VACCINES FOR ALL:

Improving Routine Immunization in Sindh Province Using a Health Systems-based Approach

The Government of Sindh's Department of Health requested technical support from the HSS Component to conduct an **EPI pilot in the four lowest performing districts.**

RATIONALE

Pakistan's Expanded Program on Immunization (EPI) was launched nationwide in 1978 with the objective of protecting children by immunizing them against childhood tuberculosis, poliomyelitis, diphtheria, pertussis, and measles and protecting pregnant women and their newborns against tetanus. Yet the 2013 Pakistan Demographic and Health Survey (PDHS) found low vaccination coverage and implementation gaps in all four provinces in Pakistan. After Baluchistan, the lowest provincial coverage was found in Sindh, where coverage of children 12–23 months with all basic vaccines was reported at 29 percent; 9 percent had no vaccinations at all. Sindh also had the highest urban-rural disparities in the percentage of children who had vaccination cards and in coverage of all basic vaccines relative to other provinces: 52 percent of urban children were vaccinated compared to 14 percent of rural children. Maternal tetanus toxoid coverage in Sindh was also low: 47 percent of pregnant women in Sindh did not receive tetanus toxoid injections before giving birth in the three years preceding the 2013 PDHS.

Recognizing the challenges to improving performance of the EPI in the province, the Government of Sindh's Department of Health (DOH) requested technical support from the HSS Component team to conduct an EPI pilot in the four lowest performing districts: Jacobabad, Kashmore, Tharparkar, and Thatta. These districts were targeted because they had the lowest levels of immunization coverage in Sindh. This technical assistance was aligned with the DOH's goals of attaining 90 percent immunization coverage (all basic vaccines) at the provincial level and eradicating polio, measles, and tetanus through supplemental immunization activities.

APPROACH

The HSS Component focused on the root causes of low levels of childhood immunization and mitigating health system barriers to routine immunization coverage. As a preliminary action, the team needed to understand the target population. Using both population estimates and a complete census of the population in the four target districts, the team established a target of nearly 330,000 children < 2 with EPI, and an existing cadre of 327 vaccinators (see Table 1).

TABLE 1: Summary Demographics, by district, and basic health infrastructure

DISTRICT	TOTAL POPULATION*	NO. OF VILLAGES**	NO. OF UCS**	NO. OF HEALTH FACILITIES**	TARGET FOR EPI LESS THAN 2 YEARS***	NO. OF VACCINATORS**	NO. OF EPI CENTERS**
Tharparkar	1,497,070	2,354	44	166	99,998	100	48
Jacobabad	1,024,893	2,957	40	46	74,712	80	46
Kashmore	999,173	2,964	37	47	80,537	73	43
Thatta	769,344	3,366	30	33	73,927	74	32
Total	4,290,480	11,641	151	292	329,174	327	169

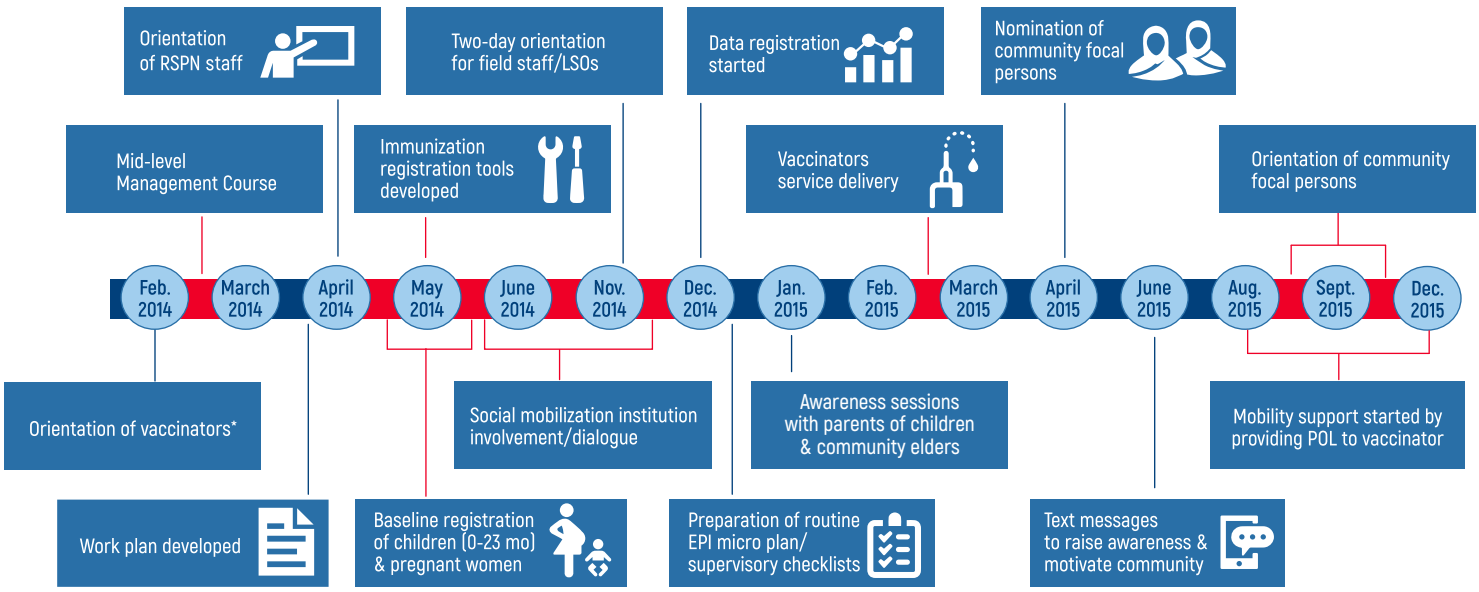
*Sources:*Population Estimates of Sindh, 2014, Bureau of Statistics, Planning & Development Department, Government of Sindh**Department of Health, Government of Sindh; ***Based on the complete census of the pilot districts by RSPN*

