

Kenya | Swaziland | Uganda | Zimbabwe

# Case Study

UNICEF harnesses use of near real-time data to support maternal, newborn and child health in Eastern and Southern Africa



## Near real-time monitoring of local health and nutrition interventions, and community feedback, support improvements in service delivery for women and children

### Abstract

A new initiative, supported by the US Fund for the United Nations Children's Fund (UNICEF) and the Bill and Melinda Gates Foundation, is allowing decentralized government units and staff to synthesize the near real-time monitoring (NRTM) of localized data in health and nutrition, with community feedback. The aim is to strengthen evidence-based decision-making and planning at the district, ward and village levels where services are delivered, and to involve the community in improving outcomes for women and children. The initiative is supporting UNICEF country offices in Kenya, Swaziland, Uganda and Zimbabwe to work hand-in-hand with targeted government counterparts to apply supply-side and demand-side near real-time data to their different contexts.

While one aspect of the initiative is changing physical systems, the programme is also seeking to make pivotal cultural and behavioural changes among health managers and staff by promoting the value of data analysis and its application. Communities are also using data to create solutions to nutrition and health challenges affecting their children through data use. Initial evidence suggests that data use is contributing to an increase in health budgets in Kenya, attention to data quality issues at the national level in Swaziland, the relocation and better take-up of reproductive, maternal, newborn, child, and adolescent health (RMNCAH) services outreach in Uganda, and more equitable

distribution of resources to prevent stunting in children in Zimbabwe.

### UNICEF's role in data for children

The collection, analysis and use of data by governments and development partners, including UNICEF, is a powerful strategy for achieving results for children. UNICEF has a strong track record of using data to inform the design and monitoring of its own programmes, as well as producing internationally-credible statistics and survey findings on the status of children.

However, a relatively new programmatic area, which is now being more intensively pursued, is strengthening governments' use of data from routine national data systems (such as health, education and civil registration). Functioning information systems support child well-being in multiple ways, from better targeting of resources to identifying the most marginalized children, and are therefore a key investment area for UNICEF. UNICEF also promotes citizen engagement, including via its own platform, U-Report, to connect citizen feedback with decision makers for increased social accountability. Both investments emphasize scale and sustainability through, for example, the use of open source software, mobile technology and working within existing government frameworks.

### New initiative takes real-time monitoring and response to localities

The Eastern and Southern Africa Region (ESAR) Programme Monitoring and Response (PMR) Initiative is supporting UNICEF country offices in Kenya, Swaziland, Uganda and Zimbabwe to assist decentralized government counterparts in applying near real-time data to their different contexts. Two types of data are being applied: (i) real-time supply-

## Different contexts, different approaches to NRTM

The four UNICEF country offices have each developed different approaches and applications for NRTM and citizen feedback as part of the initiative, adapted to their local context. All approaches include the institutionalization of data use at routine quarterly performance review meetings of subnational government management teams.

**UNICEF Kenya**, in partnership with the School of Computing and Informatics at the University of Nairobi, has developed new county- and sub-county-level DHIS2-based Integrated County Health Information Mesh (iCHIM) dashboards which are used at routine quarterly performance review meetings alongside the recently rolled out RMNCAH scorecard (Figure 1). This is combined with qualitative community feedback made available through the newly developed Information and Communications Technology for Social Accountability (ICT4SaC), a digital means of receiving feedback from community dialogue to be entered into DHIS2 and shared with health management teams. UNICEF Kenya has also advanced mobile phone use by community health workers for faster entry of standard community health information directly into DHIS2.

