Does Distance Matter? Applying Multilevel Mixed-effects (Hierarchical) Modeling on Healthcare Utilization in Java, Indonesia
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ABSTRACT TEXT: The uneven distribution of health facility in developing county is an important issue in health care accessibility and utilization. People experience long-distance travel, spend more time and money to access health care facility and to utilize health services. By applying Multilevel Mixed-effect (Hierarchical) modeling and GIS mapping and overlaying, this study aims to look at geographic dimensions of healthcare utilization based on three measurements: distance, travel time, and travel cost. These three measurements assessed based on the type of facility, the purpose of visit, and type of locations (urban or rural). Results show that patients in Java, Indonesia typically access hospitals for more advanced and specialized services. Hospital utilization requires long distance travel than any other type of facility. In utilizing health services for immunization and birth control, patients spend less money on transportation and experience shorter travel time compared to other purposes of visits to the health facility. Patients in urban district travel longer than patients in the rural district due to the traffic, they also spend more money due to more transportation options. Health care utilization study in Java, Indonesia is expected to contribute to the policy-making process in improving health care service in national-wide.

Keywords: Health care utilization, health care accessibility, Multilevel Mixed-effects model, GIS, Java, Indonesia

Investigation of Chronic Arsenic Exposure in Rural Florida Panhandle
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ABSTRACT TEXT: Chronic, long-term exposure to arsenic can result in adverse health outcomes, but the effects of sources are difficult to assess epidemiologically. Arsenic concentrations accrued by people can be measured using toenail samples and can serve as a proxy for chronic arsenic exposure. The objective of this project is to assess the relationship between environmental arsenic concentrations and chronic arsenic exposure among residents in Escambia and Santa Rosa counties, Florida. We will assess the levels of arsenic collected from toenails of residents in our study area and from their residential water supply, along with data pertaining to demographics and occupational history, and daily arsenic intake questionnaire collected from the same residents. We will analyze the data to determine the relationship between daily arsenic exposure in private well water, previously determined soil and groundwater contamination levels, and human activity.

The importance of this study is to quantify the relationship between the variability of chronic arsenic in the environment and its past use in agricultural and industrial activities (legacy effect). Our work will allow us to quantify the relationship between arsenic in people and the environment.

Using GIS for Defining and Analyzing Health Demand Locations in Jeddah City
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ABSTRACT TEXT: Health Geography can provide a spatial understanding of a population's health, the distribution of disease in an area, and the environment's effect on health and disease. GIS plays a major and important role in health care, surveillance of infectious diseases, and mapping and monitoring of the spatial and temporal distributions of health events. The aim of this paper is to discuss a GIS application created for defining and analyzing three types of patients’ locations in Jeddah city.

These are diabetes, asthma and hypertension. Data about these three types of patients were created based on health centers registered records. These data are evaluated spatially using several spatial statistical analysis models including kernel and hot spot models. These models are created for exploring and displaying patterns of health events and to show areas of high concentration.