

Cholera Detection RDT to RDCT

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Project Partners



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एवं प्रौद्योगिकी संस्थान



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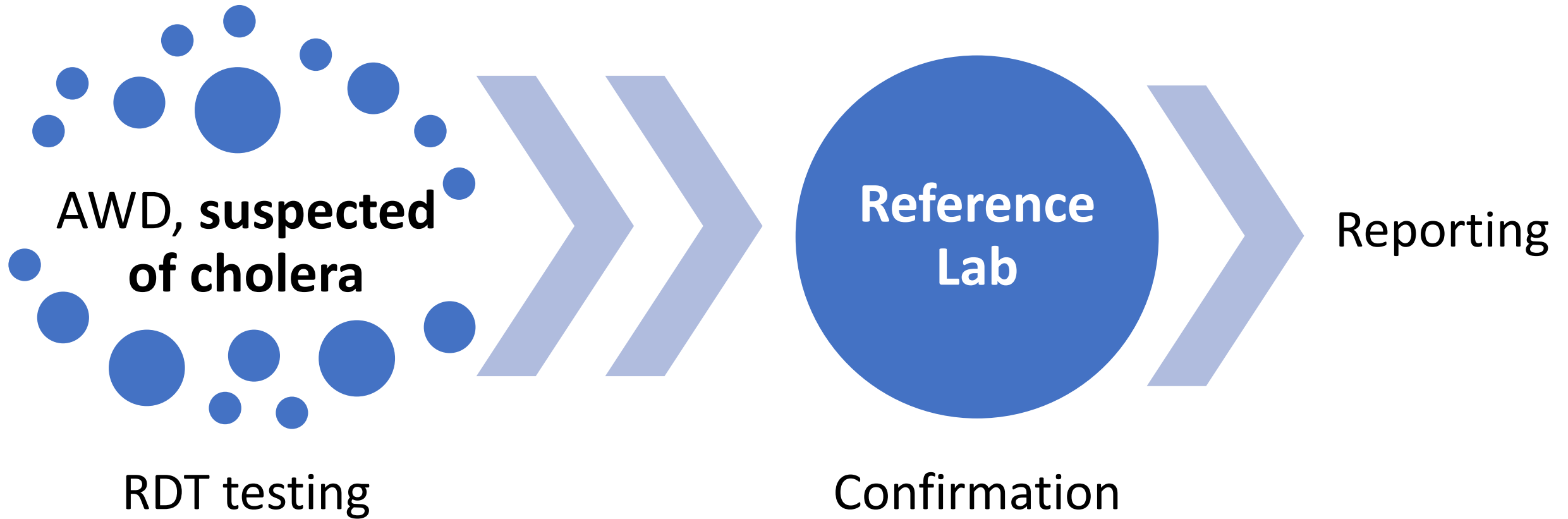
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Rapid Detection Test

