

The African continent is faced with a complex health crisis, marked by a confluence of infectious diseases and a surge in non-communicable diseases (NCDs) leading to chronic illnesses against a backdrop of inadequate health and social system performance. The African Population Cohorts Consortium (APCC) is an exciting new initiative bringing African scientists together to strengthen and promote excellence in cohort-based research on the continent. The overarching aim is to improve the health and well-being of populations across the African continent, deploying robust and innovative methods, and improve the health and social systems that serve them.

The vision and mission of the APCC is to unite population cohorts across Africa to harness the continent's diversity and research capabilities to promote scientific breakthroughs, build the African evidence base, and strengthen policy and practice towards attaining equitable universal health coverage. This strategic shift in health and research priorities will be achieved through a collaborative and multi-disciplinary effort underpinned by integrated data systems to leverage the more than eighty population cohorts in Africa for a whole population approach.

The journey to establish the APCC started in March 2020 with a meeting in Uganda and is now culminating in this detailed blueprint, providing a framework, approach, content and structure for the Consortium. It is the result of thorough consultation with a breadth of scientists and leaders of research institutions, thinktanks and universities, along with a variety of government organisations, policy makers, non-governmental and community-oriented organisations, and other stakeholders.

Population cohorts, many of which follow individuals from birth to death, and all of which seek to collect unbiased data irrespective of access or engagement with the formal healthcare system, are an excellent tool with which to gather data on health dynamics. Population cohort-based research seeks to answer vital context specific and policy related research questions at scale. The APCC brings African cohort leaders and researchers together so that they can network, share best practise, identify and use new technologies and achieve a step-change in sharing and harmonising data and analysis approaches to examine the complexity and regional heterogeneity of health outcomes and determinants. This approach would enhance health research and more effectively inform public health policy.

The APCC has identified three synergistic and strategic research programmes that are distinct in their primary focus yet share common goals and access to the common APCC research infrastructure:

1. **Health and Wellbeing Across the Lifespan** aims to leverage longitudinal cohort data to gain insights into the multifactorial determinants of health and disease across different life stages and generations. This programme focuses on understanding the complex interactions between genetic, environmental, and socio-economic factors, including the impact of climate change, and complements the Climate and Health programme objectives. By identifying risk factors and biomarkers for diseases prevalent in African cohorts, this programme contributes to the development of targeted interventions and policies that can improve health outcomes and support the achievement of UHC.
2. The **Climate and Health** programme emphasizes the critical need to understand and mitigate the health impacts of climate change in Africa. It focuses on developing context-specific early warning systems, strengthening health system resilience against extreme weather events (EWEs), evaluating climate-sensitive physical and mental health outcomes, consequent economic and livelihood impact, and enhancing climate data collection. This programme's objectives are inherently linked to the broader goals of improving health and wellbeing across the lifespan and achieving universal health coverage by addressing the environmental determinants of health and ensuring health systems are prepared to respond to climate-related health challenges.

3. Leveraging Population Cohorts to Enhance Progress toward Universal Health Coverage

focuses on utilizing population health cohorts to monitor and improve access to quality healthcare services, financial risk protection, and health system performance. This programme's emphasis on collecting granular, context-specific data at regular intervals aligns with the objectives of the other two programmes by providing a robust evidence-based policy and intervention development. The data collected through this programme will inform targeted strategies to address climate-sensitive health outcomes and support health and wellbeing across the lifespan, thereby contributing to the overarching goal of achieving UHC and making health care systems more responsive to the needs of the population.

Capitalising on the expertise of leaders in the field, the APCC will facilitate the development of harmonised cohort methodologies that enhance individual cohort outcomes and the effectiveness of multi-cohort research. This includes the development and use of a common cohort data model, the establishment of trusted research environments to promote data use, and the strengthening of guiding ethical principles to safeguard and involve cohort participants while enabling multi-cohort research.

Capacity building and training of cohort members of the APCC will be embedded within the development of cohort methodologies to enhance research and technical skillsets as well as organisational management skills.

Some collaborative studies within the APCC will include collection of biological samples and their processing and sharing, including associated data, across different institutions and with APCC. To facilitate this, an APCC biobanking network will be established.

Central to the work of the APCC will be fostering engagement, collaboration, and innovation with stakeholders within academic, research and regional networks.

Governance and organisation:

The membership of the APCC, comprises the population cohorts that align with the APCC Membership criteria. Each full member cohort of the APCC is eligible to nominate one delegate to the Members Council. The APCC hosts an in-person annual meeting that provides an opportunity for APCC members including associated scientists and stakeholders to connect, share ideas, build relationships, foster multi-cohort initiatives and present their research.

The APCC operates under the guidance of its Steering Committee selected by the Members Council. Day-to-day operations are the responsibility of the Secretariat situated in a well-respected Host Organisation. An Advisory Council of external experts provides guidance to the APCC executive.

Funding for the formative phase has been provided by the Wellcome Trust, Bill & Melinda Gates Foundation, and UKRI Medical Research Council. We intend to expand this funding base to support the establishment and implementation of the APCC.