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Introduction

Why do we need new diagnostic technologies for infectious diseases?

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Why do we need new diagnostic technologies for infectious diseases?



To address the “diagnostic gap”



To improve healthcare delivery

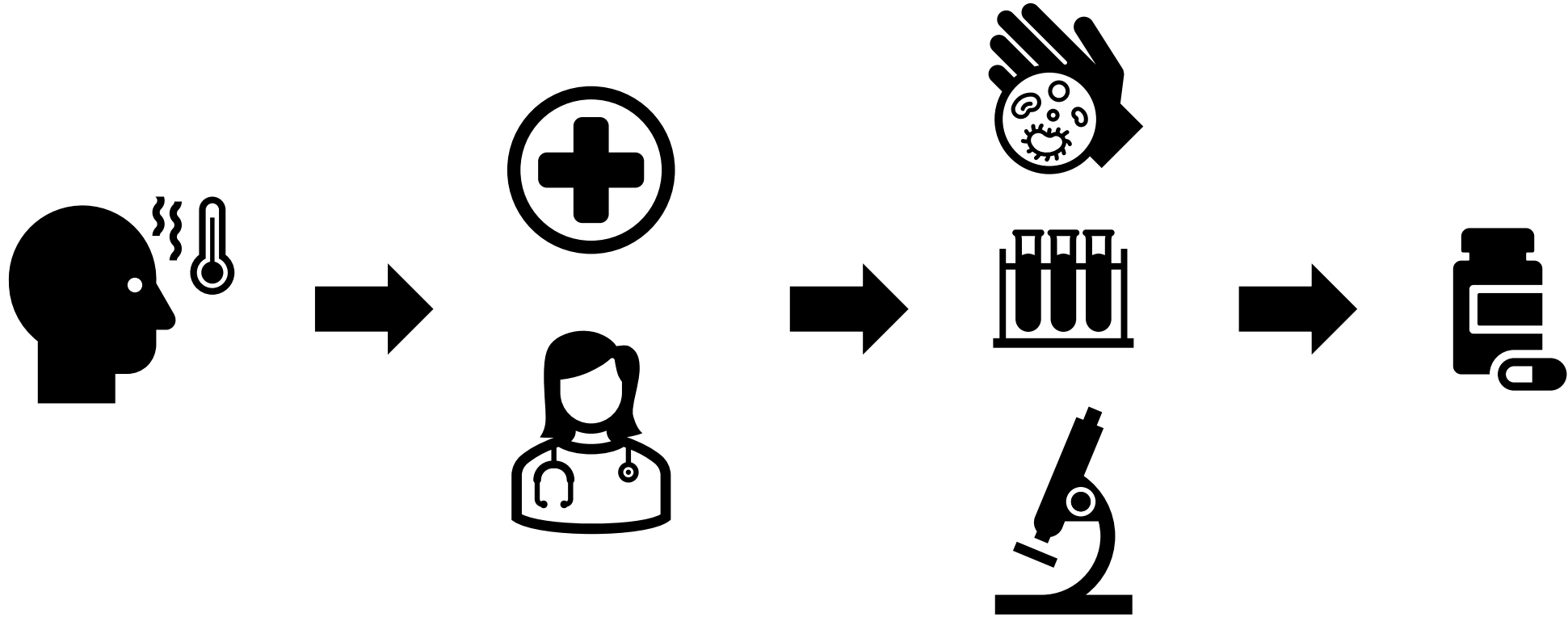


To improve surveillance of infectious disease threats



To tackle antimicrobial resistance

Diagnostics are a fundamental part of modern medicine



The selection and use of essential in vitro diagnostics

Report of the third meeting of the WHO Strategic Advisory Group of Experts on In Vitro Diagnostics, 2020
(including the third WHO model list of essential in vitro diagnostics)



