



COMMUNITY BEHAVIOUR TRACKING SURVEYS: A CONCURRENT MONITORING SYSTEM TO PROVIDE REAL-TIME MEASUREMENT OF KEY PROGRAMMATIC INDICATORS

The Sukshema project focused on improving maternal, newborn, and child health (MNCH) outcomes among the rural poor in eight priority districts in northern Karnataka: Bagalkot, Bellary, Bidar, Bijapur, Gulbarga, Koppal, Raichur, and Yadgir. The goal of the project was to support the state of Karnataka and India to improve MNCH outcomes in rural populations through the development and adoption of effective operational and health system approaches within the National Rural Health Mission (NRHM). The project focused on community and facility-level interventions. This technical brief describes how the project developed and implemented a concurrent monitoring system through a Community Behaviour Tracking Survey (CBTS). This was planned to help programme managers monitor and measure the rate of change in household-level behaviours and service utilization that the project hoped to influence by community and facility-level interventions.

MONITORING INTERVENTION

CBTS is a rapid and routine data collection strategy that was designed to monitor the progress of the project. Given that Sukshema's interventions were

intended to improve household behaviours for pregnancy, postpartum, and essential newborn care, the project determined that progress could best be monitored through multiple rounds of household-level surveys to routinely measure household knowledge and practices. The CBTS, initially piloted in two districts (Bagalkot and Koppal), was later extended to cover all eight project districts. Five rounds of the survey were completed in all districts by December, 2014.

A group of 20 field investigators were hired, trained on the survey procedures, and divided into two groups of 10. The training consisted of three days of classroom training and one day of field practice. Each round of the survey took one month per district to complete. Every month, each of the two groups of investigators conducted surveys in one project district, meaning that two project districts completed one round of surveys at a time. Given that there were eight districts in all, each district had four-month interval between survey rounds, and for all eight districts combined, each round of data collection required four months.

Because the CBTS was administered in each district every fourth month, the project was able to retain a stable team of field investigators on a

full-time contractual basis to do all data collection. This proved easier than recruiting and training investigators anew for each round of CBTS. The project equipped each investigator with a mobile phone enabled with GPRS (a technology used for data communications) to enter the survey data. The project's CBTS coordinator provided quality control through site visits to observe the data collection process. The CBTS coordinator was assisted by the District Monitoring and Evaluation Specialists.

The CBTS was designed to gather information from a randomly selected, representative sample of women who had delivered in the previous two months. For the purposes of the survey, the catchment area of an accredited social health activist (ASHA) was defined as the primary sampling unit. NRHM prescribes one ASHA for every 1,000 of the rural population. ASHAs are expected to reach out to pregnant women and mothers with newborns in their village to promote healthy practices and encourage care-seeking behaviours. In each district, a systematic random sample of 200 ASHA areas was selected from a sampling frame consisting of all ASHA areas in the district, with talukas (a subdistrict administrative division) and primary health centres (PHCs) used as stratifications. To identify potential survey participants, field investigators carried out a house listing operation in the selected ASHA areas in which they enumerated all households to identify households in which a woman had delivered in the previous two months. The same process was repeated every four months in all eight districts. Each time, systematic random sampling was used to identify 200 ASHA catchment areas per district from which to draw survey respondents.

Field investigators were expected to complete up to five interviews in each ASHA area. Interviews in a given ASHA area were halted when five interviews were completed or when a maximum of 200 households in the selected ASHA area were enumerated. Field investigators identified a sample of 800 to 900 women per district to obtain 500-600 responses. The response rates were around 65% to 70%. One factor contributing to the lower than

90-100% response rate that might be expected was that eligible usual residents of enumerated households sometimes were not available because they had gone to their mother's home for delivery.

Field investigators conducted face-to-face interviews with eligible women in private settings, obtaining informed oral consent prior to the interview. No compensation was provided for participation. The 74-item survey asked respondents in the Kannada language to provide information on a small number of selected demographic and socioeconomic characteristics. In addition, it assessed knowledge about danger signs during pregnancy, delivery, and postpartum; awareness of anaemia among pregnant and delivered mothers; awareness of birth planning; awareness of government schemes for mothers and children; and utilisation of antenatal care (ANC), delivery care, and postnatal care (PNC) services. Each survey required 15-20 minutes to complete.

