

Abstract title:

Simple, affordable methods to map and analyze health data within a densely populated urban slum [Abstract #OS16.5]

Authors:

Thomson DR,¹ Sawant K,² Patil-Deshmukh A²

¹Department of Global Health and Population at the Harvard School of Public Health, Boston, MA, U.S.A.

²Partners for Urban Knowledge, Action, and Research (PUKAR), Mumbai, India

Abstract:

How do barefoot researchers feasibly map household survey data in a densely populated slum? Furthermore, how do barefoot researchers locate disease hot spots or areas of high environmental exposures within a slum?

KB is an unregistered slum of 20,000 people, located on an old shipping pier in central Mumbai, India. Barefoot researchers at Partners for Urban Knowledge Action and Research (PUKAR) conducted a biometric survey of all KB residents in 2010. This dataset is now being used to understand differential distributions of health/disease in the community.

Without a street address system, barefoot researchers in other slums (such as Kibera, Kenya) use GPS equipment to geolocate households. In KB, however, the high density of housing prevented satellite connections and accurate data collection. Furthermore, it was not feasible for PUKAR's small research team to geolocate thousands of homes individually.

Using a satellite image purchased for \$320, one borrowed GPS unit, and a geographic information system (ArcGIS 9), PUKAR barefoot researchers worked with an American geography student for three weeks to create a complete basemap of KB. PUKAR researchers used the GPS unit to geolocate the key landmarks. With these points referenced on the satellite image, the team relocated over 2000 households, dozens of service locations (clinics, pharmacies, etc), and other features including trees, flood zones, and land use zones in KB.

In meetings with public officials, PUKAR researchers now show KB's health data summarized in map format; they have found that maps lend tremendous legitimacy to their advocacy work. PUKAR is also using the basemap to communicate with the public services about public services in KB. Finally, the biometric data is now being spatially analyzed by PUKAR and international researchers to identify disease hotspots and search for spatial associations between environmental exposures and poor health outcomes in KB.

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For more information on this work, please contact dana.r.thomson@gmail.com