GIS and Public Health

Anemia: Spatial Mapping in Sub-Saharan Africa

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Starting to Think Spatially...
WHO Anemia 2010

Category of public health significance (anaemia prevalence)

- Normal (<5.0%)
- Mild (5.0–19.9%)
- Moderate (20.0–39.9%)
- Severe (≥40.0%)
- No data
Clinical burden of *Plasmodium falciparum*
Spatial distribution of *Plasmodium falciparum* malaria endemicity

Gething PW et al. Malaria Journal 2011; Malaria Atlas Project
Spatial distribution of *Plasmodium falciparum* malaria endemicity

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Distribution of soil transmitted helminths in Sub-Saharan Africa
Fieldwork in Africa
Anemia Assessment

- Women (15–49 years), children (6 months to 5 years)
- Capillary blood sample using finger (heel) prick
- HemoCue® blood hemoglobin testing system
- Voluntary testing
- Anemia prevention and treatment
- Geographical clustering of hemoglobin concentrations
- Altitude-adjusted
Spatial distribution of hemoglobin concentrations for cluster sites
Spatial distribution of hemoglobin concentrations for cluster sites
Residual geographical clustering of hemoglobin concentrations

West Africa
Residual geographical clustering of hemoglobin concentrations

West Africa

East Africa

Predicted risk of anaemia in children aged 1-4 y (mean)
Future directions: Building collaborations

- Malaria Atlas Project
- Mapping Malaria Risk in Africa
- Afripop project
- Global Neglected Tropical Disease database
- WHO Preventative Chemotherapy and Transmission Control Databank
- Global Atlas of Trachoma
- International Coalition for Trachoma Control
- African Programme for Onchocerciasis Control
- Education Policy and Data Centre
- Global Atlas of Helminth Infections
Asanteni sana!