

is then printed on paper and used as a visual and discussion aid for supervision.

**Outcome & Evaluation:** In this study, CHWs were randomized to receive one-on-one feedback facilitated by the CHW Performance Dashboard, or qualitative feedback without the aid of the dashboard. The performance of each CHW was tracked over six months along three performance indicators: the quantity, speed and quality of care. The RCT tests if this supervision tool improves CHW performance in terms of the quality, speed, and quantity of services they provide.

**Going Forward:** Since this dashboard study, Muso and Medic have extended their partnership to deploy the Medic Mobile application within Muso's health system. By the end of 2016, all of Muso's CHWs will be equipped with smartphones with the Medic Mobile application which will provide task reminders, patient tracking, decision support, and real time performance feedback. Medic Mobile and Muso are planning to proactively open source, not only the technology, but all tools, methods, and best practices that are developed through their partnership.

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#### Effectiveness of Supportive Supervision Visits on the Consistency of Community-Based Neonatal Sepsis Management Skills of the Health Extension Workers in 167 districts of Ethiopia

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**Background:** The health extension program of Ethiopia initiated Community-Based Newborn Care (CBNC) strategy to reduce its persistently high neonatal mortality rate. The strategy trained 7,010 health extension workers (HEWs) in 3,952 health posts in 167 districts to provide community-based management of neonatal sepsis, conducted prompt post-training follow-up, continued coaching through supportive supervision, and conducted review meetings. This study examines the effects of the supportive supervision on the consistency of neonatal sepsis management skills of the HEWs.

**Methods:** The study domain was limited to the 3,924 health posts in 167 districts covering 18 million people supported by the Last Ten Kilometers Project of JSI. A historic longitudinal program monitoring data captured during follow-up visits from case record registers in the intervention health posts between January 2014 and June 2016 was used for this study. Consistency of neonatal sepsis management was defined as consistency of the recorded classification, treatment, and follow-up for neonatal sepsis cases according to the national CBNC protocol. The health post level repeated measures were accounted using random effects multiple logistic regression models. The models also accounted for secular trend to assess the effects of frequency of supportive supervision on the probability that a health post consistently conducted management of neonatal sepsis.

**Findings:** About 72% (2,864) health posts received at least one supportive supervision visit, 21% (815) received two, and 6% (245) received more than two visits. The consistency of neonatal sepsis management by the health posts improved significantly ( $p < 0.05$ ) over the observation periods—from 60% in January–June 2014 to 72% in January–June 2016. The consistency of neonatal sepsis management was 65%, 68%, and 79% during the first, the second, and the third supervision visits, respectively. The regression analysis indicated that the effect of supportive supervision that was observed between the first two and the third rounds of supervisory visits were statistically significant ( $p < 0.05$ ).

**Interpretation:** The findings of this study suggest supportive supervision visits were effective intervention in improving the consistency of skills of neonatal sepsis management. As such, at least three rounds of supervision are needed to maintain the consistent skills of management of neonatal sepsis at community level.

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#### PREventing Maternal And Neonatal Deaths in Rural Northern Ghana (PREMAND): Access to Basic and Comprehensive Obstetric Care

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**Background:** Maternal and neonatal health outcomes in low-resource settings are largely contingent on access to skilled providers for basic and comprehensive obstetric care. Services considered “comprehensive” include cesarean sections and blood transfusions; two procedures often needed urgently to save the lives of mothers and babies. This study explored the availability of basic and comprehensive obstetric services across four districts in the northern region of Ghana; an area known for its sparse population, high rates of poverty, and limited access to health facilities.

**Methods:** As part of a larger study of maternal and neonatal mortality, trained field workers identified the location of health facilities and types of obstetric care available in a four-district catchment area across northern Ghana. Field workers administered surveys at all health facilities in the districts to determine the type and number of health providers available as well as the type of obstetric services offered. They also took GPS coordinates to map the location of each facility.

**Findings:** 91 facilities were identified across the four districts. 86% (N=78) have at least one nurse and slightly more than half (N=47) have at least one midwife. Only 8% of facilities (N=7) have one or more physicians on staff. 63% of facilities (N=57) provide some form of delivery services, although only 10% (N=9) are able to provide all aspects of basic obstetric care (administration of IV medications, manual removal of placenta and retained parts, assistance in vaginal delivery, basic neonatal resuscitation, etc.). For women requiring comprehensive obstetric services, only 5% of facilities have providers able to perform blood transfusions and even fewer (3%) have providers able to provide surgery. The 3 facilities