



CONCEPT NOTE

Gender-transformative, integrated Reproductive Maternal Neonatal Child (RMNCH) surveillance & monitoring framework

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1. Purpose and strategic positioning

This concept proposes the development of a gender-transformative, integrated Reproductive, Maternal, Neonatal and Child Health (RMNCH) surveillance and monitoring framework as a strategic systems-strengthening intervention under the Team Europe Initiative (TEI) support to the Public Health Institute of Malawi (PHIM).

In this context, a gender-transformative approach refers to the systematic integration of sex- and age-disaggregated data, analysis of gender and disability-related determinants of health, and consideration of differential access, risks and outcomes to improve the relevance and equity of RMNCH policy decision-making.

The proposed work is not a programme or service-delivery intervention, but a foundational public health intelligence function aimed at strengthening Malawi's capacity to systematically integrate, analyse and translate RMNCH data into decision-grade evidence for policy formulation, planning and accountability across sectors.

RMNCH is intentionally selected as a first use case due to its high policy relevance, availability of multiple existing data sources, and its strong linkage to broader human development outcomes. Within RMNCH, teenage pregnancy is proposed as a tracer outcome to demonstrate how integrated surveillance and analytics can better capture population-level trends, inequities and determinants that cut across health, education, gender, social protection and local governance systems.

By using teenage pregnancy as an analytical entry point rather than as a standalone thematic focus, the framework aims to:

- Strengthen PHIM's role as a national convener of population health analytics and evidence synthesis
- Improve interoperability, triangulation and use of existing RMNCH data across institutions
- Enable more coherent, gender-responsive and equity-oriented policy dialogue
- Establish a scalable and reusable model that can later be applied to other priority public health domains beyond RMNCH

The framework is designed to be collaboratively developed and institutionally embedded, in close partnership with the Ministry of Health and Sanitation departments responsible for Reproductive Health, Central Monitoring and Evaluation, and Digital Health, ensuring complementarity, national ownership and sustainability.

2. Background

The TEI, co-funded by the European Union (EU) and Federal Ministry of Economic Cooperation and Development (BMZ), seeks to strengthen the capacity of the PHIM to improve its public health core functions. Achieving this requires strong institutional capabilities to systematically collect, analyse and visualize information about the overall public health status and trends in the country including about specific sub-populations to compliment surveillance, research and communication

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initiatives around pertinent public health issues and to promote the development of evidence-based policy recommendations.

A number of public health core functions (CF) as defined by Africa Centre for Disease Control (CDC) National Public Health Institutes (NPHI) development framework require population level health trend information, notably CF 1 “*Population health and health-related indicators*”, CF 3 “*Disease prevention and health promotion*”, CF4 “*Advocacy, communication and social mobilization*”, CF 5 “*Policies and plans that support individual and community health efforts*”, CF 7 “*Evaluation and promotion of equitable access to services*”, CF 9 “*Evaluation, prevention, and control of public health issues in clinical settings*” and CF 10 “*Research in public health*.”

Monitoring public health trends provides the relevant information necessary to inform many parts of the above core functions which can be conceptualized in the *data-to-action cycle* (see figure 1 below). Gathering, analysing and visualizing information on potential public health threats, trends, risk factors for disease and injury, and access to health services is crucial to inform evidence-based policies and strategic decision-making.

