Harnessing SBC for Health System Strengthening: Pakistan's Chlorhexidine and Immunization Success Story

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Context

In Pakistan, the provision of reproductive, maternal, newborn, and child health (RMNCH) care faces significant challenges due to poor management systems, limited access to quality and actionable data, and inadequate human resource capacity. These challenges have led to grave consequences, including the third-highest newborn mortality rate worldwide, low routine immunization coverage, and a lack of affordable, effective treatments.

Routine Immunization: Despite the launch of Pakistan's Expanded Program on Immunization (EPI) in 1978, which aimed to immunize children against diseases like tuberculosis, poliomyelitis, diphtheria, pertussis, measles, and protect pregnant women and their newborns against tetanus, the Sindh province faced significant social and behavioral challenges in improving vaccination coverage. In Sindh, only 29% of children aged 12-23 months had received all basic vaccines, and nearly 1-in-10 had no vaccinations at all. This situation underscored a pervasive lack of awareness or acceptance of the importance of vaccines within the local population. Furthermore, a stark urban-rural disparity was evident in Sindh's vaccination rates. While 52% of urban children received vaccinations, the coverage in rural areas lagged significantly behind, with only 14% of rural children vaccinated. This disparity suggested a host of barriers in rural areas, such as limited accessibility to healthcare services, entrenched traditional beliefs, and a widespread lack of awareness about the importance and benefits of vaccination. Another challenge in Sindh was the low coverage of maternal tetanus toxoid. A significant proportion, 47%, of pregnant women in the province had not received these crucial injections before giving birth, pointing towards potential gaps in knowledge about maternal vaccinations or barriers to accessing these services.

Chlorhexidine (CHX) Use: Umbilical cord infections–the third leading cause of newborn death in the country–are a primary contributor to Pakistan's high newborn mortality rate. The widespread use of home remedies, which can increase the risk of infections, emphasized the need for safe, effective interventions such as CHX for umbilical cord care. A USAID-funded study of CHX use in Sindh Province, Pakistan revealed that CHX can reduce newborn mortality by as much as 38%. However, there are notable behavioral challenges associated with increasing acceptance and use of CHX. For caregivers and families, a lack of knowledge about how to prevent umbilical cord infections and skepticism of new health protocols interfered with the adoption of CHX as a standard treatment. Among healthcare providers, there was a surprising gap in awareness and use of CHX. This shortfall was likely due to insufficient updates in medical education and training or a lack of dissemination of the latest healthcare policies and procedures. Policymakers too faced hurdles, particularly in terms of incorporating CHX into health policy guidelines. This may have been due to insufficient evidence-based research available to them or a lack of communication between research bodies and policymakers.

In response to these pressing issues, the Health Systems Strengthening (HSS) Component of USAID's Maternal and Child Health (MCH) Program was implemented by JSI Research & Training Institute, Inc. (JSI) from 2013 to 2018. The program worked in 44 districts in Pakistan to develop and support cost-effective, high-quality, and integrated RMNCH programs and services in Pakistan, including routine newborn immunization and CHX application for umbilical cord care.

The HSS Component sought to address these challenges and change social and behavioral practices among these three crucial groups–caregivers, healthcare providers, and policymakers. It adopted a social and behavior change (SBC) approach, recognizing that altering behaviors and practices that perpetuate poor health outcomes could lead to sustainable improvements in the health system. The project endeavored to increase the acceptance and use of routine immunization and CHX for cord care by promoting understanding of their importance, facilitating their incorporation into routine care, and fostering a culture of data-based decision-making for better healthcare outcomes.

Activity Description

By taking an SBC approach, the HSS Component acknowledged that education alone was not adequate to bring about significant behavior change. While increasing knowledge and awareness was a component of the SBC approach, the interventions also sought to address deep-seated social norms, attitudes, systems, and behaviors that were obstacles to improved health outcomes. To implement its SBC activities, the HSS Component worked across the different socio-ecological levels as follows:

Individual Level: The project conducted comprehensive training and one-on-one counseling with caregivers to enhance awareness and change attitudes toward the importance and benefits of CHX and immunization. This encompassed building the capacity of all health workers, including Lady Health Workers (LHWs), to register every child under two years of age and pregnant women, record and report vaccination data, and educate communities about the benefits of immunization. These trainings and consultations were crucial in fostering social and behavior change in the healthcare decision-making process by offering tools, information, and resources to aid people in improving their own health and accessing care.