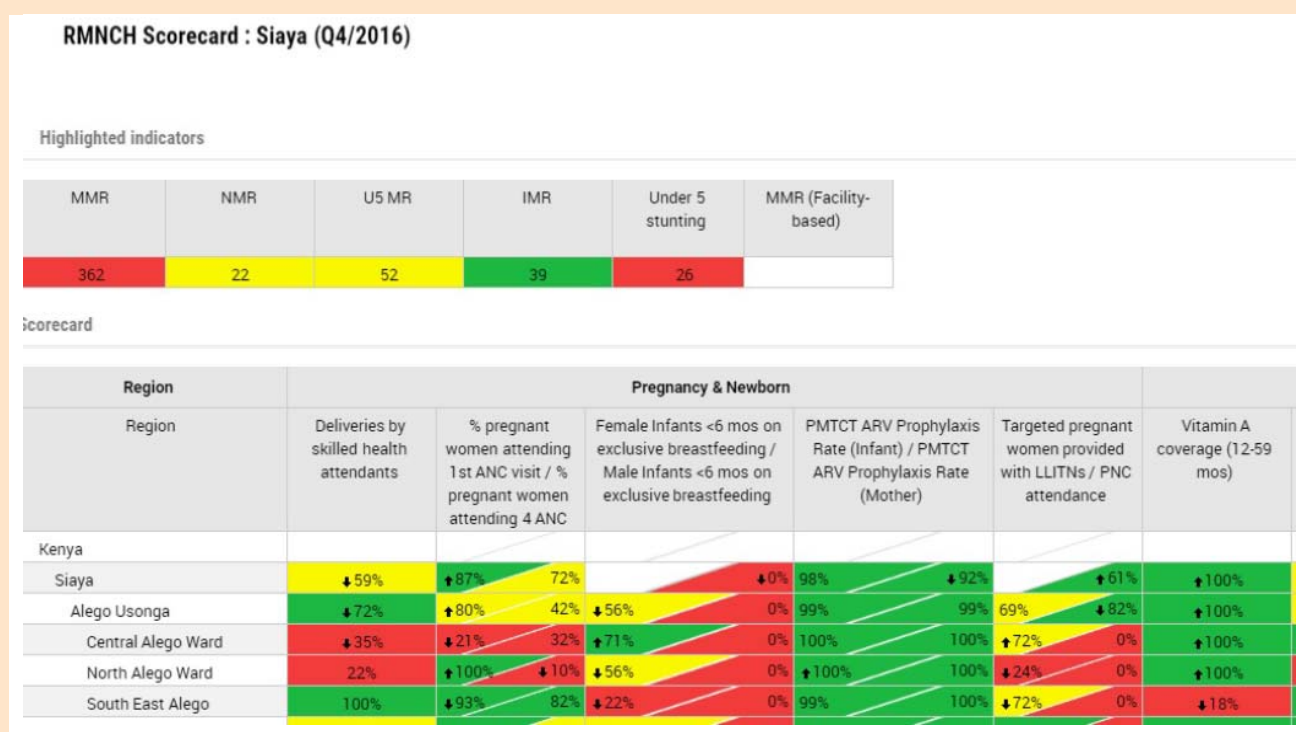
**UNICEF Swaziland** has developed the country's first health management information system (HMIS) health dashboards for use at the subnational level. The key focus of the initiative is ensuring that data

from the newly piloted national electronic Client Management Information System (eCMIS) are used at decentralized levels by the Regional Health Management Teams and facilities. UNICEF's SMS-based citizen engagement platform, U-Report, is also used to generate feedback from health facility clients and to promote public health messages.

**UNICEF Uganda** is demonstrating the value of linking indicators to bottleneck analysis by fully automating the national RMNCAH scorecard within DHIS2 alongside a bottleneck analysis dashboard and two other NRTM dashboards on data quality assurance and an action tracker. The new dashboard suite is complemented by U-Report citizen feedback, linked to a complaints hotline and facility-based community dialogues, to concurrently understand the demand-side of health service delivery.

**UNICEF Zimbabwe** has developed a community-based NRTM system to strengthen the evidence-base of the Multisectoral Community-based Approach for Reduction of Stunting (MSCBARS) Programme and to involve the community in creating solutions to nutrition challenges affecting their children. Data from households with pregnant women and children under two years of age are linked to ward-level action microplans and complemented by U-Report poll data to capture community feedback on nutrition and associated interventions.

