

Enhancing the use of geographic information systems for public health planning and decision-making in the WHO Eastern Mediterranean Region

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From distributing healthcare resources equitably to identifying disease outbreaks, most of the information needs of local health system decision-makers have a geographic component (1). Recognizing the value of geographic information systems for public health planning and decision-making, a 2007 resolution by the Regional Committee of the World Health Organization (WHO) Eastern Mediterranean Region (EMR) called upon Member States to develop institutional frameworks, policies, processes, and to provide the infrastructure and resources needed to support health mapping activities in EMR (2).

Countries in the region have been using geographic information systems (GIS) applications in several health areas including, for example, disease surveillance (3), epidemiology (4,5), water quality (6), supply and delivery, poverty reduction, emergency and disaster response, access to healthcare services, in particular equitable distribution of healthcare facilities and healthcare workforce (7–9), and to develop sampling frames for household surveys (grid sampling) (10) in countries where no up-to-date dwelling location is available from the last census. Despite these examples, the potential of GIS applications in planning and delivering health care services as well as monitoring performance and outcomes are not yet fully realized and leveraged by EMR countries.

This is due to several challenges affecting different countries in different ways, including, among others, limited availability of trained staff working in the public sector, limited availability of service location data in some settings, lack of funding for GIS activities, limited coordination among the different partners that have interest in GIS, and lack of strategies.

WHO is implementing various initiatives to strengthen the use of GIS in the region and beyond, including, for example, the development of up-to-date, geolocated health facility master lists (11), the provision of guidance and tools to use GIS for local health service

planning (12), and the development of a regional roadmap for GIS to guide the development of national GIS plans. WHO is also supporting programmes to strengthen health information systems, from birth and death registries, surveys, and routinely generated data at different levels of the healthcare system (13).

Several challenges remain to be resolved to scale-up GIS use in health decision-making. Health information system teams should be strengthened and equipped with GIS know-how and expertise within the ministries of health and other relevant ministries. This requires prioritization at the political level, funding, and the willingness to harness routinely generated health information for decision-making. Capacity to produce basic GIS maps should be enhanced among non-GIS specialists working in public health and availability of open access geolocated data should be increased.

Considering the differences among countries, a starting point is the assessment of capacity and resources to use GIS in public health. This has already been undertaken with the support of WHO/EMRO in most countries in the region. Such assessments enable the identification of gaps and facilitate efforts to develop a plan to address them.

Using GIS can enhance planning and targeting of resources, increase service coverage, thereby contributing to improving health outcomes and progress towards achievement of the Sustainable Development Goals. Countries in the EMR should continue strengthening their use of GIS by developing national GIS plans that are integrated into health information systems strategies, they should work with different stakeholders and partners who will contribute to GIS, secure the resources needed for implementation, and facilitate data sharing. WHO will continue to provide relevant standards, guidelines and tools for countries and provide technical support to enhance the use of GIS for informing local healthcare decision-making.

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