Memorandum on India Programme Audit report

The attached Gavi Audit and Investigations report sets out the conclusions of the programme audit of Gavi's support to India's Ministry of Health and Family Welfare (MOHFW), executed by the Universal Programme on Immunisation (UPI) along with other implementing partners. The audit was conducted in four phases – beginning with a scoping mission in June 2022, then fieldwork was undertaken in September 2022, followed by two subsequent follow-throughs between in mid-July 2023 and mid-August 2023 to validate additional updates.

The audit team reviewed the UIP's and implementing partners' management of Gavi support to the routine immunisation programme, including the Health Systems Strengthening (HSS) and the Measles Rubella (MR) campaign grants, as well as vaccines and cold chain equipment provided over the period between 1 January 2016 to 31 December 2021. The audit also covered the vaccine and cash provided by Gavi's COVAX facility in the support of India's COVID-19 emergency operations during the period January 2021 to June 2022.

The report's executive summary (pages 4 to 6) sets out the key conclusions, the details of which are set out in the body of the report:

1. There is an overall audit rating of **"Needs significant improvement"**, which means, "one or few significant issues noted. Internal controls, governance and risk management processes have some weaknesses in design or operating effectiveness such that, until they are addressed, there is not yet reasonable assurance that the objectives are likely to be met."
2. In total, fourteen issues were identified in the following areas: (i) sustainability of Gavi investments; (ii) Vaccine supply chain management; (iii) governance and oversight; (iv) budgeting and financial management; (v) immunisation data management; and (vi) cold chain equipment management.
3. To address the risks associated with the issues, the audit team raised 28 recommendations of which 17 were rated as high priority.

4. Key findings were that:
    a. There was no comprehensive plan to transition support costs for the electronic vaccine intelligence network (eVIN) system into the respective national and subnational budgets. At the national level, the MoHFW did not include system maintenance, administration and support costs, into their budget planning. At the subnational level, although the MoHFW requested all States to include their eVIN operational costs into their respective program implementation plans budgets for the period 2022-2024, these did not account for all of their respective system maintenance and administrative expenditures.
    b. There was no proper change management policy directing the system's transition from

the initial eVIN over to the upgraded version introduced mid-2021. All of the past transaction data from January 2015 to July 2021 was lost.

c. The national cold chain management information system (NCCMIS) system was not compliant with relevant security standards, potential leaving it vulnerable to malicious attacks or manipulation. The system: (i) had not undergone any security assessments; (ii) database password controls were weak; and (iii) no data restoration testing was undertaken. Additionally, various additional NCCMIS modules were not used as intended.

ci. The country's central level cold chain storage capacity was inadequate, with all four government medical store depots (GMSDs) reporting occasions when they had insufficient space to receive and store their vaccine allotments. Storage constraints were exacerbated by the additional Covid-19 vaccine, with two GMSDs having to outsource additional cold chain space to increase their capacity. This outsourced storage space was not fit for purpose. In addition, the audit noted that 11% of GMSDs cold rooms' were non-functional, with the redundant items not being promptly decommissioned to create the necessary space to install new equipment.

cii. Vaccines temperatures were not consistently monitored at the national and subnational levels of the supply chain, as well as during transit of the doses.

ciii. The audit team questioned expenditures totaling USD 0.1 million (2.7% of the expenditure tested) due to unsupported and inadequately supported expenditures.

The findings of the programme audit were discussed with the Ministry of Health and Family Welfare and implementing partners. They accepted the audit findings, acknowledged the weaknesses identified, and committed to implement a detailed management action plan.

The Gavi Secretariat continues to work with the Ministry of Health and Family Welfare to ensure that their commitments are implemented, and to agree on how to make the programme whole.

Geneva, November 2023

PROGRAMME AUDIT REPORT

Republic of India

October 2023

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1. Executive Summary

1.1 Overall audit opinion

Overall audit opinion:

The audit team assessed the Ministry of Health and Family Welfare's management of Gavi support during the six-year period 1 January 2016 to 31 December 2021 as **"Needs significant improvement"**, which means, "one or few significant issues noted. Internal controls, governance and risk management processes have some weaknesses in design or operating effectiveness such that, until they are addressed, there is not yet reasonable assurance that the objectives are likely to be met."