Figure 1: Extract from RMNCAH scorecard Q4 2016, Siaya County, Kenya



Source: Kenya rmnach.org platform

side data, made more available and accessible through the institutionalization of mobile data-collection solutions and system-generated, manager-friendly dashboards or scorecards; and (ii) social accountability-oriented demand-side data obtained through SMS-based citizen feedback mechanisms and community dialogue.

Georgia Hill, Innovation Lead, UNICEF ESAR Office (ESARO), comments: *“Within the health sector, every country with District Health Information System 2 (DHIS2) has the goal of collecting data in near real-time and making digitized information available for use at more decentralized levels of government. This programme has an ambitious hypothesis for how to improve service delivery, with data at the forefront, by getting information from the various levels into the system faster and back down to those same levels for use during the course of implementation. We wanted to unite multiple stakeholders and collect, analyse and use data in a new way, to make an impact.”*

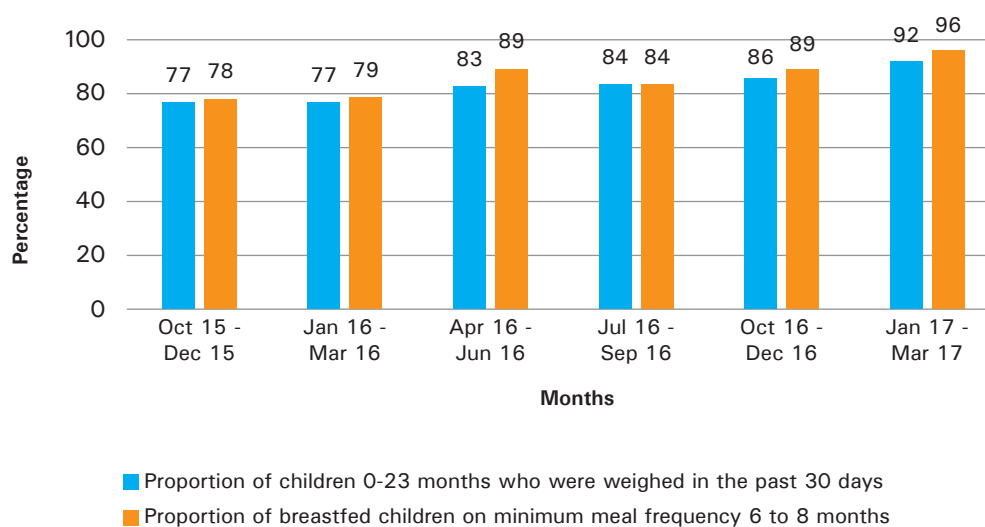
Crucially, this work includes staff capacity-building in partnership with decentralized health managers to ensure the use of data is institutionalized. Ian Thorpe, Chief, Learning and Knowledge Exchange, UNICEF Headquarters, comments *“There is still surprisingly little focus on how to implement the use of data in decision-making in practice. UNICEF can add value in this area, as we are already working on data-collection and also on health and nutrition programming on the ground. Bringing those two threads of work together is a really important focus of this initiative.”*

## Empowering decentralized government managers and staff with data

The core pillar of the initiative is the real-time element, as the data now allow local managers to access information and see trends close to the time when decisions have to be made. The ability of health facility staff to interpret their own data is also key. A nurse from one facility in Swaziland explains: *“In the past, an external analyst would tell us what our data meant and it could be a really demoralizing experience. For example, data from our health facility were taken and analysed and then presented at a regional meeting on HIV. That was the first time I had seen this analysis. It was so negative and did not reflect the reality of the work we were doing. But I was powerless to disprove what was said, as I could not bring my own analysis along. Now my own information is in front of me.”*

