MOMENTUM
Routine Immunization Transformation and Equity

CASE STUDY: INDIA
RAPID ESTABLISHMENT OF A MONITORING, EVALUATION, AND LEARNING SYSTEM FOR COVID-19 VACCINATION

Summary

USAID's MOMENTUM Routine Immunization Transformation and Equity, in partnership with the Government of India (GoI) and the Ministry of Health and Family Welfare, developed a multi-faceted monitoring, evaluation, and learning system for COVID-19 vaccination activities and adapted it to accommodate the project's rapid start-up and growth in the ever-evolving pandemic context in 18 states across India. This case study outlines the data management flow, data process and systems, and the corresponding benefits, challenges, and opportunities, and summarizes key lessons.

The MOMENTUM Routine Immunization Transformation and Equity project (the project) aims to strengthen routine immunization programs to overcome entrenched obstacles that contribute to stagnating and declining immunization rates and address barriers to reaching zero-dose and under-immunized children with life-saving vaccines. The project also provides technical support for COVID-19 vaccination and supports countries to mitigate the consequences of the pandemic on immunization services. The project is implemented by JSI Research & Training Institute, Inc. along with PATH, Accenture Development Partnerships, Results for Development, CORE Group, and The Manoff Group.

Global Challenges in COVID-19 Vaccination Data

The COVID-19 pandemic reminded us that accurate real-time data is critical to decision-making. As countries implemented and scaled their emergency responses at a rapid and unprecedented rate, releasing daily and weekly updates of age- and sex-specific COVID-19 cases, deaths, hospitalizations, and vaccinations, many were challenged to provide detailed and harmonized data. Data management and reporting therefore have been essential to enabling health system actors, from national policy makers to community health workers, to estimate and forecast vaccine supply, demand, and personnel needs to track progress.

Background & Context

India was hit hard by COVID-19. The first wave of infections struck in January 2020, followed by prompt enforcement of a strict nation-wide lockdown implemented in phases. The peak of the first wave was in mid-September 2020, with more than 1 million active cases in the country. The second wave hit in March 2021, leading to a record number of almost 5,000 new cases daily at peak. The country suffered a third wave in November 2021. As of September 26, 2022, India had reported about 44 million COVID-19 cases and more than 500,000 thousand deaths.[1]

On January 16, 2021, India rolled out one of the largest COVID-19 vaccination responses in the world. As of September 26, 2022, the country had administered 2.18 billion vaccination doses, with 96.6 percent and 89.4 percent of the eligible population having received a first and second dose, respectively.
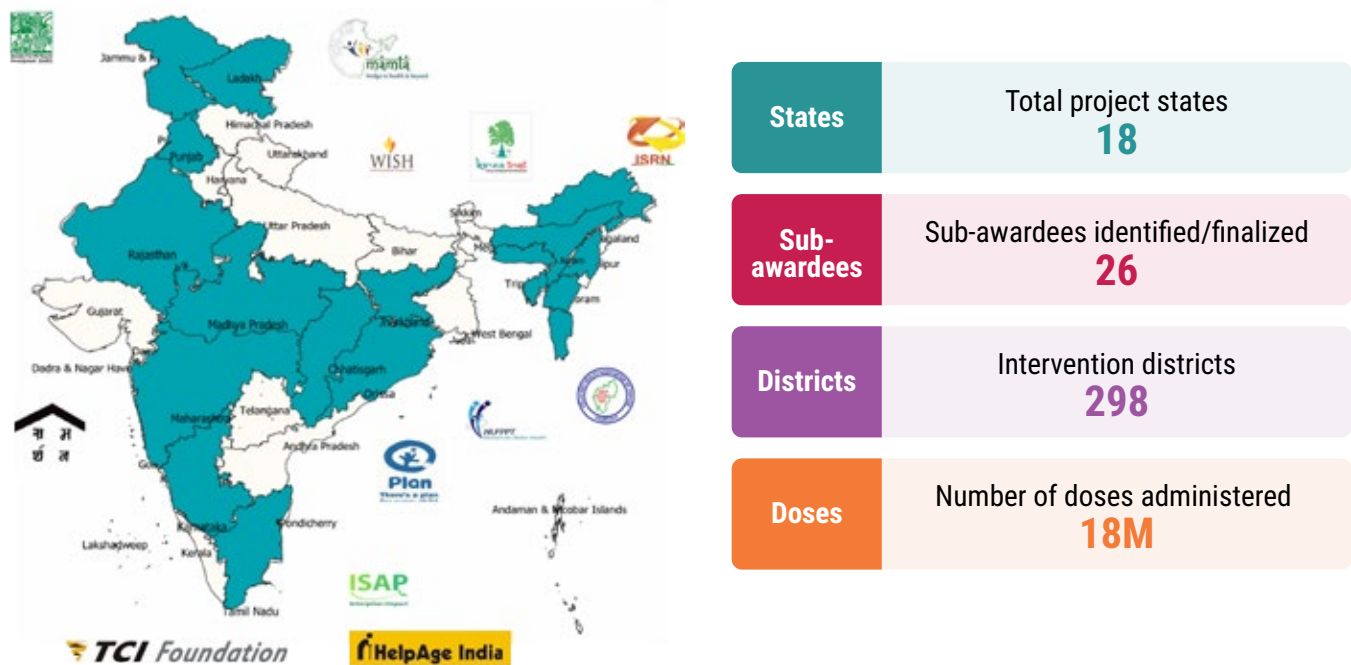
---

