Editorial
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Utilizing translational research to eliminate health disparity

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Translational research explores how discoveries derived from the basic sciences may be utilized to elevate the health status of the nationwide community through the field of public health. Presently, a substantial disengagement precludes researchers of diverse scientific disciplines from collaboratively working together in order to apply findings stemming from the basic sciences to enhance the welfare of the communities being served. Many scientists do not understand the scientific relevance to work with their peers specializing in different disciplines, for example: A biochemist who only engages in laboratory research pertaining to molecular science may lack the understanding of how to apply his findings to benefit the well-being of his community which only becomes known to him by collaboratively working with a public health scientist. Scientists of diverse disciplines including the basic, biomedical, clinical, and applied sciences could work together in research projects addressing the potential manifestation of diseases especially those leading to the onset of health disparities afflicting vulnerable populations of people.

The onset of many diseases resulting in health disparities such as cardiovascular diseases, obesity, malnutrition, diabetes mellitus, and various types of cancer can be prevented and/or detected early through the team work of scientists engaging in translational research who are highly knowledgeable in various areas of expertise, such as:

a. The level of study pertaining to the molecular sciences involves the metabolic reactions and intracellular processes studied in biological subspecialties such as biochemistry, cytology, genetics, and genomics.

b. The level of study pertaining to the tissues, organs, and organ systems involves the normal as well as abnormal structures and functions studied in biological subspecialties such as histology, anatomy, physiology, and pathology.

c. The level of study pertaining to the clinical sciences involves description of the various stages of diseases when analyzing the health status of individual patients in subspecialties such as internal medicine, pediatrics, psychiatry, and surgery.

d. The level of study pertaining to public health and population health science involves utilizing subspecialties such as epidemiology and biostatistics when analyzing the health status of community populations. The various scientific subspecialties which represent the continuum of exploring the multiple aspects of life could be explored together in translational research when analyzing the quality of health present in a community.

Molecular biologists and pathologists study the presence of gene mutations which potentially produce abnormal intracellular reactions leading to the onset of diseases, for example: Particular gene mutations are affiliated with the disease diabetes mellitus. The presence of abnormal genes alone does not lead to the onset of this disorder nor any other disease. The influence of social determinants of health analyzed by public health specialists such as the genetic predisposition to obesity, chronic unhealthy diet, and inadequate physical exercise may contribute to the manifestation of diabetes mellitus.

The field of population health science and public health analyzes the incidence and prevalence of preventable chronic disorders especially those manifesting in epidemic proportions. Through this field of study, communities are encouraged to engage in public health initiatives especially involving health promotion, disease prevention, and/or early disease detection.

The Surgeon General Family History Initiative educates the nationwide community that obtaining the medical histories of their biological relatives expanding at least 3 generations would reveal familial transmission of diseases if any are present. This pertinent information should be relayed to health care providers who are well versed in the clinical sciences and can make accurate assessments of differential diagnosis regarding potential illnesses afflicting the health of patients, for example: A physician suspects that his patient is afflicted with diabetes mellitus due to his family medical history as well as his signs and symptoms. Clinical science confirms the presence of diabetes mellitus through detecting glycosylated hemoglobin (HbA1C) in the blood which is diagnostic for this disorder.

Teams composed of multidisciplinary scientists collaboratively engaging in translational research can utilized discoveries derived from the basic sciences and apply them for usage in public health initiatives enabling various populations of the nationwide community to actively partake in preventive health care and make informed decisions regarding their health. This phenomenon could lessen the onset of preventable chronic disorders afflicting many individuals as well as produce an overall healthier nation.

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