



SUPPORTIVE SUPERVISION AS A TOOL FOR IMPROVING PERFORMANCE OF VACCINE STORAGE FACILITIES IN AGAR-MALWA DISTRICT OF MADHYA PRADESH

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ABSTRACT **Background:** One of the novel interventions to improve immunization coverage is Supportive supervision which is described as a process of helping staff involved in immunization to improve their work performance continuously. The present study was done as a part of RIPDSS initiative with the objective to assess the effect of supportive supervision on the performance of District & Sub-District Vaccine Storage points of Agar-Malwa district. **Material & Methods:** A facility-based, cross sectional study was conducted in November & December 2022. Structured Questionnaire as a part of standard supportive supervision checklist prescribed by Government of India was used for data collection & assessment was done based on scores obtained in various components in the first and second visit. On the spot problem solving along with feedback was also given to the vaccine & cold chain staff. **Results:** Cumulative score of 211 (70.33%) and 246 (82%) out of 300 was obtained in the first and second supervision visit of DVS respectively. In the first and second visit of Sub-DVS, scores obtained were 132 (40.62%) and 217 (66.76%) out of 325. Apart from overall improvement, score of vaccine management component improved in both DVS & Sub-DVS but that of CCE maintenance declined in Sub-DVS. **Conclusion:** If the logistical, physical, and human resources are in place to improve service delivery, a supportive supervisory method can be more effective in enhancing the cold chain maintenance process. Frequent follow up visits are also required for this method to be effective.

KEYWORDS : Cold chain Equipments, DVS, Sub-DVS, Supportive Supervision.

INTRODUCTION

With the introduction of new technologies, new strategies, and new vaccines, an intensification of the immunization programme to reach rural and tribal areas, the involvement of numerous stakeholders in a coordinated effort, the landscape of routine immunization in India has changed dramatically over the past 20 years⁽¹⁾. Additionally, India has seen a notable decrease in the burden of VPDs with the introduction of UIP⁽²⁾. All of this work is being done to meet the Sustainable Development Goal target of reducing infant mortality rate (IMR) to 25 per 1000 live births by 2030⁽³⁾. Apart from these measures, other aspects such as micro-planning, cold-chain and logistics management, contingency plans and community mobilization are also important.

Vaccine Storage Points in Madhya Pradesh & Agar Malwa District

The immunization programme is crucial for the state as low immunization coverage rates have been cited as one of the main causes of the state's high IMR and U5MR for at least two decades.⁽⁴⁾ The state has four State Vaccine Store (SVS) at Bhopal, Gwalior, Indore and Jabalpur, 8 Zonal (or Regional) Vaccine Stores (RVS), 50 district vaccine stores (DVS), 333 Community Health Centres (CHCs), 1157 Primary Health Centres (PHCs) and 8,659 Sub-centres. The State Vaccine Store caters to the entire Madhya Pradesh State through Regional and District Vaccine Stores (DVS).

These DVS supply vaccines to the cold chain points located at CHCs and PHCs which are called Sub-District Vaccine Stores (Sub-DVS). The CCPs further cater to the session sites in respective Sub Centre and Anganwadi centre, etc.⁽⁴⁾. Agar Malwa district of Madhya Pradesh has 1 District Vaccine store which receive its stock of vaccines from Ujjain Regional vaccine store. There are a total of 8 Sub-District vaccine storage points from where the vaccines are distributed to the session site on every immunization day through the agency of Alternate Vaccine delivery System (AVDS)

Supportive Supervision & Immunization

One of the novel interventions to improve immunization coverage is

Supportive supervision being described as a process of helping staff involved in immunization to improve their work performance continuously. It is carried out in a respectful and non-authoritarian way with a focus on improving knowledge and skills of the staff so that supervisors and the health staff work together to solve problems and improve performance. The vision is to make things work, rather than checking to see what is wrong. It promotes quality at all levels in the health system by developing competency among the health personnels^(5a).

In Madhya Pradesh, Routine Immunization Supportive Supervision (RISS) is a collaborative effort of UNICEF, Directorate of Health Services (MP), the National Health Mission, the Directorate of Medical Education (DME), and MP Chapter of the Indian Association of Preventive and Social Medicine (IAPSM). This initiative was initially launched in 2014 & later on the scope was expanded to include two additional components viz Pneumonia and Diarrhea and now being called Routine Immunization Pneumonia Diarrhea Supportive Supervision (RIPDSS).

The present study was done as a part of RIPDSS initiative with the objective to assess the effect of supportive supervision on the performance of District & Sub-District Vaccine Storage points.