- 122 essential diagnostic tests
- The majority are for infectious diseases

Gap between diagnostic need and diagnostic access

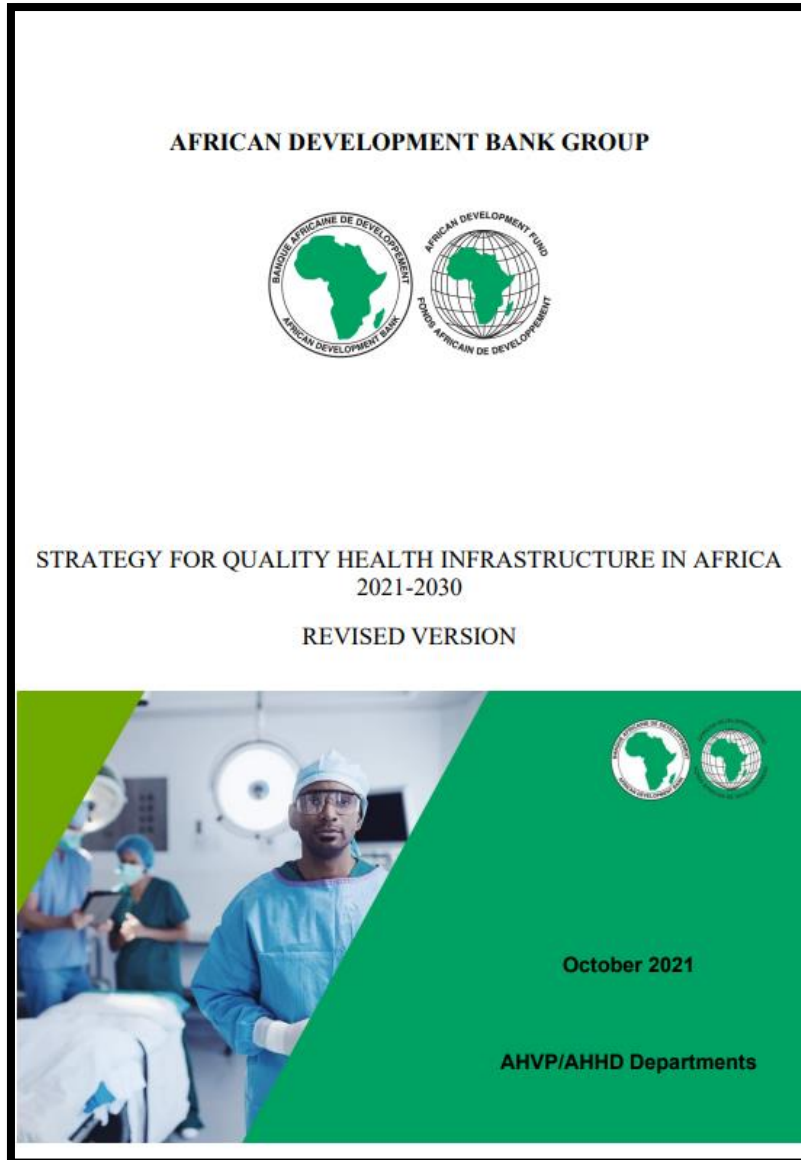
The *Lancet* Commission on diagnostics: transforming access to diagnostics



Kenneth A Fleming, Susan Horton, Michael L Wilson, Rifat Atun, Kristen DeStigter, John Flanigan, Shahin Sayed, Pierrick Adam, Bertha Aguilar, Savvas Andronikou, Catharina Boehme, William Cherniak, Annie NY Cheung, Bernice Dahn, Lluís Donoso-Bach, Tania Douglas, Patricia Garcia, Sarwat Hussain, Hari S Iyer, Mikashmi Kohli, Alain B Labrique, Lai-Meng Looi, John G Meara, John Nkengasong, Madhukar Pai, Kara-Lee Pool, Kaushik Ramaiya, Lee Schroeder, Devanshi Shah, Richard Sullivan, Bien-Soo Tan, Kamini Walia

- 47% of the global population has little to no access to diagnostics
- Diagnosis is the biggest gap in the cascade of care
- Particularly problematic in the “last mile” – for those who need them most

