Application of GIS in Public Health Practice: A Consortium's Approach to Tackling Travel Delays in Obstetric Emergencies in Urban Areas

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Abstract

Geographic Information System (GIS) has become an effective and reliable tool for researchers, policymakers, and decision-makers to map health outcomes and inform targeted planning, evaluation, and monitoring. With the advent of big data-enabled GIS, researchers can now identify disparities and spatial inequalities in health at more granular levels, enabling them to provide more accurate and robust services and products for healthcare. This paper aims to showcase the progress of the On Tackling In-transit Delays for Mothers in Emergency (OnTIME) project, which is a unique collaborative effort between academia, policymakers, and industrial partners. The paper demonstrates how the limitations of traditional spatial accessibility models and data gaps have been overcome by combining GIS and big data to map the geographic accessibility and coverage of health facilities capable of providing emergency obstetric care (EmOC) in conurbations in Africa. The OnTIME project employs various GIS technologies and concepts, such as big spatial data, spatial databases, and public participation geographic information systems (PPGIS). We provide an overview of these concepts in relation to the OnTIME project to demonstrate the application of GIS in public health practice.

Keywords: GIS; public health; accessibility; OnTIME; EmOC; public participation; GIS; big data; Google