1   WHO, https://covid19.who.int/region/searo/country/in

Innovative Response

The COVID-19 vaccination roll out was marked by a variety of challenges including vaccine hesitancy, misinformation on multimedia platforms, and low rates of online registration. In response, MOMENTUM Routine Immunization Transformation and Equity (the project), collaborated with and provided technical assistance to the Ministry of Health and Family Welfare (MOHFW) to strengthen COVID-19 vaccination implementation. Non-governmental organizations (NGOs) at the state, district, and community levels were enlisted to support last-mile service delivery strategies and engage communities to increase demand for and equitable vaccination coverage.

The project started in August 2021 in India and has grown to support 26 NGOs working across 18 states. Given the pandemic response's need for real-time learning and adaptation, project staff and partners developed key performance indicators to maximize information output for program improvement.The indicators were designed to prioritize people who are sensitive to changes in access and uptake of vaccines, such as elderly, tribal populations, migrants, truckers, and the physically challenged. Some indicators were reviewed weekly, while others were examined monthly or quarterly to guide program strategies. As of September 15, 2022, the project had supported the administration of 12 million COVID-19 vaccine doses (Figure 1).

Figure 1. Project Status in India, September 2022

States	Total project states **18**
Sub-awardees	Sub-awardees identified/finalized **26**
Districts	Intervention districts **298**
Doses	Number of doses administered **18M**

OVERVIEW OF THE MONITORING, EVALUATION, AND LEARNING SYSTEM IN INDIA

In response to the need for real-time monitoring, learning, and adaptation (MEL), a robust system was developed to ensure quality data collection, collation and analysis for effective program improvement. The MEL system feeds the coverage data to the COVID-19 Vaccine Intelligence Network (CoWIN), a cloud-based digitized platform that the MOHFW and Government of India created to manage and report on COVID-19 vaccinations. CoWIN operates in all states in India, holding data from public and private vaccination centers. The project used CoWIN to establish baselines and goals for the number of doses administered and people vaccinated, and continues to use it to identify pockets of low coverage; analyze trends in vaccination uptake; and to help NGO partners adapt program strategies. Table 1 describes the MEL system objectives, strategies to reach them, and intended results.

Table 1. The MEL system in India

OBJECTIVE	STRATEGIES	INTENDED RESULT
Increase equitable access and uptake of the COVID-19 vaccine.	■ Identify low-coverage areas and hard-to- reach populations to inform community engagement and mobilization activities. ■ Use qualitative approaches and analysis to understand barriers to vaccination.	Data is regularly interpreted and used to reach marginalized populations and targeted areas.
	■ Conduct routine review and feedback meetings with state MEL officers. ■ Train regional and state teams on data reporting system, MEL framework, and data analysis to decentralize MEL system.	Increased capacity of state MEL officers to ensure quality data reporting and use.
	■ Help the state team monitor vaccination data in certain areas to create awareness and demand for the COVID-19 vaccine.	Enhanced demand generation and uptake in the project states.
Strengthen national, state, and local data management.	■ Collect and report data daily. ■ Develop fact sheets for state reference and proof of performance.	Increased real-time use of data at the national level strengthens the Government of India vaccination campaign.
	■ Conduct spot checks of partner outreach efforts through house-to-house monitoring, following emerging trends and cross-tabulation to identify outliers.	Improved data collection and quality.

