



START CENTER
STRATEGIC ANALYSIS,
RESEARCH & TRAINING CENTER

MATERNAL, NEONATAL, AND CHILD HEALTH IN INDIA EXAMPLES OF DIFFUSION

UNIVERSITY OF WASHINGTON STRATEGIC ANALYSIS, RESEARCH & TRAINING (START) CENTER

REPORT TO THE BILL AND MELINDA GATES FOUNDATION

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INTRODUCTION

While significant gains have been made in reducing under-5 mortality since 1990, several countries did not meet Millennium Development Goal (MDG) 4, calling for a reduction in under-5 mortality by two-thirds between 1990 and 2015 (1, 2). The commitment to improving the health of mothers, newborns, and children continues with the Sustainable Development Goals (SDGs). Targets for SDG 3 include “reduc[ing] the global maternal mortality ratio to less than 70 per 100,000 live births” and “end[ing] preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births” by 2030 (3).

The India Country Office at the Bill & Melinda Gates Foundation (BMGF) is working to reduce maternal, neonatal, and under-5 mortality in India. The BMGF approached the Strategic Analysis, Research & Training (START) Center to conduct a literature review of exemplars for diffusion of programs and interventions in other states and/or countries.

METHODOLOGY

The START team used PubMed, Google, and other search engines to review academic and grey literature for examples of successful and unsuccessful diffusion of programs and interventions aimed at reducing maternal and child mortality. These examples were drawn from multiple geographies and settings. The following terms were used during the search: program, intervention, implementation, expansion, dissemination, spread, diffusion, and scale up. In addition to these search terms, the START team searched the following interventions to narrow the scope of the search, with particular focus on the bolded interventions:

- **Institutional delivery**
- Kangaroo Mother Care
- **Family planning**
- Exclusive breast feeding
- Complementary feeding
- Diarrhea and pneumonia
- Neonatal sepsis management (and other high risk birth outcomes, such as asphyxia, prematurity, low birth weight)
- Iron-folic acid tablets

Furthermore, the START team was asked to highlight examples of public-private partnerships and training of program staff and health professionals.

We employed a snowball search methodology, reviewing references of relevant articles and searching for promising examples. We also utilized University of Washington’s School of Public Health faculty staff database and greater network of academic connections to identify faculty and staff working in focus areas of maternal child health and/or health systems strengthening. We communicated with 12 faculty and staff by email and one via phone. Two UW affiliated organizations, International Training and Education Center for Health (I-TECH) and Health Alliance International (HAI), shared their partnership model and field experience in sustainable health programs.



RESULTS




The report focuses on 19 examples. While employing our previously outlined research methodology, the START team reviewed a number of frameworks around the processes of diffusion in order to refine the exemplars we provide (4-8). Considering numerous relevant frameworks exist, the START team consolidated the components into three broad categories: organization and advocacy, resources, and monitoring and evaluation. It may be helpful to consider these categories when assessing factors that may be related to successful diffusion.

The first component, organization and advocacy, aims to communicate the technical importance of program implementation to stakeholders, state and non-state implementers and community members while establishing feasible goals and preparing for program execution. Factors include development of culturally applicable methods, preparation for program implementation, and development of a sustainable strategy. Two key considerations in the organization and advocacy component are the promotion of public-private partnerships and the establishment of leaders and champions. Cultivating collaborative public-private partnerships allows equitable input and involvement between NGOs, governments, and enterprises and ultimately fosters a more productive intervention. Similarly, establishing and developing local leaders and champions within the intervention allows for local ownership and sustainability of the intervention.

The second component, resources, encompasses those actions that relate to the preparation of resources—human, fiscal, and material—necessary for favorable implementation. Active engagement of the local community and other stakeholders from the initiation of the program is key, in addition to cultural sensitivity. Consideration should be given to factors that promote extension and sustainability, such as continued training/education, technical assistance, and other stakeholder support.

The third component, monitoring and evaluation, provides evidence for successful and unsuccessful scale up and program implementation. Large-scale monitoring may be achieved using data from surveillance systems or Demographic and Health Surveys (DHS). Baseline assessments help identify gaps in successful implementation and diffusion of programs/interventions. Program evaluations allow for regular, frequent feedback enabling program implementers to adjust programs when targets are not being met. Furthermore, demonstrating a program’s success could have implications for creating partnerships and securing funding for ongoing programming.

Both positive and negative factors contributing to the success or lack of success for each example were provided. Below is a key outlining symbols used to represent the positive, negative, and mixed factors and examples. A summary of factors for each example is provided in Table 1.

KEY	
	= Positive
	= Mixed
	= Negative



1. VILLAGE MIDWIFE PROGRAM ➡

Setting: Indonesia

Description: The Village Midwife program was established in Indonesia in 1989 and trained more than 50,000 midwives in almost all the 68,000 villages in Indonesia. The Ministry of Health (MoH) of Indonesia financially and politically supported the Village Midwife program. During the three-phase expansion process, 312 communities were surveyed and 9.6% had a village midwife by 1996, 46.3% by 1997, and 50.3% by 2000. There was a loss of midwives in six percent of communities in 2000 that reflected retention issues associated with fast scale-up and shift in political priority. According to the 2011 World Health Statistics report the neonatal mortality ratio was 33 per 1,000 live births in 1990, 25 per 1,000 live births in 2000, and 19 per 1,000 live births in 2009. The slightly slower progress from 2000 to 2009 compared to 1990 to 2000 parallels political changes and staff retention issues. The most recent World Health Statistics report showed the neonatal mortality ratio decreased to 13.5 per 1,000 live births in 2015.