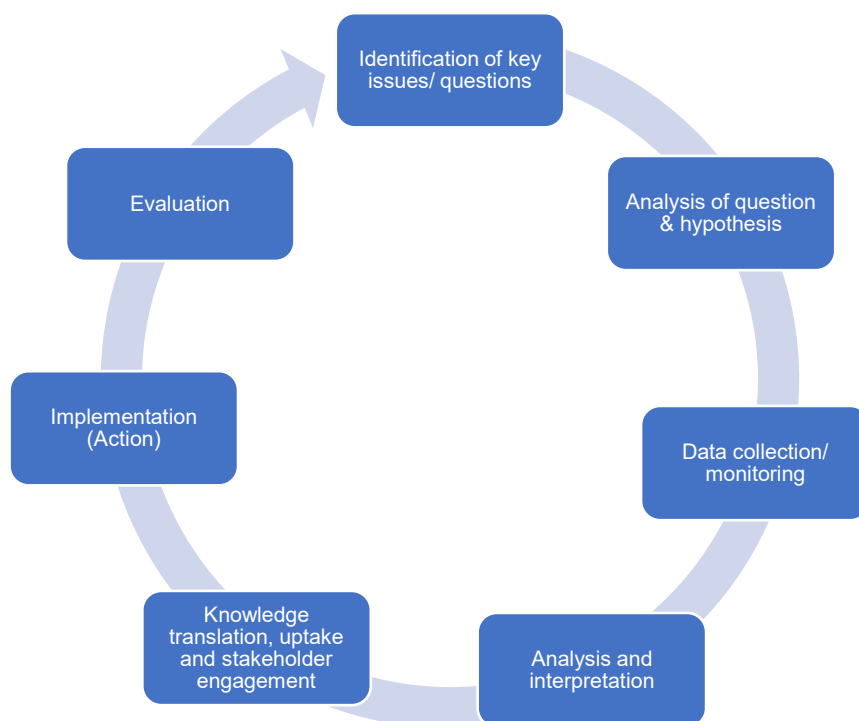


Figure 1: Data to action cycle

3. Challenges

In Malawi, maternal and neonatal deaths, teenage pregnancies and other RMNCH-related issues contribute significantly to the disease burden. As of 2019, maternal and neonatal diseases became the leading cause of disease burden (HSSP III).

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A critical component in addressing these issues lies in strengthening data systems to inform evidence-based decision-making towards RMNCH. However, current data on RMNCH in Malawi is fragmented across various sources, such as routine health management information systems (HMIS), the integrated Community Health Information System (iCHIS), ad-hoc research surveys, electronic medical records (EMRs), point of care systems such as *Neotree* and the integrated disease surveillance systems (IDSR), Maternal Surveillance Platform (MatSurv) etc. These data sets are fragmented and not fully integrated, which prevents both the Reproductive Health Department (RHD) and PHIM from accessing a comprehensive and gender-transformative understanding of RMNCH issues for evidence-based, strategic decision-making.

Although substantial volumes of RMNCH data are routinely collected across the mentioned data systems, persistent challenges remain around data quality and effective data use. RMNCH data is often not timely and complete and inconsistently validated, which potentially leads to underutilization of the resource for decision-making, research and program improvement. One key challenge is the availability of high-quality, integrated data that is accessible and usable by decision-makers. Addressing this, requires demonstrating the practical utility of quality data through the integration of existing data sources to enable more holistic and comprehensive analysis. Furthermore, systematic triangulation of multiple data sources can help identify inconsistencies, validate findings and ultimately strengthen data quality and confidence in evidence used for decision-making.

Moreover, some crucial data, such as the age of maternal deaths, is aggregated before digitization, leading to the loss of important disaggregated information. This fragmentation undermines PHIM's ability to identify and analyse underlying direct or indirect factors leading to negative public health outcomes and hence hinders provision of holistic, evidence-based, strategic advice to address critical RMNCH challenges, particularly from a gender perspective. As a result, gender-specific vulnerabilities and health determinants, such as access to care and maternal mortality causes, remain inadequately addressed.

Beyond data fragmentation and quality constraints, RMNCH data systems in Malawi are further challenged by governance, analytical capacity, equity, and sustainability gaps that limit the systematic translation of data into evidence-informed policy and programmatic action.

4. Aim

The development of a gender-transformative integrated RMNCH surveillance and monitoring framework in collaboration with PHIM and partners like the Reproductive Health Department (RHD), the Central Monitoring and Evaluation Department (CMED) and the Digital Health Division (DHD) will aim to integrate existing data and data sources mentioned and strengthen individual and institutional capacities of PHIM and MoH in conducting and visualizing population level statistical analysis, modelling and research taking determinants of health into account.

RMNCH will be used as a first use case with the aim to adopt the same approach and learnt methods to other pertinent health issues.

