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Experiences and lessons learned working with registry data in low- and middle-income countries

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Outline

- Gaza UNRWA and MoH: dual systems for registering health care utilization
- DHIS2: challenges and opportunities
- Other large health datasets in LMIC: DHS

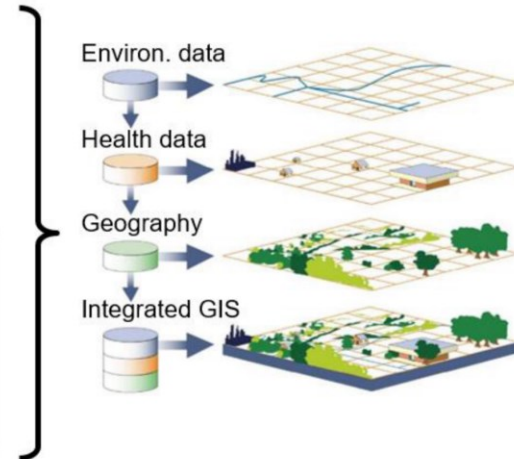
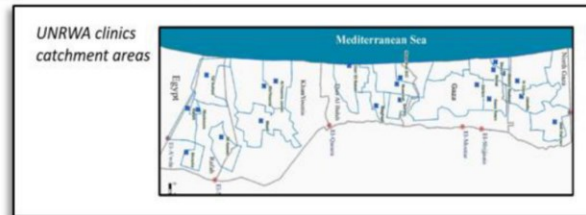
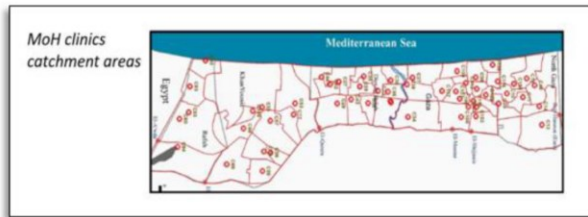
Gaza

- Challenging political, environmental, economical and social situation
- Many international actors active but priority setting often based on short-term planning
- Health impact assessment for identifying potential effects of the failure of essential services



Gaza – HIA of the essential services

- Different investigations (e.g. household survey, water quality testing, etc.)
- Integration of health data in georeferenced health information system



Gaza – Health system

- Health system is fragmented with a large diversity of actors:
 - MoH
 - UNRWA
 - NGOs (e.g. Médecins Sans Frontières (MSF), Palestinian Red Crescent Society (PRCS), International Committee of the Red Cross (ICRC))



Gaza – Dual system MoH and UNRWA

- Health facilities
 - 160 primary health care centers
 - 30 hospitals
 - Very limited tertiary care => patients need to be referred abroad
- 1/3 managed by MoH, 2/3 managed by UNRWA (and others)
 - UNRWA serves the 1.2 Palestinian refugees
 - UNRWA generally better staffed and equipped
 - Also non-refugees often turn to UNRWA facilities for NCD treatment

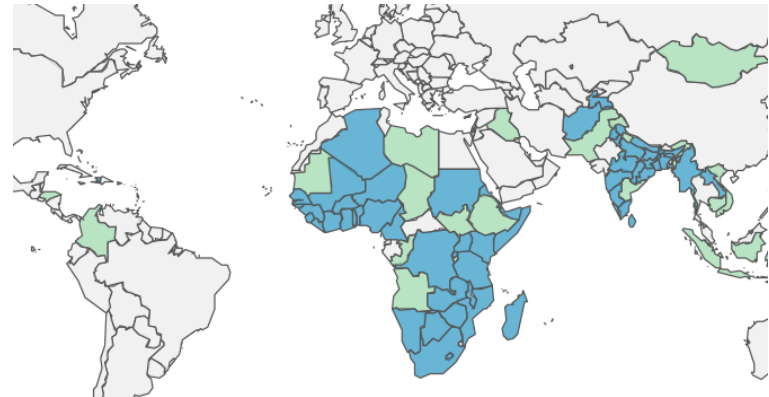


Gaza – HIS challenges

- Dual system
 - Many patients access both MoH and UNRWA facilities depending on their needs
 - No individual-level merging possible => double-counting
- Data aggregation
 - Aggregated mostly at district-level
 - Access to facility-level data only available for each district individually
- Data quality
 - Only UNRWA has electronic data entry systems at the facility level
- Representativeness
 - No universal health coverage (high out-of-pocket expenditure)
 - Lack of diagnostic capacities

DHIS2

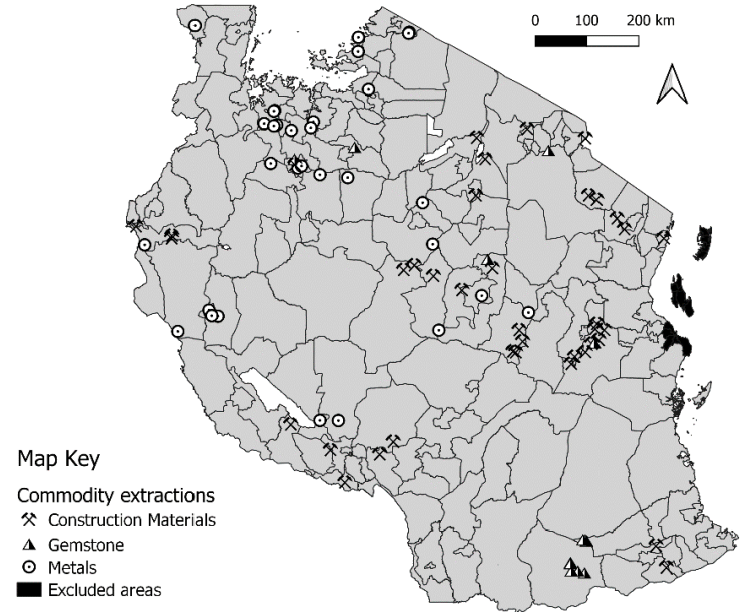
- Open source data collection and analysis health information system software platform
- Developed by the Health Information Systems Programme at the University of Oslo, with support from
 - Norwegian Agency for Development Cooperation
 - United States President's Emergency Plan for AIDS Relief
 - Global Fund to Fight AIDS, Tuberculosis and Malaria
 - United Nations Children's Fund
- Used in 67 low- and middle-income countries- 30% of the world's population live in countries using DHIS2