Factors Related to Diffusion:

- ↑ Leadership and champions: The goal to increase access to antenatal care and delivery service was supported by Indonesia's MoH. The government passed multiple policies to increase family planning programming, including utilization of birth control.
- ↓ Leadership and champions: The President of Indonesia, President Suharto, prioritized safe motherhood initiatives from 1988 to 1997; however, when he was removed from leadership in 1998 maternal mortality reduction was no longer a priority at district levels.
- ↑ Existing service delivery: Village delivery posts were established to provide greater access to skilled birth attendants and utilized teams of trained traditional birth attendants and midwives.
- ↓ Training: Insufficient training due to rapid implementation did not sufficiently prepare midwives to manage obstetric emergencies, community and client interactions, or wide array of responsibilities. Midwives lacked sufficient clinical training and mentorship during initial implementation, and thereafter lengthier training, skills-based retraining, and clinical audits improved skill set and quality of care available from midwives.
- ↑ Surveillance and DHS: The Indonesia Demographic and Health Survey added a maternal mortality module to their 1994 survey and assessed availability of family planning and health services.

Source(s): (9-14)

2. TASK SHIFTING OF TRADITIONAL BIRTH ATTENDANTS ➡

Setting: China

Description: The responsibility of traditional birth attendants (TBAs) in China shifted from providing skilled home delivery to becoming village maternal health workers and advocating for institutional delivery. This change was implemented in 1999 following a ten-year training program for TBAs in rural areas, which was not effective in decreasing maternal mortality rates due to poor health system infrastructure. In 2003 China introduced the New Rural Co-operative Medical Scheme, which included a maternal health care benefit package, and enrolled almost 95% of eligible individuals. China provided subsidies for in-hospital delivery in rural areas and coverage for 22 million individuals. This policy and health system strengthening increased institutional delivery from 46% to 90% from 1998 to 2006 in the rural Guangxi Zhuang Autonomous Region. A 71% reduction in MMR from 1991 to 2013 is associated with antenatal and delivery service availability in rural communities.

Factors Related to Diffusion:



- ↑ Leadership and champions: China implemented policies banning home births and subsidizing hospital birth costs. The rural region of Guangxi implemented government policies for institutional deliveries including training for village maternal health workers and improved infrastructure to handle increase in instructional deliveries.
- ↓ Human resources: The large increase in deliveries initially overwhelmed many health centers, leading to an increase in the maternal mortality rate (MMR) in Guangxi from 2000 to 2003.
- ↑ Human resources: In 2007, more than 28,000 midwives were recruited to township health centers.
- ↓ Existing service delivery: The TBAs were initially utilized to improve skilled birth attendance, however the lack of adequate maternal health services in rural areas led to minimal reductions in MMR.
- ↑ Task shifting: TBAs as village health workers utilized established relationships and additional skills to improve maternal health.
- ↑ Training: Certification for TBAs as new village maternal health workers ensured completion of training and fulfillment of required standards.
- ↑ Incentives: Village maternal health workers were incentivized to facilitate institutional deliveries. Pregnant mothers were provided financial subsidies and transportation assistance in hard-to-reach areas.

Source(s): (15-17)

3. MIDWIFERY EDUCATION ↑

Setting: Afghanistan

Description: After decades of war, strife, and hardship, Afghanistan emerged into the new millennium with less than 500 midwives to serve a population of over 24 million people. In an effort to address this gap, the Ministry of Public Health (MoPH) began working with international agencies to scale up midwifery education and professionalism. Soon after implementing this educational system, five public midwifery schools reopened and 17 new provincial community schools were opened. By 2014, 3,827 new midwives graduated and eventually the education system diffused to 33 of the 34 provinces in Afghanistan.

Factors related to Diffusion:

- ↑ Leadership and champions: Champions from many sectors, including the MoPH, development partners and professional associations, were integral for successful implementation.
- ↑ Trust/Motivation: By forming professional midwifery associations and promoting the professionalism of the career, the concept of midwifery as a respected profession was revived and people began to trust in this approach again.
- ↑ Integration into local system: Because the MoPH had an integral management role since the beginning, there were no issues with transition to local ownership.
- ↑ Accreditation: International standards, competencies, and accreditation methodology allowed for transparent communication and reporting between all stakeholders and partners.

Source(s): (18)

4. COMMUNITY MOBILIZATION PROGRAM ⇒

Setting: Bangladesh

Description: Beginning in 2008, two studies were conducted to assess the effectiveness of scaling up women's groups on neonatal mortality in areas served by the [Perinatal Care Program of the Diabetic](#)



[Association of Bangladesh](#).¹ Both interventions consisted of a series of monthly women's group meetings led by salaried facilitators, during which women met to discuss health challenges, priorities, and prevention strategies. In one study done in 9 unions within 3 districts of rural Bangladesh—Bogra, Molavibazar, and Faridpur—group membership grew by 2.5 times the original size, which correlated to 1 group per 1414 population, and there was a 10-fold increase in the proportion of women who both gave birth and attended a women's group. These locations were chosen because of the large presence of implementing partners, in addition to the poor quality of healthcare due to physical geographic issues such as flooding. Despite the successful scale up of women's groups, this particular intervention did not have a significant impact on overall neonatal mortality because with the ending of the trial the intervention was not able to maintain adequate coverage over a sustained period. However, the second study completed from 2009 to 2011 in the same 3 districts but expanded to 18 unions focused on expanding and maintaining coverage and was able to achieve a 4- to 5-fold increase in coverage relative to levels before scale up. Ultimately, by increasing coverage to 1 group per 309 population, a reduction in neonatal mortality of 38% was achieved, showing the importance of sustained coverage.

