

DIRECTORATE OF INFORMATION & COMMUNICATION

Press Release No: 114/2020

Date: 12 October 2020

Venue: Addis Ababa, Ethiopia

US\$100 million Africa Pathogen Genomics Initiative to boost disease surveillance and emergency response capacity in Africa

Multisectoral partnership will deliver tools and expertise to identify and stop COVID-19 and other disease threats, and strengthen leadership for health security in Africa



Today, a group of public, private and non-profit organizations, led by the African Union Commission through the Africa Centres for Disease Control and Prevention (Africa CDC), launched the Africa Pathogen Genomics Initiative (Africa PGI) in a US\$100 million, four-year partnership to expand access to next-generation genomic sequencing tools and expertise designed to strengthen public health surveillance and laboratory networks across Africa.

Africa PGI will be part of the Institute of Pathogen Genomics, launched by Africa CDC in 2019, with a vision to integrate pathogen genomics and bioinformatics into public health surveillance, outbreak investigations, and improved disease control and prevention in Africa. The institute's capacity will be strengthened to manage and provide technical oversight for Africa PGI.

This new initiative will build a continent-wide disease surveillance and laboratory network based on pathogen genomic sequencing. This network will not only help identify and inform research and public health responses to COVID-19 and other epidemic threats, but also for endemic diseases such as AIDS, tuberculosis, malaria, cholera, and other infectious diseases.

“Africa is experiencing high burden and frequent outbreaks of diseases and these continue to be magnified as the continent moves towards greater integration. The Africa Health Strategy 2016-2030 offers a cohesive and consolidative platform encompassing all commitments in the health sector and provides strategic direction to Member States in their efforts to create better-performing health systems for health security. Strengthening genomic surveillance systems is key for early notification and control of disease outbreaks.” said Dr John Nkengasong, Director of Africa CDC. “Use and integration of advanced technologies such as next generation sequencing into surveillance and emergency response programmes facilitates public health decision-making for better outcomes, as evidenced in two Ebola Virus Disease outbreaks and the current COVID-19 pandemic. The Africa PGI will help Member States build their capacities to operate strong surveillance and laboratory networks supported by advanced technologies to reduce the burden of disease and respond to outbreaks quickly and effectively.”

Contributions to Africa PGI include:

- Illumina and Oxford Nanopore are providing crucial in-kind contributions towards the next-generation sequencing machines and training to incorporate them into an integrated platform, all alongside Africa CDC and public health institutions across Africa;
- The Bill & Melinda Gates Foundation and the US Centers for Disease Control and Prevention are contributing funding and technical assistance, with the US CDC's technical contributions coming through its Advanced Molecular Detection programme;
- Microsoft will contribute technical assistance and resources to support the design and build of Africa PGI's digital architecture in partnership with African institutions, and offer in-kind access on Azure to high-performance computing and genomics software developed by its Life Sciences Division.

Genomic sequencing technologies help public health specialists and researchers to understand pathogens in greater detail, allowing them to better monitor and respond to emerging and re-emerging infections, including tackling antimicrobial resistance. These tools can “read” the genetic material, DNA or RNA, of any organism.

Developed over a decade ago, next-generation sequencing (NGS) offers a more efficient, accurate and cheaper way for researchers to track the slightest genetic changes in pathogens which may cause disease outbreaks across a population. This allows for timely and in-depth characterization of viruses, bacteria and other pathogens, leading to effective public health responses and more defined research targets. While some African institutions have access to genomic sequencing technology, it has not been widespread due to high upfront costs, limited well-trained workforce and limited infrastructure for data systems.

“NGS plays a critical role in all phases of an infectious disease public health threat—from initial characterization to pathogen surveillance, outbreak management, and post-pandemic monitoring,” said Illumina’s Senior Vice President and Chief Medical Officer, Dr. Phil Febbo. “Illumina is proud to be a major supporter of the Africa Pathogen Genomics Initiative because, in addition to NGS technologies, this comprehensive program will also provide the necessary training programs, data infrastructure and governmental support required for long-term sustainability.”

Genomic sequencing has been essential in shaping the global COVID-19 response. It has been used to develop accurate diagnostics, guide the development of vaccines, monitor the evolution of SARS-CoV-2, and understand its transmission dynamics. Increased accessibility of NGS by National Public Health Institutes (NPHIs) would help Africa track the evolution of the virus and build precise tools and policies needed to control and eventually end the pandemic.

In addition to COVID-19, around 140 disease outbreaks are detected annually in Africa, and antimicrobial resistance is a growing threat. Genomic sequencing can help to quickly detect the resurgence of a disease as well as control and eliminate endemic diseases such as malaria, cholera, tuberculosis, and AIDS. In resource-limited environments, the near-real-time insights from pathogen genomics can inform targeted allocation of precious medical commodities like diagnostics, drugs and vaccines.

