Community Health Workers Make a Difference: Evidence of Program Impact on Improving Maternal, Newborn, and Child Health Behaviors in Northern Nigeria

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The Challenge
Maternal health outcomes in Nigeria are among the worst in the world. In Northern Nigeria, high levels of maternal mortality reflect low levels of antenatal care utilization and deliveries with a skilled birth attendant [1]. In addition, there has been slow progress in improving infant and child survival and primary care utilization. As of 2008, vaccination coverage rates in the four northern states of Zamfara, Katsina, Jigawa, and Yobe were all 5.4% and below. When their young children became sick with pneumonia, malaria or diarrhea, under half of all sick children were taken to a health facility for treatment.

The Partnership for Reviving Routine Immunisation in Northern Nigeria/Maternal, Newborn and Child Health (PRRINN-MNCH) Programme aims to reduce maternal and child mortality through systems changes addressing issues of health governance, human resources, health information utilization, and community engagement alongside the strengthening of clinical services. The programme uses an operations research approach to assessing the impact of its combined strategies, in order to inform programme decision makers in a timely way about what is working and what is not.

The Pilot
The study summarized here focuses on the implementation of community-based service delivery (CBSD) programmes that bring key reproductive health services directly to the hard-to-reach communities. Changes in maternal and child health care behaviors are for the period 2009 to 2011, roughly at the mid-point in implementing PRRINN-MNCH Programme. The objectives are: To assess the effectiveness of alternative models of providing community outreach and education for: 1) Engaging women and their families in learning about critical maternal and child health problems; 2) Facilitating use of antenatal care, skilled birth attendants, newborn care, sick child care, and immunizations; 3) Reducing infant mortality.

Intervention communities: Community Health Workers (CHWs) providing CBSD of MNCH care with varying intensity of activity in the community:

- Low intensity: CBSD with fixed point delivery at selected communities, supported by community volunteers for outreach;
- High intensity: CBSD with CHWs living and working in the hard-to-reach communities (CHW in community), supported by community volunteers for outreach.
- Control communities: No CHW, no community volunteers

Methods: Intervention and Evaluation Design
Intervention communities were designated as the clusters of Local Government Areas where PRRINN-MNCH worked first to upgrade emergency obstetric care services with corresponding strengthening of
Low intensity: CBSD with fixed point delivery at selected communities, supported by community volunteers for outreach.

High intensity: CBSD with CHWs living and working in the hard-to-reach communities (CHW in community), supported by community volunteers for outreach.

The control communities were those with no CHWs and no community volunteers, where statewide policy changes may have an impact, but intensive upgrading and systems changes have yet to be made.

The assessment of the impact of the CBSD programs at the mid-term used a quasi-experimental design with controls. The hypothesis was that if these interventions are successful in changing health care behaviors and perspectives on service use, more women will use the available and enhanced services. The evaluation controlled for two variables, whether the person lives in an intervention community where the integrated health system and community-based services were available and whether the individual participated in any of the community-based service activities or services. This impact assessment was conducted in both intervention and control areas and on a pre-post model, to capture changes in the availability of programme- and community-based services, and a quasi-experimental design, to assess changes in women's health behaviors with and without their participation in the programme-related services or activities.

Survey Design and Sample
The baseline and the mid-term survey were both population-based, DHS-style surveys of married women with pregnancies and births in the five years prior to the survey, to assess changes in MNCH behaviors at baseline in 2009 (n=6,345) vs. 2 years post-implementation of programme activities in 2011 (n=3,320). It was cross-sectional in that each survey was an accurate “snapshot” of MNCH at the time each survey was conducted and population-based to ensure that all families living in these participating states were reflected in the survey findings, not just the subgroups that use health care services of a particular type. The sampling plan was two-stage, random sampling, using the WHO-EPI cluster survey method with oversampling in the intervention communities.

The goal of the survey was to assess the effectiveness of alternative models of providing community outreach and education for women and their families to facilitate learning about:

- Critical maternal and child health problems;
- Danger signs;
- Use of antenatal care and skilled birth attendants;
- Appropriate treatment of newborn and childhood health.

Analysis
We used bivariate analyses to compare MNCH behaviors and bivariate tests (chi-square, t-tests, and z-scores) were used to test for significant differences between the key indicators at baseline and mid-term. In addition to the comparison between the two periods of time, the analyses also test for significant differences between the baseline and the mid-term survey results by intervention status (intervention or control). Multinomial logistic regression is used to show the differentials in changes associated with different levels of social and economic vulnerability.
Preliminary Results

Results show that more people know about pregnancy danger signs and what to do about them. Knowledge of two or more pregnancy danger signs increased from 52% to 69% in the communities with CHWs. Results also show that there has been increased knowledge of critical pregnancy danger signs, with greatest increase of dangers of swelling, convulsion, excess bleeding and pain in communities with greater CHW interactions. Our study also demonstrates increase in use of skilled birth attendants for delivery, from 9.7% in 2009 to 12.4% in 2011 in the communities with greater CHW interactions. Further, there was a significant drop in the proportion of women who had no antenatal care from 67.4% to 51.0%. This was significantly lower in intervention areas than in control areas, 46.2% vs. 56.1% (p<0.001).

More women are seeking antenatal care, and from trained CHWs.

Results further show large increase in the numbers of women who sought advice about their own or their expected child’s health, from 25.1% to 73.9%, with the percent higher in the intervention than control communities (78.3% vs. 69.0%, chi-square for 2011 control vs. intervention= 44.8, p<0.001). More women are also learning about care of their newborn from CHWs and trained volunteers in high intensity. More newborns were also first breastfed within 24 hours from birth, with the percent increasing from 42.9% to 58.3%, with significantly more (62.7%) in the intervention areas.

With reference to newborn care, results show that more newborns were checked and breastfed immediately. There was also a significant increase in the proportion of women who knew basic information about immunizations. Knowledge of when a child’s first vaccination was due increased from 10.3% to 48.8%, with the percent higher in the intervention (52.3%) than control communities (32.3%). We observed an increased proportion of women knowing the number of visits needed to fully immunize a child, from 7.7% to 50.0%, with 51.7% in the intervention and 41.7% in the control communities. In addition, the percent of women with standing permission from their husbands to take a child to the health post doubled, from 40.2% to 78.0%, with 81.9% in the intervention and 69.7% in the control communities. One-year old vaccination coverage has risen dramatically, more in areas with greater CHW presence.
Conclusion

After only two years of implementation, the PRRINN-MNCH pilot of alternative CHW models is beginning to show impact on key MNCH care seeking behaviors and infant mortality. Women are now obtaining more health advice, and much of it comes from CHW and their trained community volunteer partners. In the communities with greater CHW presence, CHW and the volunteer are relied on by almost one-third of the women. The greatest improvements in MNCH care are seen among women in the communities with more interactions with CHW through community-based service delivery. We also observed that the greater use of advice plus changes in MNCH care suggest that the CHW models are building trust in health care workers and services. Challenges still remain to increase use of facilities for deliveries, and this is where the PRRINN-MNCH partnership enhancing skills and access to Primary Health Care support the advice given by the CHWs in the community. The greatest improvements in MNCH care are seen among women in the communities with more interactions and potentially more intense CHW activities. The multivariate regressions showed the differential impact of these interventions by social and economic vulnerability, with less impact in the most vulnerable communities. These preliminary results provide encouragement that CHWs are beginning to take hold within the community, as they become respected sources of information and care.

Reference