INSTITUT PASTEUR de Nouvelle-Calédonie

REPORT

SPOP WORKSHOP

Pathogen Genomic Surveillance, a powerful tool for a One Health approach in the Pacific

17th – 20th of March 2025
Noumea – New Caledonia

ACKNOWLEDGMENTS

The Institut Pasteur of New Caledonia (IPNC) expresses its gratitude to all participants for their constructive engagement and contributions to **the SPOP workshop.** This event marked a significant step towards greater collaboration among the Pacific Island Countries and Territories (PICTs).

We are grateful to our partners: the "Pacific Funds," France's primary instrument for regional cooperation in the Pacific, funded by the Ministry of Foreign Affairs. It supports the regional integration of New Caledonia, French Polynesia, and Wallis and Futuna Islands.

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Special appreciation goes to the SPOP scientific committee, the SPC and IPNC's teams for their efforts and expertise in organizing and structuring the symposium and managing all operational aspects of the event.

THANK YOU FOR ALL YOUR EFFORTS IN ACHIEVING OUR GOALS AROUND THE SPOP WORKSHOP: Genomic Surveillance of Pathogens in the Pacific with a One Health aspect

Delegates of the SPOP workshop Opening ceremony

SUMMARY

The SPOP Workshop organized by the IPNC focused on the genomic surveillance of pathogens in the Pacific with a One Health approach. Held at the SPC Headquarters in Noumea, New Caledonia, this event marked a significant step towards greater collaboration among the PICTs.

Ten of the 22 PICTs and their global partners participated in an initiative aimed at enhancing Pathogen Genomic Surveillance in the Pacific, with up to 80 attendees daily.

With partners including development partners (WHO, WOHA, SPC/PPHSN), research & private partners, Government agents from Vanuatu, Fiji, Tonga, Samoa, Solomon Islands, Cook Islands, Wallis & Futuna, French Polynesia, and New Caledonia, the symposium emphasized the critical importance of regional cooperation in genomic surveillance of pathogens in the Pacific, aligning with the global genomic surveillance strategy and Emergency Preparedness Plans - WHO.

KEY RECOMMENDATIONS

- Creating and advocating a Pathogen Genomic Surveillance regional network
- Interacting and discussing its implementation
- Developing Trainings & Mentorships
- Connecting with local health authorities and the population
- Funding the One Health initiative with identified partners and seek for other private fundings & partnerships
- Setting-up sequencing facilities according to the PICTs needs

SPOP workshop: a step towards greater collaboration in PGS among the PICTs

SPOP workshop: a strong interest in capacity building and discuss on strategies

DAY 1: OPENING DOORS TO FUTURE COLLABORATIONS

After an introductory prayer, welcoming talks were delivered by officials from the New-Caledonian Government, the IPNC and SPC. The symposium was presented, along with the results of a pre-workshop survey on participants' positioning and expectations. Key plenary talks followed, featuring insights from SPC and WHO, which provided a comprehensive view of the genomic surveillance landscape in the South Pacific region. The speakers emphasized the need for data sharing and collaborative initiatives in surveillance and research, underscoring the importance of integrating human, animal, and environmental health strategies across the region.

A detailed status report on current human and animal health surveillance networks, pathogens of interest, and sequencing capabilities in the PICTs was presented. Senior scientists and health or animal officers from the region delivered case studies and updates on the PICTs' current capacities in Pathogen Genomic Surveillance in animal and human health, highlighting needs and pathogens of interest. An expert in Next Generation Sequencing, presented the sequencing platform Oxford Nanopore Technologies®. This was followed by two plenary introductions to the value of Pathogen Genomic Surveillance in virological surveillance, health crisis situations, and in monitoring antibiotic resistance, with a One Health approach. First roundtable closed with an update on sequencing capacities in the region.

DAY 2: SHARING INSIGHTS ON SUCCESS STORIES

Day 2 continued focusing on case studies by experts from France, Australia, Cambodia and New-Zealand on arboviruses, antimicrobial resistance, Avian influenza, and Environmental Health. Presentation of genomic sequencing platforms (on arboviruses, animal diseases and RNA viruses with a One Health approach) highlighted how genomics has addressed specific health issues in human, animal, and environmental health. A presentation of the Illumina® sequencing technology was also given (Microbiology, Infectious Diseases, and Agri genomics). Success stories of the Pathogen Genomic Surveillance approach in the Pacific and other countries were shared, emphasizing the uses of Pathogen Genomic Surveillance in the Pacific with concrete examples from New-Caledonia, Fiji and French Polynesia - on shrimp and soil health to human health - highlighting the benefits of a multisectoral One Health approach for optimized results.