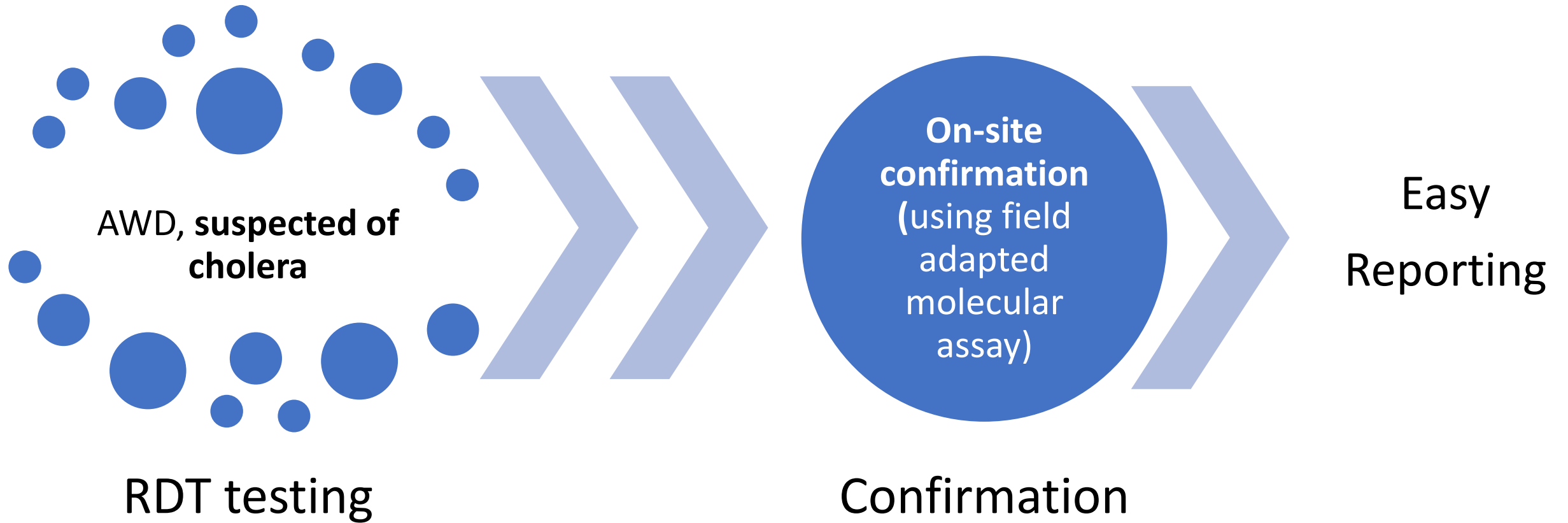
or

Rapid Detection Confirmatory Test

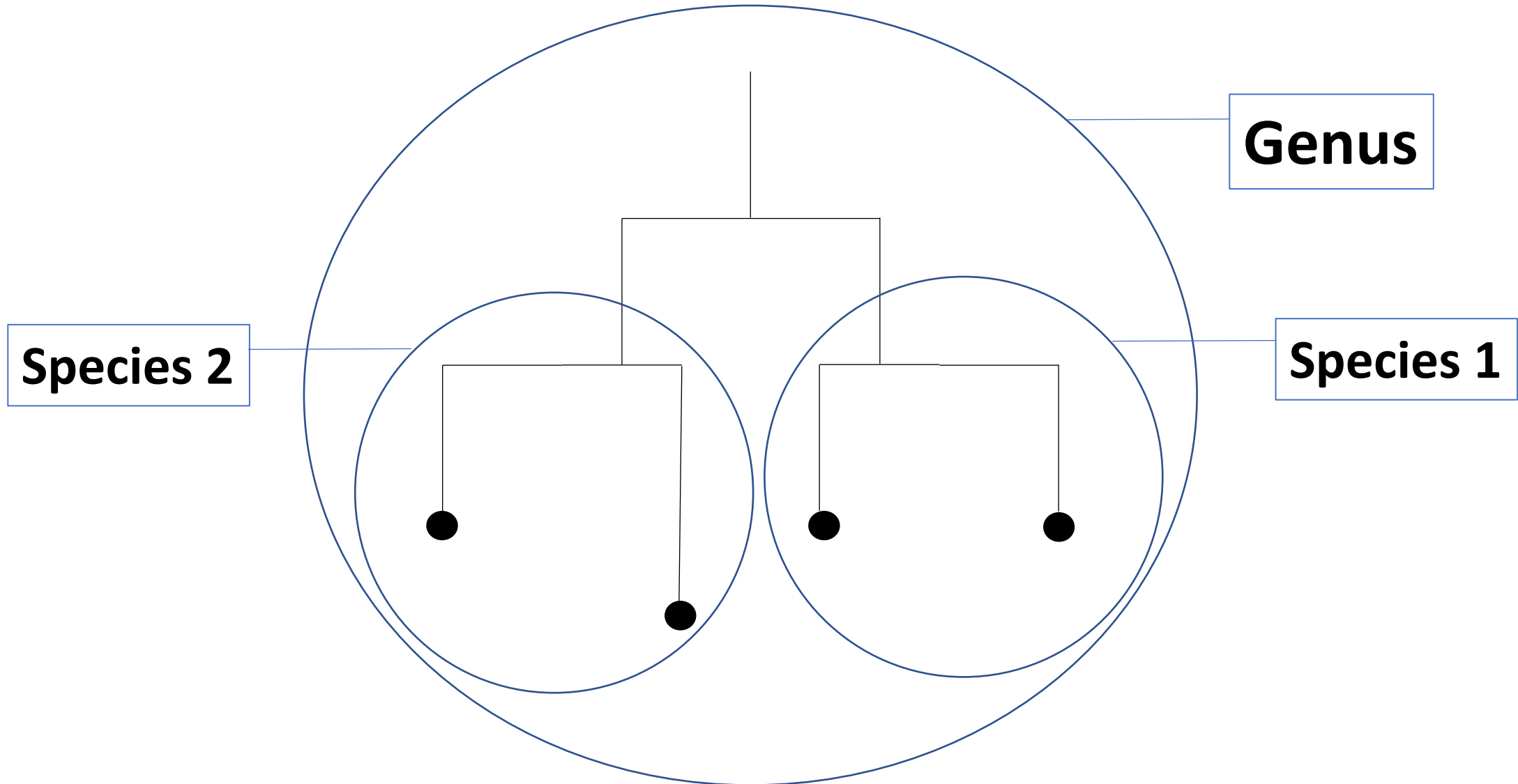
