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Using Innovative Data-driven Population Health Management Approaches Today to Improve Health and Well-being of the Population Tomorrow

The rising rates of aging populations and non-communicable diseases (NCDs) place an immense strain on healthcare systems in the Middle East and North Africa region (MENA). NCDs account for 74% of all deaths in the MENA region, particularly owing to cardiovascular diseases.[1] Further, 1 in 6 adults live with diabetes in the region, which represents the highest proportion of diabetes worldwide.[2] Coupled with the expected increase in the number of elderly people in the region by almost three times by 2050,[3] healthcare spending per capita is projected to rise by 87% by 2040, if care is delivered as per the status quo.[4]

Overcoming these challenges requires consolidated efforts that address and enhance individuals' health and well-being along the continuum of care at low cost. Healthcare organizations need evidence-based approaches to uncover the root causes of these challenges to target care based on defined populations needs. Population Health Management (PHM) is one such innovative solution that has gained momentum in the recent years. This approach reduces the focus from disease-centered interventions to innovative and timely interventions placing the individual at the heart of care.
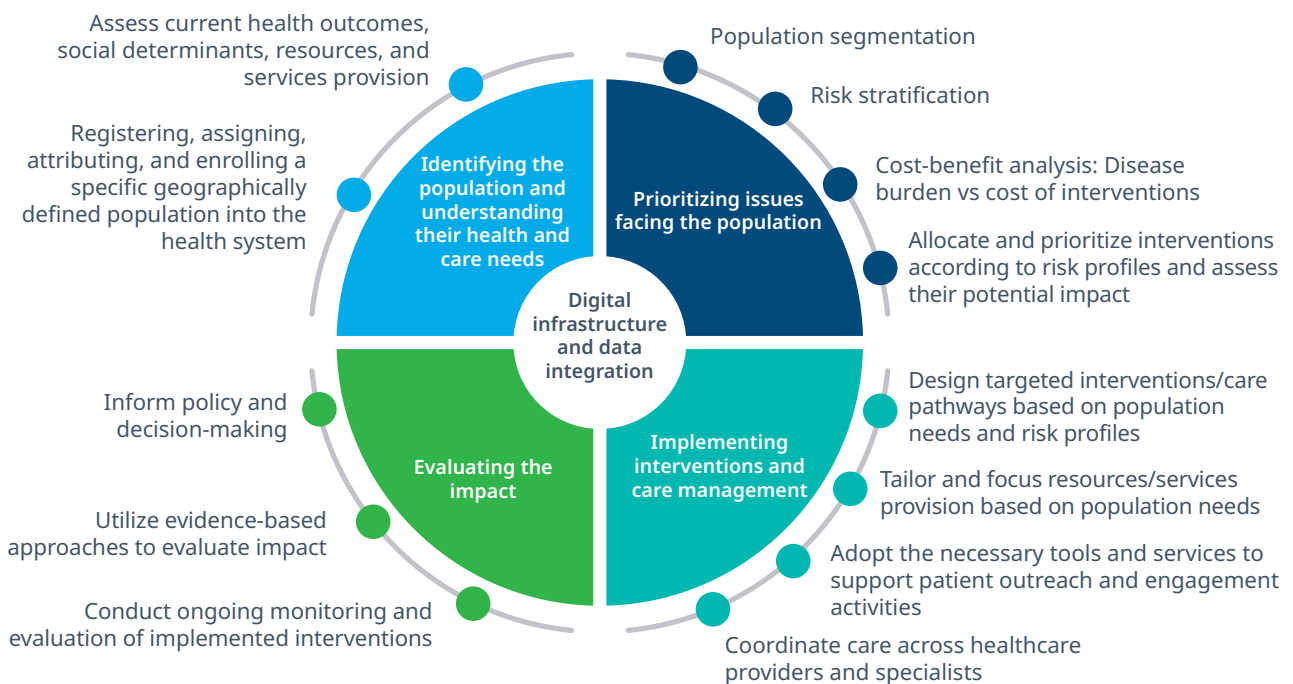
Population health management has grown significantly as a revolutionary, systematic, and data-driven approach improving the health and well-being of populations and enhancing the experience of care, all whilst reducing per capita cost. PHM has been widely adopted by various countries worldwide to meet public health challenges including Kingdom of Saudi Arabia (KSA).

KSA has embarked on a journey of Population Health Management as an approach to transform its healthcare sector reinforcing the right to health to all citizens. Saudi Arabia's healthcare sector aims to decentralize the provision of healthcare by re-classifying existing providers into geographically defined 'Clusters' that are vertically integrated, to develop and mature into 'Accountable Care Organizations (ACOs).[5] ACOs aim to provide high quality care at a reduced cost, that responds to a given population's health needs.