Pregnant women and mothers of the Hindu Kolih tribe line up to get vaccinated in Sindh Province. (Picture by Veronique de Viguerie/The Verbatim Agency for JSI)

The HSS Component developed mechanisms to improve recording, reporting, monitoring, and supervision to ensure transparency and accountability. The HSS Component oriented vaccinators and their supervisors, provided motorcycles to improve EPI service delivery, and registered all pregnant women and children under the age of two. Central to the approach was the development of micro-plans and a supervisory system to ensure successful implementation. The HSS Component improved quality EPI service delivery by training vaccinators and supervisors in the proper handling of vaccines and methods for maintaining cold chain systems for vaccine storage. In parallel, community outreach was conducted to create awareness of and dispel myths about vaccinating children. Figure 1 presents the overall timeline of the project and outlines specific activities that were undertaken by the HSS Component between February 2014 and June 2016.

The HSS Component identified and addressed health system issues affecting routine immunization coverage in **four districts of Sindh Province.**

FIGURE 1: EPI Pilot Timeline



REGULAR ACTIVITIES

Discussion in DHPMT meeting*– one week per quarter

Progress review & planning meetings at EPI centers*-one week of every month

Planning meeting at district level* – 5th of every month

DENOTES ACTIVITIES HAPPENING OVER MULTIPLE MONTHS