In the first round of surveys in the districts of Bagalkot and Koppal, CBTS investigators used paper forms which then had to be manually entered by data entry operators. Subsequently, no print questionnaires were used for any data collection. Instead, each investigator entered the survey responses directly into a mobile phone, using software developed for data entry. The data were transferred to a remote server immediately after the interview. As data was collected electronically access to the data was accomplished within the same time period as the survey administration. The automation of the data collection process substantially decreased the time required to process and eventually analyse the data.

Project monitoring and evaluation staff analysed the data and presented the findings to the project staff during internal review meetings to assess progress and identify and address gaps. Since the data were used solely for project monitoring purposes, they were not presented to government officials or other stakeholders.

ACHIEVEMENTS

The CBTS data provided an indication of whether project interventions were having their intended impact. By viewing data over time, the project was able to discern whether the support provided to ASHAs was contributing to improved health care-seeking behaviour among women. Data such as that presented in Figure 1 also provided insights on where to focus subsequent efforts. For example, community resource persons in the districts of Koppal and Bagalkot trained ASHAs and auxiliary nurse-midwives (ANMs) on MNCH topics, including emphasizing the importance of ANC. Data in subsequent rounds of the CBTS for these districts showed that more women were receiving three or more ANC visits.

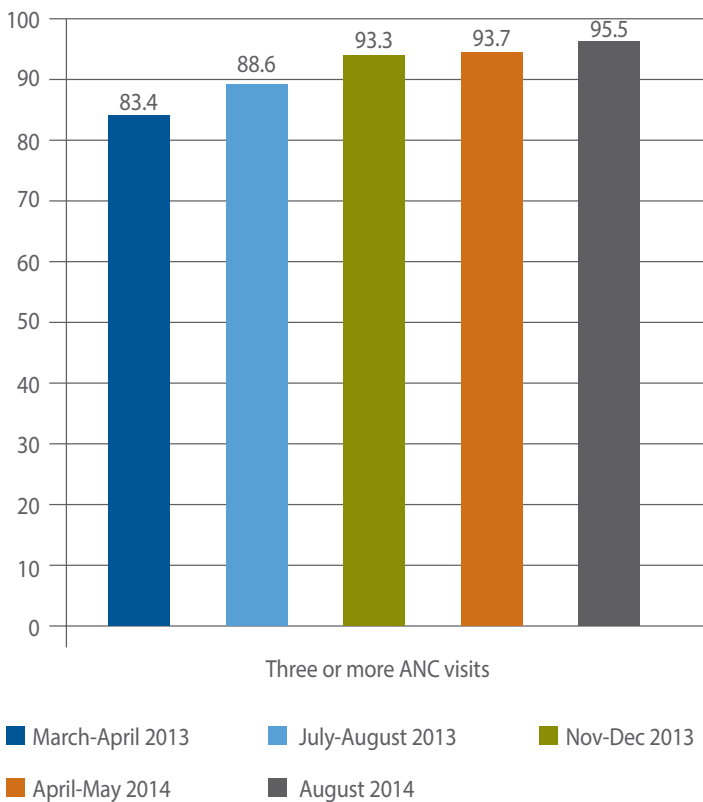


Figure 1. Illustrative data from five rounds of CBTS in Bagalkot and Koppal Districts

CBTS data were aggregated across different rounds to show changes by district over a longer time interval, as presented in Figure 2. Presenting the data in this way allowed project staff to see changes in health practices that were reinforced by ASHAs in the community intervention and nurses

in the facility intervention. For example, the Figure 2 data show that breastfeeding within an hour of birth increased. They also illustrated how some districts were doing better than others so that the project teams could explore underlying factors and learn from this evidence.