Through our audit procedures, we have identified high risk issues relating to sustainability of Gavi investments, vaccine supply chain and budgeting and financial management. To address the risks associated with the findings, the audit team raised 28 recommendations of which 17 (61%) were rated as high risk. The recommendations need to be addressed by implementing remedial measures according to the agreed management actions.

1.2 Summary of key audit issues

** The audit ratings attributed to each section of this report, the level of risk assigned to each audit issue and each recommendation, are defined in Annex 2 of this report.*

1.3 Summary of issues

Through our audit procedures, we identified eight high risk and five medium risk issues relating to the use and management of Gavi support. The high-risk issues are summarised below. The detailed issues are in Section 4 of this report.

Sustainability of Gavi investments

Electronic vaccine intelligence network (eVIN) system – operationalisation and sustainability planning gaps:

Beginning 2015, the Government of India (GoI) rolled-out the eVIN system which enables real-time visibility over vaccine stocks and cold-chain equipment temperatures across the country. The system represented a significant Gavi contribution totalling USD 67 million between January 2014 and December 2022, with the funds being channelled through United Nations Development Programme (UNDP) as the implementing partner. Gavi's support towards this system was due to end in December 2022. The audit team noted gaps in the management and sustainability of the system.

There was no comprehensive plan to transition all of the Gavi eVIN support costs at national and subnational levels over to the respective budgets. At national level, the Ministry of Health and Family Welfare (MoHFW) had not included the costs for hosting the data servers and for system maintenance, administration and support, into their budget planning.

Although MoHFW requested all states to include their respective eVIN operational costs into their respective Program Implementation Plans (PIP) budgets for the period 2022-2024, the states' costs for PIP consideration did not account for all of their respective system maintenance and administrative costs. Furthermore, most states had not planned for the eVIN human resource costs apportioned to them, including top-up salaries for state-level consultants which were an integral part of system's functionality.

There was no change management policy for the transition from the initial eVIN system over to the advanced edition introduced in 2021, resulting in a loss of six and a half years (January 2015 to July 2021) of vaccine transaction data. This limited the usability of historical data for decision making at the national and subnational levels. There was also no evidence that system data restoration testing was done after the initial loss of data.

Vaccine transaction data was not updated within eVIN in a timely manner and there was a significant reliance on Gavi-supported consultants at the Goods and Medical Stores Depots (GMSDs), state vaccine stores (SVS) and district and division vaccine stores (DVSs) for day-to-day management of the system. The audit team also noted significant adjustments posted into eVIN at state level, coinciding with the time that the team was in-country in September 2022. These adjustments were not approved or supported by the cyclical stock takes.

The main root cause for the challenges in eVIN's operationalisation and sustainability planning were gaps in technical resourcing. We noted that most components of system development, project management and quality assurance for eVIN were outsourced by UNDP. There was insufficient in-house capacity at UNDP and at the MoHFW/Universal Immunisation Programme (UIP) to offer technical oversight over system development, deployment and change management processes. Should the gaps in the continued management of this system remain unaddressed, it is likely that such issues will persist after the system is handed over to MoHFW/UIP.

System security and utility challenges within the National Cold Chain Management Information System (NCCMIS):

In 2014, the UIP piloted the NCCMIS system for real-time monitoring and management of cold chain equipment. Gavi invested a total of USD 1.7 million to augment NCCMIS and to develop a monitoring and supportive supervision application. This funding was in addition to operational support through the health system strengthening (HSS) grant to accelerate the implementation of NCCMIS across all states. The audit team noted challenges with the design and operating effectiveness of the system which will impact its sustainability and utility beyond Gavi support.

The NCCMIS system was not compliant with security standards as defined by ISO 27799:2016. First level authentication was not secure, leaving it vulnerable to malicious attacks or manipulation. The system had not undergone any security assessments despite requests from the Immunisation Action Group (IAG), an interagency and government group that provided oversight over Gavi's investments in India. Database password controls were weak, and no data restoration testing was done. Additionally, the various NCCMIS system modules to track Effective Vaccine Management (EVM) assessments, supportive supervision, training, and preventative maintenance for cold chain equipment were not used as intended.