Interpersonal Level: Trained LHWs and Community Resource Persons (CRPs)–local volunteers or leaders trained by the Rural Support Programmes Network (RSPN)–conducted in-depth discussions with families and caregivers to understand and address barriers to CHX adoption and immunization, such as misinformation, fear, and logistical issues. These discussions were essential in combating misconceptions about CHX and immunization and engaging fathers, mothers, and community elders to boost immunization coverage.

Community Level: The project mobilized community members, particularly CRPs, to serve as local leaders and advocate for CHX and immunization within their communities. CRPs mobilized communities and ensured children and caregivers were present at vaccination camps. This process involved facilitating community engagement and dialogue to dispel vaccination myths and promote uptake, and leveraging facilitators such as trust in local leaders and the convenience of organized vaccination camps. The CRPs also helped to improve data; they collaborated with vaccinators and local authorities to establish vaccination goals and informed authorities if these goals were met and where there were gaps.

Organizational (Service Delivery) Level: The project trained healthcare providers to motivate them to incorporate CHX into routine newborn care and underscore the importance of routine immunization. Additionally, it improved transportation by procuring 550 motorcycles to enable health workers to reach remote communities. The interventions also addressed barriers hindering the use of data for decision-making by creating district-level micro-plans to improve planning and budgeting for the immunization program and providing training and improved data accessibility to foster an environment and culture that values data-driven decisions.

Policy Level: Advocacy efforts pushed for CHX to be incorporated into national guidelines. The project worked closely with leadership and governance at national, provincial, and district levels to standardize CHX protocol and ensure its inclusion in essential drug listings. It also developed provincial and regional CHX scale-up plans for the project's 44 districts. To ensure the effectiveness of these plans, more than 170 healthcare providers were trained as CHX master trainers. These master trainers, in turn, trained over 22,000 healthcare providers and LHWs in CHX counseling and application.

Activity Impact

The social and behavioral changes resulting from the HSS Component supported systemic improvements in the health sector, including stronger management systems, improved human resource capacity, and better data-based decision-making, which are fundamental to improved RMNCH outcomes. The project not only increased transparency and accountability within the health system but also improved resource allocation and service quality.

During the HHS Component's implementation (2012-2018), Pakistan experienced a 24% decline in the newborn mortality rate (PDHS, 2012; PDHS 2018). The uptake of CHX and routine immunizations played a large part in this success story.

One of the most significant achievements of the HSS Component was the improvement in routine immunization coverage seen during the pilot phase. In this phase, the project worked to increase DPT3 vaccination for children under two years of age in four districts. The percentage of children under two who received all three doses of this vaccine rose from 13% to 87% during the pilot period.

Caregivers and healthcare workers who participated in training and counseling sessions adopted and began regularly practicing positive health behaviors like CHX application for umbilical cord care and routine immunization. These behavioral changes were the result of building trust, establishing rapport, and creating supportive environments through interpersonal interactions. Furthermore, the sense of collective responsibility and supportive community norms fostered by the CRPs led to positive health behaviors. The endorsement and modeling of these behaviors by community leaders inspired others to follow suit.

The HSS Component played a crucial role in systematically integrating CHX into the existing health system. The project's work resulted in CHX use becoming a standardized national protocol and it set plans in place for CHX production to begin locally. The 22,000 healthcare providers and LHWs trained under the project championed CHX and immunization practices, promoting these among their patients. Additionally, USAID leveraged the HHS Component of the MCH Program to facilitate the import of 2.1 million tubes of CHX from Nepal, which were distributed to provincial and regional health departments. To further ensure the long-term sustainability and local production of CHX, four local pharmaceutical companies were registered to produce CHX. As Sangita Patel, Office Director, USAID Pakistan, stated, "*USAID is a proud partner here today in Pakistan to be able to encourage the scale-up of chlorhexidine nationwide. We know that we can prevent unnecessary deaths and it's because of this that we were able to procure 2.1 million tubes of chlorhexidine to be able to use in the public sector.*" A video describing the impact and progress of CHX use in Pakistan can be found here: https://www.youtube.com/watch?v=dEYzQwh2QOk This video is housed on the website of Pakistan's Ministry of National Health Services, Regulations and Coordination as well as the Ministry's Knowledge Management Portal. The Ministry has been working with UNICEF and JSI to present the video at various advocacy and technical working group meetings across the country to encourage CHX use and scale-up.