The process - how it is today



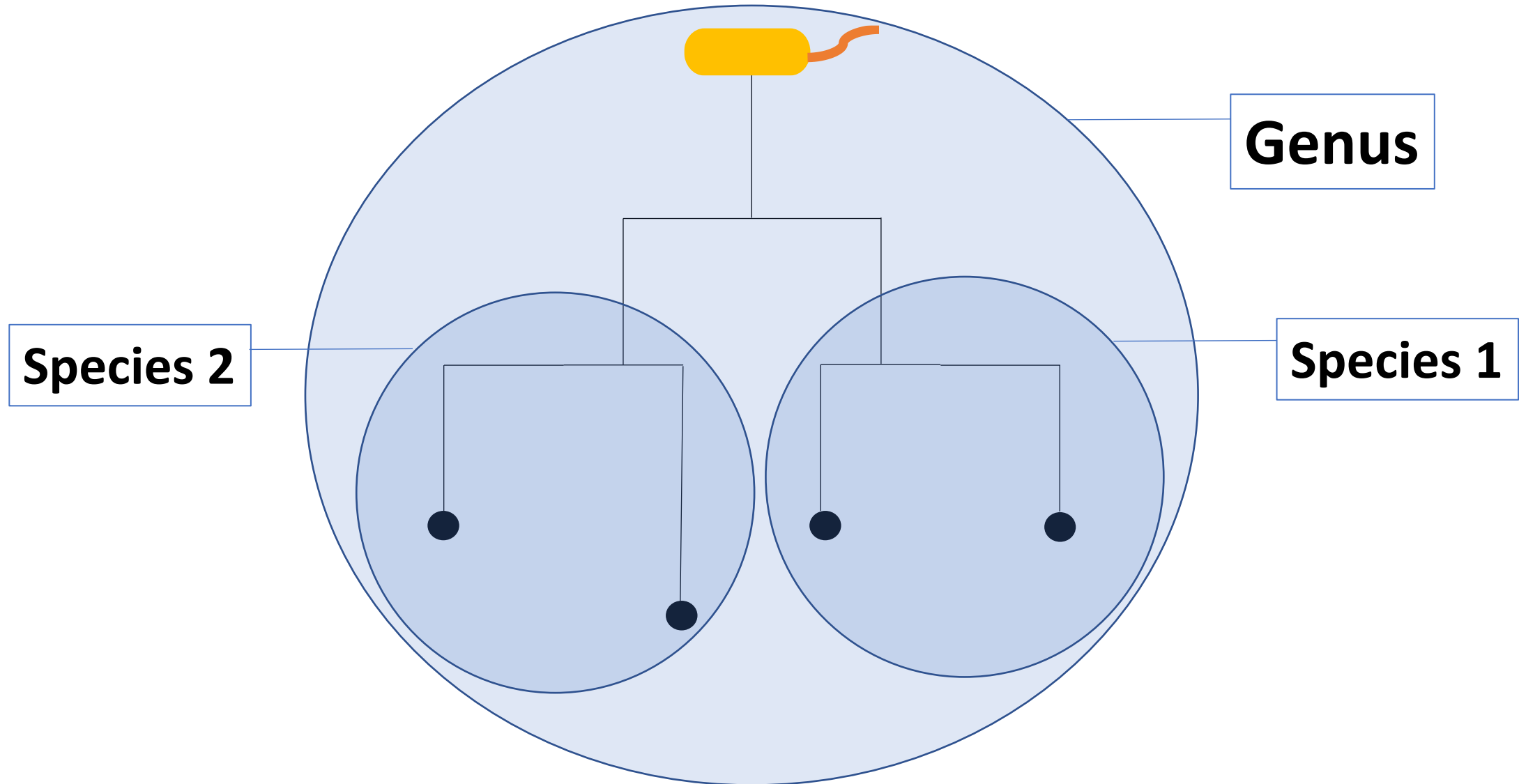
The process - how it should be



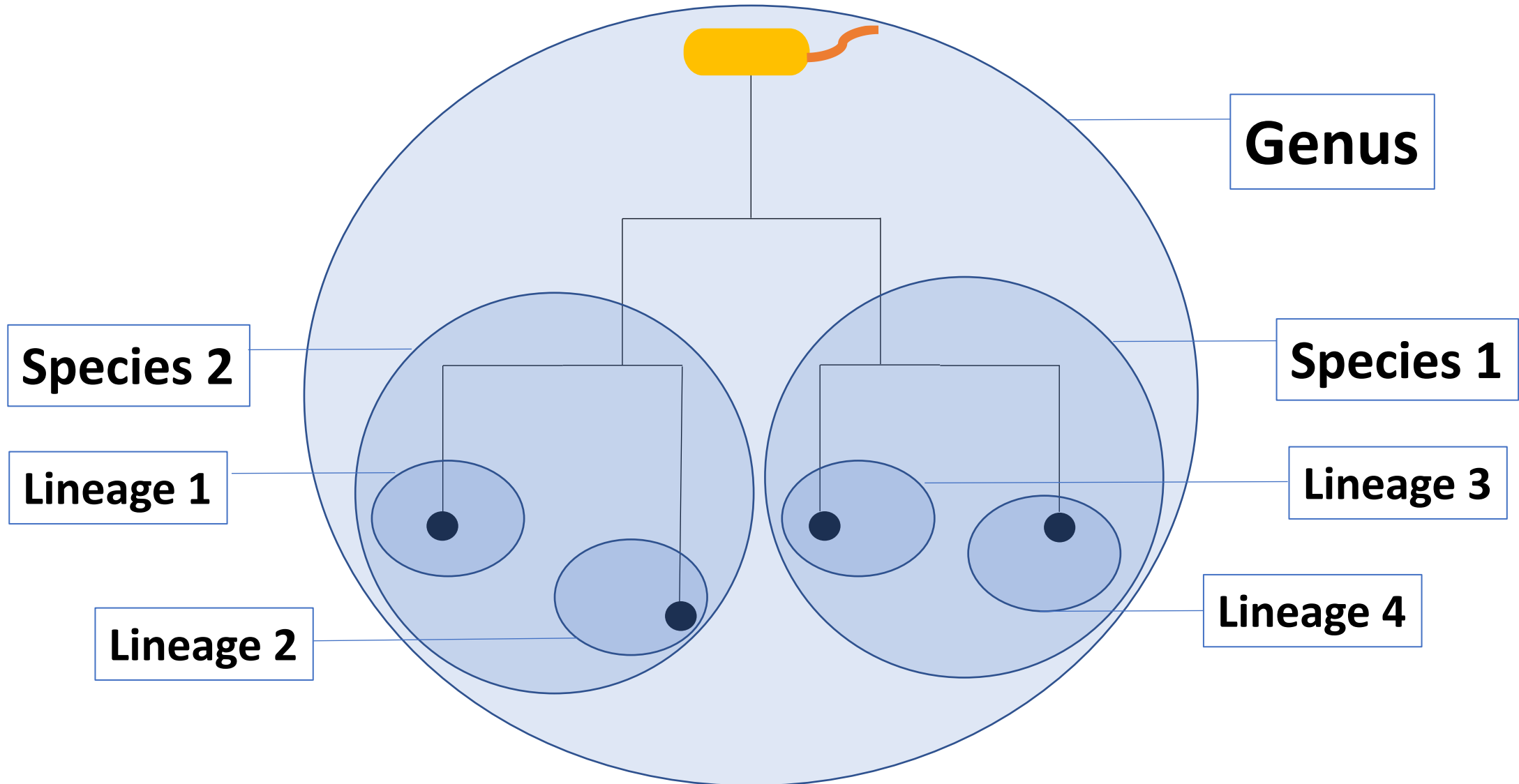