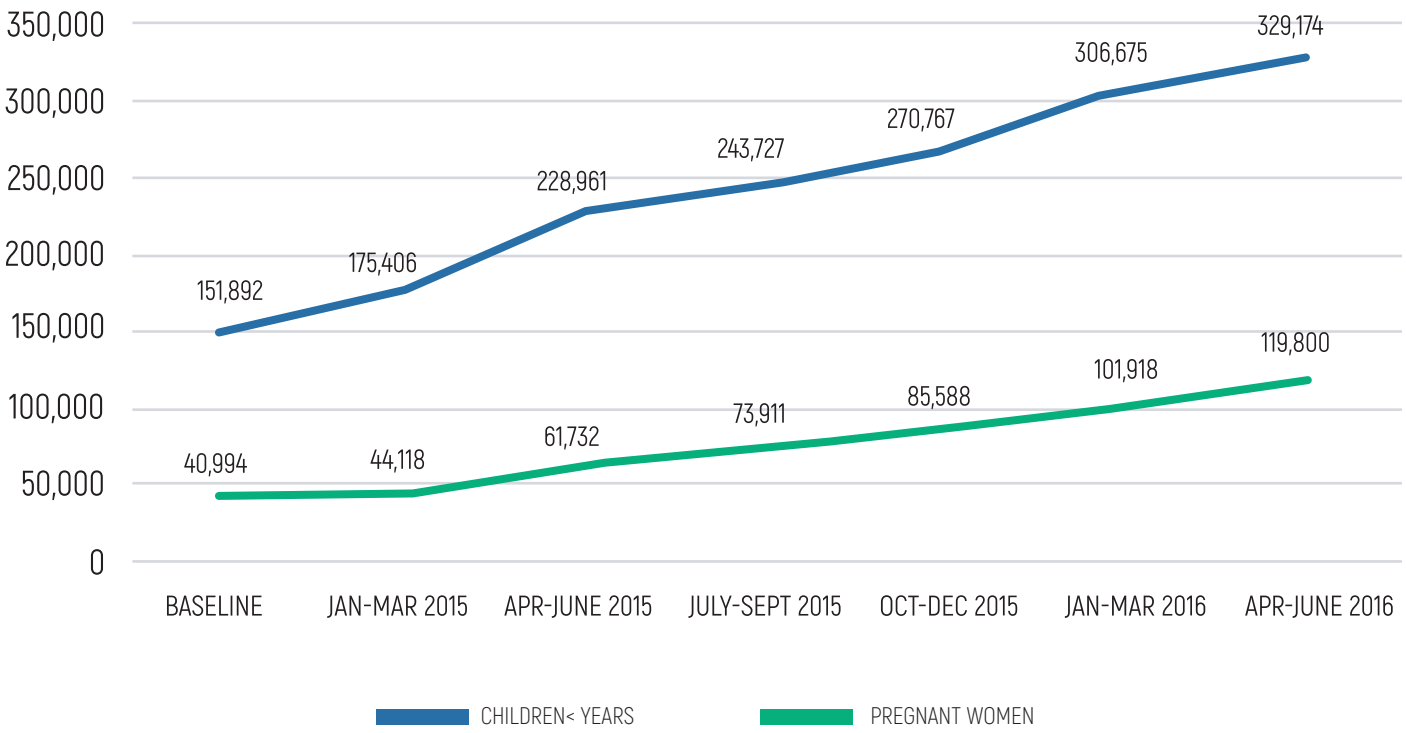
ACCOMPLISHMENTS

Over the life of the project, all vaccinators and 52 supervisors underwent refresher trainings. Five-hundred-and-fifty motorcycles were distributed throughout Sindh. 329,174 children under two years and 119,800 pregnant women were registered (see Figure 2) and 87 percent of immunized children retained routine immunization cards. Figure 3 shows the overall improvement in OPV/Penta/PCV coverage. OPV1/Penta1/PCV 1 coverage increased from 24 to 97 percent between December 2014 and June 2016; similar increases were found with subsequent doses. The percentage of children under the age of two who received the measles 1 vaccine increased from 12 to 67 percent; measles 2 vaccination coverage increased from 6 to 40 percent (see Figure 4). Figure 5 shows that BCG and OPV0 coverage more than doubled over the project period. The percentage of pregnant women receiving tetanus toxoid immunizations increased from 25 to 95 percent and full coverage was attained in Thatta District (see Figure 6).

The percentage of pregnant women receiving tetanus toxoid immunizations **increased** from **25** to **95 percent.**

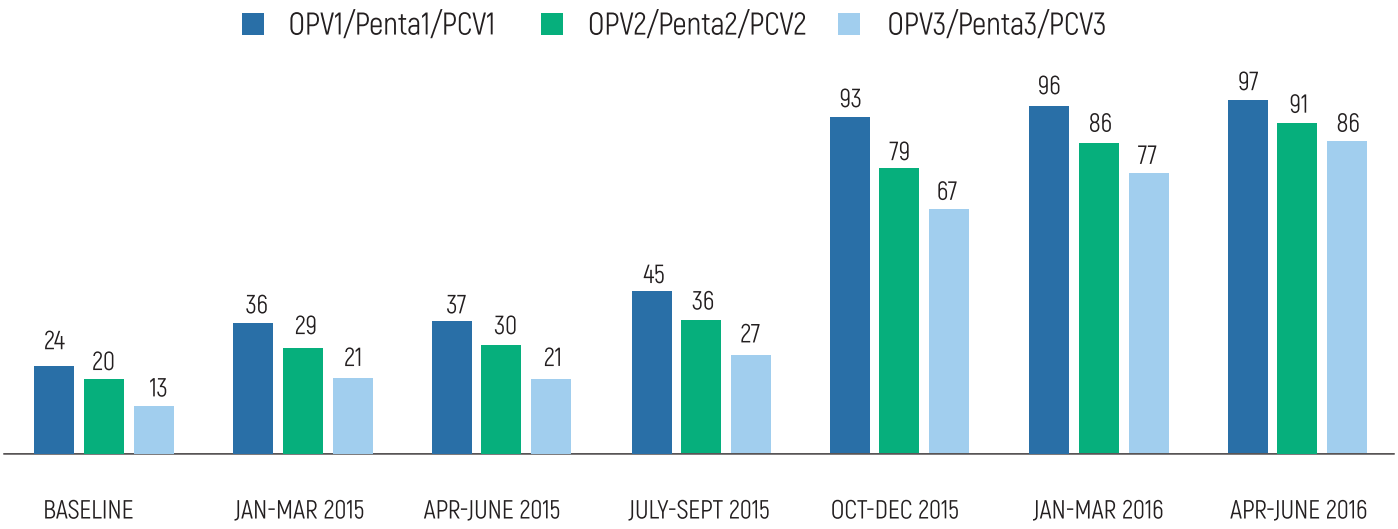
An external evaluation of the pilot found it to be extremely cost-effective. For the amount of money invested by the HSS Component, the cost savings to the DOH was more than USD 10 million, due to fewer cases of vaccine-preventable diseases that would have been covered by public funds.