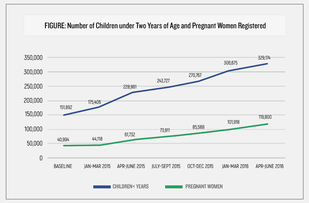
These policy-level changes and supply-side improvements increased the availability of necessary resources and services and facilitated the adoption and continued practice of positive health behaviors.

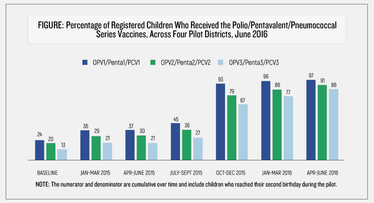
Evidence

The following results showcase the success of SBC methods used by the HSS Component:

Improved Routine Immunization Coverage: The routine immunization pilot saw a significant increase in immunization coverage for children under two. This indicated the effectiveness of SBC methods in influencing behavior. 329,174 children under two years and 119,800 pregnant women were registered (see Figure below) and 87% of immunized children retained routine immunization cards.

Additionally, Polio/Pentavalent/Pneumococcal series vaccine coverage increased significantly from 24% to 97% (see Figure below) and the coverage of children under two who had received all three doses of the DPT3 vaccine improved from 13% to 87%.





Cost Savings and Reduction in Vaccine-Preventable Diseases: An external evaluation of the pilot found it to be extremely cost-effective. The increase in routine immunization coverage led to cost savings of more than USD10 million due to fewer cases of vaccine-preventable diseases. This outcome demonstrates the impact of behavioral changes on resource optimization and the improved health outcomes resulting from increased immunization rates.

Standardized Protocol for CHX and Reduced Newborn Mortality: Pakistan saw a 24% decline in newborn mortality between 2012 and 2018 (PDHS, 2012; PDHS 2018). Within this period, the HSS Component implemented the standardized protocol for CHX on a national level and increased the proportion of health workers trained to apply it. This correspondence suggests that the introduction and widespread use of CHX contributed to the observed decrease in newborn mortality, and provides supportive evidence of the beneficial impact of SBC methods on health outcomes.

Enhanced Data Quality and Utilization: The HSS Component's SBC efforts to improve health managers' ability to access better data and use it effectively resulted in improved data quality. This facilitated evidence-based decision-making and resource allocation and improved health system quality and resource optimization.

Facilitators

There were several key factors that facilitated the project's activities and achievements:

Alignment between USAID and the Government of Pakistan: As part of USAID's MCH Program, the HSS Component ensured that the U.S. Government's assistance was aligned with the Pakistan government's short- and long-term plans at both federal and provincial levels. This approach helped create a sustainable health system and improve policies, infrastructure, training, and community engagement in a manner that was congruous with the national and provincial standards.

Stakeholder Dedication and Collaboration: Key stakeholders including the Ministry of National Health Services, Regulation & Coordination, Department of Health Sindh, and the Drug Regulatory Authority of Pakistan were instrumental in supporting and implementing sustainable HSS measures. Their collaboration ensured the development of management systems, increased access to data, and enhanced human resource capacity for improved health services. For example, collaboration with the Drug Regulatory Authority of Pakistan and advocacy for local production of CHX were critical to fostering change. Similarly, collaboration with the private sector, including pharmaceutical retailers, helped expand access to CHX. Finally, partnership with and commitment from the public sector helped ensure adequate financial resources and allocations for CHX procurement.