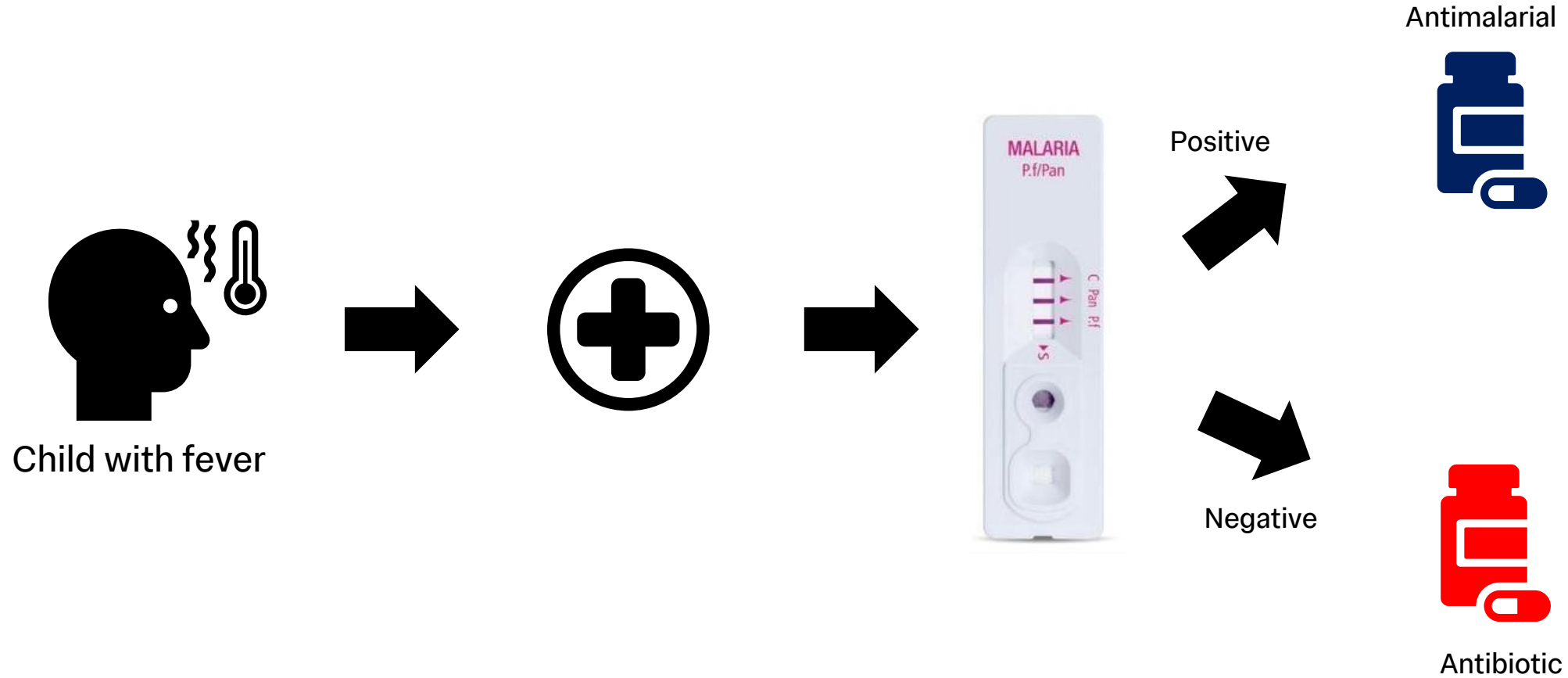
Diagnostic Gap in Africa



- Only **15%** of the African population have access to diagnostic services
- Up to 50% of essential diagnostics are inaccurate

What are the consequences of the diagnostic gap?

Example: LMIC setting



What are the consequences of the diagnostic gap?