The team determined that the IT systems supported by Gavi require additional resources to correct the design and implementation gaps to secure their sustainability. There was insufficient technical expertise at the project management

and design process level, and the existing immunisation systems did not adequately provide for integration and interoperability. These gaps need to be evaluated, as value accrued from system-based investments over the last eight years could be lost. For example, should some states opt to no longer use the eVIN system, this could impact and reduce visibility over the vaccines across the country. Lessons learned should accompany the 2022-2026 Gavi investment strategy in India, which includes additional funding for U-WIN, a system designed to digitalize all immunisation data.

Vaccine supply chain management

Stock management challenges at the Government Medical Store Depots (GMSDs):

The country's central level cold chain storage capacity was inadequate, with all four Government Medical Store Depots (GMSDs) reporting instances where they had insufficient space to receive and store vaccines. Constraints in storage were worsened by the Covid-19 vaccine arrivals, with two of the four GMSDs outsourcing additional cold chain space to increase their holding capacity. The outsourced storage was not suitable, as vaccines held externally were stored with other commercial items, while under third party management. In addition, the audit noted that 11% of the cold rooms at the GMSDs were non-functional, and where cold rooms had been condemned, these were not decommissioned to create the necessary space to install new equipment.

All the GMSDs were understaffed with key positions such as the designated cold chain officers or technicians being vacant. For example, at the Karnal GMSD, 36% (26/72) of the staff positions were vacant.

GMSDs also experienced stock-outs of vaccines during the audit period. For example, the Chennai GMSD was stocked out of four out of seven sampled antigens with average stock-out days for all seven antigens at 85 days. In addition, the maximum number of stock-out days for select antigens was 161 days (OPV Vaccine), 130 days (Measles and Rubella vaccine) and 99 days (Rota Virus Vaccine) over the audit period.

Temperature monitoring and mapping practices were inadequate:

Vaccines temperatures were not consistently monitored at the national and subnational levels of the supply chain, as well as during transit. The audit team noted that 3 out of 4 GMSDs it visited, did not provide evidence of temperature recording on receiving vaccines, or during transportation to lower tiers. Similarly, temperature tracking of vaccines in transit was not done by the majority of the vaccine storage facilities and cold chain points responsible, including 3 out of 4 state vaccine stores (SVS) and 17 out of 21 district and division vaccine stores (DVS) visited by the audit team. Also, none of the 70 cold chain points (CCPs) visited, were able to evidence that temperature monitoring was conducted during distribution.

The Walk in Cold rooms (WIC) and Walk in Freezers (WIF) at GMSDs lacked devices for continuous temperature monitoring and the remote temperature monitoring and alert system included in eVIN was non-functional.

At the sub-national level, there were either no devices for continuous temperature monitoring, or where available these were non-functional. Also, temperature mapping of cold rooms was not done for any of the WICs and WIFs at the GMSDs. Similarly, 93% (14/15) of division and district vaccine stores with WIC and WIFs did not conduct a temperature mapping exercise.

Stock management gaps at sub-national level:

Stock management practices across various sub-national stores were inadequate as the audit team noted that periodic vaccine stock counts were not undertaken at 3 GMSDs, 1 SVS, 7 DVS and 54% (38) of cold chain points (CCPs) visited.

The physical counts conducted by the audit team during fieldwork noted unexplained differences between the physical stock and the manual stock records at 2 SVS, 4 DVS and 40 CCPs. Similarly, variances were noted between the physical stock and stock balances in the eVIN system at 3 SVS, 4 DVS and 41 CCPs. The audit team performed a vaccine stock reconciliation for the cumulative period January to September 2022 (i.e., opening stock plus receipts less issuances and wastages) noting differences for 1 SVS, 4 DVS and 50 CCPs. These reviews were conducted for those stores which held complete inventory records during this period. Stock balances held at the subnational level were below the MoHFW recommended minimum levels. Stock-on-hand was below the required level for 61% of the sampled vaccines at all 4 SVS, and also below required levels for 70% of the sampled vaccines at 21 DVS'. The 4 SVS' stock-outs were protracted, with the average vaccine stock-out duration being 96 days and the longest single vaccine stock-out lasting 239 days (for measles-rubella). Similarly, the average vaccine stock-out duration for all 21 division and district vaccine stores was 69 days, with the longest single vaccine stock-out incident lasting 374 days.

