REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

POLICY BRIEF

Advancing Personalised Medicine in Kenya



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INTRODUCTION

Healthcare plays a critical role in ensuring the well-being and quality of life for individuals of all ages. It refers to the organized efforts and services provided by health professionals, institutions, and systems to diagnose, treat, and prevent illnesses and injuries. Personalized medicine transforms healthcare from a generic, one-size-fits-all model into a tailored approach.

The World Health Organization (WHO) defines Personalized medicine (PM), also known as precision medicine, as an innovative approach that tailors medical interventions to individuals based on their unique genetic, molecular, lifestyle and environmental factors. This approach aims to improve outcomes, reduce side effects, and predict or prevent disease before it develops.

Personalized Medicine is considered a tailor-made prevention and treatment strategy for individuals or groups, so that patients receive specific therapies that are most appropriate for them and no money is wasted on trial-and-error treatments.

RATIONALE

Personalized medicine is rapidly transforming healthcare globally. This is driven by advances in science and technology areas such as genomics, Artificial Intelligence, and digital health, with a projected market growth from about USD 654.46 billion in 2025 to USD 1.31 trillion by 2034. This development has led to gradual integration of personalized medicine into healthcare systems and pharmaceutical industries.

For Africa, personalized medicine is particularly important given the dual burden of persistent infectious diseases and rising non-communicable diseases, which together contribute to major health and economic losses, including significant productivity decline across the continent.

The personalized medicine industry is experiencing significant growth driven by advancements in genomic technology, the need for specialized treatments and a shift towards value based healthcare models.

The Government Bottom up Economic Transformation Agenda aims to strengthen healthcare by delivery of Universal Health Coverage (UHC) through the various initiatives including: implementation of a fully public-funded primary healthcare; scaling up manufacturing of essential medical supplies; strengthening human resource for health; and expanding healthcare infrastructure.

Personalized medicine offers the right drug, to the right patient, for the right disease, at the right time with the right dosage. Genetic and metabolic data allows drugs to be tailored to patient subgroups. Personalized medicine has great potential, especially for cancer patients, sickle cell patients, fibroids, tuberculosis, arthritis, and diabetes. The objective of this policy brief is to provide information on the current status of personalized medicine and propose recommendations for its integration in the healthcare system .

3. SITUATIONAL ANALYSIS

The country's healthcare system is composed of both public and private sectors, with initiatives aimed at improving access and quality of health services. The right to health is enshrined in the Kenyan Constitution 2010. Article 43 (1)(a) guarantees every person the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care. The Health Act CAP 241 provides for regulation of healthcare service and healthcare service providers, health products and health technologies. The Act establishes a national health system which encompasses public and private institutions and providers of health services at the national and county levels and facilitate in a progressive and equitable manner, the highest attainable standard of health services among other objects.

Based on different policies and legislation, the country has established regulatory agencies, research and development institutions and accredited programmes in academic institutions to support the development of the health sector. In addition, the manufacture of pharmaceutical products and technologies is largely driven by the private sector.

Despite these developments, personalized medicine remains largely unintegrated into Kenya's healthcare system. While the country has established key foundations in research, regulation, healthcare delivery, and pharmaceutical manufacturing, gaps remain in genomic infrastructure, data governance, financing, and specialized workforce capacity. Addressing these gaps through a coordinated national approach will be essential to realizing the benefits of personalized medicine and improving health outcomes.

4. METHODOLOGY

The study employed a qualitative desktop research approach to collect and analyze secondary data from a variety of sources. The methodology involved a review of scholarly articles, technical reports, and relevant literature to establish the evidence base on the subject. In addition, global, regional, and national frameworks, policies, strategies, and regulatory documents were reviewed to assess the existing policy and institutional landscape. Key documents reviewed include but not limited to: World Health Organization (WHO) Global Strategy on Digital Health, EU-Africa-PerMed Project Reports and Policy Recommendations, World Economic Forum Reports on Precision Medicine and Genomics, the Constitution of Kenya, 2010, Kenya Health Policy 2014–2030, Science, Technology and Innovation Act and the Health Act.