DHIS2 data for research

Aim: to evaluate the health impacts of mining projects on health

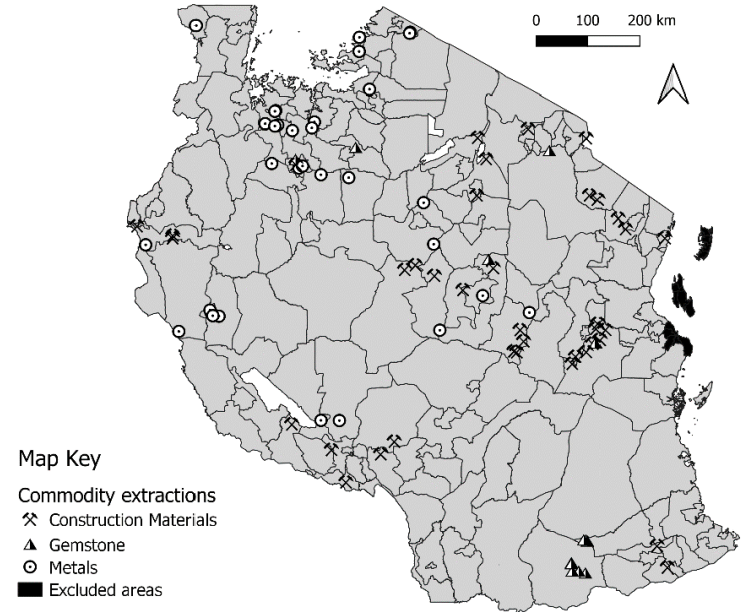
1. Mapping resource extraction projects
2. Mapping districts
 - 63 mining districts
 - 115 non-mining districts
3. Comparing disease incidences between mining and non-mining districts



Lyatuu et al. 2021: Associations between Natural Resource Extraction and Incidence of Acute and Chronic Health Conditions: Evidence from Tanzania
<https://doi.org/10.3390/ijerph18116052>

DHIS2 data for research

- In districts with **metal extraction** there were **lower** incidences of
 - chronic diseases (e.g. hypertension, CVD, diabetes)
 - mental health disorders
 - undernutrition
- In districts with **mines extracting construction materials** there were **higher** incidences of
 - chronic diseases (e.g. hypertension, CVD, diabetes)



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DHIS2 – Challenges

- DHIS2 is primarily a health management dataset, not research data
- Denominator (population in catchment area) often unknown
- Poor reporting in some regions/facilities (often paper-based recording at facility level)
 - Zero cases vs. missing data
 - Varying diagnostic capacities and case definitions over time and across regions
- Huge diversity of indicators
- Accessibility (extraction cumbersome, particularly in areas with weak internet connectivity)

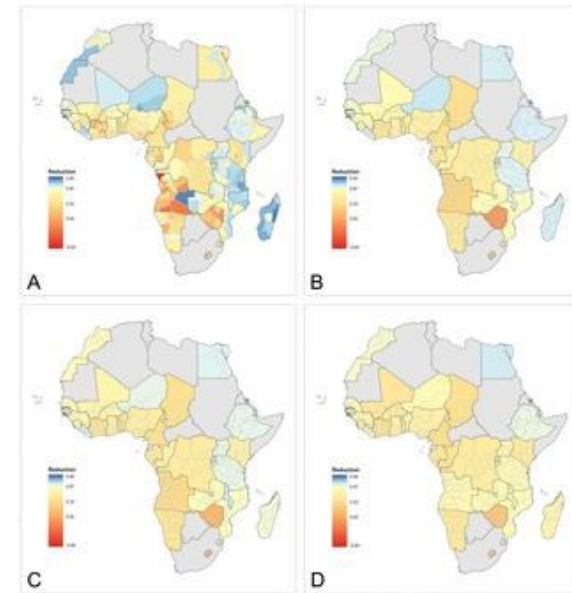


DHIS2 – Opportunities

- Some indicators consistently captured over time (e.g. maternal and child health outcomes)
- Various interesting spatial and other analyses possible if coupled with ancillary data
- Reporting seems to be getting better over time => temporal comparisons increasingly feasible
- DHIS2 can be powerful for evaluating the impact of everything from health policy, health promotion programs to new interventions to adapt to climate change!

Demographic and Health Survey (DHS)

- Ready-to-use data for over 90 countries from over 300 surveys since 1984
- Funded by the U.S. Agency for International Development (USAID)
- Nationally-representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition.
- Standard DHS Surveys have large sample sizes (usually between 5,000 and 30,000 households) and typically are conducted about every 5 years, to allow comparisons over time.



Changes in the spatial distribution of the under-five mortality rate: Small-area analysis of 122 DHS surveys in 262 subregions of 35 countries in Africa
<https://dx.plos.org/10.1371/journal.pone.0210645>

Conclusions

- Health register data can be powerful for analyses also in LMIC, if challenges with data accessibility, quality and reliability can be addressed
- Health register data from LMIC is currently underutilized in research
- Comprehensive health surveys exist that can complement health registry data
- There are many opportunities for collaborations for sharing knowledge and expertise working with register data





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Thank you

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