Improving data quality in community health programmes: Recommendations from inter-country research

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1. Close-to-community providers can collect a range of data that, if of high quality, could be used to improve health system management, monitoring, and policy making
2. Data collection and reporting tools used by close-to-community providers are not designed with the users in mind: they are often complicated, bulky to carry to home visits, and duplicative
3. The quality of data reported by close-to-community providers is often poor. Data quality can be measured through data quality assessments and improved by inclusion of data management training, regular feedback, and supportive supervision
4. Close-to-community providers rarely receive feedback on the quality and the meaning of the data they provide; information flow in the system is primarily bottom-up

Why is community-level data quality important?

In all countries with community health programmes, close-to-community providers collect data about the people that they serve and the services that they provide. Depending on the country, these services include a mixture of health promotion, disease prevention, referral, and curative and disease management services. These data are essential to monitor the performance of community health programmes. Governments often rely on national Demographic and Health Surveys to provide them with information regarding the health of the populations in their districts/counties. The disadvantage of these surveys is that they are expensive and take place several years apart. The data collected by close-to-community providers offers a more regular and cheaper alternative, reaching all the way down to specific villages/facility catchment areas.

High-quality data means:

If trusted, data from close-to-community providers could be used by health systems in many ways for example, ensuring the early identification of outbreaks, increasing service uptake, targeting interventions, improving the efficiency of supply chains, and informing decision-making around what to finance. In practice, the quality of data reported by close-to-community providers is poor (Yourkavitch et al., 2016). Furthermore, a lack of robust data management systems within community health programmes means that there is limited demand for, and use of, community-level data in decision-making in community health services or the wider health system. When this data is used, poor data quality means that the decisions taken may not be credible. In other words, at the higher levels of health systems there is little trust in the data received from community level – and at the lower levels, no incentives to improve it.

There are seven attributes that data should have to be considered high-quality: data should be accurate, reliable, precise, complete, timely, have integrity, and be kept confidential (MEASURE Evaluation, 2008). Table 1 explains how these attributes apply in the context of community health services, using measurement of mid-upper arm circumference (MUAC) as an example.

Dimension	Example of how this criterion for quality data would be met for a MUAC patient
Accuracy	Child's MUAC is 130mm. CTC provider measures child's MUAC and obtains measurement of 130mm.
Reliability	First close-to-community provider measures child's MUAC and obtains measurement of 130mm. A second CTC provider measures the same child's MUAC and obtains the same measurement.
Precision	The age and sex of the child whose MUAC has been measured is recorded.
Completeness	There are 60 children under age five in the community. Each of these children have had their MUAC measured by a close-to-community provider.
Timeliness	Close-to-community providers submit their data reports including MUAC information to their supervisors according to set deadlines.
Integrity	close-to-community providers do not report data unless they have measured/collected it.
Confidentiality	close-to-community providers do not share the data they have collected with other community members and they store their data reports securely.

Table 1. Dimensions of data quality (Adapted from MEASURE Evaluation, 2008)

What did we do?

Teams in six countries (Bangladesh, Ethiopia, Indonesia, Kenya, Malawi, Mozambique) conducted qualitative interviews at national, district (or equivalent mid-level), and community level to explore guidelines and indicators on quality of care and what data are collected to measure or assess quality. We also investigated how feedback was provided by supervisors about data quality, and what incentives and accountability exist for close-to-community providers to report high-quality data on their work.

Building on these qualitative findings, in-depth sub-studies were conducted in Kenya and Malawi in rural and urban community sites to assess the quality of data reported by close-to-community providers, and to identify barriers and facilitators to reporting high-quality data. Quantitative methods were used to measure the consistency in the values reported at different reporting levels of

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the Community Health Information Systems studied. Qualitative methods were used to explore the strengths and weaknesses of the following functional components of the Community Health Information Systems:

- Monitoring and evaluation structure, functions and capabilities at community level
- Indicator definitions and reporting guidelines
- Data collection and reporting forms
- Data management processes
- Links with national Health Information Systems

Focus group discussions were conducted with close-to-community providers and in-depth interviews were conducted with supervisors of close-to-community providers, as well as those involved in management of community health services and primary healthcare facilities.