Several of the challenges in the vaccine supply chain management processes were due to inadequate supportive supervision, suboptimal staffing at GMSD and subnational levels, and inadequate training of those staff responsible for

immunisation supply chain activities. These weaknesses were also reflected in the country's 68% overall EVM score for 2018, with limited traction on implementing the resultant EVM actions due to the pandemic. These operational gaps need to be addressed, so that in future adequate volumes of potent vaccines are available, to meet both the country and Gavi's ambition of increasing immunisation coverage and equity.

COVAX Facility support from Gavi

By end of June 2022, the country received 140 million doses of Covid-19 vaccines provided by COVAX and USD 15 million cash support for Covid-19 vaccine deployment. The audit team noted some good practices in managing these resources such as: the creation of National Expert Group on Vaccine Administration for Covid-19 (NEGVAC) and a three-tier state level mechanism for the implementation of the vaccine strategy, a robust Covid-19 immunisation data system (CoWIN) which facilitated the registration and booking vaccination appointments, regular reminders and communication, provision of vaccination certificates for citizens, support for programme managers and vaccinators to create and manage sessions, recording and monitoring of any Covid-19 adverse events following immunisation (AEFIs), and support in monitoring the progress of Covid-19 vaccination.

Budgeting and financial management

Gavi disbursed USD 49.9 million to UNICEF, of which USD 11.9 million (24%) was sub-contracted, either to government agencies (USD 8.2 million) or to civil society organisations (CSOs) (USD 3.6 million). The audit team reviewed a sample of USD 4.5 million of the sub-contracted expenditures. Details on the reporting forms completed by government agencies and CSOs did not match with the funds disbursed. The audit concluded that expenditures totalling USD 0.15 million were unsupported or inadequately supported (tables 1a and 1b, below). This was primarily due to some expenditure reporting forms not reconciling and supporting documents not provided for some transactions.

The audit team reviewed two other investments financed through UNICEF, including a USD 7 million to support the introduction of the Auxiliary Nurse Midwives Online (ANMOL) system and improve data collection and management associated, and USD 0.7 million for the national coverage evaluation survey (CES) undertaken in 2018. The audit team noted that one of the key indicators for the rollout of ANMOL showed that only 30% of ANMs reported data into ANMOL, based on the HSS performance review report from July 2021. Similarly, the CES results were not endorsed by the MoHFW, and were not incorporated or used in subsequent decision-making.

1.4 Financial consequences of audit issues

The table below summarises amounts questioned by the audit team:

Table 1a: Summary of Government expenditures questioned by the audit team, by category in USD:

Category of questioned expenditures	Amount questioned (INR)	Amount questioned (USD)	% of expenditures tested that were questioned	Details (report reference)
Unsupported expenditure	3,563,898	*49,636*	1.4%	4.4.1
Inadequately supported expenditure	3,612,592	*50,220*	1.4%	4.4.1
Total expenditures questioned	**7,176,490**	***99,856***	**2.8%**	

Table 1b – Summary of CSO expenditures questioned by the audit team, by category in USD:

Category of questioned expenditures	Amount questioned (INR)	Amount questioned (USD)	% of expenditures tested that were questioned	Details (report reference)
Inadequately supported expenditure	3,367,757	*47,438*	5%	4.4.1
Total expenditures questioned	**3,367,757**	***47,438***	**5%**	

1.5 Cash balances

Table 2: Gavi funds unspent at central level by implementer

Implementing partner	Balance USD	Date	Source of information
UNICEF	*2,807,261*	30 September 2022	Gavi finance records
UNDP	*6,899,613*	31 December 2022	Gavi finance records
WHO	*5,556,816*	30 September 2022	Gavi finance records

2. Objectives and Scope

2.1 Audit Objective

In line with the respective programme agreements and with Gavi's Transparency and Accountability Policy, all countries that receive Gavi's support are periodically subject to programme audit, for which the primary objective is to provide reasonable assurance that the resources were used for intended purposes in accordance with the Gavi agreed terms and conditions, and that resources were applied to the designated objectives.

This was the first programme audit support of Gavi support to Republic of India and the audit team assessed the various processes and programme management arrangements governing Gavi's support (vaccines and cash grants) for which the MoHFW, UNICEF, UNDP and WHO were responsible, so as to assess if: the Gavi investments are sustainable beyond the period of Gavi support, vaccine supply chain management systems are effective, the existing grant oversight mechanisms provide continuous and reliable assurance on Gavi's investments, the financial management processes support the timely utilisation and accountability of Gavi grant funds and the immunisation data systems are effective.