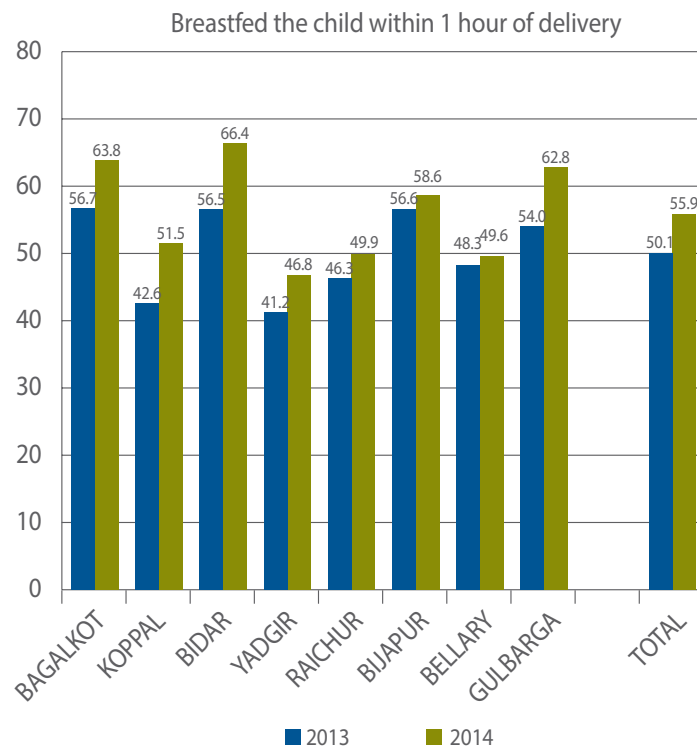


Figure 2. Illustrative data from five rounds of CBTS

The project further analyzed CBTS data to see which indicators were harder to change – such as the proportion of women who stayed for 48 hours after delivery. Coupled with information on quality of care, the project team was able to develop a deeper understanding of the interrelated nature of the quality of facility-based care and individuals' willingness to stay in a facility following birth. Clearly, these behavioural indicators were dependent on strong coordination between the facility-level and community interventions that were the project's focus.

The CBTS proved valuable as a data source to verify or identify discrepancies between the CBTS household-level data and the data reported by ASHAs in their beneficiary registers or by the government through its health management information system (HMIS). If the ASHAs or HMIS reported that beneficiaries received postnatal

home visits yet beneficiaries themselves did not indicate this, for example, it might signal the need for government action to improve the quality of data reporting.

An unanticipated benefit of the CBTS process was that the government found the information the project collected on ASHA areas for the sampling framework to be helpful. Specifically, the project created updated lists of all the ASHA areas where a full-time ASHA was present. In some districts, district health officials then were able to make use of the updated ASHA coverage data that the project had generated for the CBTS to identify areas where more ASHAs needed to be recruited.

LESSONS LEARNED

Value of frequent data collection. The CBTS provided valuable data that furnished a more immediate sense of whether some of the key indicators the project hoped to influence were in fact changing. With a more traditional monitoring and evaluation design, which would entail a baseline and endline survey, it would not be possible to know whether progress had been achieved with specific indicators until the end of the project intervention. The CBTS approach, in comparison, provided timely data that allowed project staff to act on the data, focus efforts, and see in just a few months whether the additional emphasis had yielded any results.



Photo: Field investigator conducts household survey

The CBTS data also became a rallying point that enabled the community and facility-based project teams to engage in joint planning. The project held district-level review meetings that involved the entire project team when each round of CBTS data was analyzed. The teams jointly reviewed and interpreted the data and determined what more could be done to improve indicators in their specific contexts. These reviews proved a useful forum for building coordination between community and facility-level interventions. Additionally, the project teams shared concerns with district officials that they had identified from their review of the CBTS data.

Design of survey methodology. The optimal frequency of conducting the CBTS became more apparent over time. The project found that some indicators did not move much over a four-month period. Less frequent CBTS (e.g., every six months) would probably have been sufficient to discern trends. Deeply rooted cultural practices such as breastfeeding or cord care take some time to change, even with home-based counseling, and looking for significant changes every four months might not be realistic. The project also learned that it might be best to focus CBTS data collection on indicators that had scope for improvement rather than collecting data on indicators that were already at a high level. On the other hand, if the project had conducted less frequent rounds of the CBTS, it would have been more difficult to retain the team of field investigators hired specifically for this purpose.

Sample sizes were another consideration in setting up the CBTS. Initially, the project planned to sample respondents from 400 ASHA areas per district but found that a smaller sampling frame (200 ASHA areas) would not only be sufficient but also be more efficient. As the data generated from the CBTS was for project monitoring purposes only, the team did not routinely run statistical tests to determine whether changes in indicators were statistically significant from one round to the next. However, the survey size of about 550-600 respondents per district was deemed sufficiently robust to capture any trends and to measure

statistical significance for aggregated rounds of data.