Key - Understand the Pathogen 🧪



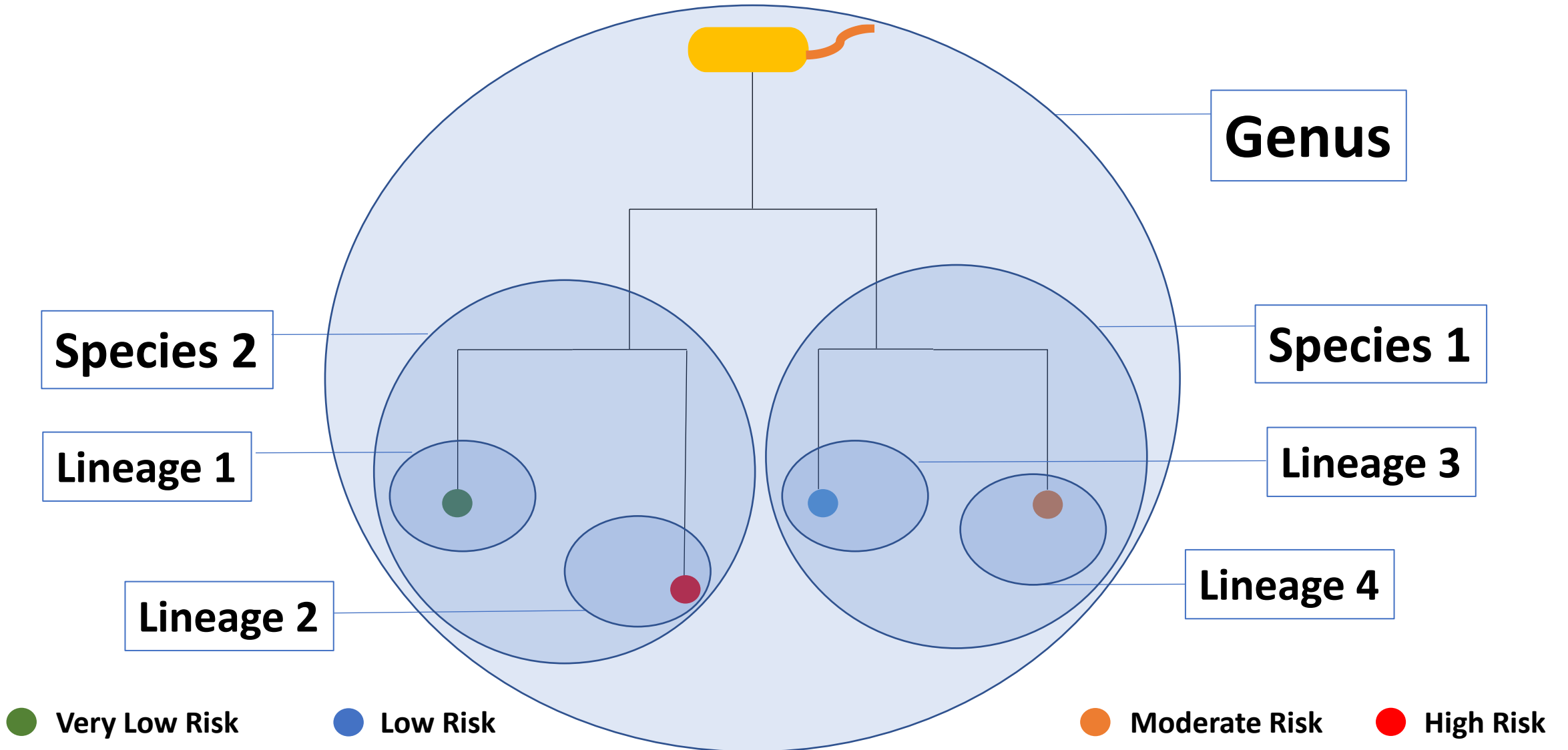
Pathogen – as detected by current molecular tests