The team also reviewed the relevance and reliability of the internal control systems relative to the accuracy and integrity of the books and records, management and operational information; the effectiveness of operations; the physical security of assets and resources; and compliance with national procedures and regulations.

2.2 Audit Scope

We adopted a risk-based audit approach informed by our assessment of the risks in all the areas of the immunisation programme supported by Gavi. This included vaccine and supply chain management, programme and data management, governance and oversight, COVAX and sustainability of key Gavi HSS investments. The audit period in scope was from 1 January 2016 to 31 December 2021, and for purposes of Covid 19 response and vaccination roll out the period in scope was extended up to 30 June 2022. The total cash and vaccine support provided by Gavi to the Republic of India as of 31 December 2021 is presented in Table 2 below.

Table 3: Cash and vaccine support as of 31 December 2021

Amounts in USD		Grants in Scope						
Cash grants	**2000 to 2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021***	**Total**
Hepatitis B	*415,523*	-	-	-	-	-	-	***415,523***
HSS	*68,380,000*	*38,620,000*	*26,465,953*	*27,513,750*	*22,450,934*	*14,320,991*	*11,465,627*	***209,217,255***
INS	*18,427,489*	-	-	-	-	-	-	***18,427,489***
MR Op Costs	-	-	-	*8,508,020*	-	-	-	***8,508,020***
Covid-19 CDS	-	-	-	-	-	-	*14,999,875*	***14,999,875***
Total (Cash)	***87,223,012***	***38,620,000***	***26,465,953***	***36,021,770***	***22,450,934***	***14,320,991***	***26,465,502***	***251,568,162***
PEF TCA								
PEF TCA	-	-	-	-	*1,561,182*	*16,655,959*	*8,279,849*	***26,496,990***
Equipment support								
COVAX CCE	-	-	-	-	-	-	*8,716,494*	***8,716,494***
Vaccines support								
Hepatitis B	*26,486,033*	-	-	-	-	-	-	***26,486,033***
Measles Rubella (MR)	-	*29,179,592*	*44,645,775*	*53,709,757*	*(399,184)*	-	-	***127,135,940***
Pentavalent	*226,828,314*	*41,934,261*	*(3,857,863)*	-	-	-	-	***264,904,712***
Pneumococcal conjugate vaccine (PCV)			*27,046,085*	*79,212,510*	*68,899,083*		*19,708,500*	***194,866,178***
Rota Virus	-	-	-	*18,957,489*	*15,276,713*	*27,143,072*	*22,800*	***61,400,074***
Inactivated Polio Vaccine (IPV)	*18,820,000*	*(2,288,455)*	*(212,376)*	-	*14,805,096*	*22,844,296*	*3,760,003*	***57,728,564***
Covishield*	-	-	-	-	-	-	*31,500,000*	***31,500,000***
Total (Vaccines)	***272,134,347***	***68,825,398***	***67,621,621***	***151,879,756***	***98,581,708***	***49,987,368***	***54,991,303***	***764,021,501***
Total (Vaccines + Equipment + Cash)	***359,357,359***	***107,445,398***	***94,087,574***	***187,901,526***	***122,593,824***	***80,964,318***	***98,453,148***	***1,050,803,147***

* For purposes of Covid 19 response and vaccination roll out the scope covered up to 30 June 2022.

2.3 Audit approach

An audit scoping mission was completed between 6 and 15 June 2022, followed by fieldwork between 29 August and 30 September 2022. Two subsequent follow-ups were undertaken between 17 July to 21 July 2023 and 9 August and 11 August 2023 to validate additional updates provided, after the initial fieldwork was conducted.

The audit team visited four GMSDs, four state health offices, four state vaccine stores, six division vaccine stores, 15 district vaccine stores and 70 cold chain points. See Annex 4 for the list of sites visited by the audit team.

Gavi disbursed funds amounting to USD 149,345,275 to four fund recipients over the period 2016 to 2021 for the HSS 2 and MR support costs grants. MR support costs amounting to USD 8,508,020 were utilised directly by UNICEF and WHO, HSS funds amounting to USD 87,345,420 disbursed to UNDP and WHO were also directly utilised by both organisations and are hence not subject to our audit review due to the Single Audit Principle[1]. Funds received by JSI were scoped out as part of our risk assessment process. No Gavi funds were disbursed directly to the Government, as per their mutual agreement with Gavi.

