Letter to Editor

Combination Use of Geographical Information System and Epidemiology Methods in Health System- An Essential Need

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Health Promotion has always been a concern of policy-makers and managers in the health field where living a healthy life, free of disease and disability, for everyone is the main goal. Epidemiology, as one of the fundamental basis of public health, is concerned of how diseases are distributed in terms of geographical, chronological, and human population characteristics. It employs the descriptive nature of such realm to draw conclusion on the etiology of health or disease outcome for further policy making on prevention of disease or promotion of health [1]. In this era, hygienists use some tools, such as Geographic information system (GIS) which is one of the most applicable and helpful software's [2]. This technology has opened a new window to the art of exploratory data analysis and has visualized the differences in disease frequency rates across large geographic areas [1]. In the past, descriptive geographical epidemiology of diseases was restricted to their state-wise description or regional prevalence, and detailed analysis of epidemiological data at a local level was rarely carried out. Nowadays, application of geospatial technologies and spatiotemporal epidemiological tools is increasing around the world as a means to understand the dynamics of infectious disease transmission[5].

Geographic information systems (GIS) capture, store, retrieve, analyze, and display spatial [3]. Data in an automated manner [1]. The main components of GIS, in addition to a database, include spatial or map information and tools that link and perform spatial analyses of disease or any health-related event [1, 4]. Generally, GIS can be considered as a very useful tool in health science researches, health education, health program Planning, monitoring, and evaluation. Understanding the distribution and dissemination of diseases and their relation to environmental factors such as weather conditions, water

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quality, public health, agricultural and industrial activities, environmental pollutants, and other factors can be greatly facilitated to the researchers by Health GIS. Since the map is a proper means of communication, it can be used in preparation of educational materials. In general, GIS can be effective in the process of community development by helping people to have a better understanding from their living environment. Many decisions and health care planning'share associated with the location. For example, decisions about proper location of health care centers based on the number, density, and public health priorities as well as the necessary kind of services required for effective response to the health needs of the region are to be considered based on location. Moreover, officials and health care professionals can use maps produced by GIS as a tool in the fields of monitoring and evaluation. In this way, the spatial distribution and changes in various fields such as disease outbreaks, the facilities, manpower requirements, and etc. are examined and evaluated. Combination use of different electronic health information systems with epidemiological methods can create a revolution in management of health outcomes and produce strength hypotheses in epidemiologic researches.

Recently, Islamic Republic of Iran's health system is undertaking a new reform in all dimensions especially in primary health care (PHC), outpatient and hospitalized services, along with medical equipment and educational system. In PHC, there is a shift from communicable approach toward the non- communicable diseases (NCD), that is universal, comprehensive, and integrated, health services are delivered to all urban and rural residents and all people enjoy from equity in service access. Design and creation of an electronic health file for each household is also included in this reform. Thus, there is an essential and growing need for the health system of country to clarify and find causes of morbidities and mortalities through these services, especially causes of NCDs which are the leading causes of 80% of deaths in the developing countries.

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