Pathogen – there is more to it



Pathogen – there is even more to it



Sensitivity and Specificity

- Sensitivity - as high as possible – better than current antibody dipstick tests
- Specificity – 100% should be the mandate

Actionable Outcome

- One test confirming or rejecting the disease
- No need for further culture confirmation
- Generate reliable results that are easy to communicate/share
- Advises vaccine programs/drives

Cost

- As low as possible without compromising on quality

Speed

- As fast as possible – ideally in a couple of hours – before the camp set up is folded for the day
- Data communication speed – very important

Portability and Deployability

- Should be easy to stockpile
- Should be easy to deploy on an urgent basis
- Reasonable shelf life
- Thermostability
- PHCs (in India) or equivalent – one PHC per 30,000 population
 - Each PHC has 5-6 sub centres for easy accessibility
- Alignment with surveillance (both clinical and environmental)
- Alignment with WASH and vaccination programs
- AC power independent

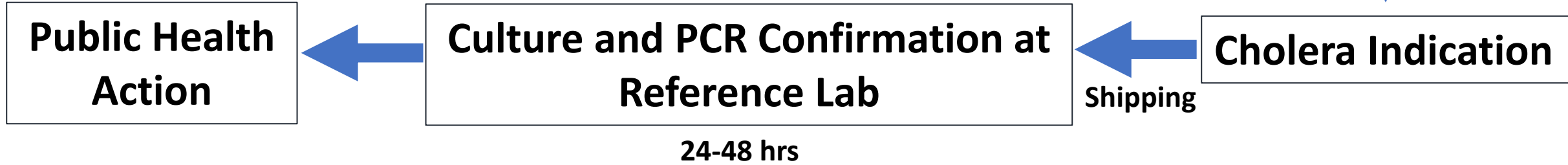
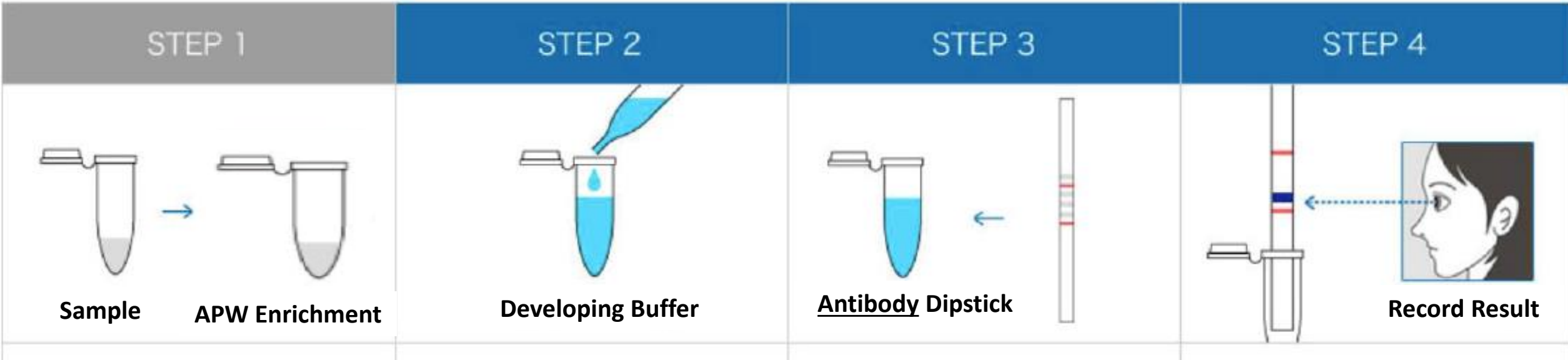
Skill set

- Requirement of minimum training
- Easy to follow universal language SOPs
- Video based guide(s) for process flow and troubleshooting