Table 4: Cash Disbursements by grant and recipient as of 31st December 2021

Grant	Funds recipients	Total (USD)	Sampled for testing	Comments
HSS	UNICEF	*49,890,218**	*4,558,294*	Partially tested as per * below
	UNDP	*59,557,514***	*0*	Partially tested as per ** below
	WHO	*27,787,906*	*0*	Out of scope
	JSI	*3,601,617*	*0*	Scoped out by audit team
Total HSS		***140,837,255***	***4,558,294***	
MR Support costs	WHO	*7,032,885*	*0*	Out of scope
	UNICEF	*1,475,135*	*0*	Out of scope
Total MR support costs		***8,508,020***	***0***	
Total cash disbursements		***149,345,275***	***4,558,294***	

**The HSS funds received by UNICEF had two components with 76% of the funds directly utilised by the organisation and therefore not subject to our audit review. The remaining 24% (USD 11,895,456) was sub-granted to government agencies and CSOs. USD 4,558,294 was sampled for review representing 38% of funds to CSOs and government agencies.*

***The HSS funds received by UNDP were used mainly to support the design and implementation of the eVIN system. While the audit did not review specific expenditure at UNDP as per the grant agreement signed between Gavi and UNDP, detailed work was done on the eVIN system design, policies and implementation at national and sampled states and other subnational levels. Total investment in the eVIN system, including operational costs is approximately USD 67 million. This includes funding from the HSS 1 grant received between 2014 to 2015.*

Gavi also disbursed USD 14,999,875 for Covid-19 vaccine delivery support (CDS) to three implementers including WHO, UNICEF and UNDP. These funds were also not subject to our audit review due to the Single Audit Principle.

Table 5: Covid-19 vaccine delivery support to India

Implementer	Amount (USD)	Sampled for testing	Comments
WHO	*4,132,875*	*0*	Out of scope
UNICEF	*3,100,000*	*0*	Out of scope
UNDP	*7,767,000*	*0*	Partially tested as per *** below
Total	***14,999,875***	***0***	

****The CDS funds received by UNDP were used mainly to support the design and implementation of the CoWIN system. While the audit did not review specific expenditure at UNDP as per the grant agreement signed between Gavi and UNDP, detailed work was done on the CoWIN system design, policies and implementation at national and sampled states and other subnational levels.*

During the audit scoping and fieldwork stages, the audit team collaborated with the Ministry of Health and Family Welfare (Immunisation Division and Health Management Information Systems (HMIS)), UNDP, the Bill and Melinda Gates Foundation and Gavi Alliance partners including WHO and UNICEF.

[1] The Single Audit Principle is part of a common internal control and audit framework in the United Nations system organizations. The Single Audit Principle foresees a control system, where the control and audit functions are based on common methods enabling auditors of one institution to rely on the work of auditors from another institution instead of re-performing the audit themselves.

2.4 Exchange rate

Most cash and in-country expenditures were incurred using the Indian Rupee (INR). For information purposes and as part of the summary of this report, overall total amounts were reflected in United States Dollars (USD). For the expenditures reviewed, the rate applied was based on the average World Bank rate (in the period 2019 to 2021) of 1 USD for INR 72.8.

3. Background

3.1 Introduction

India, officially the Republic of India, located in South Asia, is the seventh-largest country in the world by area and the second-most populous country, behind China; however, it is estimated that India will overtake China as the most populous country in the world in 2023. In 2021, India has a population of 1.39 billion people, and its capital city, New Delhi, is estimated to be home to almost 20 million inhabitants.[2]

The Republic of India was established in January 1950, after gaining independence from the British Empire in 1947. Since then, India has existed as a federal republic consisting of 28 states and eight union territories. The country's parliamentary democracy is the largest democracy in the world and has become increasingly federal since the late 1990s because of social, political, and economic changes.