MEL SYSTEM CHARACTERISTICS

Data Collection

(See Figure 2, which maps the data collection and reporting protocol.)

■ **Concurrent monitoring of program inputs/outputs**

Recording and reporting are conducted daily at project locations to facilitate understanding of the rapidly rolled out program interventions. NGO partners used line lists that highlighted the clients who had received services. Some partners also started using the Open Data Kit tool to record data. Ultimately, all these data were entered into an Excel sheet that the project developed to capture outputs in a standardized manner. The tool has in-built programming to ensure data quality.

■ **GoI vaccination data portal (CoWIN)**

The project downloads CoWIN coverage data at least every two weeks and cross tabulates, analyzes, and compares them with its performance, including India's overall coverage in the project districts. All reports and data are quality checked, aggregated, and sent to the next level for reporting.

Mechanisms to Manage Data Quality

The project developed several strategies to ensure data quality was consistent across all levels of reporting. All staff (shown in Figure 2) were trained on data quality maintenance and refreshed/retrained as needed. The project also developed standard operating procedures and job aids to help staff remember the key steps in ensuring data quality. NGO partners use programmed Excel sheets that have built-in data validation to ensure errors are caught and corrected immediately. As shown in Figure 3, the team also established a secondary systematic process of verifying data as they are submitted at each level (i.e., from NGO to national). For example, once partners submit data, the central project team conducts back checks on a sample of the data, and state teams conduct spot checks through community and house-to-house monitoring to verify the partners' reach. Outliers and missing data are reconciled through team discussions.
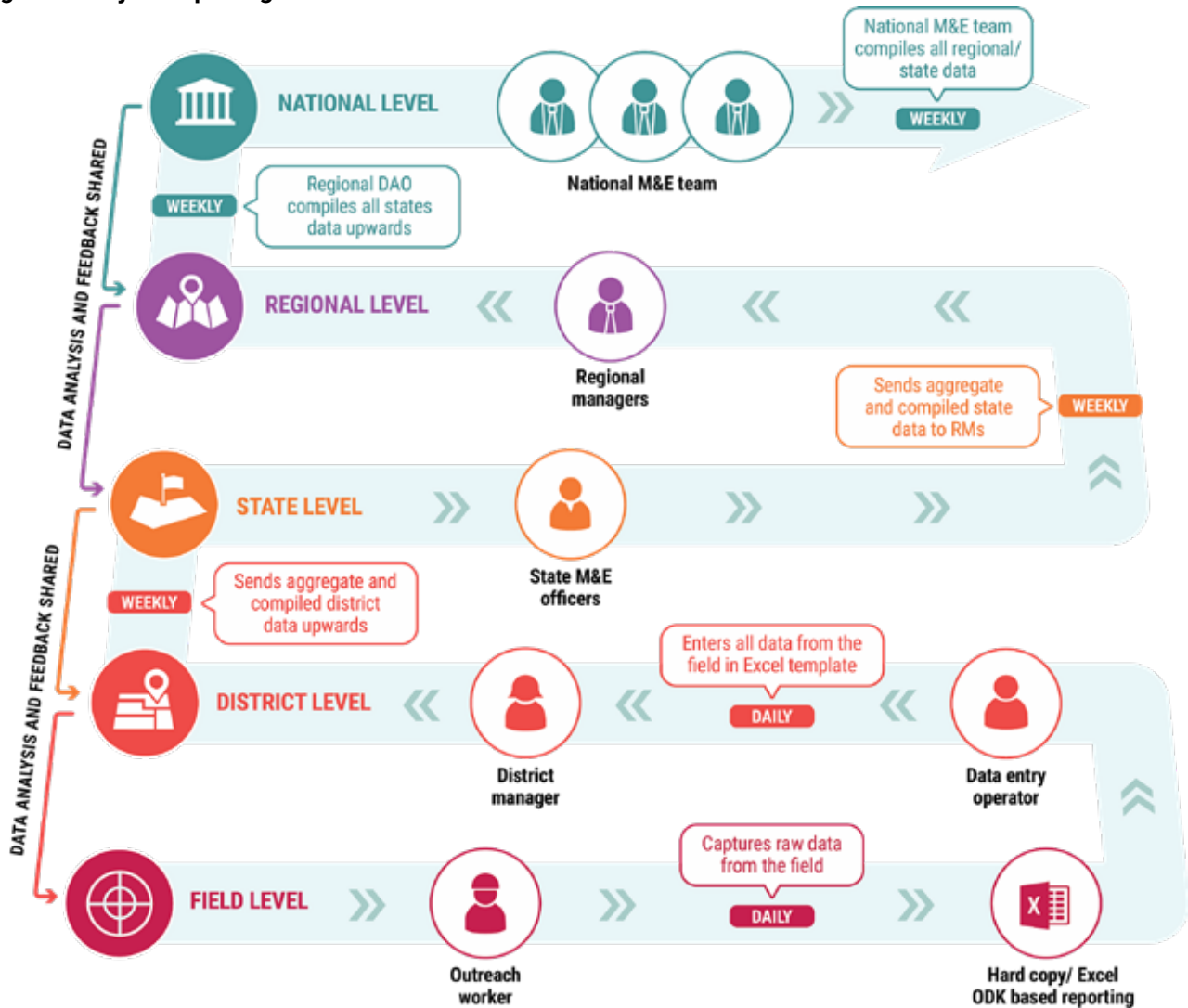
Figure 2. Project Reporting Protocols