Factors Related to Diffusion:

- ↑ Partnerships: Working directly with the well-respected Diabetic Association of Bangladesh—the largest non-governmental healthcare provider in Bangladesh—assisted with community acceptance of the intervention.
- ↓ Integration into local system: The initial trial did not sustain successful scale up once it ended.
- ↑ Integration into local system: Through familiarity with local customs, knowledge, and beliefs, recruitment of local staff allowed for relationships and trust to build more easily and swiftly.
- ↑ Training: Training and capacity building of staff fostered a sense of ownership at a local level.
- ↑ Surveillance and DHS: Through a combination of a prospective death surveillance system, frequent household visits, and a questionnaire—which had a 99% response rate—they were able to assess coverage and reduction in mortality.

Source(s): (19, 20)

5. LIGA INAN MHEALTH PROGRAM ↑

Setting: Timor Leste

Description: In an effort to provide all pregnant women in Timor Leste with appropriate pre-, peri-, and post-natal care, [HAI](#)² and [Catalpa International](#)³ founded the [Liga Inan mHealth Program](#)⁴ in 2013, with funding initially from USAID for one district. The foundation of the program is based on regular communication via SMS messaging between trained midwives and pregnant mothers. Mothers receive bi-weekly reminders and health tips, in addition to mobile access to skilled midwives and an emergency line. The program has enrolled 10,743 women and sent 302,984 scheduled SMS messages. There have been 5,950 confirmed births and 725 women requesting help from their midwives. A 2015 household survey sampling from the Manufahi district found 70% of all surveyed women (N=288) enrolled into Liga Inan. This program has seen indicative results, showing that pregnant mothers in the intervention region are far more likely to receive regular care. This program has since been funded for expansion into 6 of the 13 districts by the Australian government. While the project is still partly funded by foreign groups, full management of the project has been handed over to the MoH in two districts and the MoH has secured budget allocation for three districts as of January 2017. Additionally, there are plans to complete national scale up to reach all 13 districts by 2018.

¹ <http://www.dab-bd.org/pcp.php>

² <http://www.healthallianceinternational.org/>

³ <http://www.catalpa.io/>

⁴ <http://www.ligainan.org/>



Factors Related to Diffusion:

- ↑ Integration into local system: From the beginning of the program, HAI and Catalpa International used local MoH employees to implement the program and gave locals a stake in the success of the program.
- ↑ Program evaluation: Completed baseline and final 600 household surveys, rigorous independent evaluation, critical outcomes research, and real time data collection from a web-based platform have allowed program staff to push program data to stakeholders via smartphone app to assess successes, challenges, and recognize necessary changes to be made.
- ↑ Simplicity of intervention/program: By designing a program that is very user-friendly and accessible to the vast majority of the local population, it facilitated the transition of ownership to the locals and allowed for the program to be dispersed throughout the country.

Source(s): (21, 22)

6. COMMUNITY-BASED PROVISION OF INJECTABLE CONTRACEPTIVES ↑

Setting: Madagascar

Description: Low-resource countries often face challenges accessing injectable contraceptives. Many countries require a licensed medical professional to perform the injections, which means that health facilities that only have nurses or community health workers are not able to provide injections. In a study performed in 13 participating communities in two regions of Madagascar in 2006, non-medical community workers were trained and permitted to perform injection of contraceptives, resulting in 1,662 clients to receive Depot medroxyprogesterone acetate (DMPA). Of these, 41% were new or re-starting contraceptives and 93% of eligible women received a second shot. Satisfaction was overwhelmingly positive, with 96% reporting 'very much' satisfaction. Average travel time to an eligible provider of DMPA became 27 minutes, versus the previous average of 136 minutes, to the closest medical center. The results from this study were found to be sufficiently convincing to recommend that the DMPA intervention be continued on a national level and extended to other sites.

Factors Related to Diffusion:

- ↑ Training: A competency-based training program, developed by curriculum development specialists, was adapted to local context and ultimately facilitated competent graduates who garnered respect in their communities in relation to this responsibility.
- ↑ Task shifting: The formal delegation of responsibility to health workers with shorter, focused training and fewer credentials ultimately increased access to contraceptives over a wider geographic area.

Source(s): (23, 24)

7. INJECTABLE CONTRACEPTIVE USE ↑

Setting: Uganda

Description: In 2006 a partnership between the MoH in Uganda, [Save the Children](http://www.savethechildren.org/),⁵ and [FHI 360](https://www.fhi360.org/),⁶ initiated a distribution program for the injectable contraceptive DMPA based on positive results from a pilot study the year prior. The initial scale up was from one pilot site in the Nakasongola district in Uganda to a total of three districts (Luweero and Nakaseke, two rural districts in central Uganda). The scale up was facilitated by FHI 360 and Save the Children due to lack of governmental policy to support community health workers distributing injectable contraceptives.