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5. Proposed approach

The proposed approach aims to strengthen PHIM's capacity in implementing the *data-to-action cycle* on three levels. At the governance level, support will focus on reviving and detailing the governance of the knowledge translation platform. At individual level, PHIM will be supported to generate evidence and translating evidence into policy briefs through mentorship and training by the Robert Koch Institute (RKI) as well as through the implementation of selected research activities. At institutional level, support will focus on data integration and establishing terms of reference and systems for holistic analysis and visualization, using the RMNCH monitoring and surveillance framework as a use case.

Operationalisation of the knowledge translation platform will establish the governance mechanisms required to guide priority setting, evidence synthesis into policy briefs, structured policy dialogue and impact review. Building on this foundation, targeted research activities will be supported to collect additional data where needed to address identified priority policy questions within RMNCH, with technical mentorship from the RKI. In addition, a gender-transformative RMNCH monitoring and surveillance framework will be developed for prioritized policy questions to enable continuous monitoring, evaluation and learning.

6. Proposed work packages and activities

In a first step, the framework will be conceptualised to outline existing data sources, data flows, key questions, decisions and analysis needed. Arriving at recommendations for strengthening the existing RMNCH surveillance and monitoring systems to enable strategic, gender-transformative decision-making on key programmatic research or policy questions to improve RMNCH issues. This could be done taking an enterprise architecture approach, which would look at all levels involved, from governance, business processes down to data, applications and infrastructure available and needed.

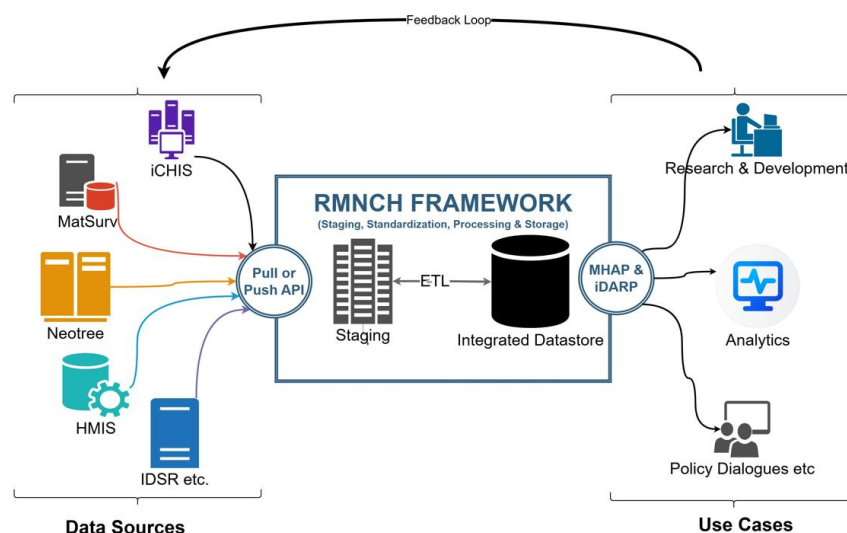


Figure 2: Proposed RMNCH architecture from data ingestion, integration and use for analytics, research and policy feedback

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In a second step, these resulting recommendations will be implemented where feasible, aiming to improve data definitions, data integration, analysis and visualisation of RMNCH data to improve access and use of data for effective evidence generation and informed decision making on RMNCH.

Work package 1: Define and design the RMNCH surveillance and monitoring framework

In a first step a strategic review of the data, indicators, analysis and visualizations needed for an effective surveillance of key concerns, such as teenage pregnancies will be conducted. The framework will also aim to define roles and responsibilities and the digital systems and platforms in which this data shall be collected, stored and analysed. This work will answer questions such as how can the current RMNCH surveillance and monitoring be improved, what strategic decisions are taken, what data and systems are needed for decision making, which key indicators should be measured through which channels and what information is missing, how can the existing RMNCH data be brought together to improve access and use, what research gaps are there e.g. on maternal mortality etc.