What did we find and what does it mean?

Community data collection and reporting tools need to be revised so that they are written in language that close-to-community providers understand and aligned between public sector and project-linked tools

In all six countries, close-to-community providers are expected to fill out paper-based records when they visit households. They write down information about the health of household members (especially about pregnant women and children) and about what they did during the visit. These data should be collected via standard forms in books designed by the national Ministry of Health. These forms are often in English and use technical, clinical jargon. Close-to-community providers and their supervisors report that this makes it difficult for them to use these tools, sometimes introducing errors through misunderstanding of indicators.

Close-to-community providers are also recruited to engage in specific programme activities (e.g. growth monitoring as part of nutrition programmes) or by NGO partners that support specific services. In this context, close-to-community providers are often provided with additional data collection tools to their routine data collection tools, adding to the burden of the number of reports they are expected to submit; see Figure 1.

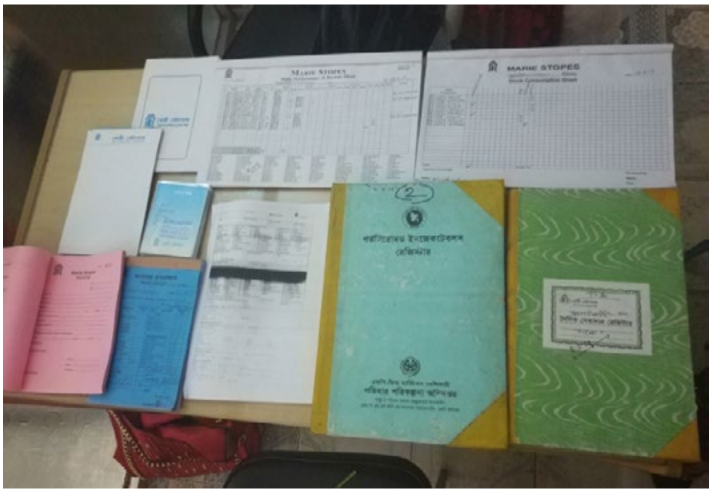
Close-to-community providers also complain about the size and/or the number of data collection tools that they are expected to use. Sometimes they are too bulky or heavy to comfortably carry and walk around with when they conduct household visits, especially in more remote, rural areas. Many close-to-community providers prefer to use personal notebooks to make notes and transfer them to the official forms later, sometimes introducing errors.

We carry exercise books [instead of the Ministry tool]; that book is big, you can't carry it."

Community Health Volunteer, Maili Saba unit, Nairobi, Kenya

Training on data management should be a component of the training package for close-to-community providers and their supervisors; regular data quality assessments of community-level health data are needed

We found that data collected by close-to-community providers flows in a similar way in all six countries: the data collected by close-to-community providers in paper-based records are submitted to their supervisors at regular intervals; their supervisors then aggregate these data into a (typically) paper-based record; these records are then submitted to higher administrative levels within the healthcare management structure before finally being included in the national health information system. Figure 2 provides an illustration of this data flow.



The many tools used by close-to-community providers in Bangladesh

Supervisors of close-to-community providers often aggregate (or add up) incomplete data sets to complete their reports due to late or missing reporting from close-to-community providers. In addition, any data that supervisors doubt and omit from their reports is often not corrected in the close-to-community provider's records even if and after their supervisor has discussed data quality with them. As measured in Kenya and Malawi through a data quality assessment, the values reported by close-to-community providers and their supervisors for the same indicators were rarely consistent, with both over- and under-reporting. Figure 3 displays these results from one of the community sites (which was typical of all the sites assessed).