METHODOLOGY

The current study was a cross-sectional study conducted at the District vaccine store of Agar Malwa District and a Sub-District vaccine store located at a Community Health Centre of same district under the RIPDSS project.

The supervision visits were carried out by the mentors deputed from medical college in the month of November 2022 and then a follow up visit in December 2022. A structured checklist developed by the Government of India through mobile application for Supportive Supervision was used for data collection⁽⁶⁾. The mentors collected information by observing the health facility, reviewing records and through inputs obtained from vaccine and cold chain handler. A prior formal training of the mentors was done regarding the same.

DVS was assessed under following components (maximum score for each component is mentioned in the bracket)-

1. Background information of cold chain point (15)
2. Information on Human Resource (30)
3. Infrastructure (30)
4. CCE equipments (35)
5. Equipment maintenance (30)
6. Temperature monitoring (25)
7. Vaccine management (125)
8. Monitoring and supervision information (10)

Sub-DVS was assessed based on following components-

1. Background information of cold chain point (20)
2. Information on Human Resource (15)
3. Equipment maintenance (50)
4. Temperature monitoring (25)
5. Vaccine management (200)
6. Monitoring and supervision information (15)

Background information of Cold Chain Point includes availability of updated micro-plan with complete vaccine and logistic estimates, and availability of adequate dry storage space. Information on human resources includes availability of full time Medical Officer and VCCH, their training on latest VCCH and routine immunization modules respectively. Equipment maintenance includes CCE breakdown reporting, Annual maintenance contract for repair and maintenance, frequency of service provided, VCCH involved in Planned Preventive Maintenance as per checklist daily, ILR and DF placement in the cold storage room as per guidelines, storage of cold boxes and vaccine carrier as per guidelines, correct storage of icepacks in DF, and display of contingency plan and latest standard job aids. Temperature monitoring component includes availability of dedicated and functional thermometer with temperature log book for each CCE, twice daily temperature recording, maintenance of record of defrosting and power-cut, and VCCH demonstrating temperature reading.

Along with data collection, Front-line employees and the supervisors were mentored to address on-site gaps and implement local corrective actions. A debriefing with the block medical officer (BMO) and District Immunization Officer (DIO) was done to identify strengths, weaknesses, and planning for next steps.

Role and Responsibilities of the Mentors

1. Data Collection as per the checklist
2. On the spot problem-solving and feedback
3. On job training if required
4. Follow up visit to find out the improvement from 1st visit

RESULTS

The cumulative score of DVS out of 300 in the first visit was 211 (70.33%) and in the second visit was 246 (82%). There was an improvement in the performance of DVS as reflected by the scores seen in the 2nd supervision visit as compared to 1st visit. This was due to better performance in vaccine management component where the score was 57.6 in the first visit which improved to 88 by the second visit. The scores of rest all components were same (Table 1)

Table 1: Comparison of scores obtained in 1st and 2nd supervision visit of DVS

Components (Max score)	1 st Visit Score (%)	2 nd Visit Score (%)
Background information of the Cold Chain Point (15)	10 (66.67)	10 (66.67)
Information on human resource (30)	30 (100.00)	30 (100.00)
Infrastructure (30)	25 (83.33)	25 (83.33)
CCE Equipment (35)	15 (42.85)	15 (42.85)
Maintenance (30)	28 (93.33)	28 (93.33)
Temperature monitoring (25)	18 (72.00)	18 (72.00)
Vaccine management (125)	75 (57.67)	110 (88.00)
M&E (10)	10 (100.00)	10 (100.00)
Total	211 (70.33)	246 (82)

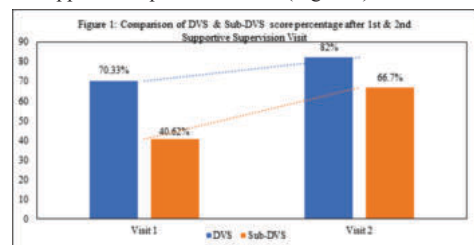
Table 2 shows the comparative performance of Sub-DVS during 1st and 2nd visit. There was an overall improvement of 26.08% in the performance as obvious from the scores observed during the 2nd visit.

Like DVS, improvement was seen in vaccine management component (42.5%), however maintenance component was found to decline by 10% in the 2nd visit particularly due to a thermometer breakdown on the day of visit. Scores of rest all components remained the same.