In Uganda, institutionalization of the use of dashboard data is under way as the basis for annual planning and quarterly reviews of service coverage and health indicators. Dr. Elly K Tumushabe, Mukono District Health Officer, says: *“The automated scorecard is simple and the user is able to understand performance levels without the hurdle of having to know every target.”* Adjustments in health action plans are then based on a bottleneck analysis, which goes further in determining how unsatisfactory performance levels need to be addressed. Muyomba Siraj Wagwa, Butambala District Biostatistician, says of the bottleneck

**Figure 2: Example of trends in indicators identified for action in a ward microplan, Zimbabwe**



Source: NRTM system extracts, UNICEF, March 2017

analysis tool: *“This programme has trained me to analyse the root causes of any challenge and how to intervene for improvement with the available resources, including teaching me how to reallocate existing budgets to certain high-need underfunded activities”.*

In relation to stunting reduction, the national Food and Nutrition Council in Zimbabwe is now conducting both quarterly and annual performance reviews as a result of the initiative. All target districts, and associated learning wards and villages, are also conducting their first monthly and quarterly performance reviews, with districts producing Quarterly Food and Nutrition Security Reports informed by NRTM data. Matimbira Isheunesu, District Nutritionist, Chiredzi, and member of the Chiredzi District Food and Nutrition Security Committee, comments: *“This new approach addresses problems and challenges at the community level where the data are generated, and hence helps communities, with support from ward extension workers, to find specific and practical solutions that help reduce stunting.”*

## Creating a data use culture

While one aspect of the PMR Initiative is changing physical systems, the programme is also striving to make pivotal cultural and behavioural changes among health staff and is instilling in them the value of data analysis and its application. The supply of data to managers therefore becomes a means and not an end in itself. Dr. Eddie Addai, Regional Chief Programme Planning, Monitoring and Evaluation, UNICEF ESARO, comments: *“We have brought decentralized managers together to train them on data interpretation and use which has been a really worthwhile investment. It’s very empowering to managers who are close to the problem to have information in a form they can understand and act on, and then see results which encourages continued engagement with the data.”*

Nelisiwe Dlamini, M&E Specialist, **UNICEF Swaziland**, was formerly manager at the national HMIS for 15 years and so understands the challenges which government staff face. Nelisiwe Dlamini comments: *“So much progress has been*

## In the spotlight

### Kenya

#### Data use increases health budgets

A key area of UNICEF Kenya’s work is building the capacity of managers at the county level in data analysis and use. County staff learn how to cross-check to see if data from routine health information echo what other data sources are saying. Victor Ouma Achieng M&E Specialist, Knowledge Management and Social Accountability, UNICEF Kenya, comments: *“We have a deeper dive in terms of discussing where the gaps are, due to this ability to cross-check data sources and analyse the implications. This capacity-building has been critical groundwork for us.”*

Dr. Okomo, County Health Director for Homa Bay County, says he now knows what to present in different forums as he interacts with policymakers and stakeholders in health. He comments: *“When I meet with the County Committee for Health, I now present the dashboard data which gives the information in a faster, more visual and easily digested way which stakeholders can relate to. We can then have a profitable, evidence-based discussion about how the health sector is performing and the resources needed.”* Dr. Okomo, together with Dr. Oteng’ Lawrence, County Health Cabinet Minister, used the scorecard to lobby the Homa Bay County Government for an increase of 5 per cent in the 2016/2017 annual health budget. *“This is one such great example of how service delivery science can strategically inform resource allocation decisions in a devolved health systems framework,”* adds Victor Ouma Achieng.



Photo © Victor Ouma Achieng, UNICEF Kenya 2016

Mr. Cyrus Obaigwa, Homa Bay County Health Records and Information Officer, co-facilitating a data demand and use session for health staff, with Mr Raphael Pundo, Health Informatician with the University of Nairobi School of Computing and Informatics and Technical Director of Health Information Systems Program (HISP) Kenya. The session looked at how near real-time data availability through the RMNCAH scorecard and iCHIM translates into decentralized data use and action.