FIGURE 2: Number of Children under Two Years of Age and Pregnant Women Registered



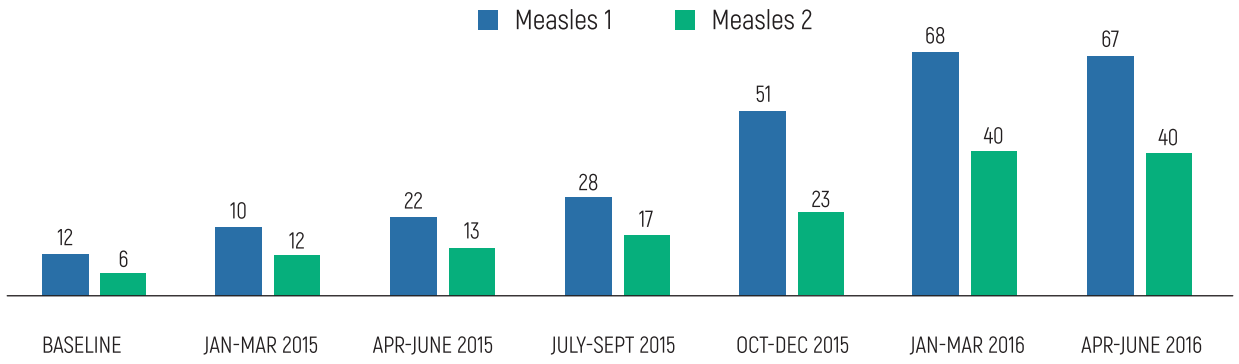
Community engagement and dialogue was a key driver of improving immunization coverage in four previously poor-performing districts in Sindh. Here health workers conduct an EPI awareness raising session with the Kolih tribe. (Picture by Veronique de Viguerie/The Verbatim Agency for JSI)

FIGURE 3. Percentage of Registered Children Who Received the Polio/Pentavalent/Pneumococcal Series Vaccines, Across Four Pilot Districts, June 2016



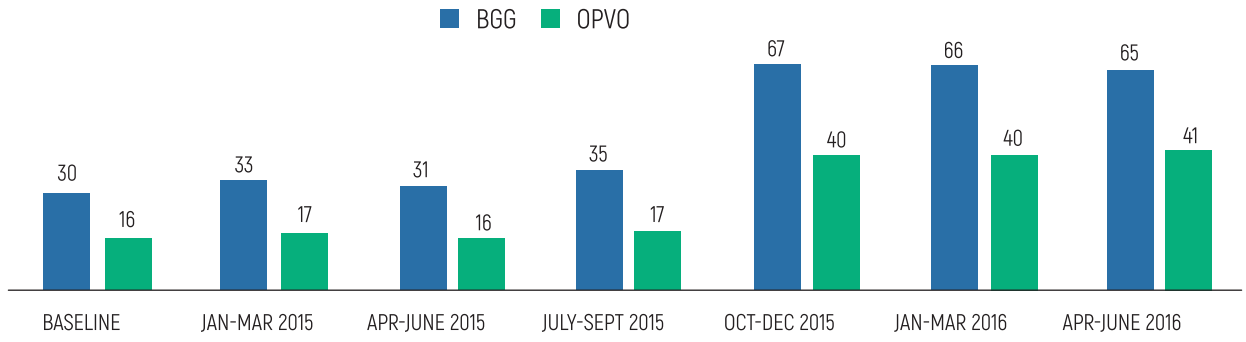
NOTE: The numerator and denominator are cumulative over time and include children who reached their second birthday during the pilot.