⁵ <http://www.savethechildren.org/>

⁶ <https://www.fhi360.org/>



In 2007 the MoH distributed advocacy literature countrywide supporting scale up of community based distribution (CBD) of DMPA to all 101 districts and aided select districts in eastern Uganda (Bugiri and Busia) interested in implementing CBD of DMPA. The two selected districts received technical assistance from FHI 360 to implement public sector CBD. From 2008 to 2009, data from five communities in the two scale up districts in the public sector demonstrated 75% of DMPA users utilizing community health workers.

In 2011, Uganda changed its policy to support community-based access to injectable contraceptives. Through additional funding from USAID, FHI 360 continues to expand community based family planning projects in Uganda, particularly utilizing community health workers, also known as Village Health Teams to reach rural populations. From 2008 to 2013, FHI 360 provided family planning training (including injectable contraceptives) to 554 village health teams in 15 districts. Continued government support and integrated efforts from Uganda's Family Planning Costed Implementation Plan details programming and costs necessary to increase modern contraception use and decrease unmet need for family planning.

Factors Related to Diffusion:

- ↑ Leadership and champions: FHI 360 engaged local leadership to encourage CBD utilization. Ugandan politicians advocated to district and civil society leaders, which led to the 2010 policy change allowing CHWs to provide injectable contraceptives.
- ↑ Partnerships: The acceptability of the government allowed integrated efforts by FHI 360, Save the Children, and several other NGOs for the initial assessment and eventual public-private partnership with the MoH in scale up of CBD for DMPA.
- ↑ Task shifting: CHWs were trained to deliver injectable contraception, rather than solely being available from clinicians.
- ↑ Baseline assessment: An assessment by FHI 360 prior to CBD implementation in the two selected public sector sites revealed lack of program utilization due to insufficient funding and inadequate staffing. This provided insight to fill gaps to ensure for successful implementation of DMPA availability.

Source(s): (25-28)

8. PROVISION OF CONTRACEPTIVE IMPLANTS ↑

Setting: Various countries in Sub-Saharan Africa

Description: Between 2008 and 2012, 1.7 million contraceptive implants were administered as one portion of [Marie Stopes International's](http://www.mariestopes.org)⁷ (MSI) various programs designed to address unmet contraceptive and family planning need throughout many countries in Sub-Saharan Africa, such as Uganda, Tanzania, and Nigeria. The overall intervention was scaled up from 80,041 implants in 2008 to 754,329 in 2012 through a combination of service delivery channels, including mobile outreach, social franchising, and static clinics. In Uganda, of the women choosing family planning, the proportion choosing implants increased from 1 in 50 to 1 in 10 between 2006 and 2011; MSI eventually reached 76% of these users.

Factors Related to Diffusion:

- ↑ Partnerships: Marie Stopes International partners with the public sector and supports public health workers in contraceptive efforts. Through training and counseling, MSI builds public sector capacity and skills and ultimately strengthens the partnership between the two sectors.
- ↑ Existing service delivery: Using existing clinics owned and operated by NGOs and existing social franchising networks allowed for efficiency and simplicity.

⁷ <https://mariestopes.org>



- ↑ Diversification of service delivery channels: A combination of the above mentioned delivery channels broadened access to implants for clients and allowed for more women and more areas to gain access.
- ↑ Demand generation: MSI uses a variety of demand-generation activities including door-to-door mobilization, group information sessions, print and radio advertisements, kiosks at public events, flyers and promotional materials, and various community campaigns. MSI also provides free or low cost implants and family planning services to underserved women, which creates demand from women who otherwise would not approach a clinic for contraceptive services.

Source(s): (29)

9. POLICY ADVANCES IN FAMILY PLANNING ↑

Setting: Rwanda

Description: In 2002, Rwanda's Vision 2020 plan announced the countrywide recovery goals, including an emphasis on the need to improve access and quality of healthcare. Among several reforms, the MoH of Rwanda increased availability of family planning through policy and financing changes in 2005. New family planning policies, the free provision of contraceptives, and increased public sector services helped increase the utilization of institutional delivery from 28% in 2005 to 69% in 2010 and modern contraception use from 10% in 2005 to 45% in 2010. The National Family Planning Policy published in December 2012 planned to implement injectable contraceptives at the community level.

The government of Rwanda aims to be independent of development aid by 2020 and increased the health sector budget from 8.2% in 1999 to 16.5% in 2013-2014. However, from 2003 to 2010 an increasing trend in development aid was observed to reproductive, maternal, newborn, and community health sector of approximately US \$7.4 million annually.

Factors Related to Diffusion:

- ↑ Leadership and champions: The government of Rwanda was committed to improvements in family planning to assist with economic recovery following the genocide in 1994.
- ↑ Partnerships: The government seeks donor support to obtain financing to minimize resource gaps. Partnerships with private organizations and MoH's Pharmacy Task Force assist with ensuring commodity security and provision of free contraceptives.
- ↑ Integration into local system: The integration of traditional birth attendants into the village community health system assisted in the implementation of community-based provision of family planning.
- ↑ Task shifting: Utilization of traditional birth attendants as village community health workers engage the same workforce to assist in increasing institutional deliveries.
- ↑ Incentives: Community health insurance covers 90% of ambulance transfer cost, minimizing both accessibility and financial constraints. Community health workers are trained extensively and receive incentives to further promote reaching maternal and child health goals. Women who do not attend antenatal visits are subject to fines.