To complement the desk review, interviews were conducted with subject matter experts. These provided expert perspectives on current trends, opportunities, challenges, and emerging issues.

The data collected from the document review and expert consultations were analyzed to identify key findings, challenges, and recommendations aligned with the objectives.

5. FINDINGS

The government has launched initiatives to promote genomic research and personalized medicine. Additionally, the government has collaborated with international organizations to enhance capacity building and infrastructure development for personalized medicine. In 2025, KEMRI together with MoH, health institutions, private sector, NGOs, research organizations organized a conference on Unveiling Kenya's Precision Medicine: Strengthening disease management through targeted therapy. The sessions highlighted the urgent need for the country to embrace precision medicine in her efforts towards universal healthcare. Research and development institutions have capacity for biobanking and genomics providing a platform for development of the precision medicine industry. To realize the full potential of precision medicine, the participants called for increased government support, including adequate funding, policy reviews to mandate genetic screening for cancer patients, and the expansion of testing centres. They also emphasized the need to bridge the gap between clinicians and researchers and accelerate biobanking development.

Overall, these developments indicate that Kenya is progressively building the necessary ecosystem for personalized medicine through policy support, institutional

collaboration, and research capacity strengthening. However, the initiatives remain fragmented and largely in early stages of implementation, highlighting the need for stronger coordination, sustainable investment, and clear national frameworks to guide the integration of precision medicine into routine healthcare delivery.

6. KEY CHALLENGES

1. **Regulatory and Policy Frameworks:** Personalized medicine implementation is slowed by differences in regulatory frameworks across jurisdictions, alongside weak coordination among government agencies responsible for health, research, education, and innovation. This fragmented governance structure limits harmonized adoption and scaling of personalized medicine initiatives.
2. **High Costs and Sustainability Concerns:** The high cost of emerging technologies, including genomic sequencing and advanced diagnostics, remains one of the most significant barriers. Policymakers and funders often perceive personalized medicine as "expensive" or "elite healthcare," raising concerns about equity and sustainability within public health systems.
3. **Ethical and Data Governance Issues:** The collection and use of genetic and clinical data raise major ethical concerns, including privacy, consent, and the risk of genetic data breaches. There is also uncertainty around how to regulate data sharing across multiple stakeholders such as patients, healthcare providers, researchers, and insurers, both within and across countries. In addition, The absence of standardized data formats and definitions across various initiatives limits the usability and integration of datasets.
4. **Limited Human Resource Capacity:** There is a shortage of trained geneticists, bioinformaticians, molecular researchers and health professionals with the skills required to interpret and apply genomic data. In addition, current medical training is largely disease-specific and reactive, limiting the ability of clinicians to adopt a holistic, multidisciplinary approach required for personalized medicine.
5. **Resistance to Change within the Health Workforce** Some healthcare professionals are hesitant to adopt new approaches associated with personalized medicine. This resistance is often linked to unfamiliarity with emerging technologies and is compounded by limited exposure during professional training.
6. **Low Patient and Public Awareness** Limited public understanding of personalized medicine reduces patient engagement and acceptance. There is also insufficient emphasis on patient involvement in research and healthcare decision-making processes, despite its importance in strengthening implementation.
7. **Insufficient R&D funding:** Insufficient R&D funding limits the development and scaling of precision medicine in Kenya due to the high costs of genomics, diagnostics, and related infrastructure. Heavy reliance on short-term donor funding also constrains long-term research continuity and slows the translation of innovations into clinical practice

