



Strengthening the Coordination of Care and Referral Systems for Reproductive, Maternal, Newborn, Child, and Adolescent Health

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Introduction

Delivering effective care across the continuum of reproductive, maternal, newborn, child, and adolescent health (RMNCAH) services requires the provision of an integrated package of services at appropriate service delivery levels with effective referral and patient-tracking systems.^{1,2} Inadequate service delivery system design and weak referral systems across delivery platforms contribute to a lack of high-quality routine and emergency RMNCAH care in low- and middle-income countries, leading to undue morbidity and mortality.³ Fragmentation among referral and counter-referral systems, coupled with inadequate resources, communication platforms, and information systems, represent persistent challenges in ensuring effective care coordination across delivery platforms.^{4,5} Furthermore, proactive coordination of RMNCAH services across the continuum of care is critical since many essential primary health care services, such as antenatal care and immunizations, require repeated contacts with the health system over time. Accordingly, there are opportunities to increase RMNCAH service coverage by scaling up integrated packages of services and leveraging the multiple contact points mothers and children have across the continuum of care.⁶

The Maternal and Child Survival Program (MCSP) is a global, \$560 million, 5-year cooperative agreement funded by the United States Agency for International Development (USAID) to introduce and support scale-up of high-impact health interventions among USAID's 25 maternal and child health priority countries, as well as other countries. Recognizing the continued challenges in strengthening RMNCAH care coordination at the country level, MCSP improved the coordination of these services to increase coverage of high-impact RMNCAH interventions as well as access to emergency care needed to prevent maternal, newborn, and child

¹ Kerber, K.J., et al. (2007) Continuum of care for maternal, newborn, and child health: from slogan to service delivery. *Lancet*, 370(9595), p1358–1369. doi.org/10.1016/S0140-6736(07)61578-5

² Partnership for Maternal, Newborn, and Child Care (2010) Enable the continuum of care. *PMNCH Knowledge Summary Series, 2*. Available at: <https://www.who.int/pmnch/knowledge/publications/summaries/ks2.pdf?ua=1>.

³ Kruk, M., et al. (2018) High-quality health systems in the Sustainable Development Goals era: time for a revolution. *Lancet Global Health*, 6(11), e1196–1252. doi.org/10.1016/S2214-109X(18)30386-3

⁴ Engmann, C. M., et al. (2016) Transformative innovations in reproductive, maternal, newborn, and child health over the next 20 years. *PLoS Medicine*, 13(3), e1001969. doi:10.1371/journal.pmed.1001969

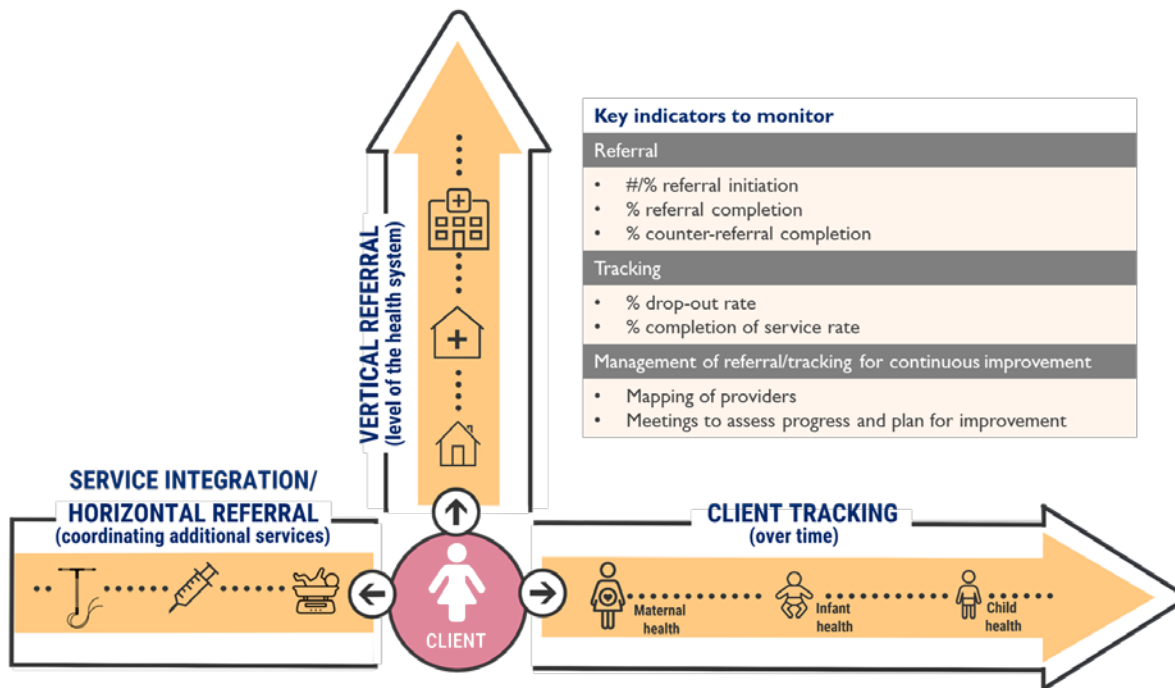
⁵ Sacks, E., et al. (2019) Beyond the building blocks: integrating community roles into health systems frameworks to achieve health for all. *BMJ Global Health*, 3(Suppl 3), e001384. doi:10.1136/bmjgh-2018-001384