Another example is from Siaya County, where Hon. Leonard Oriaro, a member of Central Alego County Assembly ward, was all too aware of the challenges inherent in the delivery of an integrated package of health services at the Tier-1 (community) level of the health system. He was so impressed by the RMNCAH scorecard and iCHIM dashboards as complexity-aware M&E tools for strengthening performance management and accountability that he allocated Kenya shillings (KSH) 2.5 million (US\$25,000) to support mainstreaming of community data capture and reporting systems for delivery of improved community health services in his ward.

*made in getting health facilities online, but there has been a huge emphasis on the availability of data, and none on the actual analysis and use. Every year we would improve the HMIS, but how human beings actually used the data would not get attention.”*

An important aspect of building staff capacity on data use is creating a culture of accountability among data users. UNICEF contributes to regular performance reviews, mentoring stakeholders as they routinely analyse and use the data. Regularly discussing performance in this way encourages accountability among stakeholders, and the linking of specific dashboard indicators to ‘indicator owners’ is another promising aspect of the work being tested. Dr. Elly K Tumushabe, District Health Officer, Mukono, Uganda, states: *“As a result of sharing performance, there is more ownership of performance indicators by the stakeholders.”*

In **Uganda**, action tracker dashboards linked to the RMNCAH scorecard show the status of responses taken as a result of data review and analysis.

This action tracker is applied to the lowest level of decision-making in the target districts, ensuring that accountability as well as data empowerment permeates all levels of the health system.

**UNICEF Zimbabwe** has also added action plans into the NRTM system at all administrative levels, including the national Food and Nutrition Committee. This includes an action tracker template to be completed by all levels of the Food and Nutrition Security Committees, so that planned activity arising from the data analysis can be regularly monitored and a data use culture embedded within the Committees.

Integrated Performance and Data Reviews using the RMNCAH scorecard toolkit and institutionalization of the data quality assessment (DQA) protocol have been pivotal for **Kenya**, with support provided to operationalize the Kenya Quality Model for Health Performance Monitoring Checklist, a harmonized technical assistance and reporting tool for documenting field supervision missions in which health staff are guided through the data review, analysis, interpretation and use continuum.

## Zimbabwe

### Data use by multiple sectors to enhance equity

A multisectoral approach to data-collection and use, as well as staff capacity-building, is key in Zimbabwe as the initiative recognizes that many sectors have a role to play in addressing chronic malnutrition. Matimbira Isheunesu, District Nutritionist, Chiredzi, explains: *“Coming from a nutritional background, one of the things that excites me most is that the capacity-building activities on data use related to nutrition are for all Food and Nutrition Security Committee members. This has resulted in most players in these committees being able to mainstream responses to nutrition issues in their respective sectors (agriculture, health, water, sanitation and hygiene (WASH), gender). For example, the Ward Development Coordinators from the Ministry of Women Affairs, Gender and Community Development are now teaching infant and young child feeding practices in women’s groups.”* Matimbira Isheunesu continues: *“This really helps further nutrition education in the communities and helps support stunting reduction, a task which is too big for the Ministry of Health and Child Care alone.”*

This multisectoral evidence-based approach also means that the allocation of available resources can be adjusted according to new information, to ensure the most effective outcomes for children. Matimbira Isheunesu concludes: *“The concept of evidence-based planning has been a missing link in most of*



Photo © Alfa Ndlovu, UNICEF Zimbabwe 2016

Chipinge District, Ward 1 Food and Nutrition Security Committee functionality and capacity enhancement meeting

*our sectors; however, Food and Nutrition Security Committees now draw up their action plan backed by data. This is already beginning to result in the more equitable distribution of the few resources available, and prioritization of interventions both at district and sub-district level.”*

A major focus of the initiative is promotion of data use at the point of collection through conducting monthly data clinics at the facility level and use of a chalkboard to facilitate dialogue at the community level. In addition, the updating of action trackers and activity plans based on the identified programme priorities, guided by a review of service statistics, occurs during routine subnational quarterly performance review meetings. These updates are now a standing agenda item of these reviews at the county, sub-county and facility levels.