Table 1: Framework for Precision Medicine in Kenya

FRAMEWORK FOR PRECISION MEDICINE IN KENYA	
INSTITUTIONS	**MANDATE**
Ministry of Health	• Develop national policies, strategies, and guidelines for precision medicine. • Integrate precision medicine into healthcare delivery and national health programs. • Coordinate implementation across public and private health sectors. • Mobilize resources and budgetary support. • Ensure equitable access to precision medicine services and technologies. • Establish standards for data governance, ethics, and patient protection.
Pharmacy and Poisons Board	• Regulate and approve precision medicines, companion diagnostics, and related medical products. • Ensure safety, quality, and efficacy of personalized therapies. • Monitor post-market safety through pharmacovigilance systems. • Develop regulatory pathways for emerging technologies such as gene therapies and genomic diagnostics. • Harmonize regulations with regional and international standards.
Research institutes, Universities and middle level colleges	• Conduct genomic, clinical, and translational research • Generate local evidence to inform policy and clinical practice. • Train healthcare professionals, researchers, and bioinformaticians. • Develop biobanks and genomic databases. • Facilitate innovation and technology development. • Support clinical trials and implementation of research.
Industry	• Develop and manufacture precision medicines, diagnostics, and digital health solutions. • Invest in research and innovation. • Collaborate in clinical trials and product development. • Support technology transfer and local production. • Provide expertise in data analytics, artificial intelligence, and genomics technologies.
Intellectual Property offices	• Protect innovations through patents, trademarks, and other intellectual property mechanisms. • Facilitate commercialization of research outputs. • Promote technology transfer and innovation ecosystems.

	• Balance intellectual property protection with access to essential health technologies. • Provide guidance on ownership and sharing of genomic innovations.
Kenya National Innovation Agency	• Support innovation, commercialization, and industrial development related to precision medicine. • Facilitate partnerships between researchers and industry. • Promote local manufacturing and value addition. • Strengthen innovation hubs and technology incubation programs.
National Research Fund	• Provide competitive funding for precision medicine research and innovation, including support for priority national projects in genomics, diagnostics, and personalized therapeutics. • Support capacity building and infrastructure development. • Promote multidisciplinary and collaborative research. • Monitor and evaluate research outcomes and impact.
National Commission for Science Technology and Innovation	• Coordinate and regulate research activities related to precision medicine. • Review and approve research projects through established frameworks. • Develop science, technology, and innovation policies. • Promote responsible research conduct, ethics, and data governance. • Facilitate national and international research collaborations. • Monitor compliance with research regulations and standards.
Consumer organizations and advocacy groups	• Represent patient and public interests in policy development. • Raise awareness and literacy on precision medicine. • Advocate for equitable access, affordability, and patient rights. • Participate in ethical discussions on genetic testing and data use. • Provide feedback on patient experiences and service quality. • Promote public trust and community engagement.
Counties	• Implementing the national health policy and standards as laid down by national government Ministry responsible for health; • Service delivery, including the maintenance, financing and further development of those health services and institutions that have been devolved to it; • Providing access and practical support for monitoring standards compliance undertaken within the county by the national government department responsible for health, the Authority and professional regulatory bodies established under any written law; • Providing access and practical support for technical assistance, monitoring and evaluation, research for health by the national and county government department responsible for health; • Ensuring and coordinating the participation of communities in the governance of health services at the county level so as to promote a participatory approach in healthcare governance.

7. POLICY RECOMMENDATIONS

1. **Review Governance Frameworks**: Government should establish coordinated national strategies for personalized medicine that integrate health, research, education, and innovation sectors. These frameworks should include legislation, ethical guidelines, and regulatory mechanisms for genetic data protection and sharing.
2. **Invest in Sustainable Financing Mechanisms**: Policymakers should design sustainable funding models that ensure equitable access to personalized medicine technologies. Cost concerns should be addressed through pooled financing, insurance coverage mechanisms, and evidence-based reimbursement systems.
3. **Strengthen Health Data Governance and Standardization Systems:** Countries should develop interoperable data standards and regulatory frameworks that facilitate secure, ethical, and efficient data sharing across institutions and borders. This includes harmonizing formats and improving access to well-governed archival datasets.
4. **Build Human Resource Capacity:** Health professionals curricula should be updated to integrate personalized medicine, genomics, and data science. Training should emphasize multidisciplinary teamwork involving clinicians, laboratory scientists, data experts, and other healthcare professionals.
5. **Promote Public Awareness and Patient Engagement:** Governments and stakeholders should invest in public education campaigns to improve understanding of personalized medicine. Patient involvement should be embedded in research, policy development, and clinical decision-making processes.
6. **Foster Collaboration and Partnerships**: Establish national research centers and multi-stakeholder platforms to support innovation, coordination, and alignment of personalized medicine initiatives. This should include partnerships between government, academia, industry, and society.

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