⁶ Theiss-Nyland, K., et al. (2013) Integrating immunization and other services for women and children. *PMNCH Knowledge Summary Series, 25*. Available at: <https://www.who.int/pmnch/knowledge/publications/summaries/ks25/en/>.

deaths. MCSP defines care coordination as a “proactive approach to bringing together care providers to meet the needs of service users, to ensure they receive integrated, person-focused care across various settings.”⁷ MCSP’s key areas of support to strengthen care coordination included (Figure 1):

- **Service integration or horizontal referral** occurs when a provider recommends additional services to a client, delivered by another provider (often within the same facility), such as referring a mother for family planning when her infant is receiving vaccinations. Additional essential services are recommended to a client and provided at the same time, reducing potential missed opportunities.
- **Vertical referral** occurs when clients present themselves to a lower level of the health system but require care at a higher or more specialized level. This care is often for urgent or emergency services, such as treatment of an obstetric complication or management of complicated malaria, but vertical referral is also required for important routine services such as growth monitoring and nutrition counseling. Counter-referrals for follow-up with an initiating or lower-level facility are also part of vertical referrals.
- **Client tracking** is a method for improving the continuity of care—defined as “the degree to which a series of discrete health care events is experienced by people as coherent and interconnected over time,”⁸ which in turn supports care coordination—and reducing client dropout through a cycle of repeated contacts, such as for immunization, family planning, and postnatal care. Improving continuity results in greater service delivery effectiveness and efficiencies by realizing the full impact of an investment in provided services. Client tracking includes two components: 1) active follow-up by a professional or community health worker if recommended services are not used, and 2) client record systems that facilitate identification of individual clients who do not complete recommended services.

Figure 1. MCSP framework and monitoring indicators for strengthening care coordination



⁷ World Health Organization (2018) Continuity and coordination of care. Available at: <https://apps.who.int/iris/bitstream/handle/10665/274628/9789241514033-eng.pdf?ua=1>.

⁸ Ibid.

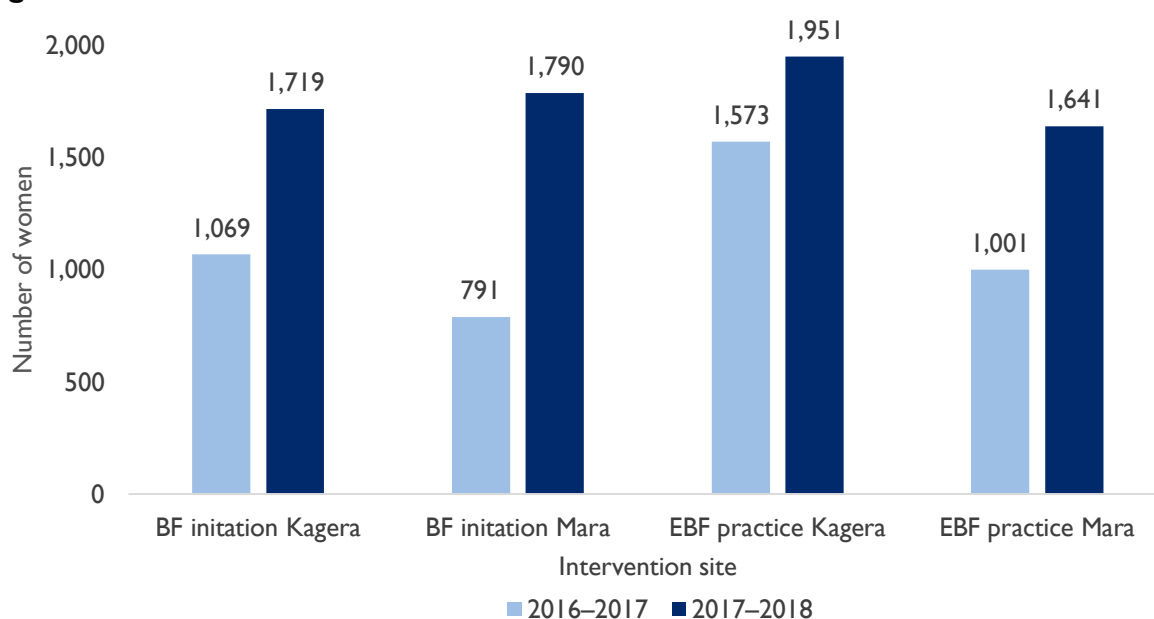
Country Program Achievements

The following sections summarize selected MCSP country activities to strengthen service integration, referral systems, and client tracking. These experiences contributed valuable program learning to a global body of evidence.