The afternoon focused on the technical requirements for Pathogen Genomic Surveillance, with two panels (Q&A) addressing equipment and structural needs in the Pacific for the wet and dry lab part of sequencing, including logistics, supply, training, and infrastructure. Roundtable 2 explored **the potential of future** Pathogen Genomic Surveillance networks in the Pacific, with participants expressing a desire for a network that utilizes existing surveillance networks and combines human and animal health, adapted to the region.

DAY 3: SHAPING THE FUTURE OF PGS IN THE PACIFIC REGION

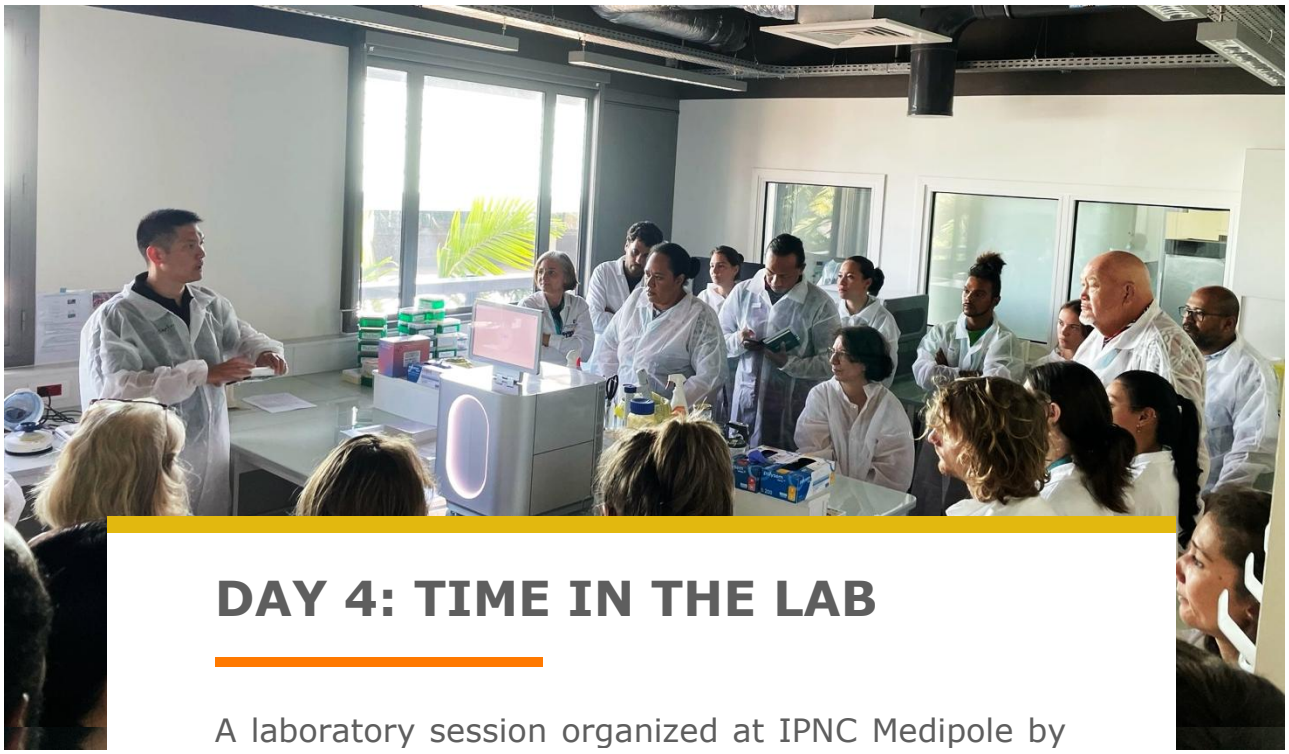
The final day focused on **strategic planning** and collaboration. After a recap of Day 2, and recognizing that this year marks the fifth anniversary of the Covid-19 pandemic, a video conference with ANRS-MIE discussed the AFROSCREEN project, a response program against Covid-19 conducted in 13 African countries. This project still plays a key role in the prevention and management of health crises and has helped Africa create a genomic surveillance network for human health. An inspiring initiative for PICTs.