## Facilitating citizens to give vital feedback

A core element of this initiative is to canvass the voices of citizens and to mobilize communities so as to engage them in the decisions taken at the local level. Dr. Eddie Addai comments: *“The initiative works with ground-level systems so people can take action on issues in their own life*

*situations. This programme is significant because it uses NRTM to facilitate this engagement at the community level, empowering the community with data which would otherwise have been out of reach”.*

In Swaziland, historically health facility feedback was generated via a client satisfaction survey conducted every two years. Now, client feedback through U-Report gives real-time results. Information generated can be added to supply-side facility data from the HMIS for decision makers to increasingly make timely, representative decisions. For example, clients complained through U-Report that when they visited one health unit with cold symptoms and a fever, they were not given antibiotics as they expected. This led to a decision to conduct client education during appointments. Nurses now emphasize the issue of resistance resulting from over-usage of antibiotics and the client’s role in keeping themselves well, such as by eating fruit every day and washing hands.

## In the spotlight

### Uganda

#### Community feedback closes health knowledge gaps

In Uganda, U-Report for community-level action and advocacy is aimed at holding government accountable for health services. U-Report findings and data quality assessments at health facilities are already having a positive impact on results in the target districts, including a reduction in drug stock-outs, a reduction in health worker absenteeism, and increased use of health services.

Specific outputs resulting from engaging citizens are tangible. In one district the outreach services for immunization were not being used, but it was not obvious why. After a community dialogue with health workers it was discovered that the location of the outreach immunization site was being avoided as it was associated with accidents such as lightning strikes and overturned vehicles. Parents and other local people therefore suggested an alternative location for the outreach services and immunization rates rose.

Sean Blaschke, Technology for Development and Health Systems Strengthening Specialist, UNICEF Uganda, says of the value of citizens’ voices: *“An accessible health facility is not just about it being*



*A community dialogue in Moyo District, Uganda, with health workers and community members. The meeting reflected upon RMNCAH indicators, allowed community members to share experiences and perceptions, and created a community action plan to address RMNCAH challenges.*

*nearby, being open or closed, and being staffed. We are rich in traditional data like this from the HMIS, but this will not pick up nuances from the catchment community, and so can be dangerously misleading. For example, the RMNCAH scorecard may reveal that antenatal care coverage is low, so the government may decide it needs more nurses or more health centres. But the reason for the low coverage may be that nurses are putting off clients by being unhelpful, or because of the (actual and opportunity) costs associated with visiting health centres.”*

Nelisiwe Dlamini comments: *“In this way, the use of data is influencing several things concurrently, including community education on health, a reduction in prescribed medicines, an emphasis on individual responsibility for maintaining good health practices, and health staff who are empowered to use data in a positive way.”*

## Key lessons

Several key lessons in supporting decentralized decision makers to use data have arisen, which cut across all contexts:

**Create easily accessible data that speaks to its audience:** Enabling the use of data is about simply but effectively communicating the analysis undertaken in a way that works for the audience – in this case decentralized government staff and community members. Easy to understand

dashboards with minimal text and which give an “at a glance” colour-coded status in near real-time meet that need in all contexts. However, in Swaziland, data visualization remains a work in progress, as data currently cannot be displayed longitudinally for tracking trends and reporting over time, and there is a lack of capacity to aggregate insights from the real-time dashboard with citizen feedback.

**Data availability and analysis does not mean data use:** It is vital that feedback loops and accountability mechanisms ensure that insights from data analysis are acted upon and routinely monitored to create results for children. Some countries have plenty of existing data available, even at the subnational levels, but owning and using the data remains irregular at best. Georgia Hill comments: *“Real-time monitoring is a moot effort if there is no way to effectively visualize and analyse the data, and understand its significance for programming.”*

## Swaziland

### Countrywide improvements in data capture result from identification of poor quality data

One unforeseen outcome of the PMR Initiative has been its role in improving data quality. Data quality is a critical investment layer and without it is not possible to address more specific issues tied to particular localities.