To ensure the successful implementation and integration of PHM in countries' healthcare system, it's imperative to follow an evidence based PHM framework. Multiple frameworks have been adopted in various countries however, almost all follow a similar implementation process that includes four essential actions:

1. **Identifying the population and understanding their health and care needs**

2. **Prioritizing issues facing the population**

3. **Implementing targeted interventions and care management**

4. **Evaluating the impact**

PHM frameworks focus on four essential actions

Assess current health outcomes, social determinants, resources, and services provision

Registering, assigning, attributing, and enrolling a specific geographically defined population into the health system

Inform policy and decision-making

Utilize evidence-based approaches to evaluate impact

Conduct ongoing monitoring and evaluation of implemented interventions

Population segmentation

Risk stratification

Cost-benefit analysis: Disease burden vs cost of interventions

Allocate and prioritize interventions according to risk profiles and assess their potential impact

Design targeted interventions/care pathways based on population needs and risk profiles

Tailor and focus resources/services provision based on population needs

Adopt the necessary tools and services to support patient outreach and engagement activities

Coordinate care across healthcare providers and specialists

Identifying the population and understanding their health and care needs

Prioritizing issues facing the population

Digital infrastructure and data integration

Evaluating the impact

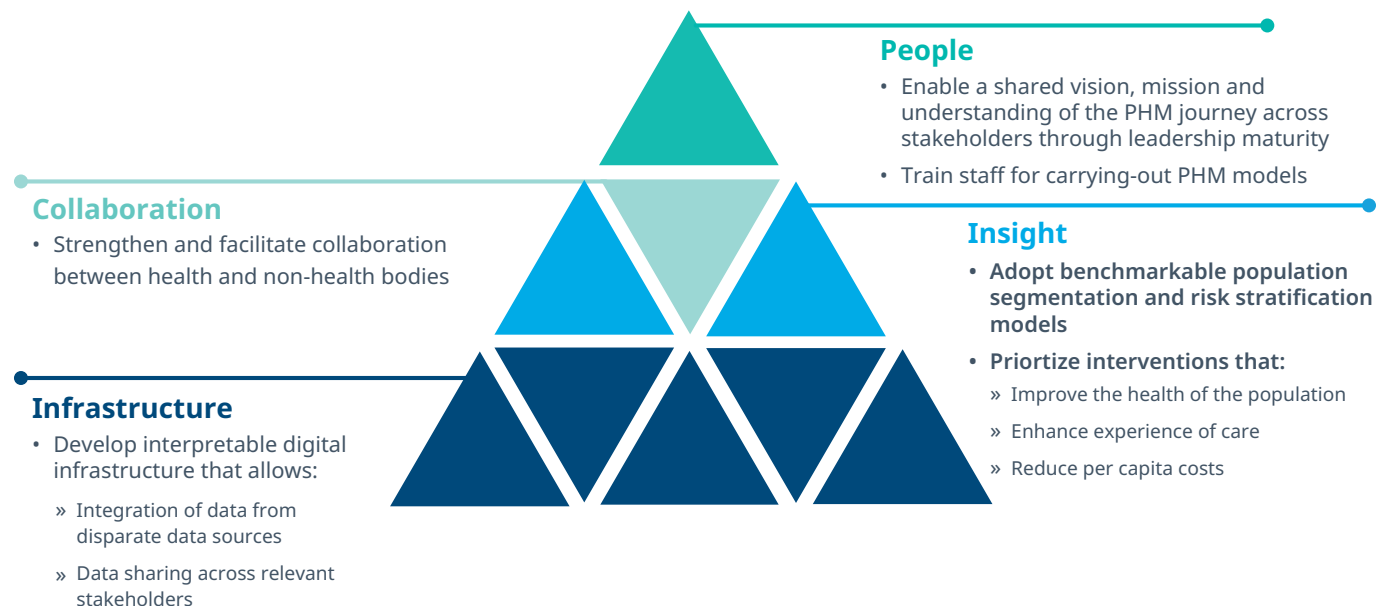**Implementing interventions and care management**

The core of a PHM framework is leveraging big-data and health analytics through the development of interoperable data systems linking population health data within the healthcare delivery system, promoting the integration, and sharing of data and tracking of outcomes through real-time analytics.

KEY ENABLERS FOR SUCCESSFUL EXECUTION OF PHM

Infrastructure, Insight, People, and Collaboration are **four critical factors** enabling the successful execution of PHM models to adequately address healthcare challenges and drive the Healthcare forward. These themes are not mutually exclusive but are rather interdependent.