“Expanding access to pathogen sequencing in Africa will accelerate efforts to detect new epidemics before they spread widely and to monitor their transmission in real time for more targeted and precise response. Pathogen sequencing will also contribute to research and development efforts for new vaccines, diagnostics and treatments for current and emerging infectious diseases,” said Trevor Mundel, President of Global Health, Bill & Melinda Gates Foundation. “It’s critical to empower scientists with the tools they need to stay one step ahead of pathogens.”

Beyond the physical laboratory network, Africa PGI will help build the capacity of NPHIs and scientists in Africa to fully use the NGS technology. An African-owned data library and real-time data sharing platform will be established to support the laboratory network in alignment with Member State regulations.

"The role of technology is critically important to detect, identify, and respond to pathogens and viruses," said Microsoft Vice President and Global Head of Tech for Social Impact Justin Spelhaug. "Microsoft is proud to partner in this vital endeavor to help create solutions needed so that Africa CDC can respond more effectively and protect people across the continent and the world."

A training programme for pathogen genomics, the NGS Academy, will be created to provide NPHIs with the training and tools for effective use of pathogen genomics for public health decision-making. The academy will offer opportunities for researchers to participate in and lead international collaborations in infectious disease genomics.

“Over the last five years, I have seen firsthand how pathogen genomics has helped uncover disease outbreaks and guided real-time outbreak responses more and more in West and Central African countries,” said Christian Happi, Director of the African Center of Excellence for Genomics of Infectious Diseases (ACEGID). “Scaling up and integrating genomics capacity into existing but often-siloed diagnostics platforms, and connecting them to form a pan-African network, will provide exciting opportunities to take public health surveillance to the next level.”

“We’re honoured to work with so many visionary partners on this project, to ensure that the vital public health insights delivered by pathogen genomics can be generated in the heart of the communities who need it most,” said Gordon Sanghera, CEO of Oxford Nanopore. “Our goal at Oxford Nanopore is to create products that empower scientists to tackle the most urgent challenges facing our societies. We are proud to partner with the Africa CDC in their mission to create the Africa PGI, and with leading African scientists to focus the power of our real-time, portable genomics platform on the public health challenges they have identified as their priorities. This program marks a big step in the fight against infectious disease.”

###

About the Africa Centres for Disease Control and Prevention

Africa CDC is a specialized technical institution of the African Union that strengthens the capacity and capability of Africa’s public health institutions as well as partnerships to detect and respond quickly and effectively to disease threats and outbreaks, based on data-driven interventions and programmes. Learn more at: <http://www.africacdc.org>.

About Illumina

Illumina is improving human health by unlocking the power of the genome. Our focus on innovation has established us as the global leader in DNA sequencing and array-based technologies, serving

customers in the research, clinical and applied markets. Our products are used for applications in the life sciences, oncology, reproductive health, agriculture and other emerging segments. To learn more, visit www.illumina.com and connect with us on [Twitter](#), [Facebook](#), [LinkedIn](#), [Instagram](#), and [YouTube](#).

About the Bill & Melinda Gates Foundation

Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. Based in Seattle, Washington, the foundation is led by CEO Mark Suzman, under the direction of Bill and Melinda Gates and Warren Buffett.

About Oxford Nanopore

Oxford Nanopore Technologies Ltd is behind a new generation of DNA/RNA sequencing technology, that works in real-time, can be used in palm-sized portable formats or desktop high-throughput formats. The Company is headquartered in Oxford, UK, but users of its technology span more than 100 countries. Nanopore sequencing has been used extensively in outbreak surveillance, of Ebola, Zika, Lassa Fever, Dengue, influenza, and most recently COVID-19. It can be used close to the sample and produce sequence results very rapidly to inform local and international public health strategies. www.nanoporetech.com

About the United States Centers for Disease Control and Prevention

CDC works 24/7 protecting America's health, safety and security. Whether diseases start at home or abroad, are curable or preventable, chronic or acute, or from human activity or deliberate attack, CDC responds to America's most pressing health threats. CDC is headquartered in Atlanta and has experts located throughout the United States and the world.

About Microsoft

Microsoft (Nasdaq "MSFT" @microsoft) enables digital transformation for the era of an intelligent cloud and an intelligent edge. Its mission is to empower every person and every organization on the planet to achieve more.

Media contacts

For Africa CDC: James Ayodele, ayodelej@africa-union.org

For Illumina: Karen Birmingham, kbirmingham@illumina.com

For the Bill & Melinda Gates Foundation: media@gatesfoundation.org

For Oxford Nanopore: media@nanoporetech.com

For Microsoft: rr@we-worldwide.com

For further media inquiries, please contact:

1. Ms. Wynne Musabayana | Head of Communication Division| Directorate of Information and Communication | African Union Commission | E-mail: MUSABAYANAW@africa-union.org |
2. Mr. Gamal Ahmed A. Karrar | Senior Communication Officer| Directorate of Information and Communication, African Union Commission | E-mail: GamalK@africa-union.org

Directorate of Information and Communication | African Union Commission | E-mail: DIC@africa-union.org | Website: www.au.int | Addis Ababa | Ethiopia Follow Us: [Facebook](#) | [Twitter](#) | [YouTube](#)