Further to mapping the existing data and indicators, an assessment of the RMNCH data quality from relevant data sources and other systems will be conducted to ensure comprehensive coverage of RMNCH related priority conditions, including population trends and health determinants like climate-related factors or social determinants of health such as on social protection, nutrition etc.

The assessment will result in recommendations on how to improve RMNCH data management including data standardization, collection, storage, processing, sharing, security, consolidation or integration and visualization among others. To enable holistic analysis, transparency as well as promote data use, the assessment will produce a data dictionary and where relevant highlight further needs like memorandum of understanding etc.

The framework shall consider gender sensitive perspectives into account along the 3Rs (Rights, Resources and Representation) to address gender inequality and promote gender justice to achieve gender transformation within RMNCH issues.

In designing and implementing the framework, the Open Group Architecture Development Method (ADM) shall be utilised, see figure 2 below.

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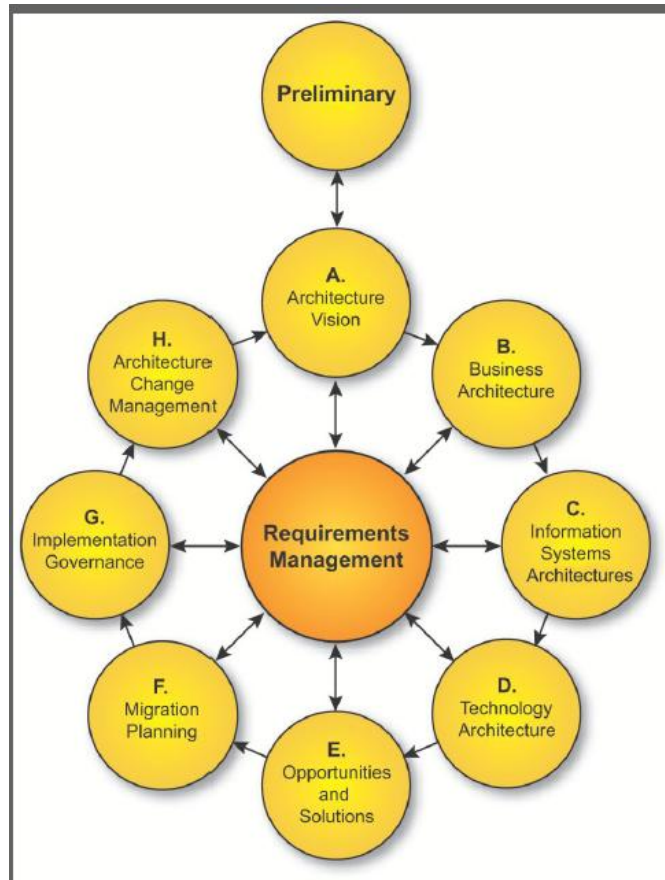


Figure 3: The open group architectural Framework

Under this work package, one of the key activities, this will include comprehensive requirements gathering to identify specific enhancements, process changes and governance adjustments needed to operationalize the framework. Requirements gathering will involve technical consultations with data producers, system owners, analysts and decision-makers to ensure that the proposed solution is fit-for-purpose and responsive to user needs across national and sub-national levels. This will help to address a range of interrelated technical, infrastructure, procedural and governance elements required to operationalize the RMNCH framework.

All designs and proposed changes will be documented, including system architecture diagrams, required infrastructure needs, revised indicator metadata, SOPs, data flow descriptions and decision-use mappings. This documentation will serve both as a development and implementation guide and as a reference for sustainability and future scale-up to other public health domains within and beyond RMNCH.

The outputs of Work Package 1 will include a set of clearly articulated recommendations for improving RMNCH data management and use. These deliverables will serve as both a development blueprint and an implementation guide, directly informing and enabling Work Package 2, which

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will focus on translating the prioritized recommendations into a concrete service, process improvements, and institutionalized practices within the RMNCH surveillance and monitoring ecosystem.