Nelisiwe Dlamini, M&E Specialist, UNICEF Swaziland, comments: *“When we went to analyze data at the level of the facility, we realized the quality was very poor. For example, in some instances males were listed as pregnant and as receiving antenatal care. So much work needed doing at the national level to make the entry fields for the data more restrictive so that human error at the time of inputting can be limited.”*

UNICEF therefore spent an unanticipated amount of time working with government staff at the national level to standardize input fields. While outside the scope of the original programme of support, this work was vital and further strengthened government systems by capacitating government staff to undertake the work. The resulting adjustments now positively affect data entry and data quality for every facility in the country and make the data more trustworthy to decisions makers.



Photo © Nontobeko Mbuyane UNICEF Swaziland 2016

In Swaziland, UNICEF's SMS-based citizen engagement platform, U-Report, is used to generate feedback from health facility clients and to promote public health messages.

**Government ownership and working relationships are key to data use:** Strong working relationships between targeted government units and development actors like UNICEF, as well as between the different levels within the government systems (e.g. counties/districts, districts/facilities, facilities/communities) are critical. Data use is inherently about cultural and behavioural change within the work of decentralized government units, which can be both sensitive and empowering. Close collaboration between various development actors involved in the data management space is also crucial to ensure that all partners are working to improve one government-owned monitoring system.

**Balancing trusting in data with questioning data quality:** When presented with near real-time data which challenges assumptions, health staff may initially question the accuracy of the data. These queries may be valid and thereby may lead to questioning and improving the data quality. However, the data may in fact be correct and may be highlighting a problem that the health facility was not aware of. This creates a helpful interplay between improving data quality and accepting and acting upon data that are critical of performance.

Makhosini Mamba, Health and Nutrition Officer, UNICEF Swaziland, comments: *“You have to work on your system so that any subsequent discrepancies in data you have are likely to concern the service you are providing. For instance, one health facility was expecting 32 women to come for antenatal care visits. If you only have records for 15 clients who attended their appointment, then you immediately ask ‘What happened to the 17 who did not come?’ You start interrogating why, and if it happens again, then there must be something wrong, the women are not being engaged properly to attend their appointment.”*

**Strengthening data use is about institutionalizing tools and approaches:** Despite UNICEF’s desire to fit the initiative into existing systems, which takes time and is a long-term process, there can be a tendency for stakeholders to want to show

progress and demonstrates quick results. Dr. Eddie Addai comments in this regard: *“A key challenge is how you move from a project perception, to pursue mainstreaming of tools and approaches, a key to institutionalized data use. This is not an island of excellence but a practice to be adopted and taken to scale.”*

## Conclusion

The PMR Initiative is showing significant promise in strengthening decentralized decision-making and service delivery in support of results for children and women.

Traditionally, statistics would be consolidated and used at the national level, while at the local service delivery levels, national guidance and higher-level resource allocation decisions would generally be followed. The use of decentralized NRTM and citizen feedback transforms that dynamic into a powerful strategy for subnational-level ownership of both problems and solutions. Ian Thorpe comments: *“Now through the generation and use of local data, and engagement with health workers and the community, more decisions and actions can be made and owned locally”.*

Dr. Eddie Addai adds: *“The initial investments have been made and we are now looking at replication and further adoption, with two significant opportunities for applying the tools and approaches at scale. Firstly, in terms of replication in nutrition and health in more districts and also other countries, and, secondly, in terms of applying the principles to other sectors such as education or WASH.”*

The fact that RMNCAH scorecards have been agreed in principle by most countries in ESAR bodes well for a swift roll out of the dashboards in other countries. The integrated approaches to real-time monitoring – by combining sector systems data with citizen engagement and support for data interpretation and use – may also be a winning approach in tracking progress against the Sustainable Development Goals in the years to come.

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### Further information

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