



جامعة الكويت
KUWAIT UNIVERSITY

Under the patronage of the
Vice president for Health Sciences,
Kuwait University

prof. Nourah Al-Suwaih



WORKSHOP

Advances and Economics
of Disease Surveillance and
Clinical Risk Stratification:

A STEP TOWARD SUSTAINABLE PUBLIC HEALTH



keynote speaker :
Professor Andres M. Perez
professor of epidemiology, University
of Minnesota, twin cities, USA
(H-index 50)



Workshop Chair :
Dr. Mohammad Alkhamis

TARGETED AUDIENCE ■

- Clinicians
- Epidemiologists
- Genomic Researchers
- Biomedical Data Scientists
- Health Economists
- veterinarians
- Public Health Officials
- Graduate Students
- Policy Makers
- food safety
- environmental health workers
- Researchers

It is particularly suited for individuals engaged in developing, applying, or evaluating disease surveillance frameworks and predictive analytics.



CME/CPD CREDITS **7** POINTS

 **7–8** December 2025



Sabah Al-Salem University City (Al Shadadiya) - South Building
College of life sciences , second floor, Roman Theater D-2-1032

WORKSHOP

Advances and Economics of Disease Surveillance and Clinical Risk Stratification: A STEP TOWARD SUSTAINABLE PUBLIC HEALTH

Abstract

As the world continues to suffer from the growing burden of infectious and chronic diseases due to their rising epidemiological complexity, effective surveillance systems and clinical risk stratification tools are crucial for timely interventions and improved patient care. A common mistake is to design intervention plans that overlook this complexity, leading to high costs and limited success.

Additionally, the sustainability and scalability of such systems depend equally on economic feasibility and technological progress. This two-day workshop examines both the scientific advances and the economics of disease surveillance and machine learning-based risk stratification approaches. Participants will be exposed to currently generated health data in the Ministry of Health and explore how predictive models can improve patient outcomes and outbreak responses while addressing the critical questions of cost-effectiveness, resource allocation, and return on investment.

A particular emphasis will be placed on streamlining whole-genome sequencing (WGS) for infectious disease surveillance, highlighting its transformative role in tracking pathogen evolution, informing public health interventions, and ensuring cost-efficient implementation at scale. Yet, the currently implemented risk stratification approaches in surgery and medicine (including chronic diseases), will also be explored. By bringing together experts in epidemiology, health economics, genomics, data science, and clinical practice, the workshop offers a holistic perspective on how to design, evaluate, and implement surveillance frameworks that are technologically advanced and economically sustainable.

Learning Outcomes

By the end of the workshop, participants will:

1. Recognize the importance of economic evaluation alongside technological innovation in disease surveillance.
2. Assess the potential of streamlining whole-genome sequencing for infectious disease surveillance.
3. Understand the contributions of genomic surveillance in viral, bacterial, fungal, and parasitic diseases.
4. Explore machine learning approaches for clinical risk stratification in diverse healthcare settings.
5. Analyze policy, investment, and sustainability considerations for long-term impact.
6. Engage in interdisciplinary discussions to inform implementation strategies.

PROGRAM SCHEDULE

DAY-1: 7 DECEMBER 2025

9:30 – 10:00 AM

Registration

10:00 – 10:15 AM

Opening Remarks

Prof. Nourah Al-Suwaih,
Vice president for Health Sciences



10:15 – 11:00 AM

Keynote: Introduction to the Economics of Disease Surveillance

Prof. Andres Perez,
University of Minnesota, twin cities, USA



11:00 – 11:20 AM

Advances in Infectious Disease Genomic Surveillance

Dr. Mohammad Alkhamis,
College of Public health, Kuwait University



11:20 – 11:40 PM

Viral Genomic Disease Surveillance

Dr. Nada Madi,
College of Medicine, Kuwait University



11:40 – 12:00 PM

Morning Discussion Panel

All Participants

12:00 – 1:00 PM

Prayer and Lunch Break

1:00 – 1:20 PM

Candidemia Surveillance and Emerging Species Trends
in Kuwait: Insights from Al-Amiri Hospital

Dr. Khalifa Albanwan,
College of Medicine, Kuwait University



1:20 – 1:40 PM

Bridging Environmental and Human Surveillance: Insights from
Toxocara and Toxoplasma Prevalence Studies in Kuwait

Dr. Anfal Yousef,
College of Allied Health, Kuwait University



1:40 – 2:15 PM

Streamlining Whole-Genome Sequencing for
Infectious Disease Surveillance

Illumina rep., TBA

2:15 – 2:45 PM

Policy and Investment Strategies for Sustainable Surveillance

Prof. Andres Perez,
University of Minnesota, twin cities, USA



2:45 – 3:50 PM

Afternoon Discussion Panel

All Participants

PROGRAM SCHEDULE

DAY-2: 8 DECEMBER 2025

10:00 – 10:20 AM

Principles of risk-stratification from the population to the clinics

Dr. Mohammad Alkhamis,
College of Public health, Kuwait University



10:20 – 10:40 AM

The epidemiological landscape of mental health in Kuwait and the need for surveillance systems

Dr. Bibi Alamiri,
Head of Manarah center for mental health, Ministry of health



10:40 – 11:00 AM

Clinical Risk Stratification in Hematologic Malignancies: Lessons from Myeloma and Beyond

Dr. Mohammad Ebraheem
Malignant Hematologist at the Kuwait Cancer Control Center



11:00 – 11:20 AM

Risk Stratification in Diabetic patients

Dr. Thamer Al-Essa,
Consultant and the Head of the Division of Endocrinology, Diabetes and Metabolism at Jaber Al-Ahmad Hospital



11:20 – 11:40 PM

Machine Learning Methods for Effective Clinical Risk Stratification

Dr. Mohammad Alkhamis,
College of Public health, Kuwait University



11:40 – 12:00 PM

Sustainable Models of Clinical Risk Stratification: Policy, Investment, and Practice

All Participants

12:00 – 1:00 PM

Prayer and Lunch Break

1:00 – 2:00 PM

Commercial dashboard for disease surveillance and risk stratification

Oncogenetics, TBA

2:00 – 3:00 PM

Final Recommendations, Closing Remarks & Certificates Distribution

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