A final session of talks addressed ethical and social implications of pathogen genomic surveillance, covering advances in biotechnological and post-genomic research and data sharing. French Polynesia provided an overview of Human Ethics in the Pacific through a summary of the BRICK workshop. New-Caledonia discussed Health databases, France and New-Caledonia explained Animal regulations in New Caledonia and worldwide, and Australia explained its response to these issues with AusTrakka/PathoGenTrakka interfaces and tackled the issue of **access, benefit sharing**, and integration.

Roundtable 3 highlighted potential **components in the short and long term** that will facilitate the emergence of a regional genomic network in terms of governance, funds, and organization. Participants brainstormed to identified key persons and labs in each country to interact and discuss Pathogen Genomic Surveillance implementation, aiming to create a Pathogen Genomic Surveillance network in the region. Everyone agreed on the importance of a One Health approach in the context of outbreaks or long-term surveillance. As genomic capacities are present in some PICTs but not everywhere, it is crucial to foster interactions between regional human, animal, and environmental health labs and institutions for better surveillance in the region.

The symposium concluded with a closing session led by IPNC and SPC reflecting on the SPOP's achievements and outlining next steps. In the afternoon, participants were invited to visit the laboratories of the Institut Pasteur of New Caledonia and the Territorial Hospital.

SPOP's outcome: a practical course on Sequencing capacities will be held in 2027 at the IPNC



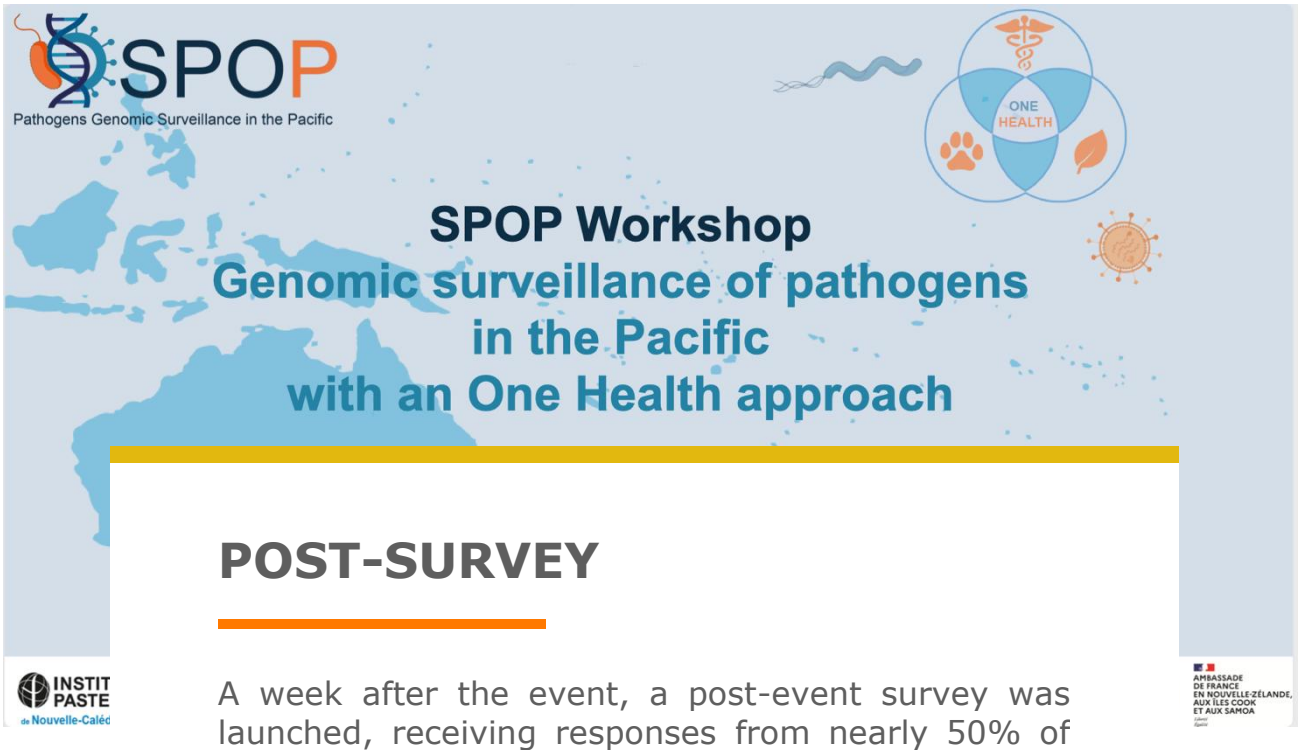
DAY 4: TIME IN THE LAB

A laboratory session organized at IPNC Medipole by Illumina® allowed participants to explore all aspects of sample processing, from sampling to sequencing, and the implementation of bioinformatics analyses.