Effective Partner Coordination: In addition to the stakeholders mentioned above, numerous other partners played a pivotal role in the HSS Component's success. Partners included Contech International, RSPN, Heartfile Health Financing, WHO, UNICEF, UNFPA, and other USAID Maternal and Child Health Program Components. These partners' contributions in the form of knowledge, resources, tools, and direct interventions underscore the power of coordinated work in strengthening health systems and improving health outcomes.

Challenges

The main challenges the project faced during the implementation were related to data, capacity, and supply. These challenges were addressed through a combination of strategic planning, capacity building, stakeholder engagement, and resource mobilization.

Data: In many instances, RMNCH data were either lacking, inaccurate, or under-utilized, hindering effective planning, resource allocation, and evidence-based decision-making at various levels of health governance. To address these issues, the HSS Component focused on strengthening the capacity of health managers and institutions to ensure accurate data. This included focus on the value of data for decision making to ensure behavior change of this cadre. The project also developed mechanisms to enhance the reliability and effective use of data for sound financial and programmatic decisions. These interventions led to increased transparency and accountability within the health system, and in turn, better resource allocation and improved health outcomes.

Capacity: The project's capacity to train and change behaviors of a large number of public health workers across a wide range of cadres for improved care and better data use was an ongoing challenge. To tackle this challenge, the HSS Component implemented comprehensive training programs for health managers, focusing on enhancing their ability to manage resources and improve care delivery. Training of community level providers (LHWs and CRPs) was a big priority, with a focus on building their counselling skills to promote self efficacy. Simultaneously, the project worked to strengthen infrastructure and expand access to actionable data, equipping health managers with the necessary tools to make informed decisions and improve overall health outcomes.

Supply: Questions about the commercial viability of CHX production and the lack of WHO certification for CHX posed obstacles and delayed the drug procurement process. To address this, the HSS Component convened a national consultative workshop to develop an action plan for CHX implementation and scale-up across Pakistan. Technical working groups were formed to standardize CHX application protocols, develop communication strategies, and build consensus on CHX indicators and their inclusion in existing data systems. Collaboration with local pharmaceutical companies and the Drug Regulatory Authority of Pakistan expedited the process of local CHX production and registration. USAID's support to import 2.1 million CHX tubes from Nepal helped bridge the gap until local production started.

Lessons Learned

The implementation of the HSS Component yielded valuable lessons that can inform future activities and approaches. These lessons have implications for other health system actors adapting a similar approach in their countries and contexts. Four key lessons learned from the HSS Component's experience are highlighted below:

Evidence is Crucial: The HSS Component demonstrated the importance of basing SBC interventions on sound evidence. Introducing CHX for umbilical cord hygiene–an effective, evidence-backed intervention–was simple and cost-effective and substantially reduced newborn mortality. Having this evidence was instrumental in changing health worker practices and making them advocates of the practice to caregivers.

Use an SBC Approach: The success of the project's SBC approach highlights the value of community engagement and communication. Engaging LHWs and CRPs proved instrumental in improving outreach and results and establishing trust with caregivers and healthcare workers. Integrating SBC approaches in health system strengthening initiatives–both the supply side (health services) and the demand side (community behaviors and attitudes)–is essential.

Address Behaviors at the Institutional Level: The project recognized the need to address behavior change not only at the individual level but also at institutional and organizational levels. By training health workers to register, record, and report immunization data and advocating to policymakers, the project facilitated data-driven decision-making, leading to improved resource allocation, transparency, and accountability.

Effective Partnerships are Essential for Sustainability: Effective coordination and partnerships were instrumental in the HSS Component's success. Collaboration with various stakeholders, including government agencies, NGOs, international donors, local communities, and the private sector, played a vital role in achieving sustainable health system strengthening. Building strong partnerships and engaging multiple stakeholders is crucial for the success and sustainability of health interventions.

The HHS Component set a precedent for the power of coordinated, strategic, and evidence-based health interventions in creating far-reaching, sustainable change in the health sector. As such, it serves as a model for similar health system strengthening efforts globally. By applying these lessons and recommendations, stakeholders can leverage SBC approaches that work towards ending preventable newborn deaths and contribute to improving health outcomes in their respective countries.

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