Critical success factors enabling successful implementation of PHM approaches

People
- Enable a shared vision, mission and understanding of the PHM journey across stakeholders through leadership maturity
- Train staff for carrying-out PHM models

Collaboration
- Strengthen and facilitate collaboration between health and non-health bodies

Insight
- **Adopt benchmarkable population segmentation and risk stratification models**
- **Priortize interventions that:**
  » Improve the health of the population
  » Enhance experience of care
  » Reduce per capita costs

Infrastructure
- Develop interpretable digital infrastructure that allows:
  » Integration of data from disparate data sources
  » Data sharing across relevant stakeholders

Infrastructure: Without interconnected and interoperable digital solutions, realizing the full potential of PHM approaches is unlikely. Therefore, the adoption of a platform which can act as a catalyst to facilitate a holistic analysis of population health data through the acquisition, consolidation, and processing of various data assets from multiple heterogeneous data providers, is of paramount importance. It is founded on three core components:

1. Interoperability of heterogeneous data sources **—** Integrating clinical and non-clinical datasets into an interoperable healthcare ecosystem standardizing and centralizing data at a national level

2. Real-time analysis of high velocity data **—** Real-time, data-driven decision-making enabling the generation of actionable insights, such as developing customized interventions targeting high-risk patients

3. Anonymized and federated access to data **—** Sharing of data in a secure and controlled manner enabling effective coordination between health and non-health organizations through an in-build redaction, encryption, and obfuscation of Personal Health Information (PHI) data[6]

Insight relies on adopting benchmarked population segmentation and risk stratification models that can be adapted to fit local needs, such as the Bridges to Health model and the American Academy of Family Physicians risk scoring model, respectively.[7] In understanding the population's segments, decision-makers will be able to achieve financial sustainability through prioritizing targeted interventions that enhance the patient experience, optimize resource management, care, and low-cost treatments.

People: This factor is underpinned by the importance of leadership to align on the vision, mission, and path forward in the PHM journey, and gain buy-in from all relevant stakeholders, including clinical and non-clinical staff, and the wider community. However, leadership should also ensure the adequate training of staff to be able to carry-out PHM functions successfully.

Collaboration is at the heart of PHM's critical success factors emphasizing the necessity of health and non-health agencies to work together towards a healthy future. This is achieved by promoting a culture of transparency and data sharing enabling linkage of patient-level data.

Adopting these four critical success factors will enable healthcare organizations globally to effectively implement PHM approaches. This in turn will foster sound decisions based on evidence that can address today's health challenges and predict and prepare for future health and care needs.

It is worth noting however, that transitioning to a Population Health Management approach is not without challenges. Some of the challenges that can impact successful implementation of PHM are mentioned below and should be overcome:

KEY CHALLENGES	SOLUTION
Lack of a robust digital platform: • Limits advanced analytics necessary for PHM to be performed • Limits interoperability of data systems across relevant health and non-health bodies	• Investing in scalable and modernized data systems • Investing in hiring of trained, high-caliber data-scientists and IT professionals, in addition to upskilling existing staff
Lack of clear understanding of population characteristics in a specified geographical location: • Affects population representation (i.e., distorting the balance in the ratio of high-needs patients to healthy patients)	• Collaborate with other national bodies to share data on populations in similar geographies (e.g., unified government data, housing data, census etc.)
Uncertainty in identifying PHM starting point due to a **wide spectrum of diseases and risk factors**	• Assessing and setting priority initiatives using a high burden-high-cost matrix
Misconceptions around staffing: Staff buy-in on the PHM journey due to the misconception that implementing PHM will increase already high workloads	• Adopt innovative solutions (i.e., automated technology-enabled communications for patient outreach) to handle parts of the population health management process

Population Health Management approaches must be proactive, comprehensive, multi-disciplinary and data driven which in turn would enable people to live healthy lives and ensure a healthy future.

IQVIA has a dedicated public-health practice actively engaged with governments, national/international donors and Multilateral health care organizations and private sector stakeholders to support evidence-based decision making. Our service offerings include Population Health Management, Health Needs Assessment, Disease Burden Assessment, Technology Solutions, Policy and Strategic Planning, Platform Implementation, Financial Optimization and Operational Effectiveness, Research and Analytics including undertaking large community and institutional surveys, Monitoring and Evaluations of Large-scale programs, Procurement and Supply Chain Assessments, Digital Health in Public Health, Public-Private-Partnerships, Support Private sector engagement and Program Implementation. The public health team serves more than 50 countries in the Middle Eastern, African and South Asian region. For more information, please reach out to Noor Shazli at noor.shazli@iqvia.com or Tripti Bajaj at tbajaj@ae.imshealth.com or visit our website here: https://www.iqvia.com/locations/middle-east-and-africa/solutions/public-health-solutions

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2. International Diabetes Federation - Diabetes in the Middle East and North Africa Factsheet 2021.
3. UNFPA - Ageing in the Arab Region: Statistical Trends and Policy Perspectives 2017
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5. Health Sector Transformation Strategy V.3
6. Unified Analytics: Disrupting traditional healthcare delivery and driving the future of health, 2021. (iqvia.com)
7. The 'Bridges to Health' (B2H) model is a fundamentally person-focused segmentation method that categorizes populations according to their health and care needs, priorities, and circumstances; The American Academy of Family Physicians (AAFP) risk scoring model determines a patient's risk level based on objective data and subjective clues and it involves sorting patients into one of three risk groups based on the presence or absence of specific factors.

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