Downward feedback at all levels of the system should be routine and included in management performance evaluations: training on use of data in supportive supervision meetings can improve this

In all six countries, policies state that supervision of close-to-community providers should happen on a regular basis. Their supervisors are often primary healthcare staff. In practice, supervision rarely happens as often as it should due to a variety of factors such as supervisors' workloads, lack of transport to reach close-to-community providers, and limited work planning. Infrequent supervision visits reflect poor linkages between close-to-community providers and the primary healthcare system.

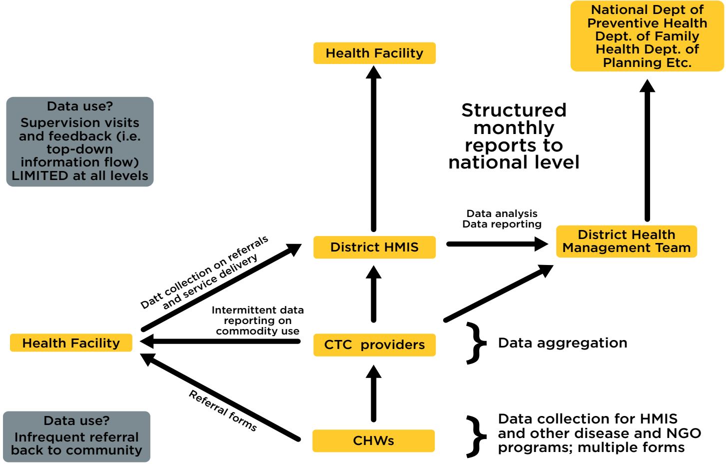


Figure 2: Information flow for close-to-community generated data in health systems

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When supervision does occur, this is often a tick-box exercise with little coaching and mentorship on data collection. Respondents in all sites reported limited if any reflection on the quality of data submitted (at the baseline) and no use of the data to guide supervision topics or continuing education opportunities.

> *"Because the supervisors do not come from the district, sometimes we deliberately send wrong data just to see if the supervisors will have time to check our work… and then it can force them to come and verify with us… they don't even check our work it is sent like that and we never see them coming either."*
>
> Health Surveillance Assistant, Mchinji Malawi

Lack of feedback regarding data reporting has two important adverse effects on close-to-community providers. Firstly, it leads them to believe that the data they report is not used in any meaningful way such as decision-making. Secondly, lack of feedback leads them to assume they are reporting data in a satisfactory way even if they are not sure what they are doing/if what they are reporting is inaccurate.

> *"Feedback is there only when they have seen a discrepancy in the data that you have sent to the district. Even in our case I would honestly say that we never give feedback to the volunteers who help us with the collection of the data. We would go back to them only when something is not clear…I think we have not internalized the culture of giving feedback."*
>
> Facility-in-Charge, Mchinji Malawi

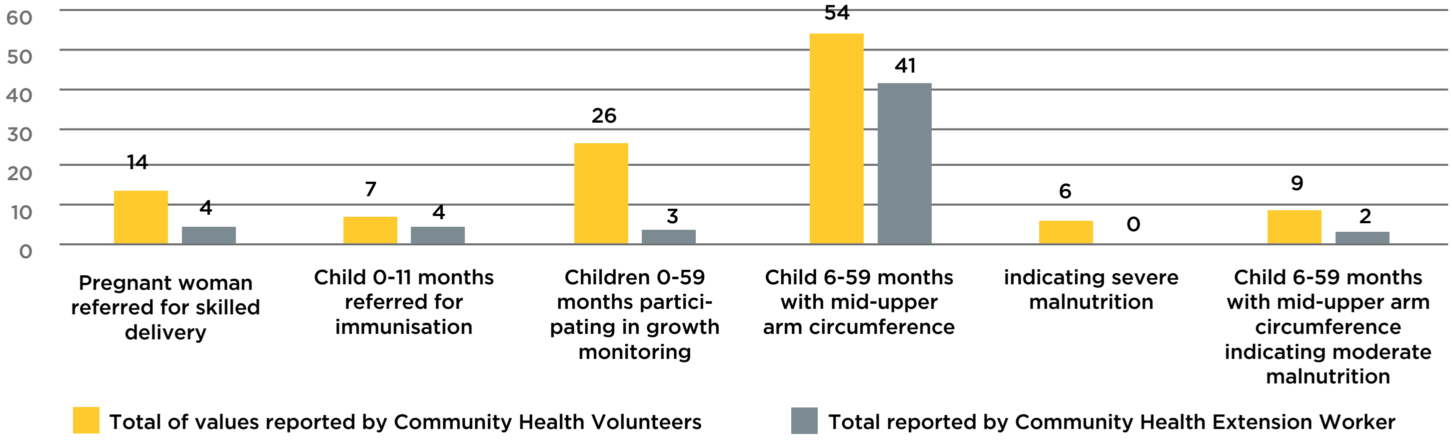
Due to their awareness of the lack of capacity of close-to-community providers in data collection and the weaknesses in data management, managers and decision-makers within health systems perceive the quality of community-level health data to be poor, thus its use in decision-making is limited. In the few examples where it was reported that community-level health data was used for decision-making, there is no documentation to prove this.