Figure 3. Data Accuracy Mechanisms

1	Back-check of sample data by NGO partner
2	Spot check by Stat Teams
3	Reviewing key indicators for identifying outliers
4	Logical checks and validation logic Excel application

Data Management

The project implemented a high-quality data management system. The project collects and stores performance indicator data from each NGO partner every week, and disaggregates them by district and state. The data are then cleaned and exported to a national sheet that serves as a source for reporting data to the MOHFW, funders, and other partners.

Data Analytics and Dashboard

◼ Data analytics

With guidance from the national team, regional and state teams conduct analytics by each state using data from CoWIN and the project management information system (MIS). The project MIS contains key performance data such as the number of people who received a second dose of a COVID-19 vaccine, and uses the standardized Excel reporting template. These analytics facilitate the regional and state teams' understanding of NGO partner performance and support planning. The state provided a prototype format to maintain uniformity.

■ **State dashboard using Power BI**

The national project team used Power BI, an interactive data visualization software, to create dashboards to facilitate dissemination of information on state-level COVID-19 vaccination coverage using data sourced from CoWIN (Figure 4). The dashboard is dynamic and represents weekly performance as updates are provided. The dashboard also represents district performance by dose, period, and age group, and is illustrated in arc, map, line, and bar charts. Its data informs program strategy and decision making for priority populations.
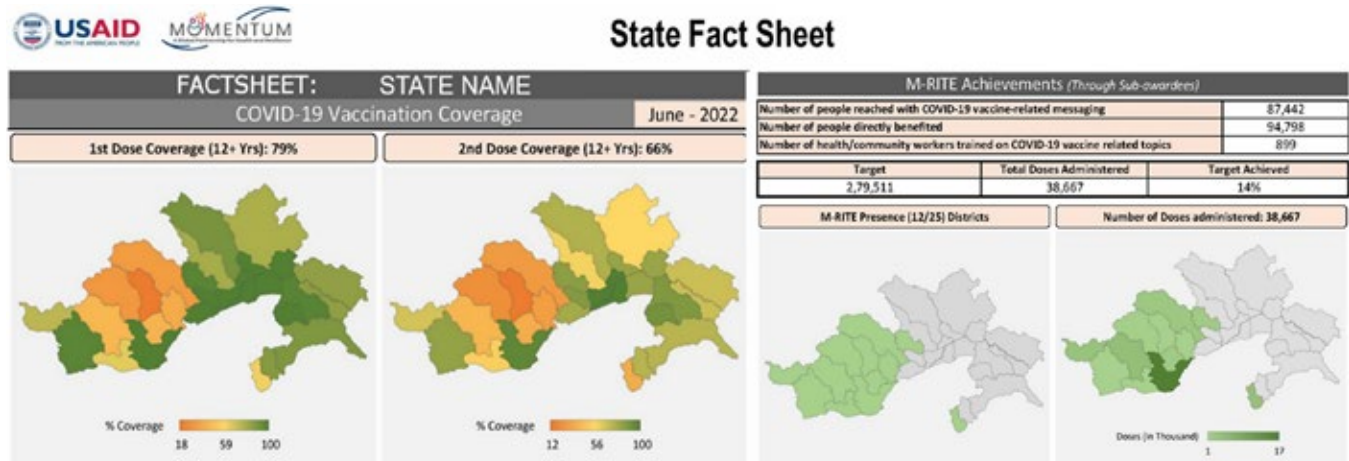
Figure 4. State Dashboard
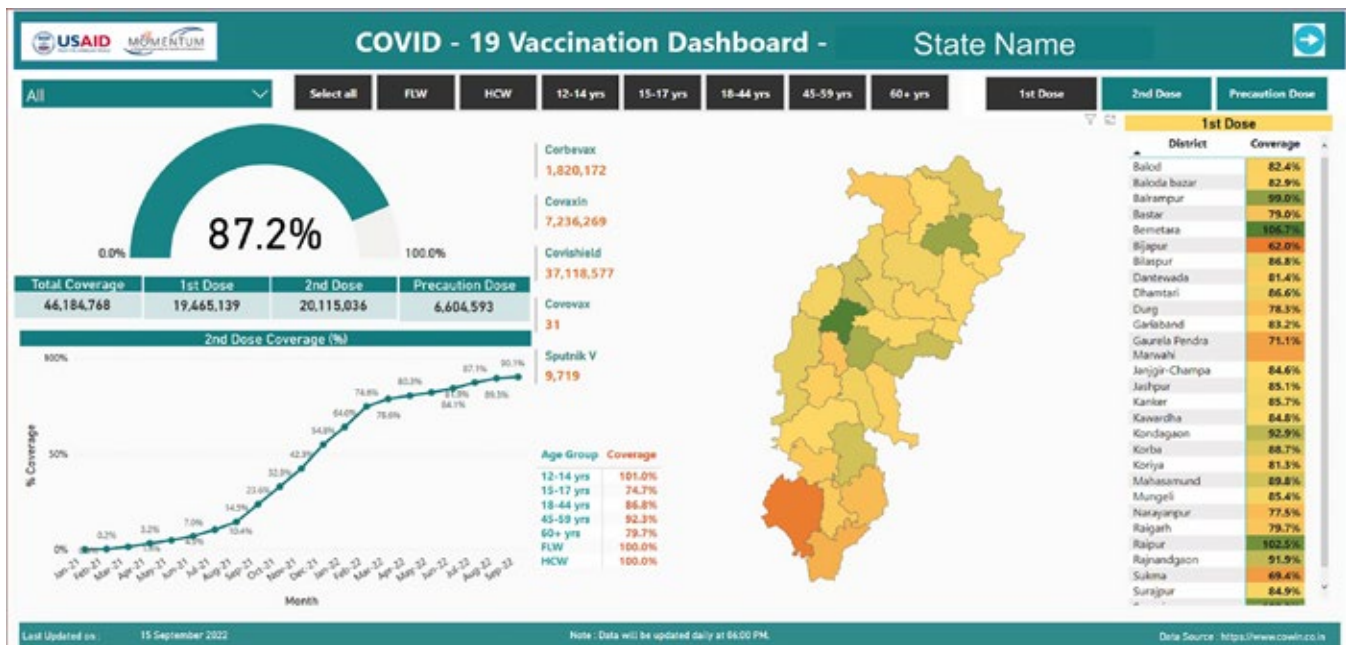