Service Integration

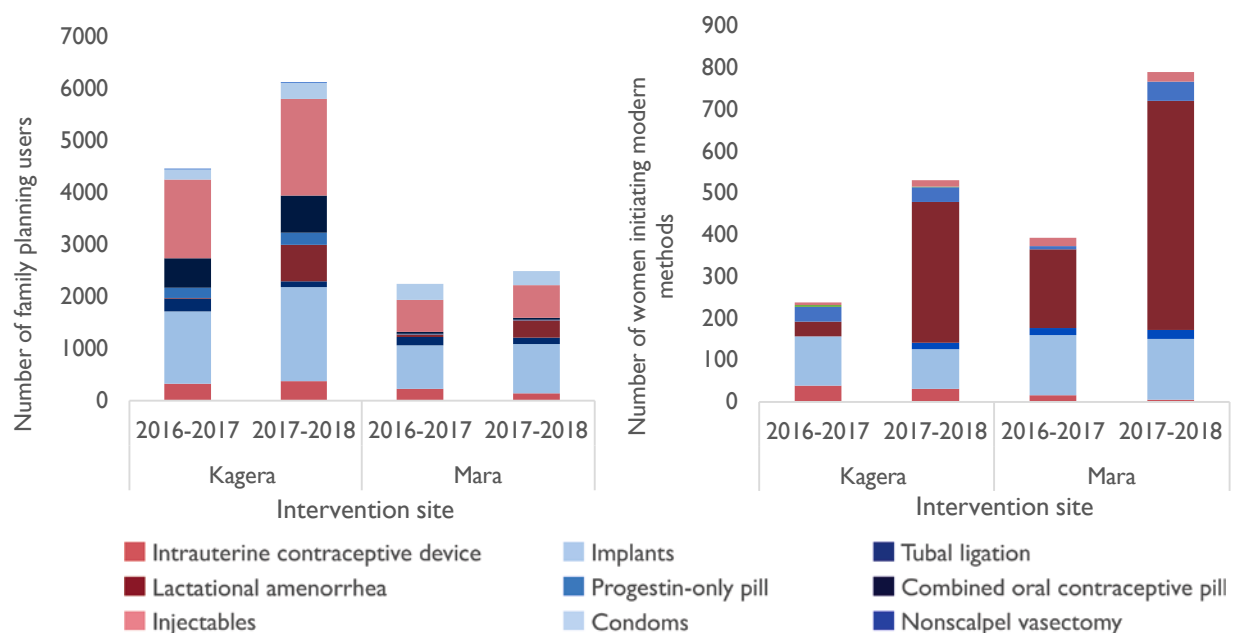
In **Tanzania**, recognizing persistent challenges in breastfeeding practices and postpartum contraceptive uptake in Kagera and Mara regions, MCSP supported the Government of Tanzania to implement a multilevel facility and community intervention to integrate maternal, infant, and young child nutrition and postpartum family planning services with the goal of increasing uptake of family planning (including the lactational amenorrhea method as a contraceptive option) and exclusive breastfeeding for 6 months. The intervention aimed to strengthen nutrition and family planning service linkages and was designed to address findings from a formative assessment conducted by MCSP in the two regions.⁹ It included a lactational amenorrhea method song aired on local radio, community engagement, service delivery support (including onsite training, mentorship, and supportive supervision), and lactational amenorrhea method tracking tools (both for client self-tracking and community health worker follow-up). Preliminary results revealed that initiation of breastfeeding within an hour of birth increased in both regions, with a 61% increase in Kagera and 126% increase in Mara, comparing the intervention period to the same period of the previous year (Figure 2). Total modern family planning use also increased in both regions, with a 37% increase in Kagera and 11% in Mara. Use of a modern family planning method within 6 weeks postpartum increased by 123% in Kagera and 101% in Mara (Figure 3). These results demonstrate the feasibility of a multichannel, integrated approach to improve maternal, infant, and young child nutrition and voluntary family planning outcomes in Tanzania and point to areas where adjustments could further strengthen outcomes, including remaining gaps around perceived risk of pregnancy and timeliness of postpartum contraceptive uptake after childbirth.