Case snapshot: Indonesia

In Cianjur, Indonesia, REACHOUT's quality improvement work focused on strengthening maternal health service provision at the community level, particularly in rural areas using the existing system of close-to-community providers. The close-to-community providers are village midwives and kader (or community health volunteers) located at the village level. They provide maternal and child health services to the community, alongside with data recording and reporting of these services. The village midwife collects and reports data using a tool from the government called kohort book, while kader use the Posyandu register book. It should contain a current record of all the pregnant women and children in the community and should be filled out and reported to the Puskesmas (community health centre) on a monthly basis. From the puskesmas, the data are aggregated and reported to the District Health Office in paper-based format. At the baseline, data discrepancies were observed, and respondents attributed them to irregular supervision visits with fault-finding and incomplete assessment of data by supervisors.
To address this issue, REACHOUT collaborated with the District Health Office and Puskesmas in one of the sub-districts to conduct supportive supervision training. This training built the capacity of supervisors in carrying out effective supportive supervision visits to village midwives and kader, including knowledge and skills refreshment to conduct supervision in a structured manner. The first phase involved mid-level supervisors in Puskesmas and District Health Offices (the supervisors of village midwives) and the second phase involved village midwives and village representatives (the supervisors of kader).

After this training on supportive supervision, supervision was conducted at the Puskesmas every two weeks by the midwife coordinator. During the supervision meetings, the midwife coordinator addressed data quality issues in the reports from the village midwives and there were sessions of knowledge transfer and feedback at the end of the meeting. In these meetings, data review was also performed regularly to ensure the completeness of the data. Similarly, at the Posyandu, we observed that village midwives now conduct supportive supervision on kaders' work performance.

Figure 3. Values reported by 33 Community Health Volunteers and by their supervisor for the same maternal and child health indicators in May 2016, Maili Saba Community Unit, Nairobi, Kenya



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Recommendations

Community-level data has the potential to inform decision-making within health systems, making it truly responsive to the needs of communities. To achieve this, it must be accurate, reliable, precise, complete, timely, and used for analysis and feedback.

For national policymakers

- All close-to-community providers should have standard data collection and reporting tools (including referral tools) that are written in a language that they understand, requiring alignment between Ministry of Health and project tools
- Training on data management should be a component of the training package for close-to-community providers and their supervisors
- Training on supportive supervision should incorporate data use to improve the value of supervision meetings
- There should be regular data quality assessments of community-level health data
- Downward feedback at all levels of the system should be routine and included in management performance evaluations

For supervisors of close-to-community providers and district managers

- Regular supportive supervision meetings should be held with close-to-community providers and data management and data quality should be a standing agenda item. Close-to-community supervisors should provide feedback to close-to-community providers on the referrals that they have made and the activity data they have reported during monthly meetings
- Primary healthcare facilities should store and track referrals received from close-to-community providers
- Monitoring of activity data should be a key function of mid-level managers and can be posted, discussed and incorporated into priority setting and evaluation of activities

Further reading

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