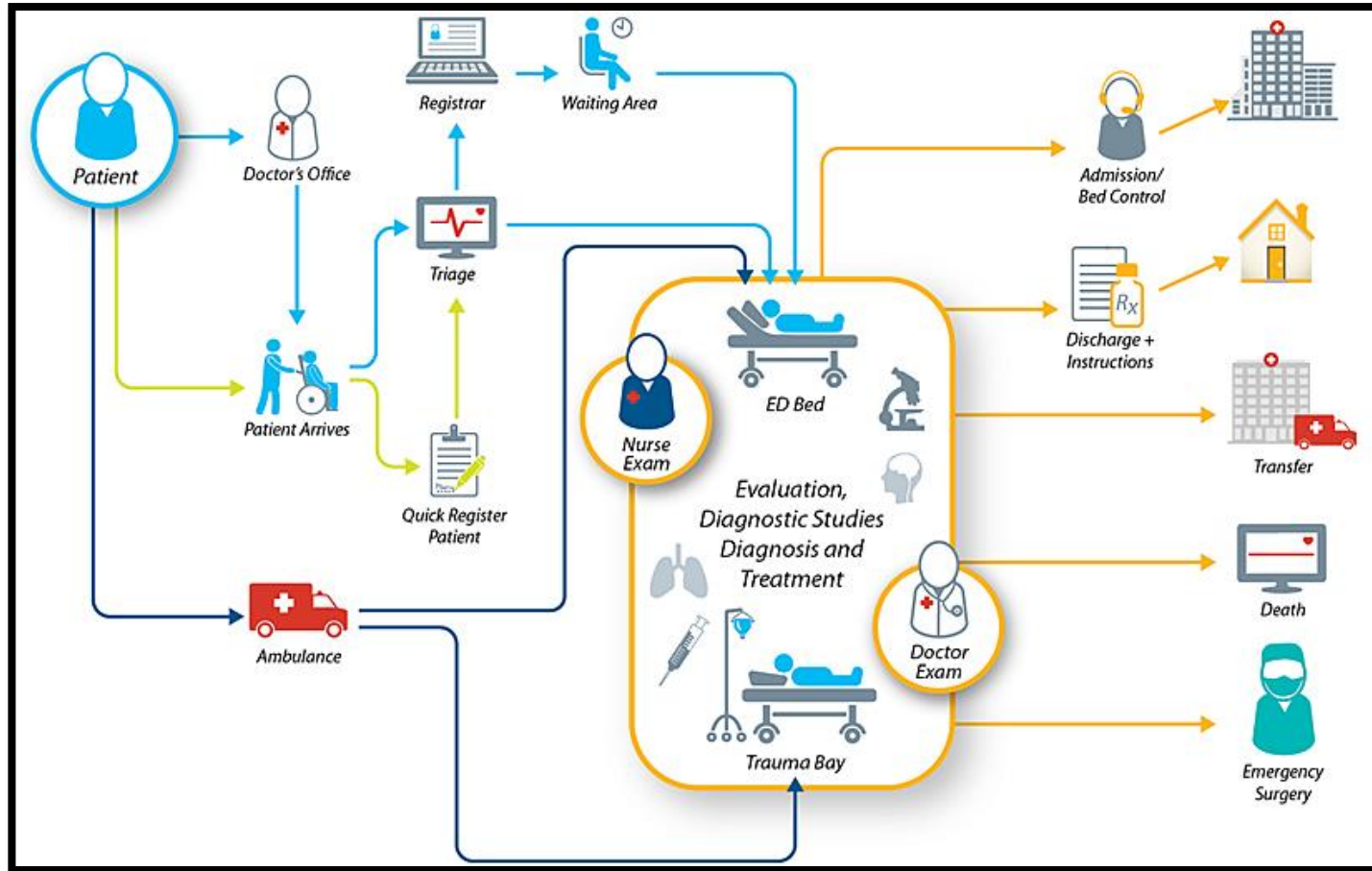
We don't know what we're looking at



- **We don't know the right treatment**
 - Poor clinical outcomes
 - Overuse of antibiotics
- We don't know the true burden of disease
- We don't know where the disease is
- We can't monitor changes in epidemiology or detect emerging pathogens
- We can't control disease spread
- **Think about early in COVID-19 pandemic!**

