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Assessing the use of Mapping for Health (M4H) data for immunisation programme implementation and associated impact on coverage, equity, and cost-effectiveness in the Democratic Republic of Congo

Submission date	**Recruitment status**	[_] Prospectively registered
25/10/2021	No longer recruiting	[X] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
03/11/2021	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
28/01/2025	Other	

Plain English summary of protocol

Background and study aims
There are many children who do not receive immunizations because they live in hard to reach locations that are often not included on maps. The use of maps can help to identify children who are often missed to make sure that they are included in immunization program plans. This study will measure the acceptance and use of maps as part of the planning and implementation of the immunization program in Democratic Republic of Congo (DRC) to see if they can help increase the number of children who are vaccinated, especially those who are the hardest to reach.
The goal of this study is to evaluate the impact of the Mapping for Health programme, which produces and provides geospatial data with the aim of improving immunisation coverage and equity, especially in the identification of previously missed settlements.

Who can participate?
Essential Programme for Immunisation administrators, supervisors, and vaccinators and associated individuals engaged in the generation and/or use of M4H geospatial data for immunisation microplanning, macroplanning, and service delivery.

What does the study involve?
EPI managers, supervisors, and vaccinators will be invited to be interviewed for the study. Those who agree to will be interviewed for 30-45 minutes about their experiences with the use of maps within the program planning and implementation.

What are the possible benefits and risks of participating?
None

Where is the study run from?
Kinshasa School of Public Health (Democratic Republic of Congo)

When is the study starting and how long is it expected to run for?
January 2020 to December 2023

Who is funding the study?
Gavi, the Vaccine Alliance (Switzerland)

Who is the main contact?
Dr. Patricia Mechael, patty@healthenabled.org

Contact information

Type(s)
Public

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Study information

Scientific Title
Large-scale effectiveness study of the effective use of Mapping for Health Data on immunisation coverage and equity in the Democratic Republic of Congo

Study objectives
The effective use of M4H geospatial data can increase immunisation coverage and equity through the identification of missed settlements (and zero dose children) and optimization of vaccination strategies and supply distribution as well as a gender-specific interventions in a sub-set of Health Zones and Health Areas in Kasai and Kinshasa.

Study aim 1: Conduct a process evaluation to understand the program and implementation context, and identify the mechanisms through which geospatial data use influences immunisation coverage
Study aim 2: Conduct a quasi-experimental design study in three provinces (two intervention-one with gender activities, one without gender activities, and one control) to determine the associated effects of the acceptance and use of M4H data by Health Zones and Health Areas on immunisation coverage and equity (especially zero-dose children).

Study aim 3: Determine the incremental cost-effectiveness of geospatial data use as compared to the status quo

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 27/07/2021, Kinshasa School of Public Health Internal Review Board (BP 11850 Kinshasa, DRC; +243 817 493194; espsec_unikin@yahoo.fr), ref: none provided

Primary study design
Interventional

Study design
Single-centre three-province quasi-experimental interventional study

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Routine immunisation

Interventions
There is a control province and two intervention provinces, where sites will be stratified and then randomly selected for inclusion in the intervention strength study based on immunisation coverage and equity at baseline, urban/rural, and connectivity status.

Intervention:
Immunisation microplans with geospatial data, updated immunisation targets based on geospatial modeled population estimates, and population mobility data.

Control:
Standard practice or status quo in the control province - immunisation microplans without geospatial data and immunisation targets based on census data.

The overall structure of the research study includes three provinces - one province selected for inclusion to assess M4H geospatial data interventions with gender-specific activities in a subset of Health Zones and Health Areas, namely Kasai; another M4H province selected to assess effects of M4H geospatial data interventions without gender, namely Lomami; and a control site to compare both M4H sites, namely Kasai Central. In addition, the protocol includes prioritization and segmentation of primary research participants, Essential Programme for Immunisation (EPI) staff and affiliates, for the intervention strength survey and qualitative in-depth interviews (where possible engaging with equal numbers of male and female EPI managers, supervisors, and vaccinators) as well as in the secondary analyses of immunisation coverage and equity surveys (gender-disaggregated analyses of birth cohorts). Each study arm will be segmented into the following categories (urban, rural, per-urban, conflict, and high/low /moderate connectivity) and a random selection of Health Areas will be chosen for inclusion in the intervention strength survey and qualitative in-depth interviews. Complementary qualitative data collection will be conducted in the form of direct observation and in-depth interviews at the National, Province, and Health Zone levels. Additional rapid ethnographic field work will be conducted to assess the gender -specific interventions.

Intervention Type
Mixed

Primary outcome(s)
Measured at the end of the study:
1. Acceptance of M4H geospatial data in micro planning and macro planning- measured as the percent of Provinces and Health Zones EPI Managers who state that they intend to use M4H geospatial data in EPI programme planning and implementation
2. Use of M4H geospatial data in micro planning and macro-planning - measured as the percent of Health Zone EPI Managers who include the M4H geospatial data in their micro plans
3. Use of M4H data in immunisation programme delivery - measured as the percent of Health Area EPI supervisors and vaccinators who use the M4H geospatial data to manage the implementation of the routine immunisation programme/ all eligible Health Area EPI supervisors and vaccinators
4. Effects of M4H data on immunisation programme outcomes - measured as change in immunisation coverage and equity through secondary analyses of immunisation survey data from baseline to end-line (pre/ post-intervention) in Health Areas as correlated to the percentages of acceptance and use of M4H geospatial data
5. Cost-effectiveness of M4H data on immunisation programme outcomes - measured in Lives Saved using the Lives Saved Tool and Disability-Adjusted Life-years alongside change in immunisation coverage and equity through secondary analyses of immunisation survey data from baseline to end-line (pre/ post-intervention) in Health Areas as correlated to the percentages of acceptance and use of M4H geospatial data

Key secondary outcome(s)
Gender-associated affects in the creation, acceptance, and use of M4H geospatial data- measured through a Rapid Ethnographic Study of the gender intervention and through gender-related questions and disaggregation of respondents by gender as correlated to the percentages of acceptance and use of M4H geospatial data at the end of the study

Completion date
31/12/2023

Eligibility

Key inclusion criteria
Essential Programme for Immunisation administrators, supervisors, and vaccinators and associated individuals engaged in the generation and/or use of M4H geospatial data for immunisation microplanning, macroplanning, and service delivery.

Participant type(s)
Health professional

Healthy volunteers allowed
No

Age group
Adult

Sex

All

Total final enrolment
111

Key exclusion criteria
Those who do not provide consent to participate in the study.

Date of first enrolment
01/11/2021

Date of final enrolment
31/12/2023

Locations

Countries of recruitment
Congo, Democratic Republic

Study participating centre
Kinshasa School of Public Health
H8Q3+2HV
Kinshasa
Congo, Democratic Republic
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Sponsor information

Organisation
Gavi

ROR
https://ror.org/0141yg674

Funder(s)

Funder type
Charity

Funder Name
GAVI Alliance

Alternative Name(s)
Gavi, Gavi The Vaccine Alliance, Gavi, The Vaccine Alliance, Global Alliance for Vaccines and Immunization, Gavi, l'Alliance du Vaccin, Global Alliance for Vaccines and Immunisation

Funding Body Type
Government organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Switzerland

Results and Publications

Individual participant data (IPD) sharing plan
All data generated or analysed during this study will be included in the subsequent results publication

IPD sharing plan summary
Published as a supplement to the results publication, Other

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		24/01/2025	28/01/2025	Yes	No
Funder report results		01/11/2023	17/06/2024	No	No
Protocol file		21/10/2021	29/10/2021	No	No