

How omics can revolutionize healthcare in the Middle East

In recent years, interest in genomics has been rising rapidly across the GCC. Already in use in prenatal testing, premarital screening, and certain cancer screenings and treatments, genomics is just one of several “omics” sciences that collectively promise to transform our approach to health and disease. Realizing omics’ societal and economic benefits requires coordinated action among multiple stakeholders.

Omics explore the roles, relationships, and actions of the various types of molecules in an organism’s cells. They provide insights into biological functions and their impacts on health, and therein hold great promise for our ability to predict, diagnose, and treat a vast array of diseases. Proteomics, for example, which examines the roles, locations, and interactions of proteins, may unlock answers to Alzheimer’s disease.

Beyond their potential for improving and managing health outcomes, omics and their technologies represent a significant economic development opportunity. By 2027, the genomics market in the Middle East and Africa is **projected to reach US\$1.2 billion, growing with a CAGR of around 10% between 2023 and 2027.**

What makes omics so compelling is their power to personalize healthcare. Prevention and treatment are tailored to the individual’s unique biological and genetic makeup, which offers better outcomes while reducing unnecessary and ineffective procedures and their associated risks and costs.

Omics can also advance public health. By enabling the stratification of populations, they can inform government decisions, such as medication approval and ensuring that treatments align with the individual biological profiles of citizens.

GCC countries are in the vanguard of those incorporating genomics into their national healthcare strategies. Saudi Arabia’s newly launched National Biotechnology Strategy, **part of Vision 2030**, aims to position the country at the forefront of the global biotechnology landscape. The strategy entails expanding the national genomic database, fostering a supportive regulatory environment, and applying precision medicine to improve health outcomes. Both Qatar and the UAE have genome-mapping programs, the latter targeting 1 million citizens to tailor cancer treatment.



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Through strategic actions, Saudi Arabia and the UAE could capture over 60% of MENA’s US\$1.2 billion genomics market by 2027

Further advances are possible. Through an integrated approach that encompasses multiple omics, GCC countries stand to gain a more sophisticated understanding of diseases, especially complex conditions that disproportionately affect their populations. Multi-omics offers a pathway to identify biomarkers and therapeutics that are more relevant and potentially more effective for GCC citizens given their particular genetic makeup. This approach supports the development of more accurate diagnostic tools, personalized treatments, and more effective preventive measures. In adopting multi-omics, the GCC could set a new standard in individual and public health.

In addition to their substantial health benefits, omics and their technologies offer significant economic development opportunity. We estimate that Saudi Arabia and the UAE are poised to capture more than 60% of the MENA region's estimated US\$1.2 billion market for genomics alone. Strategic investments in genomic technology and data—such as AstraZeneca's estimated **US\$840 million four-year partnership deal** with Verge Genomics recently—also reflect the high economic stakes and potential returns.

To realize the transformative potential of omics, GCC healthcare stakeholders can take six steps.

- 1** Governments and regulators should lay the foundation, starting with secure data infrastructure and governance, the seamless integration of omics in the research ecosystem, sustained funding, and sufficient talent. They must provide clear and consistent legislation and predictable regulations for handling patient data, maintaining laboratory safety standards, and safeguarding direct-to-consumer services.
- 2** Healthcare and public health authorities should proactively collect and analyze their populations' omics datapoints to inform public interventions, approvals (e.g., for medications and treatments), and clinical guidelines.
- 3** Research and educational institutions should deepen their study of local biology to address health challenges unique to the region. Doing so requires establishing clear research objectives, securing substantial sample sizes, and using modern laboratories and analytical tools effectively. Omics technologies should be included in biomedical education programs.
- 4** Healthcare providers should integrate omics into routine clinical practice, offering equitable access to omics solutions and ongoing education to medical staff, while ensuring guideline compliance.
- 5** Healthcare payors should develop new frameworks for assessing and reimbursing omics solutions, focusing on their health and economic benefits and ensuring clinical effectiveness, quality, and transparency. These frameworks are crucial for maintaining funding for omics technologies.
- 6** Private-sector investors and companies should establish a sustainable loop of omics technology development through significant R&D investment, international collaborations, and public-sector partnerships.

The potential health and economic benefits of the omics revolution are profound—and the GCC stands at the threshold of this new era in medicine. With its genetic diversity, advanced technological infrastructure, and strong governmental support, the GCC is well-positioned to lead the world in integrating omics into healthcare and setting a new paradigm for precision medicine worldwide.

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