Central role of Diagnostics in Healthcare Delivery

The nexus of clinical decision making



Diagnostics impact “patient flow”

Diagnostics must be a facilitator not a bottle neck



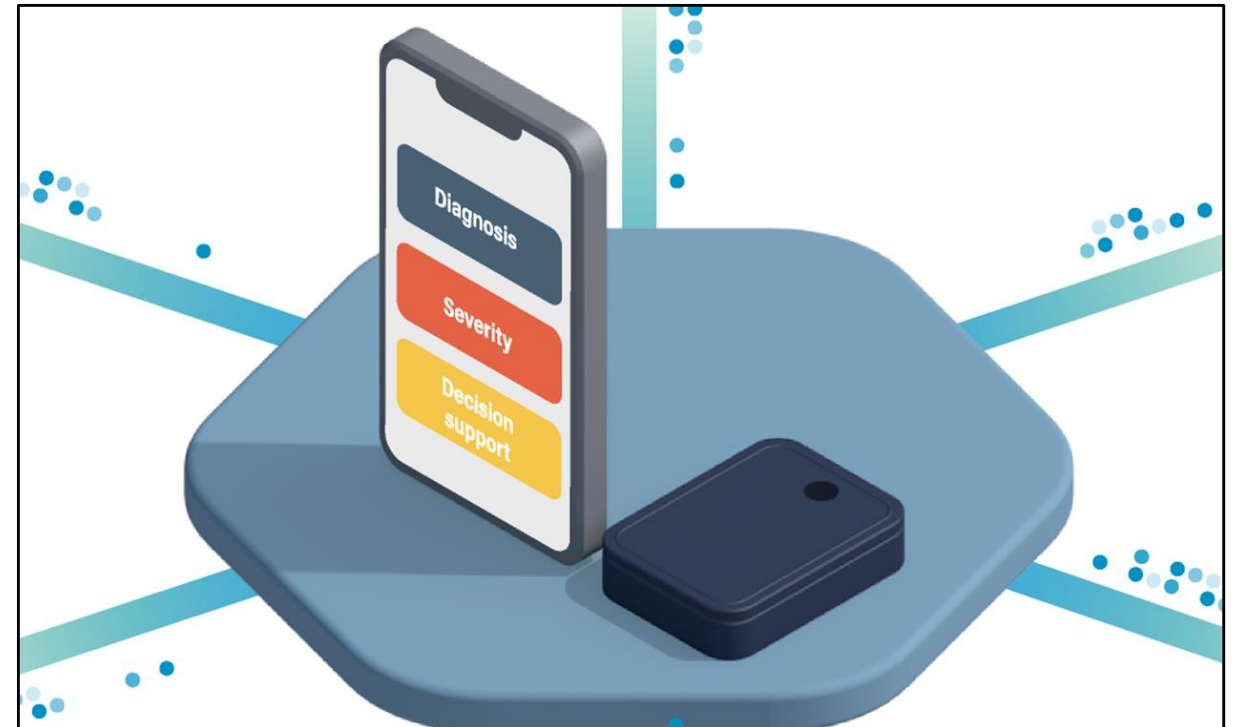
Diagnostic data is critical for disease surveillance