Disposal of kits and contents

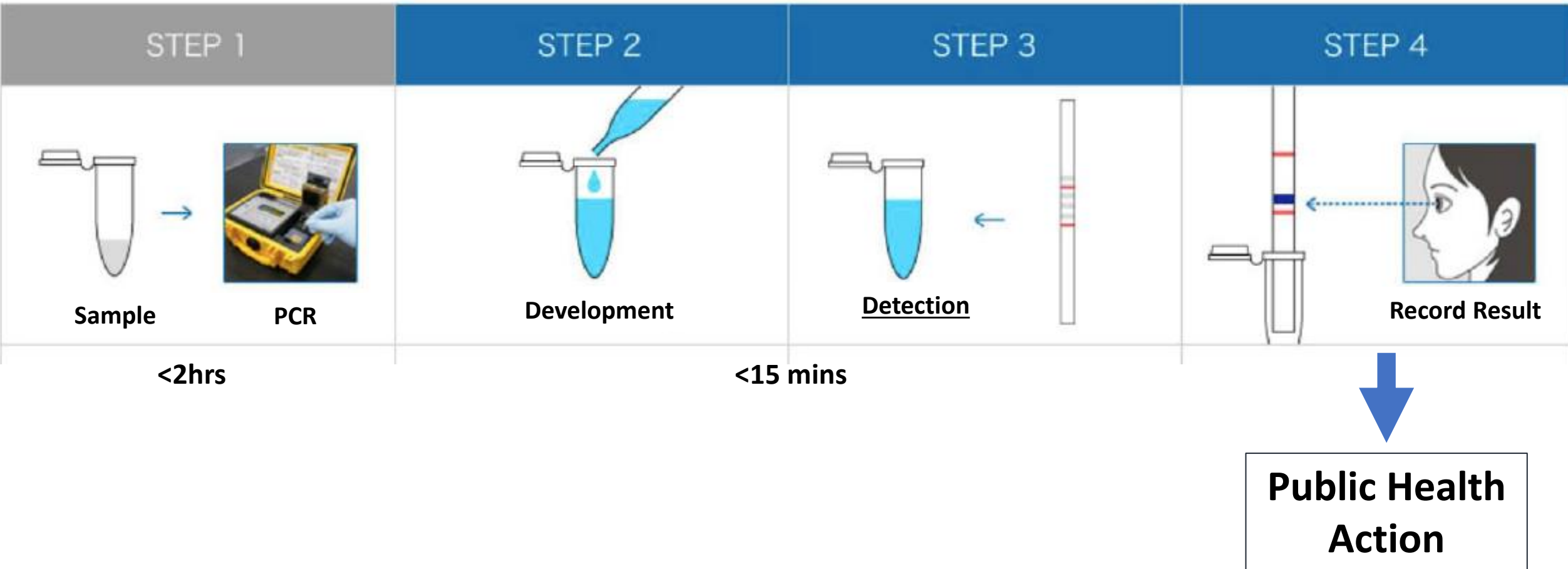
- Health risk free disposal on site or off site
- Easy defusal
- No amplification of actual bacteria (the problem pathogen)

Process of current RDTs



Sample to Actionable Result in 24-48 hours

Our Process



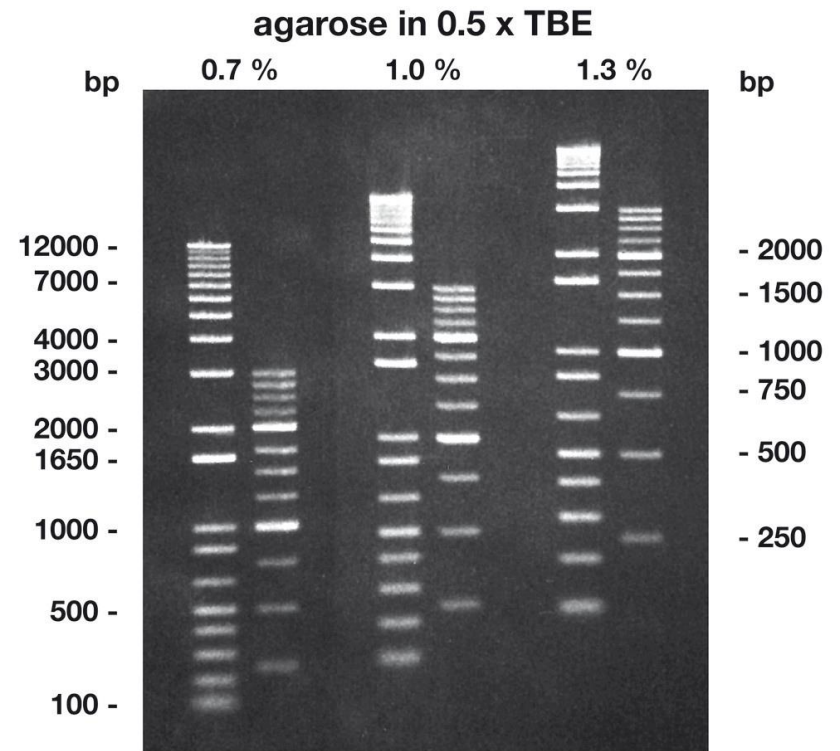
Sample to Actionable Result in less than 4 hours