The project learned that it was important to have a limited number of straightforward questions that could be answered by yes or no. Multiple-choice questions were harder to administer; respondents had a limited ability to comprehend and answer complex questions, and it required considerable time to help them understand the choices. Participants also showed some reluctance in answering some questions, especially those regarding their knowledge of danger signs or other MNCH topics. They tended to say “I did not experience it” rather than indicate whether or not they knew of a particular danger sign. In designing a similar CBTS for another state, project staff there in fact applied the learning from Sukshema to remove all knowledge-related questions and focus on factual yes/no questions about actions and behaviours.

Managing a CBTS. Having a consistent committed team of field investigators to carry out the surveys was an advantage in managing this effort. In the pilot phase, the project used district-based programme staff to do the initial survey but found that it well-trained field investigators who could be more objective were a better strategy for carrying out the survey. Moreover, the trained field investigators gained experience with each round of CBTS and could identify and resolve problems with the monitoring and evaluation teams and CBTS coordinator as needed because they were focused solely on data collection.

Automation of the survey tool and data collection process was substantially more efficient than relying on paper-based forms that needed to be entered manually, making data instantly available for analysis. Once the CBTS interviews were complete, the state and district-based project monitoring and evaluation officers had access to their own Excel data file and could conduct analyses of the raw data. On the other hand, automation also introduced some limitations. It made it more difficult to change or add questions for subsequent rounds, because doing so would have required going back to the software vendor

to make programming changes. It also would have made it more difficult to compare responses over time if the wording of questions had been revised and would have necessitated additional field investigator training.



Photo: Community and facility teams work together to develop action plans during district-level project review meeting

The gender of investigators was another management decision that had consequences on the type of survey questions and cost of the monitoring activity. The project team elected to hire men as field investigators because of the extensive travel required, the need to use public transport, and fewer overall concerns about personal safety and security. Because few, if any, of the questions were of a sensitive nature, the female respondents found it acceptable to answer questions posed by a male investigator. However, if the survey questions had asked about more sensitive information, respondents might have been less willing to respond to a male investigator. By having all male investigators for each round, any bias that might have been introduced was kept consistent throughout all rounds of the survey. In another state that used the CBTS and where it was determined that women would be more likely to respond to female field investigators, the project incurred additional expenses to pay for secure and safe transportation and ensure that each interviewer was accompanied by a male supervisor during field visits, because the female investigators were not comfortable going into villages on their own.

Applicability of CBTS. CBTS is a process that could be adopted in other settings or for

other programmes where there is a desire to continually monitor changes at periodic intervals for interventions such as communication or immunization campaigns. While the CBTS process requires a fair amount of time and coordination to conduct the first time around, it can become a routine standardised practice after protocols were established and automated and staff were trained.

Governments could adopt the CBTS approach to generate useful data for programme monitoring. A CBTS could be an activity that the government outsources to a research organization. It is a discrete activity that requires a cadre of trained field investigators for a time-limited period as well as careful management and oversight to coordinate logistics and ensure data quality.

Authors: Elizabeth Fischer, Arin Kar, Rajaram S., B.M. Ramesh, Krishnamurthy Jayanna and H.L. Mohan

CONCLUSION

The CBTS helped the project continually review the status of key MNCH indicators and learn more about the relationship between the intensity of project interventions and the pace of change in the project communities. CBTS provided project staff with consistent, reliable data that they could act on at both the community and facility levels. This relatively straightforward yet valuable approach to generating needed evidence can assist district state and national planners and programme managers to make more data-informed decisions to improve health outcomes.

Funded by the Bill & Melinda Gates Foundation, the Sukshema project supports the Government of Karnataka to develop and implement strategies to improve maternal, newborn, and child health (MNCH) in alignment with the Government of India National Rural Health Mission (NRHM). The project is implemented by Karnataka Health Promotion Trust in collaboration with University of Manitoba, St John's Medical College, IntraHealth International, and Karuna Trust. The six-year project started in September 2011.

The goal of Sukshema is to:

Develop and adopt effective operational and health system approaches within the NRHM to support the state of Karnataka and India to improve maternal, newborn, and child health outcomes in rural populations.

To achieve this goal, the project integrated and aligned key aspects of the Foundation's MNCH strategy with the NRHM in eight districts in northern Karnataka, with the following four key objectives:

1. Enable expanded availability and accessibility of critical MNCH interventions for rural populations.
2. Enable improvement in the quality of MNCH services for rural populations.
3. Enable expanded utilization and population coverage of critical MNCH services for rural populations.
4. Facilitate identification and consistent adoption of best practices and innovations arising from the project at the state and national levels.



**UNIVERSITY
OF MANITOBA**