Figure 2. Number of women reporting early breastfeeding (BF) initiation and exclusive breastfeeding (EBF) at intervention sites, pre- and post-intervention, Kagera and Mara regions



⁹ Cooper, C., et al. (2019) Perspectives on maternal, infant, and young child nutrition and family planning: considerations for rollout of integrated services in Mara and Kagera, Tanzania. *Maternal and Child Nutrition*, 15(S1): e12735. doi.org/10.1111/mcn.12735

Figure 3. Number of total family planning users (left) and women initiating a modern method by 6 weeks postpartum (right) pre- and post-intervention in Kagera and Mara regions, by family planning method mix



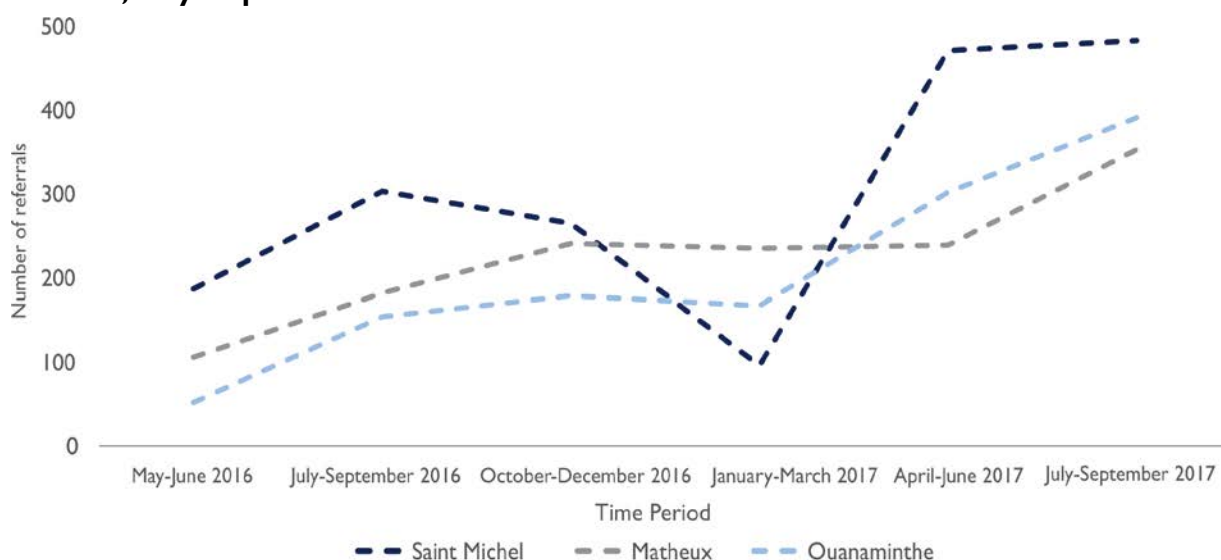
In **Malawi**, MCSP supported the Ministry of Health to integrate immunization and family planning services through facility-based services and community outreach in two districts. The [intervention](#) involved creating intrafacility linkages to both services, offering routine infant immunization and voluntary family planning services during outreach efforts, and engaging local government stakeholders to promote the integration of services. The strategies focused on engaging the community from the beginning of the program to increase demand for services and engaging village leaders in program planning and implementation. A quantitative evaluation showed a statistically significant increase in voluntary community-based family planning services uptake (from 38% of total family planning users accessing community-based family planning services before the intervention to 69% post) with a decrease in the number of clients accessing facility-based family planning services in the same timeframe. Immunization services did not show a significant change. However, the qualitative assessment suggested that women in the intervention area preferred community-based family planning services because they were more physically accessible. Clients also cited time-savings, convenience, and improved knowledge of both services as benefits of integration.

Similarly, in **Liberia**, MCSP supported [immunization and family planning service integration](#) given the country's low modern contraceptive prevalence rate (31%) and low third-dose pentavalent vaccine in children under 1 year of age (68%) as of 2016. The integration model, which was implemented in three counties, included referring postpartum women who brought infants for routine immunization services to co-located voluntary family planning services on the same day of service (or providing follow-up informational materials). For women visiting the facility for family planning services, the model included asking to review child health card(s) for immunization schedule completion and providing referrals for co-located immunization services as needed. Following implementation, 10% of vaccinator-caregiver interactions resulted in acceptance of a same-day family planning referral, and most women who accepted the referral (75%) accepted a family planning method that day. Similar to the experience in Malawi, immunization coverage rates remained relatively consistent. The majority of participating women had positive reflections on the integration as it saved time and money, though providers faced challenges in balancing workloads given the increased demand for multiple services on the same day.

