Geographic location affects peoples’ health, nutrition, and access to health care services. The MEASURE DHS project can now analyze the impact of location by using DHS data in a geographic information system (GIS). These analyses improve our understanding of how location affects health status, leading to more effective interventions.

MEASURE DHS now routinely collects geographic information in all countries. Using GIS, researchers can link DHS data with routine health data, health facility locations, local infrastructure (roads, rivers), and environmental conditions. Linked DHS and geographic data are now being used to improve planning for family planning interventions and to analyze the effects of environment on early childhood mortality in West Africa. Using GIS, DHS anemia prevalence data will be combined with the MARA (Mapping Malaria Risk in Africa) modeled estimates of malaria endemic/epidemic areas, and the seasonality and intensity of transmission. The analysis will explore the extent to which anemia may be explained by varying presence of malaria.

MEASURE DHS is a recognized leader in training local interviewers to collect geographic information. For both DHS and Service Provision Assessment surveys (SPA), local researchers are trained to use hand-held Global Positioning System units to collect latitude and longitude coordinates in the field. These coordinates indicate the location of surveyed communities and/or health facilities. The GPS data collection standards and manual prepared by MEASURE DHS are now being used for the World Bank’s Living Standards Measurement studies and the World Health Organization’s World Health Surveys. UNICEF has also adapted the DHS manual for their Multiple Indicator Cluster Surveys in the upcoming round of data collection.

HIV/AIDS Planning
GIS can help plan the location of HIV prevention and care programs. In Tanzania, for example, MEASURE DHS is mapping HIV prevalence rates with the locations of delivery sites for voluntary

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counseling and testing, prevention of mother to child transmission, and anti-retroviral therapy to assist planning, management and evaluation of activities funded through the President’s Emergency Plan for AIDS Relief.

**Training**
MEASURE DHS has provided training in geographic data collection, analysis, and mapping in Jordan, Egypt, Palestine, Cambodia, Indonesia, Nepal, Ethiopia, Malawi and Tanzania. Participants, including staff from Ministries of Health, Ministries of Planning, National AIDS Commissions, and national statistics offices learn to conduct geographic analysis of DHS and related population and health data. With one week of hands-on training, participants acquire enough skills to integrate multiple datasets and carry out their own exploratory geographic analysis of selected population and health indicators. Participants develop the skills to prepare maps to use in reports and presentations.

**New technologies**
MEASURE DHS is piloting the use of personal digital assistants with GPS technology to generate electronic sketch maps of surveyed communities. This technology will improve the reliability of the household listing data, reduce sampling errors in the field and will contribute more accurate information about the environments where survey respondents live, such as distance to major roads, water sources, and health care facilities.

**Analysis of Childhood Mortality Uses GIS and DHS Data**
Using geographic data from 10 DHS surveys from West Africa, a recent study assessed the impact of environment and spatial factors on child mortality. The study found that child mortality rates vary with population density and location. Rates are higher in extremely dense (more than 1,000 person/km) and extremely dispersed (fewer than 25 persons/km) population densities. Mortality rates are also higher in landlocked areas.

These findings will help planners identify high-risk populations and thus pinpoint interventions more effectively.

**What is MEASURE DHS?**
Since 1984, the MEASURE DHS (Demographic and Health Surveys) project, implemented by ORC Macro and funded by USAID, has collected and disseminated nationally representative demographic, health, and nutrition data from over 70 developing countries. Through data collection, analysis and dissemination, the project has contributed greatly to advancing global understanding of population and health trends worldwide.

All DHS research and data are accessible for free at:
- www.measuredhs.com
- www.measuredhs.com/statcompiler

Or email us to order reports, data and publications:
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