■ **State factsheets**

Fact sheets based on CoWIN and project MIS data were prepared for 18 project intervention states (Figure 5). The fact sheets highlight COVID-19 vaccination coverage in each state and the NGO partners' performance. They also indicate high- and low-performing districts.

Figure 5. Sample State Factsheet

Learning and Adaptation

The project's interventions provide timely and critical insights on the national COVID-19 vaccination program in India. In addition, the project has implemented a learning agenda to inform ongoing programmatic adaptation and improvement.

Concurrent monitoring data[2] reported from the state teams generated crucial insights for continuous program improvement. Qualitative insights were documented to complement indicator data, and context data monitored to understand results. The dynamic learning agenda is based on these questions:

- What are the barriers to equitable vaccination against COVID-19 for priority populations?

- What strategies or interventions have been applied to overcome these barriers, in particular the most significant barriers? How have they been working? Have they improved access to and use of vaccination services, particularly for vulnerable communities?

- What strategies and practices strengthen the use of data for decision-making at state level?

The learning studies are underway and the project will share the findings in future publications.

Outcomes

MEL system success is due to its ability to capture and disseminate data and inform strategies to support ongoing program changes. The system is multifaceted and continuously synchronized with other program areas to achieve high vaccination rates.

Benefits

The project staff, its clients, and the government have all benefited from the MEL system, as follows.