Vertical Referral

In **Haiti**, MCSP operationalized three [model referral networks](#) at 36 sites with communication and transportation protocols to help improve persistent challenges with referral and counter-referral systems in the country. In addition to these new protocols, MCSP trained providers, community health workers, and ambulance drivers on emergency care and equipped ambulances with critical supplies. Over the 17-month pilot period, the three model networks referred 4,406 patients (1,848 from the community to the health center and 2,558 from the health center to the referral hospital) (Figure 4). Although there was no prior referral system with which to compare, health providers and health system administrators reported that this was a substantial improvement. Operations research of the model referral network found that 93% of network providers had made a referral in the 6 months preceding the survey, with 73% of providers regularly using the communication protocols and 51% of providers regularly using the transportation protocol. Of the health-center-to-hospital referrals, 65% were to hospitals within the network, and 30% to out-of-network hospitals. The operational research showed that implementers tended to engage commonly used hospitals even if they are not part of the formal referral network. There were also challenges with the availability of the National Ambulance System, as ambulances were unavailable for 41% of referrals when requested. MCSP found that many communities had existing transport systems in place, which should be engaged when ambulances are not available. Although MCSP provided material inputs to equip the ambulances, their lack of availability was often related to a dearth of funds for fuel or maintenance.

Figure 4. Number of referrals among model referral networks in three Haitian regional districts, May–September 2017¹⁰

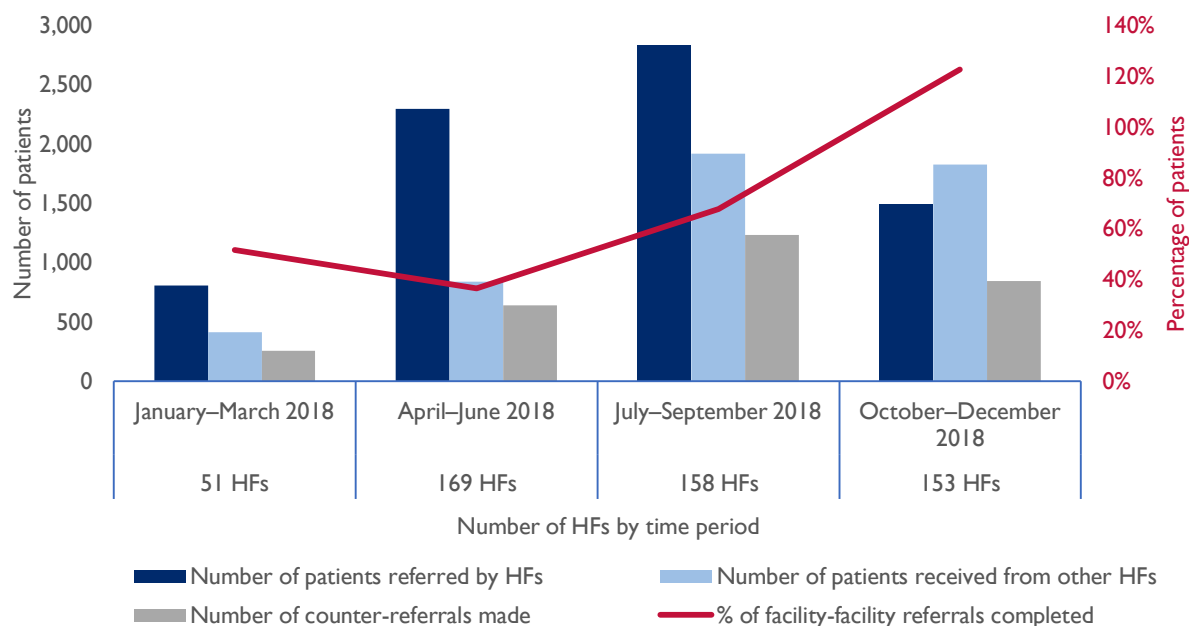


In Nampula province in **Mozambique**, MCSP worked with the Ministry of Health to establish and manage eight integrated care, referral, and counter-referral networks, which covered 214 health facilities and 580 communities. The networks coordinated management and provision of effective, safe, and person-centered integrated care across the lifecycle continuum and system levels of care. Each network connected 10–30 health facilities in the catchment area of a referral hospital and linked facilities and districts together for cooperative action and continuous learning around the common goal of providing quality, integrated care to women, newborns, and children across the community–facility continuum. MCSP supported the training of health workers on reporting tools, with 74% of trained facilities reporting in new referral registers by the end of the program. This training was coupled with improved communication through use of mobile technology, mentoring of health workers, and engagement of community health committees to map and disseminate emergency transport options for 580 communities. For example, providers and network administrators engaged in the referral networks used WhatsApp to coordinate ambulance services and to communicate about the management of cases at the primary care level after a counter-referral by a specialist to lower levels

¹⁰ The dip in the number of referrals in late 2016 to early 2017 is likely due to a nationwide hospital strike during this period.