Source(s): (30-34)



10. FALAH PROJECT: BIRTH SPACING AND FAMILY PLANNING ↑

Setting: Pakistan

Description: From 2008 to 2012 the [Population Council](http://www.popcouncil.org/)⁸ facilitated family planning activities in Pakistan through the Family Advancement for Life and Health (FALAH) project. Through a coordinated consortium including Greenstar Social Marketing, the Health and Nutrition Development Society, Jhpiego, Mercy Corps, and Rural Support Programmes Network, and Save the Children, this project aimed to reduce barriers to family planning and increase contraceptive use through the following multi-pronged approach:

- **Communication strategy** – FALAH aimed to improved social acceptance of birth spacing among the following three targeted populations via mass media (TV and radio), community media (interactive theater) and interpersonal communication (household visits and group meetings among married couples). The primary target audience was married women of reproductive age and their husbands. Overall the program reached 9 million women and men through community media and interpersonal communication. The secondary target population was public and private sector providers, who were encouraged to advocate for birth spacing and provision of family planning services by educating patients. The third target population was influential members of the community, including religious leaders, elected leaders, and media representatives.
- **Public health system strengthening** – FALAH conducted training to providers in the health system to improve availability of reproductive health services (including IUD counseling and mini-laparotomy and vasectomy surgery trainings). They also trained health managers to secure and maintain contraception supply.
- **Linking rural communities** – By piloting and introducing a community-based health worker model, rural communities with no access to grassroots workers (making up 30 to 40% of population) were linked to services. Through private sector Greenstar Social Marketing’s mobile clinics, rural communities gained access to family planning services as facilitated by community-based organizers who increased demand.
- **Strengthened contraceptive availability** – Marketing capacity was strengthened for contraception manufacturing and procurement. Development of sales teams strengthened the pharmaceutical market share of locally produced contraceptives.

The original project focused on 20 districts in 2007 and was scaled up to 26 districts in 2009. All aspects of the program were completed in 15 districts, which covers approximately 18% of Pakistan’s population of 186 million. The FALAH project increased the demand for contraception and led to an 8.5% increase in contraceptive prevalence rate, with the largest uptake among poor, rural, and younger couples. Mass media messaging reached 50 million people, nearly one-third of the country’s population.

Factors Related to Diffusion:

- ↑ **Partnerships:** The health departments, national programs on family planning, and the federal government received training on the importance of family planning as part of public health services.
- ↑ **Existing service delivery:** The project utilized the established health department infrastructure to deliver family planning services through private organizations.
- ↑ **Training:** Providers were trained to provide high quality services and engage in discussions regarding reproductive health needs. Training health managers minimized barriers to contraceptive availability and improved logistics. More than 1,500 religious leaders learned

⁸ <http://www.popcouncil.org/>



about healthy timing and spacing of pregnancy, were trained to educate others thereby decreasing religious and cultural barriers associated with family planning.




Source(s): (35-39)

11. INSTITUTIONAL DELIVERY I

Setting: Cambodia

Description: Since 2007 the Cambodian government's focus on achieving MDGs led to focused efforts to improve maternal health. Partnerships with local and international NGOs increased the number of entities financially and systematically supporting reproductive health services. Through government and donor support, the quality and quantity of institutional deliveries increased. Successful execution of each of the various interventions required staff and infrastructure to ensure availability of skilled birth attendants at both hospitals and community health centers for the two-fold increase in facility deliveries from 2005 to 2010.

Factors Related to Diffusion:

-  Partnerships: The availability of funding resources for providers, such as the Cambodian government's Midwifery Incentive Scheme, complements financial incentives provided by donors (in the form of vouchers) for patients to utilize government health centers. Other partnerships include the MoH and donor organizations working jointly to financially manage health equity financing.
-  Training: Training of midwives through government and partner organizations increased health system capacity for Cambodia.
-  Incentives: Financial incentives from government and partner organizations, such as no-cost healthcare, vouchers for patients (guaranteeing free maternity care at government health centers), and incentives for hospitals, removed barriers to maternal care.


Source(s): (40-42)

12. INSTITUTIONAL DELIVERY II

Setting: Nigeria

Description: The [Nigerian Urban Reproductive Health Initiative](#)⁹ (NURHI) funded by the Bill and Melinda Gates Foundation and partnerships with several private organizations and federal and state ministries of health, aimed to increase use and demand for contraception in urban cities in Nigeria. In Phase I of the project (2009–2014), there were four cities where the intervention was initiated and two additional scale-up sites. A toolkit was developed which documented steps for successful implementation to assist in future opportunities to scale up. The toolkit includes: Advocacy, Service Delivery, Demand Generation, and Research, Monitoring and Evaluation System. To assess its impact, the Measurement, Learning & Evaluation (MLE) Project objectively assessed the NURHI. Modern and traditional contraception use from baseline to end line increased in all intervention cities, ranging from 4% to 15% increases. The recognition of "NUHRI" increased from 10% to 80% across the six cities and familiarity with family planning program messages similarly increased from the two-year interval to the end line assessment. Family planning counseling before and after delivery increased from baseline to end line across all cities and more than doubled in four cities.

Factors Related to Diffusion:

-  Leadership and champions: NUHRI engaged with advocacy groups and their affiliated champions to identify important advocacy issues in family planning. The formation of Advocacy Core

⁹ <http://www.nurhitoolkit.org/>



Groups (ACGs) furthered the role of champions by identifying leaders in each city to speak publicly about family planning.

