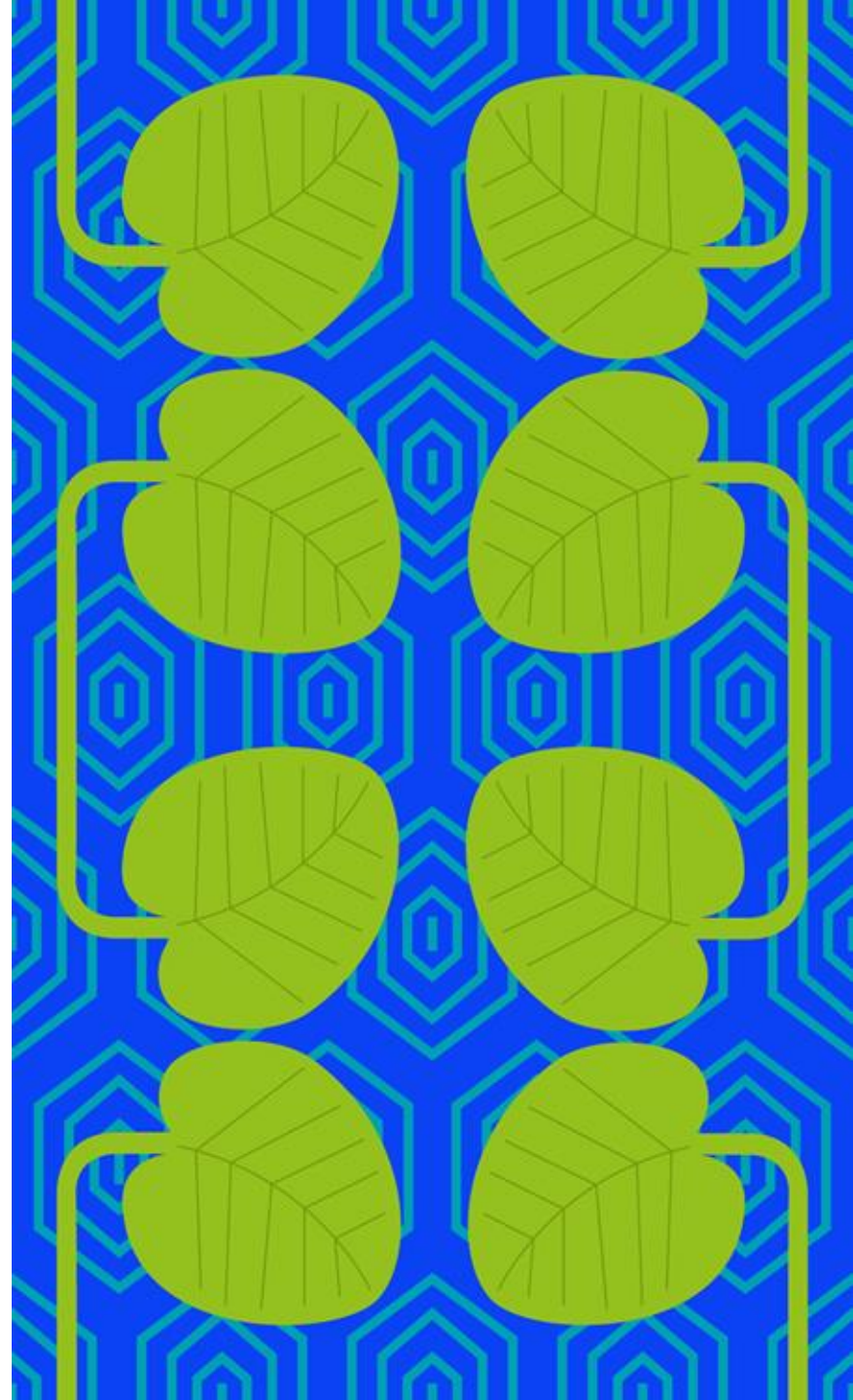
Measured not by what it automates, but by the infections it prevents and the lives it keeps in care.



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Rebuild. Rethink. Rise.

With AI as a Teammate: **One who stays for the long haul**





Thank You!

Audere

- Sarah Morris
- Dino Rech

Centre for Infectious Disease Research in Zambia

- Implementation Science Team

The Global Fund to Fight AIDS, Tuberculosis & Malaria

- HIV Team
- Private Sector Engagement Dept

Qure AI

- Poonam Aundhekar
- Shibu Vijayan



- Aaloke Mody
- Laura Beres
- Michael Herce
- Mike Reid
- Jirair Ratevosian



Microsoft Copilot: Your AI companion