Essential for public health responses



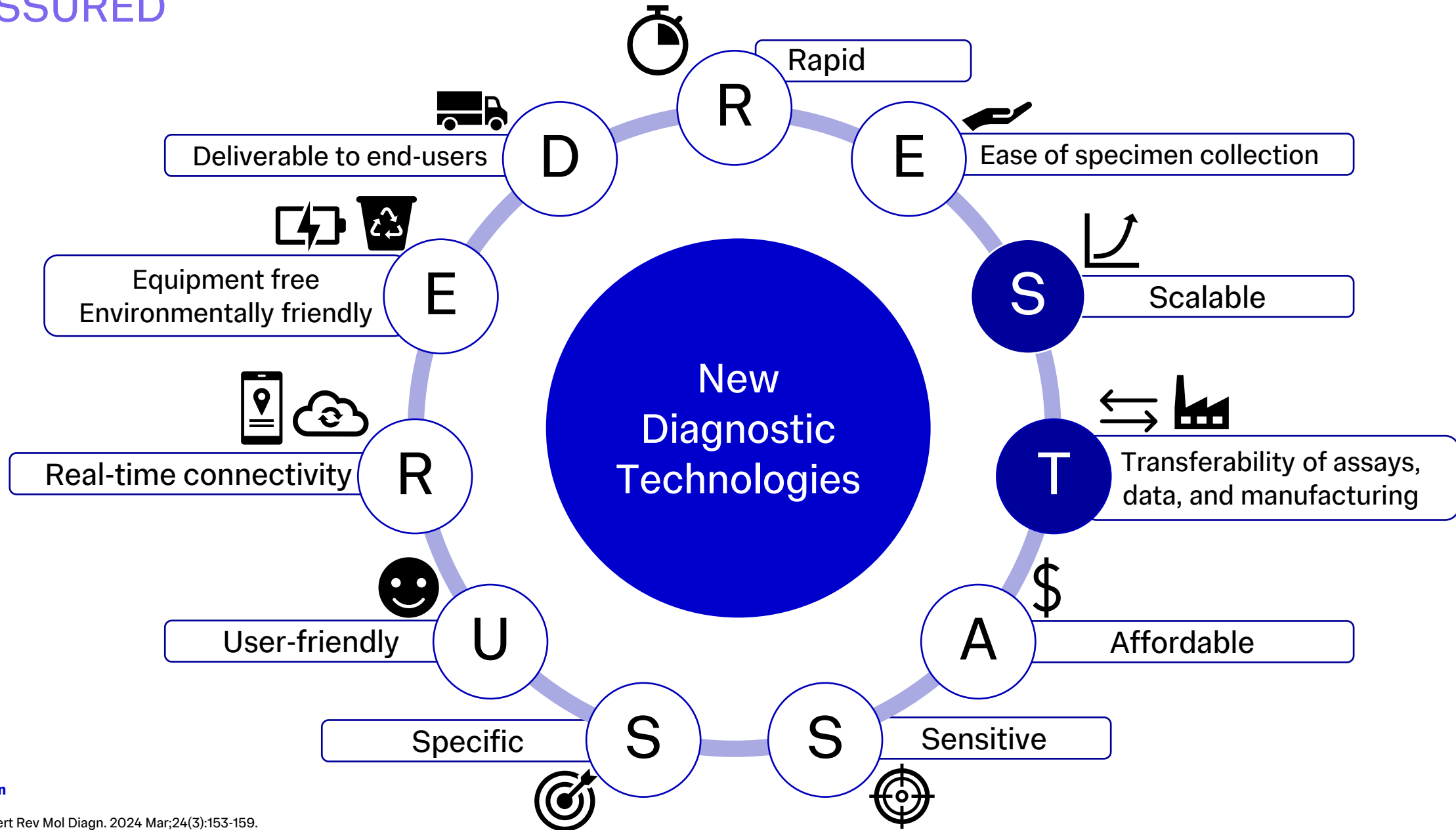
How can new diagnostic technologies help?

1. Improve accessibility of diagnostics
 - Point-of-care tests
 - Earlier stage in patient journey
 - Diagnosis at home
2. Aid decision making
 - Improve care pathways
 - Support optimal management decisions
 - Incorporating AI
3. Facilitate digitalisation
 - Results immediately available to users
 - Results immediately available for surveillance



Considerations for new diagnostic technologies

REST-ASSURED



Overcoming the diagnostic gap

An opportunity for a revolution in infectious disease diagnostics



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Thank you

Why do we need new diagnostic technologies for infectious diseases?

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[@acunningID](https://twitter.com/acunningID)

<https://www.digitaldiagnostics4africa.org/>

<https://www.diamonds2020.eu/>