- ↑ Partnerships: The utilization of public-private partnerships maximized accessibility of resources by integration of services across on the public and private sector. The formation of the Sustainable Family Planning Providers' Association (SFPPA) joined private sector patent and proprietary medical dealers, private medical practitioners, and public sector health providers under voluntary membership and provided buffer against stock-outs to ultimately improve regular supply of contraceptives.
- ↑ Training: Advocacy training was provided to members of ACGs to improve messaging and effectiveness in motivating policy change. NUHRI coordinated trainings in contraceptive logistics management for members of SFPPA to improve forecasting and record keeping of contraceptive supply.
- ↑ Program evaluation: Monitoring for expenditures, resource utilization, and referrals throughout the project was conducted. MLE Project evaluated baseline, two-year, and end line data and identified areas for improvement. MLE collected contraception prevalence ratio as a key indicator for family planning, assessed exposure to family planning information and NUHRI as an indicator of demand generation, and measured institutional deliveries and family planning counseling prior to and after birth as an indicator of integration of family planning services.
- ↑ Demand generation: NUHRI launched a media campaign with deliberate branding and materials to stimulate demand for family planning services. The implementation included a preliminary focus group, convening of stakeholders from the original four cities to develop a strategy, design of media campaign and materials, distribution of materials and media spots, and monitoring and evaluation.

Source(s): (43, 44)

13. INSTITUTIONAL DELIVERY III →

Setting: Nepal

Description: In 1997 the National Safe Motherhood Program was initiated. The initial program strategy was to improve maternal, infant, and child health by promoting birth preparedness, encouraging institutional delivery, and expanding 24-hour emergency obstetric care. It was later expanded to address other factors to improve maternal, infant, and child health, such as equity and access, finance, and information management. The Government of Nepal provided the program in collaboration with local governments and communities, external development partners, and other NGOs. Several policies and programs have been implemented in conjunction with Safe Motherhood, including the development of a birth preparedness package, piloted in 2003 and scaled up to all 75 districts in 2008 to 2009. Institutional deliveries increased from 18% to 35% during 2006 to 2011. However, according to the Demographic and Health Survey 2011, institutional deliveries varied by region. Nepal is made up of three ecological regions (mountain, hill, and terai) and institutional deliveries were lowest in the mountain area (19% of 5,391 births) and highest in the terai area (41%). Nepal is also divided into five development regions (Eastern, Central, Western, Mid-western, Far-western). Twenty-nine percent of deliveries in the Far-western and Mid-western regions were delivered in a health facility compared to nearly 40% in the Eastern region. Furthermore, women living in urban settings were more likely to deliver in a health facility compared to women living in rural settings (71% vs. 41%).

Factors Related to Diffusion:

- ↑ Baseline assessment: Led to revision of Safe Motherhood Program plan. The revised 2006–2017 version included more components that were missing from the first 2002–2017 version.



- ↑ Incentives: Implementation of the Aama Surakshya program, a program that sought to influence institutional deliveries via supply and demand by providing free delivery services and cash incentives for mothers to have institutional deliveries and health professionals to perform institutional deliveries. Greater incentives are provided to women in the mountain and hill regions compared to the terai region to further promote institutional deliveries in more resource-limited settings. Seventy-one percent of mothers received payment for transportation to a health facility.
- ↑ Partnerships: A study found that the use of the private sector did not increase inequity as often hypothesized.
- ↑ Integration into local system: The Government of Nepal took ownership of the issue of maternal and child health and were the driving force for many initiatives, including the implementation of the Skilled Birth Attendant Policy in 2006, which aimed to make skilled birth attendants available at all birthing centers, increasing the number of skilled birth attendants and institutional deliveries. The percentage of births aided by a skilled birth attendant increased from 19% in 2006 to 36% in 2011. Furthermore, skilled birth attendant-assisted births in rural areas increased from 14% to 32% over the same five-year period.
- ↓ Existing service delivery: Lack of quality service providers to conduct institutional deliveries disadvantages the poor and remote communities. Institutional deliveries are significantly lower among those in the lowest wealth quintile (11%) compared to the highest wealth quintile (78%).

Source(s): (45-51)

14. PERINATAL PROBLEM IDENTIFICATION PROGRAM ↑

Setting: South Africa

Description: The [Perinatal Problem Identification Program](http://www.ppip.co.za/)¹⁰ (PPIP) is a data collection and visualization platform that was developed in the early 1990s as part of the [Child Healthcare Problem Identification Programme](http://www.ispotauthenticate.co.za/Joomla/index.php?option=com_content&task=view&id=21)¹¹ (Child PIP) that assesses maternal, neonatal, and child deaths. It began being diffused throughout South African healthcare facilities in the late 1990s. The audit tool, which collects data on perinatal death, has improved data collection efforts and quality of care for mothers and babies. In the late 1990s and early 2000s, only two of nine provinces were using the audit tool. It has since expanded to all 52 districts with 94% of hospitals contributing data, due in large part to the National Department of Health's decision to make the audit tool compulsory in 2012. While it will take many years to draw distinct associations on a national level between this particular tool and reductions in perinatal death, it is clear that the main outcome of this program is that users have been able to interact with their own data in real time and make changes to practices and policies accordingly. In accordance with PPIP guidelines, facilities are required to convene on a regular basis to analyze and discuss data—a priority for these meetings is to distinguish between avoidable and non-avoidable causes of perinatal death so the facility can make necessary policy changes to improve quality of care. For example, after collecting data for 8 years and establishing trends, the province of Western Cape was able to develop a 3-year blueprint of targeted interventions, which has led to a consistent and sustained reduction in neonatal mortality—7.1/1000 live births for all weights >500 g in 2012/2013. In other countries, a meta-analysis has shown that perinatal mortality audits like this one are associated with up to a 30% reduction in perinatal deaths. However, one study examining perinatal mortality rates in 163 facilities with at least five years of continuous audits from 1990 and 2013 was not able to demonstrate an effect of quality-of-care audits on perinatal mortality, though areas for improvement were identified.