Work package 2: Developing/Upgrading the existing RMNCH surveillance and monitoring system as per the recommend framework and implementation

In a second step, the recommendations developed in work package 1 will be collaboratively assessed according to their priority and feasibility. PHIM, RHD, CMED and DHD will then be supported in developing or upgrading the existing surveillance and monitoring system as per the selected recommendations. This could include strengthening RMNCH data quality, data integration of existing and new indicators, infrastructure improvement, possible creation or revision of RMNCH indicators and definitions, creation of customized dashboards or platforms, developing scripts for population-level statistical analysis and modelling taking determinants of health into account.

This will emphasize co-creation and user-centred development and documentation of the indicators, services, analytical outputs and tools used. In addition, this may involve development and refinement of SOPs for data collection, validation, integration, analysis and use to strengthen consistency, transparency and institutional accountability. Regular technical working sessions to review and validate requirements or prototypes and formally endorse outputs prior to deployment will serve as key checkpoints.

Both the development and implementation of the solution will follow a phased and iterative methodology with incremental feedback and change delivery. Each iteration will have clearly defined objectives, timelines and responsible institutions. The final product will be piloted as per the agreed plan before scaling up and going live.

Overall, Work Package 2 will ensure that the RMNCH framework moves beyond conceptual design to practical, institutionalized improvements, strengthening PHIM's, RHD and other Ministry of Health and Sanitation units' ability to generate, integrate, analyse and use RMNCH data in a systematic, gender-transformative and decision-oriented technique.

Work Package 3: Sustainability of the RMNCH surveillance and monitoring framework

Sustainability is critical to ensure that the RMNCH surveillance and monitoring framework continues to function effectively and remains responsive to evolving public health priorities. Without deliberate planning for sustainability, gains achieved during implementation risk erosion due to staff turnover, funding constraints, technological obsolescence, parallel system development etc. Hence all work packages need to be executed with this in mind to enable PHIM and the Ministry of Health and Sanitation maintain continuity of RMNCH surveillance.

This work package will therefore focus on strengthening the long-term operational, technical and institutional ownership of the RMNCH framework. This phase will clearly define system maintenance and support arrangements, including responsibilities for system administration, routine updates, data quality monitoring and troubleshooting. Considerations for scalability will be incorporated to ensure that the framework can accommodate new indicators, data sources, analytical methods and increasing data volumes without major redesign. Integration into existing national

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digital health ecosystem and data platforms will be prioritized to avoid fragmentation, duplication and parallel reporting structures.

To support institutionalization, comprehensive documentation will be developed covering system architecture, data models, indicator definitions, analytical logic, dashboards and standard operating procedures. This will facilitate structured handover to government teams as well accommodate smooth collaborations for further enhancements as well as ensure continuity in the event of staff transitions etc. The use of open-source tools and standards will be emphasized to reduce long-term licensing costs, enhance flexibility and allow local technical teams to adapt and extend the framework independently.

Technical and financial sustainability will be addressed through clear articulation of staffing requirements; skill sets and budgetary implications for ongoing operation. Where appropriate, this work package will include targeted training, mentoring and knowledge transfer to build internal capacity within PHIM, RHD, CMED, and DHD to manage, maintain and further develop the RMNCH framework. Work Package 3 will ensure that the RMNCH surveillance and monitoring framework remains a resilient, nationally owned asset that continues to support evidence-based RMNCH policy and research over the long term.

7. Summary

This concept proposes the development of a gender-transformative, integrated RMNCH surveillance and monitoring framework to strengthen PHIM's ability, in collaboration with the Ministry of Health and Sanitation and key departments, to generate, integrate, analyse and use high-quality population-level RMNCH data for evidence-based decision-making and policy formulation. Responding to fragmented data systems, data quality gaps, limited gender-sensitive analysis and infrastructure, the framework applies a structured *data-to-action* approach aligned with Africa CDC National Public Health Institute core functions.

Through a phased process of design, implementation and sustainability planning, the initiative will define governance arrangements, standardize and integrate RMNCH data from multiple sources, and enhance analytical and visualization capacities. RMNCH serves as a first use case to demonstrate how integrated, gender-responsive surveillance can translate data into policy-relevant evidence, strengthen accountability and support coherent policy dialogue, while establishing a scalable and reusable model that can be extended to other priority public health domains in Malawi.

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