

CDC/KEMRI DSS, Kisumu

1. Physical Geography of the DSA

In September 2001 the Centers for Disease Control and Prevention (CDC) in collaboration with the Kenya Medical Research Institute (KEMRI) launched a new Demographic Surveillance System (DSS) in the Siaya and Bondo districts of Western Kenya. The Demographic Surveillance Area (DSA) is in the Nyanza Province (one of the eight administrative regions of Kenya) and covers 217 villages, spread over a land area of about 500 km². Seventy-five of the villages are in Asembo in the Rarieda Division in the Bondo District, and the rest are in Gem, which is located in the Wagai and Yala Divisions in Siaya District. The population is culturally homogeneous. Over 95% of the residents are Luo. Marriage is exogamous and polygyny is practiced. As in many rural African communities, subsistence farming is the mainstay of the local economy. Rainfall is seasonal, with the heaviest rains usually falling from March through May and short dry spells between September and January. The crops cultivated for local consumption include maize, sorghum, cassava, and millet. Cotton and groundnuts are the two main cash crops grown in the area but these are cultivated on a small scale. Some households also raise poultry, goats, sheep and cattle, and others engage in petty trading. Employment opportunities are limited in the area and many young adults temporarily migrate to the urban areas to seek for employment. Poverty is quite pervasive in the area and greatly complicates efforts to improve health conditions. The surveillance area is a region of endemic malaria and high HIV prevalence (22%).

2. DSS procedures

The CDC/KEMRI DSS is an integrated field and computing operations, designed to manage the longitudinal follow up of residential units, households, individuals, and access to and utilization of health facilities. The field operations involve house-to-house interviews every four months by professional interviewers, surveillance of pediatric out-patient visits in peripheral health facilities, and monitoring of pediatric in-patient visits at two District Hospitals. In addition, household socioeconomic and educational status surveys are conducted annually to complement the morbidity and demographic data. The computing operations involve the management of a relational database and the production of household registers for monitoring the population.

3. DSS Basic Output

The population under surveillance was 135,000 in 2002. Approximately 53% were females. Children under the age of 15 years constitute 45 % whilst adults aged at least 65 years constituted 6.0%. Nearly two-thirds of the population ever attended school, however the highest level attained by majority of those who have been to school was primary education. The crude death rate in the population was 25 per 1,000, infant mortality was as high as 120 per 1,000 live births, and life expectancy at birth was 37 year for men and 40 years women. In contrast to mortality curves from western countries, mortality rates in men begin to rise at age 20 and in women at age 15. In- and out-migration is significant and peaks at 264 per 1,000 person years for men at age 20-24 and 325 per 1,000 person years for women at age 20-24.

4. Capacity for Conducting Clinical Trials

4.1 Ethics: The Institutional Review Board

Two institutional review boards, one at KEMRI and another at CDC.

4.2 Description of Laboratory Facilities

Extensive laboratory facilities have been established to support diagnostic work in parasitic and bacterial diseases as well as HIV; basic immunology and molecular biology research in these areas is also conducted

4.3 Description of Clinical Facilities

The population is served by one Provincial Hospital (for referrals) located in Kisumu, the provincial capital, three district hospitals and three mission hospitals. In addition to these there are several sub-district hospitals, health centers maternity and nursing homes. The road network in this area is not well developed and ambulatory services are very limited.

Nyanza Provincial Hospital has long standing research relationship with CDC. A key area of study in the past was malaria in pregnancy, including the interaction between malaria and HIV during pregnancy. Current research studies are addressing questions related to the development of antibiotic resistance among HIV-infected people on treatment to prevent opportunistic infections, interactions between vitamin supplementations and malaria treatments given during pregnancy, and the effectiveness antiretroviral drugs to reduce the risk of maternal to child transmission during breast feeding. A Clinical Research Center was built next to Provincial Hospital in 1998 to accommodate some of these studies and has been expanded this year to provide additional clinical space for research studies, additional administrative space, and malaria and HIV laboratories.

4.4 List of scientists

[See our response to Human Resource Capacity Assessment](#)

5. Catalogue of completed and ongoing projects

[See our response to Human Resource Capacity Assessment](#)

6. Publications

1. Aidoo, M., P.D. McElroy, M.S. Kolczak, D.J. Terlouw, F.O. ter Kuile, B. Nahlen, A.A. Lal, and V. Udhayakumar, Tumor necrosis factor- promoter variant 2 (TNF2) is associated with pre-term delivery, infant mortality, and malaria morbidity in western Kenya: Asembo Bay Cohort Project IX. *Genetic Epidemiology*, 2001. **21**: p. 201-211.
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7. General human resource capacity

See our response to Human Resource Capacity Assessment