FIGURE 4. Percentage of Registered Children under Two Years of Age Who Received Measles Series Vaccines, Across Four Pilot Districts, June 2016



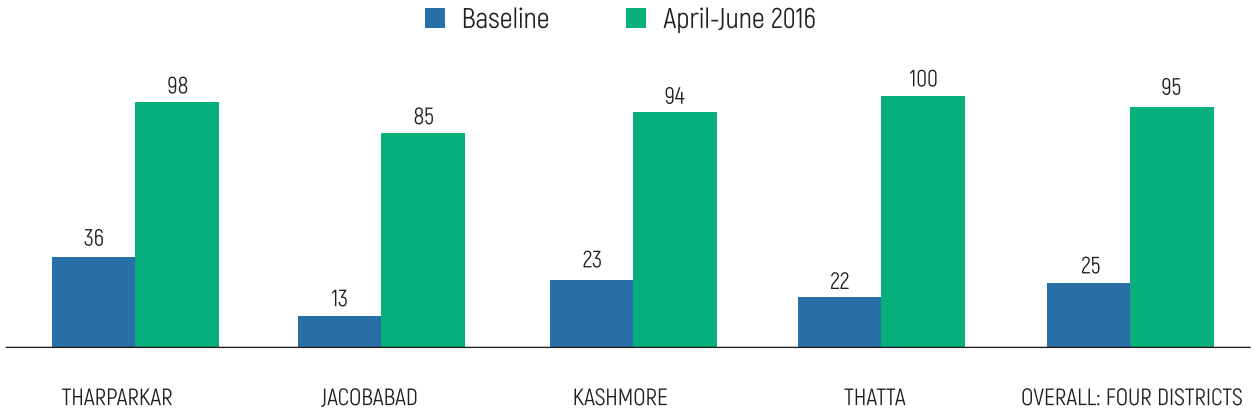
NOTE: The numerator and denominator are cumulative over time and include children who reached their second birthday during the pilot.

FIGURE 5. Percentage of Registered Children under Two Years of Age Who Received BCG and OPVO, Across Four Pilot Districts, June 2016



NOTE: The numerator and denominator are cumulative over time and include children who reached their second birthday during the pilot.

FIGURE 6. Percentage of Pregnant Women Vaccinated by District, Baseline and as of June 2016



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THE WAY FORWARD

The EPI pilot showed that reaching the DOH goal of 90 percent coverage of all vaccinations is achievable, but several considerations must be addressed to ensure that the project's impact is sustained and scaled. Based on the HSS Component experience, continued support to ensure that managers are able to monitor, supervise, and train vaccinators on developing and implementing micro-plans is a challenging but critical intervention. An accountability mechanism should be institutionalized to evaluate vaccinators' performance and monitoring and evaluation systems at the district level, review vaccine consumption, and control vaccine wastage. District health offices should conduct monthly progress review meetings with tehsil and district superintendents of vaccinations and vaccinators to develop micro-plans for the following month. Representatives from the provincial EPI office should attend review meetings on a quarterly basis. Vaccinators with the best performance should be acknowledged and rewarded. Regular review and feedback of performance at all levels must be institutionalized and will ultimately enhance coordination among stakeholders.

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The EPI pilot revealed that health managers must monitor, supervise, and train health care workers (e.g. vaccinators) on an ongoing basis. Here, a health worker provides routine immunizations to an infant in rural Sindh. (Picture by Veronique de Viguerie/The Verbatim Agency for JSI)

A mother holds her infant, who is being immunized by a health worker. (Picture by Veronique de Viguerie/The Verbatim Agency for JSI)

Lessons from the HSS Component have informed the Sindh DOH's efforts to achieve **90 percent EPI coverage, and scale-up of this intervention is currently underway in 15 additional districts of Sindh.**

In addition, there are several system-level improvements that the Sindh DOH must undertake to ensure that high-quality EPI services are provided, and ultimately used. The financial resources to support EPI programs must be allocated to districts. Aging cold chain equipment must be upgraded; supplies of vaccines, syringes, safety boxes vaccination cards, and registers guaranteed; human resource gaps and deployment issues remedied, and the potential of community-based organizations must be maximized and regulated. As the Sindh government works to strengthen its ability to provide high-quality EPI services, community engagement efforts must be sustained. Lessons from the HSS Component have informed the Sindh DOH's efforts to achieve 90 percent EPI coverage, and scale-up of this intervention is currently underway in four additional districts of Sindh (the work is being done by the Maternal, Newborn, and Child Health Services Component of the USAID Maternal and Child Health Program).

The Health Systems Strengthening Component of USAID's Maternal and Child Health Program was a five-year cooperative agreement (2013-2018) implemented by JSI Research & Training Institute, Inc. (JSI) to develop vaand support cost-effective, high-quality, and integrated reproductive, maternal, newborn, and child health programs and services in Pakistan. The HSS Component supported the Federal Ministry of National Health Services, Regulations, & Coordination and Sindh Province's Department of Health to develop management systems and human resource capacity for a stronger health system and improved health services.