Two key laboratory technologies

Traditional PCR



Electrophoretic Gel Detection

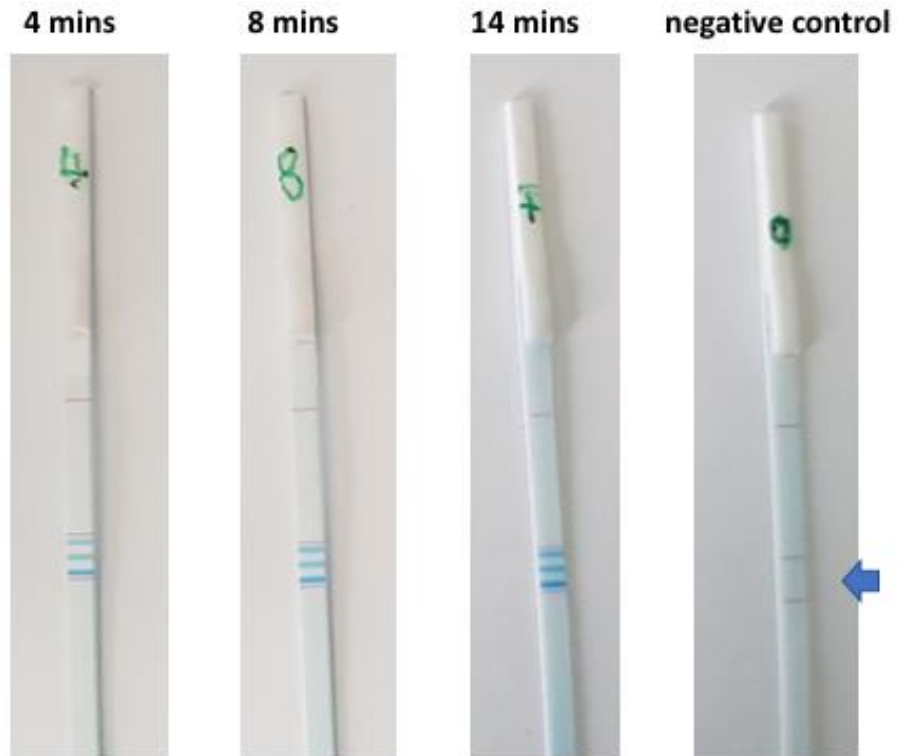


Replaced by

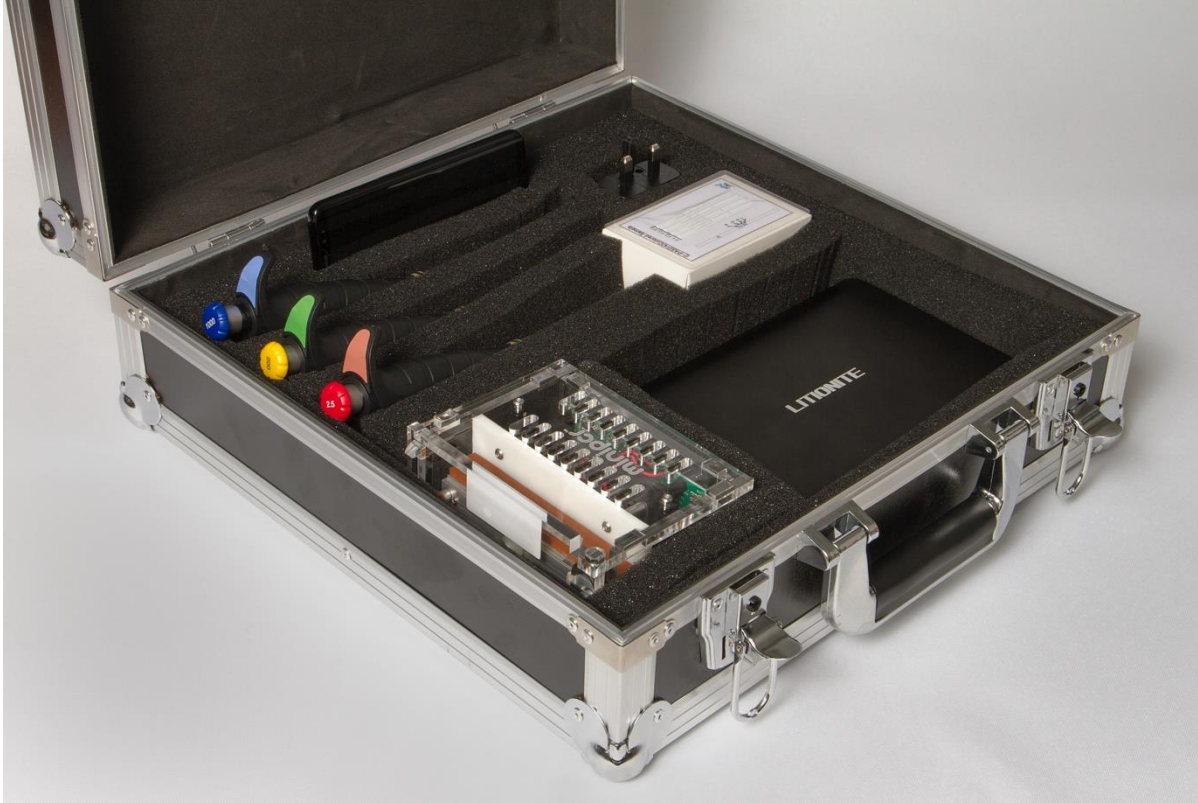
Portable PCR (Battery Operated)