Discussions focused on the possibility of implementing the solution in a limited space and to rely on user-friendly bioinformatic analysis pipelines.

In parallel, a meeting at SPC was dedicated to avian influenza in the Pacific, based on interactions between WHO, WOAH, reference labs, and the PICTs.

SPOP Worshop: an opportunity to connect and initiate new pathogen-genomic initiatives with regional partners

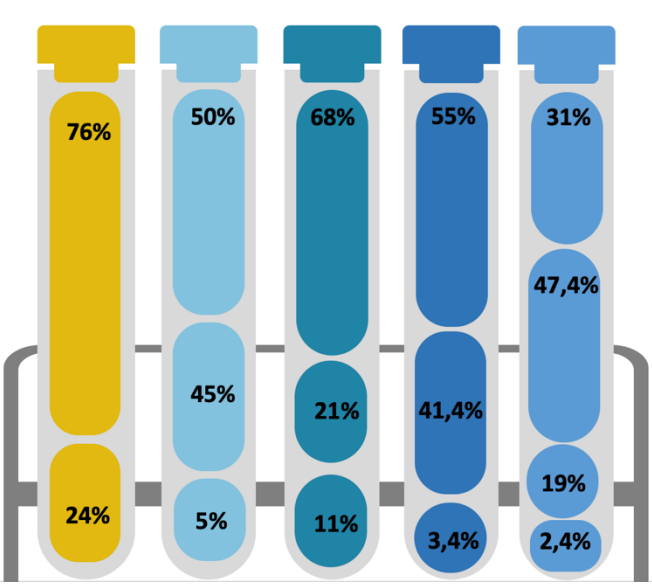


POST-SURVEY

A week after the event, a post-event survey was launched, receiving responses from nearly 50% of the attendees. The survey indicated that that participants were generally satisfied with the event.

Participants found the networking activities and hosting beneficial in establishing connections within the region.

76,2 % commented positively on the scientific content, with many feeling very satisfied by the pertinence of scientific interventions, panel sessions, roundtable sessions, and Q&A sessions. The majority of respondents found the topics relevant.



Scientific content
76 % of attendees were very satisfied
24 % were satisfied

Panels
50 % of attendees were very satisfied
45 % were satisfied, 5 % neutral

Lab session
68 % of attendees were very satisfied
21 % were satisfied, 11 % neutral

Q&A sessions
55 % of attendees were very satisfied
41,4 % were satisfied, 3,4 % neutral

Roundtables
31 % of attendees were very satisfied
47,4 % were satisfied, 19 % neutral,
2,4 % were dissatisfied

WHAT'S NEXT

Establishing a Pathogen Genomic Surveillance network in the Pacific involves **collaborating with stakeholders,** developing training programs, and building local expertise. Engaging local health authorities and the population will be crucial for fostering trust and **community involvement**. As funding is essential, partnerships and private support are required. Setting-up advanced sequencing facilities will enhance the network's ability to detect and respond to pathogens, ensuring the health and well-being of Pacific communities.

Furthermore, in order to better prepare the creation of this future network, all participants agreed to identify the human resources available in their countries who could potentially contribute to the creation of this network in the Pacific. This will be a first step toward action.

A practical course on sequencing capacities will be held in 2027 at the IPNC. Participants identified Leptospirosis as a surveillance priority, emphasizing a multi-sectoral approach and focusing on sequencing preparatory steps as a first step. This underlines the importance of capacity building toward a large-scale sequencing effort based on local expertise for sample preparation and pre-existing sequencing hubs.

SPOP

Thank you, and we look forward to networking with you!

Pacific Community
Communauté du Pacifique

INSTITUT PASTEUR de Nouvelle-Calédonie

SPOP WORSHOP

Institut Pasteur of New Caledonia
Noumea – April 2025

FONDS PACIFIQUE

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CRESICA Consortium pour la Recherche, l'Enseignement Supérieur et l'Innovation en Nouvelle-Calédonie

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