¹⁰ <http://www.ppip.co.za/>

¹¹ http://www.ispotauthenticate.co.za/Joomla/index.php?option=com_content&task=view&id=21



Factors Related to Diffusion:

- ↑ Training: Annual provincial training workshops are held during which health workers are instructed in proper data entry, data validity checks, and installation of programs.
- ↑ Program evaluation: PPIP has a built-in data validity check function that is used monthly to reduce risk of missing data by correlating the monthly data to the detailed perinatal death area
- ↑ Simplicity of intervention/program: The user-friendly data collection platform requires minimal installation and is easy enough for most health workers to understand with adequate training.
- ↓ Leadership and champions: Because the program was not mandatory until 2012, champions supported the system instead of it being institutionalized, meaning that the program was entirely dependent on these champions.
- ↓ Program evaluation: Data quality could be compromised when data entry personnel without clinical backgrounds do not understand the importance of adequate data capture.
- ↓ Training: Training workshops on data validity checks are poorly understood and rarely implemented, suggesting compromise of data quality and highlighting the importance of the built-in data validity check function.

Source(s): (52, 53)

15. KANGAROO MOTHER CARE I ↑

Setting: Philippines

Description: In 1999 a team of physicians obtained training in Kangaroo Mother Care (KMC) and established Dr. Jose Fabella Memorial Hospital as a training and outreach center for the region. After two years of KMC implementation at Fabella, there was a 15% reduced risk of mortality for low birthweight babies. KMC continued to spread to seven hospitals and training was provided to all twelve lying-in clinics (clinics specifically for child birth) in Manila in 2003 and 2004. The [Bless Tetada Kangaroo Mother Care Foundation Philippines, Inc.](#)¹² was established in 2008 by a group of physicians wanting to spread KMC knowledge to other areas of the Philippines. The foundation supports hospitals throughout the Philippines through training, monitoring, and accreditation activities to ensure sustained quality of KMC programs. The necessity of knowledge and leadership to ensure dissemination is exemplified with the public-private partnership established in the Philippines.

Factors Related to Diffusion:

- ↑ Leadership and champions: Diffusion was spearheaded by physician leaders.
- ↑ Partnerships: The Bless Tetada Foundation partners with public hospitals to provide training and accreditation on international KMC protocols and funds research proposals for KMC.
- ↑ Training: The Bless Tetada KMC Foundation developed manuals, flipcharts, and videos for trainers, implementers, and service providers.
- ↑ Accreditation: The Bless Tetada Kangaroo Mother Care Foundation conducts training and accreditation of hospitals countrywide.

Source(s): (54, 55)

16. KANGAROO MOTHER CARE II ↓

Setting: India

Description: KMC was introduced to Shree Krishna Hospital (a tertiary care center located in the rural city of Anand in the state of Gujarat, India) starting in 2003 and documentation of KMC use was initiated in 2010. A review of neonatal intensive care unit (NICU) records from January 5, 2010 to October 7, 2014 identified KMC utilization during time periods when physician champions were withdrawing from the

¹² <http://www.kangaroocareph.org/>



NICU environment to pursue other job opportunities. Physicians were initially employed full-time, then transitioned to less than full-time status, and eventually fully withdrew presence in NICU. NICU staff reported a drop in KMC utilization and this retrospective analysis demonstrated an association between physician champion presence and utilization of KMC. Without the physicians to champion KMC, a decrease in overall utilization and average duration of skin-to-skin care was observed.

Factors Related to Diffusion:

- ↓ Leadership and champions: Lack of sufficient leadership stifles opportunities for diffusion. Lack of leadership outside of champions resulted in poor utilization of KMC interventions.
- ↓ Training: Inadequate training of staff members (i.e., attending physicians, nurses) in both scale-up and utilization of interventions prevented successful dissemination.

Source(s): (56)

17. CHILD LUNG HEALTH PROGRAMME ↑

Setting: Malawi

Description: The Government of Malawi, in partnership with The International Union Against Tuberculosis and Lung Disease (The Union), began developing and implementing the [Child Lung Health Programme](#)¹³ (CLHP) in 1999 in response to high rates of severe and very severe child pneumonia. Ultimately, all 22 district hospitals had implemented the CLHP by the end of the fourth year. Pneumonia hospital admissions went up and the proportion of children dying from pneumonia decreased significantly from 18.6% to 8.4%.

Factors Related to Diffusion:

- ↑ Program evaluation: Monthly reports, biannual technical expert support, and an independent review converged in evaluation of the program as a whole and helped advise on the future diffusion of the program.
- ↑ Simplicity of intervention/program: Information gathering via simple, easy-to-understand forms allowed the Government and its partners to assess the effectiveness and efficiency of the program and make necessary changes.