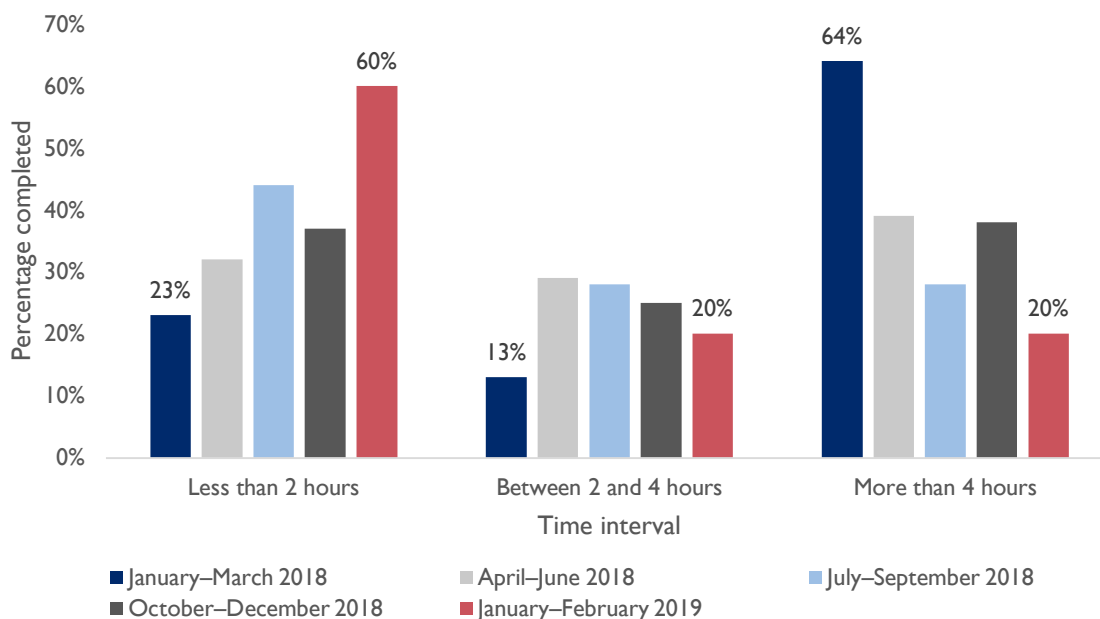
of care. Between January and September 2018, the number of referred patients increased by 3.5 times with 31% of referrals appropriately completed (Figure 5).

Figure 5. Percentage of clients referred to maternal and newborn health services at the health facility (HF) that completed the referral, Mozambique, Nampula Province



With the improved mapping of community-level emergency transport, the time interval between a client leaving the satellite facility and arriving at the referral facility decreased, as Figure 6 shows. Furthermore, community health committees also developed community banks to cover the costs of emergency transport, saving an estimated US\$44,870 over the course of 9 months. At program closeout, the Ministry of Health had committed to continue the network’s scale-up within Nampula.

Figure 6. Time interval for completed referrals in Nampula province referral networks



In Madhya Pradesh and Odisha States of **India**, MCSP, through The Challenge Initiative for Healthy Cities in India,¹¹ supported the Government of India in four cities to help relieve congestion of critical RMNCAH services at secondary and tertiary facilities and improve underutilization of urban primary health care centers by strengthening referral mechanisms across the care continuum. This support included formalizing referral relationships and developing protocols and tools for referrals between community-level health workers (e.g., accredited social health activists [ASHA]) and urban primary health care centers, and referrals between urban primary health care centers and higher-level facilities. MCSP also supported workforce strengthening efforts, including mentorship of community-level workers and provider training on referrals, and facilitated the creation of technical committees at the city level to improve oversight and accountability of the referral systems across a range of key health and non-health sector stakeholders. Chief medical officers in supported cities found that formalizing the referral mechanisms and implementing referral tools helped to improve the completion of referral from the community level to higher-level facilities.