Project staff

- **Effective project management**
  - Real-time availability and use of information have facilitated refining project activities and prioritizing supervisory plans at national and subnational levels.
  - Quantitative documentation and analysis of good practices.

- **Capacity-enhancement and cohesion among state MEL officers**
  - Monthly cross-state learning meetings are held to exchange information and provide opportunities for collaboration. Discussions on challenges, barriers, and promising practices related to the implementation of the immunization program and MEL component. This includes, but is not limited to, data collection, analysis, and reporting; feedback mechanisms; use of data for program strategies; and documenting lessons.

Clients

- **More equitable access to COVID-19 vaccinations**
  - Clients, especially those who are vulnerable, high priority, and marginalized, were able to access vaccination services at a variety of locations within their communities.
  - Clients were able to access vaccine information at a variety of locations through various mechanisms, which increased vaccine uptake.
- **GoI**
  - Data support and use.

---

2   Context data is the overall data reported with or without USAID support. It is used to gain an understanding of the quantum of support that we provide.

- The MEL team supported the GoI to analyze CoWIN data, facilitating and providing evidence for decision-making. This included identification of low-coverage districts, number of due doses, and preparation of state dashboards, all of which have been utilized by the states for planning and ready reference.

Challenges

As COVID-19 evolved, challenges arose caused disruptions in data reporting and inefficient feedback mechanisms. Table 2 below describes the challenges, mitigation strategies, and the results of those efforts.

Table 2 : Challenges encountered and mitigation strategies in MEL

CHALLENGE	MITIGATION STRATEGY	RESULT
Delayed data reporting.	Implement local mobile-based reporting system.	Reduced reporting time, effort, and errors. Sub-national staff learned new data collection and reporting skills.
	Train state MEL officers on the MEL system and data analysis and decision-making.	State MEL officers train the local NGO partners and district teams on the MEL system and these capacity-building MEL topics: ■ Identifying outliers in data and presenting evidence on what is happening. ■ The data analysis is decentralized at the state level. ■ Increasing local decision-making. Strong feedback mechanism on data findings facilitated continuous program improvement. Accountability and improvements in local data quality.
Poor data quality.	Conduct regular monitoring and supportive supervision visits.	Routine monitoring plan in place. Increased staff capacity in project monitoring and data use. Validation and cross-checking of data trends aided decision making.
Ineffective virtual trainings with sub-national staff.	Hold NGO partners' staff and state teams training in person.	Increased participation and feedback. Improved understanding of reporting requirements and indicators.
	Hold cross-state MEL team meetings.	Improved cohesion, participation, and motivation to improve the MEL agenda.
Database required lots of time and effort when project changes, such as the addition of partners and districts, were made.	Refine system to account for programmatic changes.	Project-developed MIS system relieved staff burden.

Opportunities beyond the COVID-19 Response

Data dashboards and state fact sheets could enable other health sectors or projects to identify areas of low coverage for antigens such as measles, BCG, and other immunizations to guide program strategies. State-specific dashboards can be prepared as routine immunization programs and COVID-19 vaccinations start integrating (e.g., to identify districts with high DPT dropout rates, and tailor program strategies accordingly). Staff analytical skills gained will contribute to other agendas set by various sectors of the government such as education and family welfare and other types of organizations.

Cross-learning with state MEL officers and all project teams facilitates program implementation. These meetings can be replicated for routine immunization, family planning, and other public health initiatives to learn about their similarities, differences, challenges, and solutions.

Lessons Learned

- Prioritize resources to create a MEL system that captures information and analyzes data throughout a program cycle to ensure evidence-informed decisions.

- Build capacity of the staff who are involved with the data reporting and reviewing to ensure that data are credible and useful.

- Routine learning and sharing forums improve cohesion, knowledge, and understanding of the barriers and challenges to project implementation.

- Provide platforms to share good practices with the whole team to build strategic decision-making capacity and confidence.

- Sound and credible data facilitate evidence-based decision and enhance credibility among funders, partners, and communities.

- Regular monitoring visits and spot checks can improve data quality by ensuring data collector and reporter accountability.

- Use a variety of data visualization dashboards and platforms to disseminate and communicate data to different audiences.

Additional Resources

CoWIN Dashboard: https://www.cowin.gov.in/

WHO India COVID-19 Dashboard: https://covid19.who.int/region/searo/country/in

Learn more about the MOMENTUM Routine Immunization Transformation and Equity project in India: https://usaidmomentum.org/resource/supporting-covid-19-vaccination-in-india/