Molecular Detection Strips



Portable Kit case



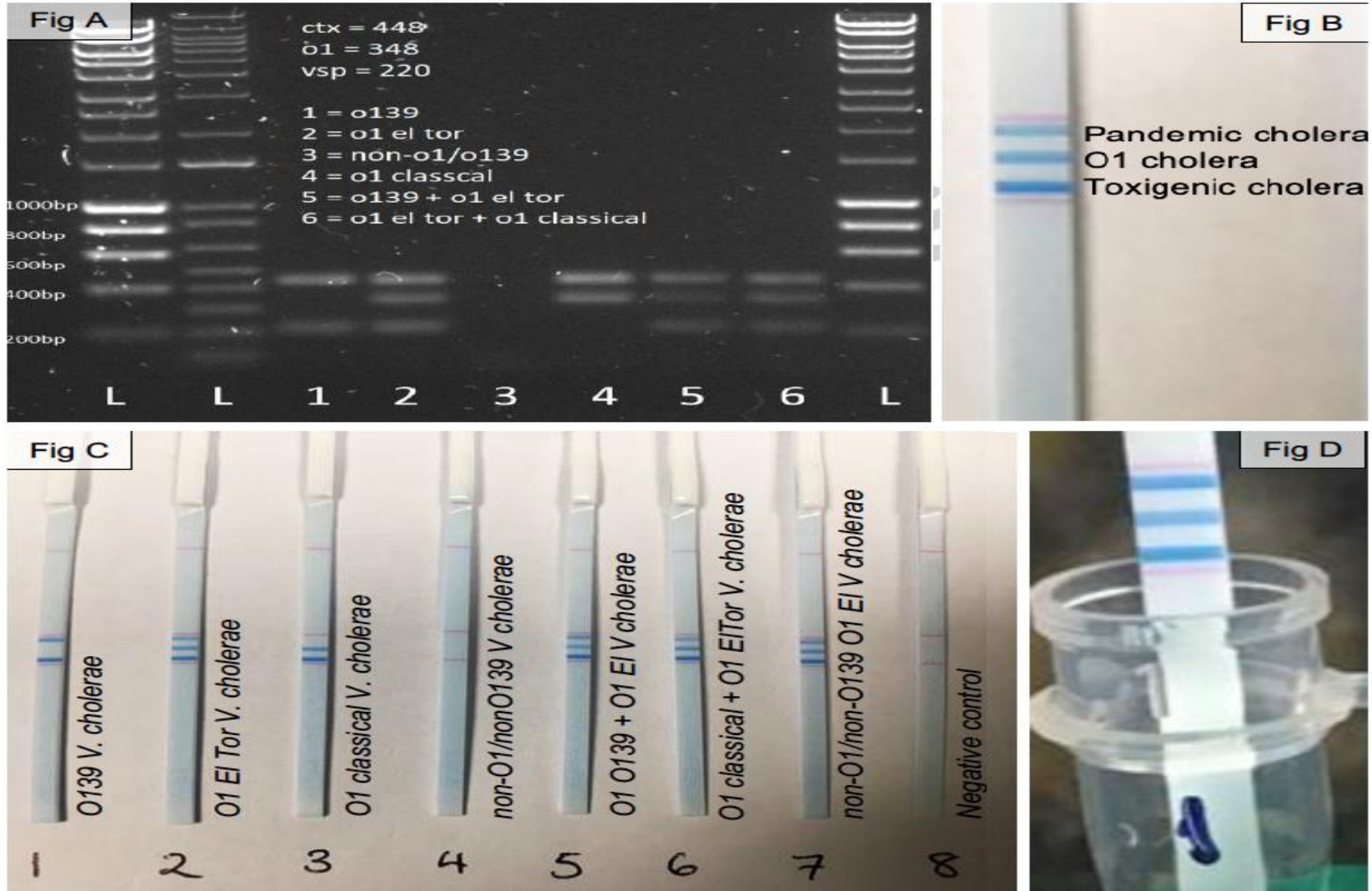
Field ready package



Package components

Portable rechargeable battery; Portable PCR machine;
Multiplexed detection strips and lyophilized reagents; Mobile phone;
Up to 5 PCR runs per full battery charge; Screen 16 samples (including controls) per PCR run;
Detect 3 targets per strip

Key Cholera Targets Optimised on Portable Tech



DIAGNOSTIC PRODUCT SPECIFICATIONS

TPP CHOLERA

TARGET POPULATION GROUP/PATIENT:

Patients clinically suspect of cholera

HEALTH FACILITY WHERE THE TEST WILL BE USED:

Primary health care level with no access to standard laboratory facility or settings and no access to electricity. Community settings outside health facilities where cholera outbreak is suspected

ATTRIBUTES definitions	DESIRED	ACCEPTABLE
Priority features		
Intended use of the test	Early detection, declaration, and monitoring of outbreak without need for cholera confirmation First intention test to be used on a predefined number of cholera suspect cases	Test to declare a cholera alert, to be confirmed by culture and/or PCR



Only Molecular Test can achieve this

Funding Partners