At the end of March 2019, more than 3,500 high-risk pregnancies were identified at community and facility levels, and 2,368 (68%) of them were referred to appropriate facilities for further care. Referral records from Indore (the city where the referral mechanism had been operational the longest), for the period January to July 2019 showed 3,627 referrals, most of which involved female beneficiaries (94%). Of these 3,627 referrals, nearly 70% were in the 21–30 years age group, followed by 18–20 years (14%) and 31–45 years (6%). Children up to age 5 years comprised nearly 9% of total referrals. A qualitative assessment on the referral mechanism found that ASHAs appreciated the referral slips because they were easy to use, time-saving, and convenient, and served as documentation of their work. Medical officers in all referral mechanism cities appreciated having a standardized referral form to facilitate the initiation, tracking, and follow-up of referrals. ASHAs and auxiliary nurse-midwives reported that referral trainings helped increase their capacity to recognize danger signs and other symptoms, facilitating timely referral. They also reported increased confidence in managing pregnant clients and sick newborns and children. Medical officers in Indore, Gwalior, and Berhampur reported noticing this performance improvement. The assessment also found that further efforts are needed to strengthen the feedback mechanism from higher-level facilities to primary and community levels; improve interpersonal interactions between clients and facility-based providers; and ensure, when appropriate, that referral clients are treated on a priority basis at receiving facilities to reduce wait times and demonstrate the value of completing referrals.

“The reason I am alive today is because of timely treatment I received. The new system that ASHA and [auxiliary nurse-midwives] ... are implementing helped me receive prioritized services, which not only saved my life but also helped me give birth to a healthy baby. I am grateful towards the government and [The Challenge Initiative for Healthy Cities in India] team who started this system.”

Kali Davar, Indore, Madhya Pradesh
Beneficiary of referral system supported by The
Challenge Initiative for Healthy Cities in India

In **Nigeria**, MCSP’s Maternal, Newborn, and Child Health Program implemented an emergency transport scheme that prevented delays in pregnant women and sick children accessing care in Ebonyi and Kogi states. The scheme was part of a comprehensive set of activities to [improve the quality](#) and use of maternal, newborn, and child health services in these states. Engaging the National Union of Road Transport Workers, MCSP helped local government areas to identify more than 110 volunteer trainers to provide transport services for emergency obstetric and child care. Across the two states between 2017 and 2018, volunteer drivers promptly transported 539 pregnant women and 315 children to various health facilities for care. Volunteer drivers expressed positive feedback on the scheme to MCSP and State Ministry of Health staff and reported that they plan to continue working within the emergency transport scheme. Planned coordination of the scheme by designated focal persons within the State Ministry of Health will help sustain the implementation of the emergency transport scheme.

In **Rwanda**, MCSP-supported facilities established local communication systems to notify referral facilities when a lower-level facility had initiated an emergency transport/referral. Staff across facility units (e.g., maternity, management, laboratory, security) were included in hospital committees addressing quality of care

¹¹ The Challenge Initiative for Healthy Cities in India is jointly funded through USAID/India and the Bill & Melinda Gates Foundation.

in maternal emergencies, including receipt of emergency referrals. For example, capacity-building at Rwamagana Hospital included discussion of specific verbal communication techniques to avoid miscommunication among team members. Nurses working on ambulances were oriented to provide basic emergency obstetric and newborn care during transport to referral facilities. At lower-level facilities, MCSP emphasized providing a magnesium sulfate loading dose before referral; in supported areas, the percentage of women receiving a loading dose of magnesium sulfate before referral to hospital increased from 0% in 2015 to 87% in 2017 (n=146).

Client Tracking

In **Malawi**, MCSP worked with the Ministry of Health to use the My Village My Home tool as part of a larger [Reaching Every Child](#) approach in two priority districts to improve immunization coverage. Village leaders registered infants through house-to-house visits, which allowed for monitoring of their vaccination status through outreaches.¹² On a monthly basis, the village leader and a health surveillance assistant assigned to that village met and updated the tool together. Updates included cross-checking registers at fixed and outreach immunization sites to ensure that all registered individuals received vaccinations. An assessment of health providers and village leaders showed that child registration and tracking was a critical component in prioritizing and targeting communities for outreaches. Communities employing the My Village My Home tool saw improved immunization coverage rates of almost 100%.

In **India**, MCSP has supported rural communities in Odisha State to improve client tracking and community-level care during pregnancy and through the [42 days after childbirth](#), a critical window to improve outcomes for both mothers and newborns. As facility-based deliveries have increased in India, there have been challenges in linking facility- and home-based services in the postnatal period. In collaboration with the Government of India, MCSP piloted a holistic intervention that focuses on stratification of high-risk patients by facility and community providers, mobile technology reminders to new mothers on the importance of postnatal care visits, and referral mechanisms to ensure that high-quality home-based newborn care visits occur on schedule. High-risk patients were identified through community and home visits by auxiliary nurse-midwives, who would assess pregnant women for potential complications, help them to develop birth preparedness plans, track the high-risk pregnancies, and appropriately refer patients if complications arose. During the postnatal period, MCSP supported the training and implementation of a mobile application that allowed community health workers to communicate with mothers and remind them of upcoming postnatal visits. This system allowed for continued tracking of previously identified high-risk pregnancies into the postnatal period to better tailor care for mothers and their newborns.