Table 2: Comparison of scores obtained in 1st and 2nd supervision visit of Sub-DVS

Components	1 st Visit Score (%)	2 nd visit Score (%)
Background information of the Cold Chain Point (20)	5 (25.00)	10 (50.00)
Information on human resource (15)	7 (46.67)	7 (46.67)
Maintenance (50)	30 (60.00)	25 (50.00)
Temperature monitoring (25)	15 (60.00)	15 (60.00)
Vaccine management (200)	70 (35.00)	155 (77.50)
Monitoring and supervision information (15)	5 (33.33)	5 (33.33)
Total	132 (40.62)	217 (66.76)

Overall, an improvement in the scores of DVS & Sub-DVS was seen as a result of Supportive supervision visits. (Figure 1)



DISCUSSION

The study was aimed to assess the effect of supportive supervision in the performance of DVS & Sub-DVS. In the current study, it was found that as a result of supportive supervision, the overall performance of both district and sub-district vaccine storage points were improved as reflected by the scores. Although most of the components of score remained almost same but improvement in vaccine management was significant. This was in contrast to the study conducted by Som et al. in four districts of Odisha State by observing ILR points where all of the major theme categories showed a change in the performance of the districts before and after the supportive supervision, particularly in relation to two components, namely Reporting and documentation and Cold chain and Logistics⁽⁸⁾. According to research by Mallik et al., correct placement of vaccines, preservation of temperature, and the establishment of a designated cold chain handler in each cold chain site improved the situation attained after intervention⁽⁹⁾. In a study by Djibuti et al., supportive supervision interventions independently improved district-level service delivery outcomes like the rate of DPT-3 immunisation coverage and vaccine wastage variables⁽¹⁰⁾. Similarly, a study done by Menteny et al. observed qualitative improvement in key indicators of immunization and overall ranking of health facilities between two rounds of Supportive Supervision⁽¹¹⁾. Similar results were seen in the current study where proper guidance and on the spot training of VCCH on proper handling, temperature recording of vaccine and regular stock taking improved the performance in vaccine management.

The study conducted by Panda B et al. came to the conclusion that supportive supervision might not have independent effects on enhancing the calibre of immunisation services, but addressing systemic problems, such as the accessibility of necessary logistics, supply chain management, prompt indenting, and financial resources, could support the supportive supervision strategy in enhancing the provision of immunisation services. Similar observations were made in the current study where helpful supervisory support like enhancing the skills of VCCH for proper temperature reading, helping in stock taking of vaccines etc in 1st visit led to an improvement in vaccine management component and ultimately the overall performance as well even though the "Maintenance" components in Sub-DVS received lower scores as compared to the first visit, as the thermometer of a CCE broke down on the day of visit and indenting a new thermometer was the only solution and supportive supervision had limited role in this situation. Further, all other components saw no change in the score as there was a need to address many problems like

limited finances, accessibility of logistics, poor infrastructure which could be done at the administrative level and the role of supportive supervision was limited here to providing feedback to higher authorities only⁽¹²⁾.

Supportive Supervision in Rajnandgaon by Medhe et al. revealed that the score of important components such as vaccine management, equipment maintenance, temperature monitoring, and monitoring and supervision information improved, but that of background information and human resource component decreased⁽¹³⁾. In the present study too, vaccine management and overall score improved as a result of supportive supervision.

LIMITATIONS-

Only one follow-up visit was done and based on the first visit, comparison was drawn. The scores were based on rigid objective checklist hence all the on-ground findings could not be included in assessment. Immunization is a large domain involving intersectoral coordination with multiple stakeholders each playing their part whose assessment during Supportive supervision could not be done.

CONCLUSION

If the logistical, physical, and human resources are in place to improve service delivery, a supportive supervisory method can be more effective in enhancing the immunization process. The main force behind the process is the government's effective administrative assistance.

Achieving better cold chain maintenance may need more than just providing health education and training; there must also be effective communication between the various levels of the hierarchy, regular monitoring and supervision, and rigorous adherence to Standard Operating Procedures (SOP)

Since supportive supervision is an ongoing process, achieving the goals requires frequent follow-up and monitoring visits.

RECOMMENDATION

The health care workers in CCP are responsible for various other activities besides the immunization services; which may lead to low performance in some of the components. Many factors such as maintenance of cold chain equipment and lack of storage and infrastructure needs could be resolved at the Government/Administrative level. There is a scope for identifying problem areas through qualitative research which would ultimately highlight the need for better functioning of cold chain points in district and eventually have an impact on immunization program.

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CONFLICTS OF INTEREST

None

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