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Perspective Article

Public Health to Population Health – Abu Dhabi's Role Model Approach

Samara Bin Salem and Premanandh Jagadeesan*

Technical Affairs Division, Central Testing Laboratories, Quality and Conformity Council, United Arab Emirates

***Corresponding author:** Premanandh Jagadeesan, Technical Affairs Division, Central Testing Laboratories, Quality and Conformity Council, P.O Box 853, Abu Dhabi, United Arab Emirates.

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Abstract

Health care is one of the important pillars of good governance and policymakers aim to promote the welfare of its people by providing protection against diseases and environmental hazards ensuring good quality health care. The phenomenal transformation in the health infrastructure of the U.A.E since independence in 1971 and its continuous efforts to meet the growing needs of lifestyle-associated disorders have been presented. The recent adaptation of the population health management approach by Abu Dhabi and its befitting application has been discussed. Dual health concerns faced by the nation and consistent commitment to offering world-class health infrastructure by the rulers by adapting and utilizing the advent of modern technology are discussed. The role of digital technologies and their relevance in population health are presented. Ensuring the public health goes beyond the concept of symptom-based individual health status demanding far ahead approach like population health that targets susceptible populations paving way for quality, cost-effective wellness, and Abu Dhabi is consistently thriving its innovative approach to health and well-being of its community.

Perspective

The basic function of any government is to provide and maintain good public services and security for its citizens. It is the responsibility of the governing body to make appropriate policy decisions and implementation, a process generally referred to as governance. Since health care is one of the important pillars of good governance, policymakers focus on and promote the welfare of its people by providing protection against diseases and environmental hazards ensuring good quality health care. Abu Dhabi, the largest emirate, and capital of the United Arab Emirates (UAE) from the coast of the Arabian Gulf with a population size of around 1.5 million (WPR, 2022) [1] has been consistently focusing on improvising health infrastructures. It is actively expanding its healthcare system to meet the growing needs of the people.

The economic advances since the discovery of oil have resulted in rapid population growth, per capita income, and wealth [2] in the United Arab Emirates (UAE). The resultant change in lifestyle, nutritional habits, and inflow of migrant workforce has undoubtedly increased health problems and associated diseases. The health infrastructure of the U.A.E has undergone phenomenal reforms since independence in 1971 from only seven hospitals to the current level of around 200 hospitals across the nation. Nevertheless, growing dual health concerns of both infectious and lifestyle-related chronic diseases pose serious challenges requiring innovative and integrated approaches to strengthen health systems.

UAE has always been the front runner when it comes to the implementation of novel approaches that benefit the citizens. As quoted by President HH. Sheikh Mohammed bin Zayed Al Nahyan "You are the real wealth, not the 3 million barrels of oil. You are the future of this nation's security and safety net. We are in a good condition now, but we want to establish the vision for 50 years ahead." Thus, the nation is consistently striving to provide better living conditions and the recent adaptation of the population-based health model by Abu Dhabi is a classic example. Population health is relatively a new approach in which the health outcomes of a group of individuals, including the distribution of such outcomes within the group, patterns of health determinants, policies and

interventions that link these two, as proposed by [3].

The population health management approach explores all contributing aspects such as social environments, genetics, geographic locations, and other factors in a population rather than treating illness based on the symptoms. This approach has high relevance and is best suited for the current situation especially concerns on lifestyle-related diseases are surging in the country. Cardiovascular diseases (CVD), constitute a major cause of death among UAE nationals having a higher prevalence of risks than in developed nations [4]. while the Emirati population preserves its genetic structure, birth defect related to gene disorders are of major concern. Consanguineous marriages among first and second cousins are very common in the region [5]. The implications of consanguinity seem to be associated with an increased risk of genetic disorders among consanguineous offspring. Furthermore, the probability of recessive diseases among the offspring is higher as consanguinity creates long runs of homozygosity (ROH) in the genome [6].

To address the issues pertaining to genetic disorders and to support the development of healthcare strategies in the country, a comprehensive national genome program has been unveiled by Abu Dhabi in 2019. The main objectives of the program include the development of a reference genetic map of the Emirati population, assess genomic information and its role in heritable diseases, early screening, and prognosis of diseases with a preventive plan. It also improves our understanding of genomics in the local population, which will establish the foundation for innovation in health and wellness.

The nation has 3 key health priority areas viz cardiovascular disease being the top followed by cancers and respiratory disorders [7]. In addition, the prevalence of diabetes and obesity among the population is a serious challenge requiring immediate attention. Thus, with the help of genomic data and clinical information, the level of risk associated with siblings can be assessed and subsequent preventive measures can be adapted. The influence of nutrients in the expression of genetic information at the level of gene regulation has been well established [8]. The knowledge gained through genomic information can also be used for making population-based dietary recommendations. The aim is to minimize health inequalities by applying modern technology and strengthening health systems.

Digital technologies also play a pivotal role in this regard. The data acquired through digital means such as applications, monitoring devices, electronic health data to name a few have a profound impact on addressing and improving the wellbeing of the population. Abu Dhabi has introduced a health information exchange platform in the name of Malaffi, the first of its kind in the region to enable the real-time exchange of crucial health information across healthcare providers in the form of a centralized database that facilitates healthcare quality and patient outcomes. Likewise, the application of Artificial Intelligence (AI) is gaining momentum in the health service sector. For instance, copious data gathered over a period can be analyzed to reveal new insights and paradigm shift in prognosis and risk prediction in population health. Abu Dhabi has been effectively utilizing AI in public services well before the onset of pandemics. The policy on the use of AI in health care was released in 2018 by the department of health in Abu Dhabi. The proactive measures facilitated the development of laser-based AI tech equipment that was applied for faster screenings and mass testing during pandemics [9].

Recently, it has been uncovered that AI based machine learning models have better accuracy and real-time performance in risk prediction of myocardial infarction [10]. These developments would further ease the population health approach by the preferential selection of high-risk populations before acute care is necessitated bringing a win-win situation for both patients and health care providers which includes economic benefit as well. Ensuring the public health goes beyond the concept of symptom-based individual health status demanding far ahead approach like population health that targets susceptible populations paving way for quality, cost-effective wellness, and Abu Dhabi is consistently thriving its innovative approach to health and well-being of its community.

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