India's economy has been subject to considerable growth since its liberalisation in the early 1990s. India's GDP growth rate was consistently above five percent, until it dropped to four percent in 2019, and then shrunk by 8 percent in 2020 due to the coronavirus pandemic; in the years to come it is estimated that India's GDP growth will return above six percent. According to the International Monetary Fund (IMF), the Indian economy in 2021 was nominally worth USD3.04 trillion; it is the fifth-largest economy by market exchange rates, and is around USD 10.219 trillion, the third largest by purchasing power parity (PPP).[3] India ranks 132 out of 191 countries and territories on the 2021/22 Human Development Index.[4]

National health sector

As per article 243W and the twelfth schedule of the Constitution of India, provision of health services is a state responsibility. The states are responsible for implementation and supervision of the various programmes and for provision of relevant infrastructure and curative services. The health service delivery system in the country consists of a mix of public sector units/ institutions (government health centres/hospitals at primary, secondary and tertiary levels, super speciality hospitals established by the centre and state ministries of health), private sector, non-governmental organisations, and the Indian systems of medicine.

At the national level, the Ministry of Health, and Family Welfare (MoHFW) is the central authority responsible for funding and oversight of various programmes and schemes in areas of family welfare, prevention, and control of major diseases. In 2013, the Government of India launched the National Health Mission (NHM) overarching two sub-missions - the National Urban Health Mission (NUHM) and the National Rural Health Mission (NRHM). NHM encompasses the programmes related with Reproductive, maternal, newborn, child, and adolescent health (RMNCH+A), disease control programmes, urban health and quality assurance and aids the states for related infrastructure development and HR assistance. All states are required to submit a programme implementation plan (PIP) in advance of each financial year, along with complete projections of funds required to implement the PIP.

Immunisation in India

India has made considerable progress in reducing infant mortality from 80 deaths per 1,000 live births in 1991 to 27.7 in 2021[5]. India is also one of the signatories to sustainable development goals (SDGs) and has committed to achieving its goals of good health and end the epidemics of AIDS, tuberculosis, malaria, and other communicable diseases by 2030 (SDG goal 3). SDG goal 3 focuses on achieving universal health coverage and providing access to safe and effective medicines and vaccines for all. Supporting research and development for vaccines is an essential part of this process as well as providing access to affordable medicines.

The Universal Immunisation Program (UIP) in India is one of the largest in the world, with an annual birth cohort of 27 million new-borns and with an annual estimated budget of approximately USD 1.2 billion. The MoHFW is responsible for funding majority (92% over the period 2018-22) of the national immunisation programme, providing technical assistance and policy guidance to the states, and for monitoring and evaluation. The funds to the states for the immunisation programme are administered under the National Health Mission; the immunisation programme is included in the activities of the (RMNCH+A).

[2] India statistics and figures
[3] International Monetary Fund-India profile
[4] UNDP-India ranks 132 on the human development index as global development stalls
[5] Macro trends-infant mortality

The Universal Immunisation Programme provides vaccines free of cost to protect against 12 vaccine-preventable diseases (VPDs) including Diphtheria, Pertussis, Tetanus, Hepatitis B, Meningitis, Pneumonia, Measles, Rubella, Polio, severe form of Childhood Tuberculosis, Rotavirus diarrhoea and Japanese Encephalitis (in endemic districts).[6]

In the last two decades India has made significant progress in improving health indicators, particularly those related to child health. The country was certified polio-free in 2014 and eliminated maternal and neonatal tetanus in 2015. To accelerate full immunisation coverage and to reach the unreached, the Government of India launched an ambitious programme called "*Mission Indradhanush*" in 2014, this is the largest immunisation programme in the world in terms of the number of beneficiaries, geographical coverage and quantities of vaccine used, with nearly 27 million new-borns targeted for immunisation annually. The aim of the programme was to achieve full immunisation coverage of more than 90% by 2020. The detailed immunisation schedule age-wise as well as vaccine-wise is included on Annex 5 of this report. A child is said to be fully immunised if he/she receives all due vaccines as per national immunisation schedule within the 1st year of the age of the child. The Integrated Child Health and Immunisation Survey (INCHIS) indicated that the first two phases of *Mission Indradhanush* led to an increase of 6.7% in full immunisation coverage in one year as compared to 1% increase/year in the past. This increase was more in rural areas (7.9%) as compared to urban areas (3.1%)[7].

3.2 Immunisation supply chain structure

The immunisation supply chain has a tiered structure comprising four national level Government Medical Store Depots (GMSDs) at Karnal, Mumbai, Chennai, and Kolkata; state, regional and district level vaccine stores; and cold chain points located at community primary and urban health centres, and at sub-centres across the country. This network consists of over 29,000 cold chain points, of which approximately 95% are located at the sub-district level.

