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PhD Dissertation Defense

Entitled

*ESTABLISHING THE ROADMAP FOR THE IMPLEMENTATION OF GENOMIC MEDICINE AND
PHARMACOGENOMICS IN THE UNITED ARAB EMIRATES*

by

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Abstract

The slow clinical application of genomic medicine and pharmacogenomics (PGx) is attributed mainly to lack of knowledge of genomic medicine and PGx and confidence among healthcare professionals, scarcity of infrastructure, and absence of stakeholders' interest. The objective of this study was to lay out a strategic plan for the implementation of genomic medicine and PGx in the United Arab Emirates (UAE) by exploring multiple areas: (1) the educational environment of genomic medicine and PGx in colleges and universities; (2) the knowledge, and attitude of the medical and health sciences students, academics, and the healthcare providers; (3) the current infrastructure of genetic and genomic services; (4) the views and vision of the stakeholders. These areas were explored using a mixed method approach of qualitative and quantitative research designs besides mapping the educational environment of genomics and PGx and genetic and genomic services. The assessment of university curricula resulted in "genetics" being included in the majority of universities syllabus. PGx was taught in six universities but only for Pharmacy majors. The mean knowledge score of the surveyed healthcare providers was 5.2 (± 2.3) out of nine, which shows a fair level of knowledge. However, 92% showed a positive attitude regarding availability of genetic testing. The top identified barrier for implementation for genomics and PGx was the cost of testing (62%), followed by lack of training or education of genomics and PGx (58%) and lack of health insurance coverage (57%). Moreover, the mean knowledge score for medical and health sciences students was 5.4 (± 2.7). Regarding genetic and genomic services, prenatal testing was the most offered genetic service among the laboratories included in the study, and blood samples was the main sample type for genetic testing followed by saliva. There was no standardization of the accreditation bodies, health insurance coverage. Most of the interviewed stakeholders emphasized the clinical demand for genomic medicine in UAE. However, many were less inclined to articulate the need for PGx at present. Most of stakeholders were in favour of building infrastructure for better genetic services in the country. However, stakeholder from health insurance sector had a contradicting stance about the cost-effectiveness of genomic medicine. The majority were concerned with the legal and ethical aspects of genomic medicine and had an opposing stance on direct-to-consumer kits. In addition, based on these findings, this thesis conceptualizes a pharmacogenomics' literacy framework alongside a roadmap for the implementation of genomic medicine and PGx in UAE.

Keywords: Genomics, pharmacogenomics, framework, knowledge, attitude, stakeholders, education, healthcare providers, literacy, medical students, health sciences students, genetic and genomic services.