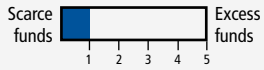
Sri Lanka
Country Profile

Results from the Asia PGI Landscape Assessment (2023)

This country report provides a snapshot of the status of pathogen genomic surveillance through next generation sequencing (NGS) in Sri Lanka as of March 2023. Data are based on a systematic assessment accompanied by interviews with experts from Allergy Immunology and Cell Biology Unit at the University of Sri Jaywewardenepura. Findings below are presented through five overarching themes ranging from financing to bioinformatics and data sharing, including 16 key indicators covering major barriers in pathogen genomics sequencing and surveillance. The data captured below is as of March 2023.

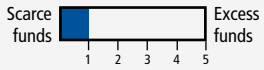
Financing

Sufficient funding for NGS



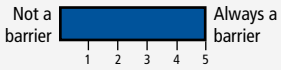
A ranking of perceived sufficiency of funding to support pathogen genomic surveillance over the next 5-year period.

Sustainable funding for NGS



A ranking of perceived sustainability of funding to support pathogen genomic surveillance over the next 5-year period.

Reliance on external support



Country reliance on external support for conducting adequate and effective NGS.

Policy and guidelines

Strategic plan

In progress

Status of national strategic plan which includes pathogen genomic surveillance.

National expert panel

In progress

Formation of national expert panel or technical advisory group mandated to advise government on pathogen genomic surveillance.

NGS guidelines for public health surveillance

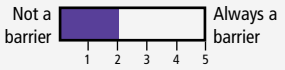
In progress

Development of national guidelines for infectious disease surveillance using NGS.

NGS = Next Generation Sequencing

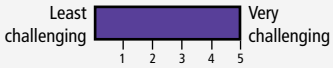
Supply chain

Equipment repair lead time



A ranking of perceived challenges with equipment repair lead time in the last 6 months.

Stock availability – reagents and consumables



A ranking of perceived challenges with reagents/consumables stock-outs for sequencing in the last 6 months.

Resupply time length

8
weeks

Average re-supply time between order and receipt at the laboratory for reagents and consumables.

Laboratory infrastructure

Laboratory capacity

5
2.26 per **10,000,000** population

Total number of laboratories in country performing NGS for infectious disease surveillance.

Sequencing output

150
67.7 per **10,000,000** population

Average monthly sequencing output within the past year.

Sequencing utilization

24%

Proportion of average actual monthly sequencing output over maximum monthly sequencing capacity for the past 12 months.

External quality assurance

In progress

Laboratories participating in any proficiency testing or external quality assurance audits for NGS.

Bioinformatics and data sharing

Bioinformatics pipelines for NGS

In use

Containerized, locally installed or in-house pipelines/workflows.

In use

Tools provided by NGS manufacturer or proprietary software.

Data sharing

> 75%

Estimated monthly proportion of sequences shared on public databases (eg. NCBI, GISAID) compared to total sequences.

Reporting frequency

Reporting frequency of pathogen genomic surveillance results to relevant government ministries.

NGS = Next Generation Sequencing

Summary

- Between 2020 and 2022, 5% of NGS related pathogen genomic surveillance took place in the public sector and 95% in the Academic Institutions. None of the samples from Sri Lanka were processed out-of-the country.
- Currently, laboratories conducting NGS for pathogen genomic surveillance in Sri Lanka are not required to be registered.
- Over the past year, the estimated proportion of spending on NGS for pathogen genomics surveillance was 100% from external partner-based funding.
- Sri Lanka has particularly limited resources for the early stages of NGS such as sample pre-processing and wet lab sequencing. There are concerns in terms of scarce funds and sustainability of funding.
- The country has gained strong external partner support during COVID-19. The type of support provided includes direct financing, donation of equipment and reagents, laboratory training, bioinformatics training, data processing, data analysis, and other in-kind support. Key external partners include WHO Sri Lanka and A2CARES, CREID network.
- Laboratory supplies & consumables were identified as major cost drivers followed by Laboratory supplies and consumables as moderate cost drivers for direct sample and processing costs.
- Regarding indirect costs, supply chain & procurement-related costs were major cost drivers.
- Sri Lanka uses two major sequencing platforms including, Illumina, and Oxford Nanopore Technologies (ONT) and, none of the machines are currently running in full capacity.
- It is important to note that all financial barriers were ranked highly. Among the process barriers, reagents and consumables, infrastructure, and human resources were ranked high.
- Majority of the sub-categories within training, computer infrastructure, laboratory and sequencing equipment, reagents and consumables were all ranked as essential priority highlighting the important of capacity building for genomic sequencing in the country.