Source(s): (57)

18. INFANT AND CHILD NUTRITION ↑

Setting: Bangladesh

Description: Beginning in 2009, the [Alive & Thrive](#) initiative¹⁴ aimed to scale up evidence-based interventions in Bangladesh (as well as to Vietnam and Ethiopia) including counseling, assistance in lactation and continued breastfeeding, food and supplements for complementary feeding, media and marketing, and legislation surrounding marketing of breast milk substitution and parental leave. The program was driven by partnerships with the Institute of Public Nutrition and administered by a large network of frontline health workers of BRAC, the largest non-government organization in Bangladesh. Alive & Thrive expanded from two sub-districts in 2009 to 50 sub-districts in 2014. A process evaluation demonstrated improvements in exclusive breastfeeding among children under six months (48.5% at baseline in 2010 compared to 83.4% in 2013).

Factors Related to Diffusion:

¹³ <http://www.theunion.org/what-we-do/technical-assistance/lung-health-and-ncds/child-lung-health/pneumonia-and-the-child-lung-health-programme>

¹⁴ <http://aliveandthrive.org/>



- ↑ Partnerships: Partnerships were identified as a key component to scale up. Partnership with BRAC provided a work force. Partnerships with other non-government agencies and the government facilitated nutrition mainstreaming.
- ↑ Human resources: In the 1960s and 1970s, Bangladesh prioritized investment in their health work force to address the shortage of public-sector health workers. BRAC provided a large network of frontline health workers necessary to implement the program with little additional cost.
- ↑ Program evaluation: Surveys were administered after launch of the program that informed needed adjustments to the program. From the surveys, implementers streamlined program delivery to facilitate implementation.

Source(s): (58-60)

19. IRON INTENSIFICATION PROGRAM ↑

Setting: Nepal

Description: Due to high anemia rates and poor maternal health in Nepal in the late 1990s, the government of Nepal started the Iron Intensification Program (IIP) in 2003. To do so, a cadre of female community health volunteers (FCHVs) was recruited to deliver iron-folic acid (IFA) supplementation and provide accompanying counseling. Odds of having anemia decreased by 45% in some regions of Nepal. The program diffused successfully to 74 of 75 districts of Nepal between 2003 and 2012.

Factors Related to Diffusion:

- ↑ Trust/Motivation: Delegating this responsibility to local female community volunteers allowed for a trusting relationship between pregnant mothers and FCHVs.
- ↑ Human resources: Recruiting FCHVs allowed for a build up of human resources and consequently a growth of access to IFA supplementation.

Source(s): (61, 62)



TRAINING AND EDUCATION

Adequate education and training can provide a robust workforce to ensure the capacity of a health system. There are multiple considerations related to the areas of education and training that should be considered alongside successful diffusion of maternal and child health programs:

1. **Academic centers to bolster health care worker shortage.** In Ethiopia, I-TECH¹⁵ partnered with academic institutions to increase qualified health providers through faculty development, distance learning, and simulation-based education (63).

2. **Task analysis to evaluate quality of training.** Continuing education on the job was utilized for midwife training in Malawi, which allowed feedback to best inform revision to training program to better prepare midwives for daily tasks. The Nurses and Midwives Council of Malawi collected quantitative and qualitative data from nurse midwife technicians on competency, perceptions and programmatic gaps from all districts in the country (64).

3. **Trainer training.** Also referred to as cascade training, trainer training offers opportunities to inexpensively and quickly disseminate information from master trainers to their colleagues. The caveat with utilizing cascade training is the possibility of the original training being distorted as it is passed down, which can occur when master trainers lack expertise or confidence in the subject matter (65).

4. **Establish demand for increase in health workforce.** In Kenya, the institutional scale-up of nurse training programs was prioritized without the necessary infrastructure to ensure post-graduate employment. This resulted in dissatisfaction among students, attrition, and lack of sustainability. Conversely, Tajikistan successfully integrated nursing practice into its healthcare system by creating a family medicine-focused healthcare system. Nurses obtained clinical and educational development, established leadership professional pride among fellow nurses, and cooperation with physicians. The curriculum spread from four to nine colleagues within one year (66-68).

CONCLUSION

Diffusion and sustainability are key goals of effective large-scale program implementation. Several frameworks have been proposed that outline key components to successful scale up of interventions/programs (4, 7). However, real world application of those components remains a challenge. We identified three broad categories of components, organization and advocacy, resources, and monitoring and evaluation, to help guide our assessment of examples for diffusion. Among the examples presented in this report, common elements were reported to influence the success of diffusion. These elements include the following:

¹⁵ <http://www.go2itech.org/where-we-work/ethiopia>



- Organization and advocacy
 - Leadership and champions: Leaders and champions can be the driving force behind the success of program diffusion; however, for programs dependent upon leaders and champions, issues can arise if those drivers are no longer present.
 - Partnerships: A common factor attributed to successful diffusion was the development of partnerships, including partnerships between the private and public sectors. Partnerships were instrumental to ensure that programs had the human resources, service delivery, and financial capacity to expand to new populations and areas.
- Resources
 - Training: Training was also a common factor found to be associated with successful diffusion. Training both existing and newly hired program staff to increase the workforce, as well as to ensure quality service provision was seen as vital to the success of diffusion efforts.
- Monitoring and evaluation
 - Program evaluation: Feedback of data allowed programs to either continue positive work or adjust when results were not optimal.

Setting-specific facilitators and barriers may influence the extent to which these factors may contribute to scale-up. The examples demonstrate that success is dependent on a combination of factors. Considering these factors early in the planning of program development increases the likelihood of successful diffusion and sustainability.



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