In **Kenya**, MCSP mentored county and sub-county expanded immunization program supervisors to conduct supportive supervision, on-the-job training, and mentorship to improve client tracking. MCSP advisors also guided the county and sub-county supervisors to transfer these supervisory and mentorship skills to immunization champions among frontline health workers. Each sub-county in Kisumu and Migori identified at least four champions to be trained and supported as peer mentors. Each sub-county manager then formed a WhatsApp group for the mentors, which allowed the manager and MCSP technical advisors to provide continuous support and mentorship. Each facility received a weekly visit from a mentor to build health workers' capacity. This effort helped the sub-county teams to identify local solutions to problems affecting the expanded immunization program. For example, Migori County Referral Hospital introduced vaccination sessions on the weekends and public holidays and Nyatike Sub-County started screening all children at maternal and child health clinics for immunization status, resulting in improved defaulter tracking to increase the number of children that were receiving the appropriate number of doses of a given vaccine. Between 2014 and 2016, these initiatives contributed to increases in third-dose pentavalent coverage in the majority of supported sub-counties, though a health worker strike in 2017 unfortunately led to decreases in coverage at the end of the program.

¹² This work occurred prior to the family planning and immunization service integration work described earlier in this brief.

Key Takeaways

By improving the coordination of care, MCSP helped countries increase appropriate use of both routine and emergency essential RMNCAH services. Strong coordination and continuity of RMNCAH services contribute to the dual goal of achieving improved health outcomes while improving the efficiency of service delivery systems and resource use. Key takeaways of this work include:

- Service integration requires complementary demand- and supply-side interventions.** MCSP's experiences integrating family planning services with immunization showed that integrating services through community-based immunization outreach could increase demand for family planning services. However, staff faced challenges in managing the increased workload, as they were providing multiple services where they previously provided one. For vertical referrals, complementary service delivery strengthening is necessary to ensure that higher-level facilities can appropriately treat referred patients. These supply-side interventions must also be integrated with other efforts to increase community demand for RMNCAH services.
- Referral networks should seek to include providers most accessed by population.** The creation of model referral networks in Mozambique and Haiti showed increased rates of appropriate referral, but both cited challenges in patients preferring higher-level facilities outside of the network. Attention should be paid to understanding the dynamics of patient care-seeking in the creation of referral networks. This formative information should also include understanding existing informal networks that programs can leverage to create more formalized networks.
- Access to emergency transport continues to be a major barrier for effective vertical referral.** MCSP's programs in Haiti, Nigeria, and Mozambique worked to strengthen referrals in emergency situations but faced challenges in ensuring availability of emergency transport due to financial and supply barriers. Additional support to governments to identify financial resources to sustain emergency transport mechanisms should accompany emergency service delivery strengthening.
- Communication protocols and data tracking are critical to referral success.** Across all of MCSP's work on strengthening the coordination and continuity of care, personal communication protocols helped prepare higher-level facilities to receive referred patients. Similarly, incorporating key indicators (see Figure 1 for sample indicators) into regular tracking systems allowed for improved longitudinal tracking of patients.
- Behavioral, managerial, and financial barriers remain.** Behavioral, managerial, and financial domains experienced similar barriers. These challenges could be ameliorated by meeting the needs described in Table 1 and implementing the following:
 - Improved provider counseling to address client barriers to completing referral
 - Financing mechanisms, including for communication, transport, consumables, etc.
 - Effective management, including mechanisms for timely information use and continuous improvement

Table 1. Logistics, counseling, and monitoring minimum requirements for strengthening vertical referral and service integration systems

Vertical referral	Service integration
Logistics	
<ul style="list-style-type: none"> Communication systems Transport (e.g., vehicles and ambulances) Financing (e.g., vouchers) 	<ul style="list-style-type: none"> Registers that facilitate client identification Client contact information

Vertical referral	Service integration
Counseling	
<ul style="list-style-type: none"> • Health worker capable of counseling client on need for referral • Health worker capable of discussing client barriers to referral (e.g., financial, transport, or need for accompaniment) 	<ul style="list-style-type: none"> • Health worker capable of counseling client on need for referral • Health worker capable of discussing client barriers • Community and community health worker support
Monitoring	
<ul style="list-style-type: none"> • Referral and counter-referral forms • Tally sheets at referring and receiving facilities 	<ul style="list-style-type: none"> • Registers to track clients and services received • Pictorial tools for community health workers and communities

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