Manufacturers supply vaccines to GMSDs and to state vaccine stores (SVSs). GMSDs receive vaccine supplies for 17 states/union territories (UT)s and supply the remaining 19 states/UTs on a call basis. 19 states/UTs receive vaccines directly from the manufacturer as well as from GMSDs. Some states have multiple vaccine stores located beyond the state headquarters. From SVSs, vaccines are further supplied down to Regional Vaccine Stores (RVS) and from there on to the District Vaccine Store (DVS). In the absence of RVS, vaccines are directly sent from SVS to the DVS. Vaccines from the DVS are then distributed to either to block vaccine stores[8] or CHC/PHC/UHC/last cold chain point. See vaccine supply chain structure on Annex 7f.

Vaccine distribution relies on a push and pull mechanism. Vaccines are usually 'pushed' down from higher to the lower level (e.g., GMSDs and manufacturers at the national level to the SVSs), and thereafter to levels further down. However, in situations of additional vaccines requirement at the lower level, a demand for vaccines is raised from the lower level to the higher level (e.g., from the state to national level) and vaccines are pulled out and supplied from buffer stock at GMSD level to the state.

The country utilises its electronic Vaccine Intelligence Network (eVIN) system as its vaccine logistic management information system (vLMIS). The system digitises the entire vaccine stock management, logistics and temperature tracking at all levels of vaccine storage, for both routine immunisation (RI) and Covid-19 vaccines – from National to the Sub-District levels.

3.3 Covid-19 context and response

Covid-19 is a disease caused by a novel coronavirus first reported from Wuhan, China on 31 December 2019. This was later named as the severe acute respiratory syndrome-Coronavirus 2 (SARS-CoV-2). On 30 January 2020, the World Health Organization (WHO) declared Coronavirus Disease 2019 (Covid-19) as a Public Health Emergency of International Concern (PHEIC).

The first cases of Covid-19 in India were reported on 30 January 2020 in three towns of Kerala, among three Indian medical students who had returned from Wuhan, the epicentre of the pandemic[9]. The number of cases continued to rise during Q1 of 2020. Throughout March 2020, several shutdowns and business closures were initiated, and by the end of the month, the Indian government ordered a strict national lock down which was extended several times, and then followed by a gradual re-opening starting 15th April 2020.

[6] Universal Immunisation Programme comprehensive multi-year plan 2018-2022

[7] Intensified Mission Indradhanush Coverage Evaluation Survey 2018, 18-01-2019

[8] Administrative grouping of health facilities within a district

[9] First confirmed case of COVID-19 infection in India: A case report

The Government of India began preparing to vaccinate its population in April 2020 with the setting up a Vaccine Task Force. Following this, the National Expert Group on Vaccine Administration for Covid-19 (NEGVAC) was formed in August 2020.[10] The (NEGVAC) was constituted under the chairpersonship of the MoHFW with the representation from secretaries from Ministry of External Affairs, Department of Biotechnology, Department of Health Research, Department of Pharmaceuticals, Ministry of Electronics and Information Technology and Director General Health Services, Director of All India Institute of Medical Science (AIIMS) Delhi, Director National Aids Research Institute (NARI), representatives from the National Technical Advisory Group on Immunisation (NTAGI), Ministry of Finance and five state Governments representing all the regions in India. NEGVAC provided guidance on all aspects of the Covid-19 vaccine introduction in India including regulatory guidance on vaccine trials, vaccine selection, equitable distribution of vaccine, procurements, financing, delivery mechanisms, prioritisation of population groups, vaccine safety surveillance, regional cooperation and assisting neighbouring countries, communication & media response etc.

In October 2020, NEGVAC advice resulted in the formation of a three-tier state level mechanism for the implementation of the vaccine strategy. At the state level, there were steering committees, a task force and control room while the district level had a district task force, urban task force (for urbanised areas) and district/urban control room. The composition and activities of the various committees at state and district levels was defined in the Covid-19 vaccines operational guidelines.

The Indian government allocated ₹900 crore (USD 110 million) to the Department of Biotechnology in November 2020 to aid the development of a Covid-19 vaccine[11]. The 2021 budget of India also allocated ₹35,000 crore (USD4.4 billion) for vaccine procurement[12].

On 3 January 2021, India's Central Drugs Standard Control Organization (CDSCO) provided emergency use authorisation (EUA) to the AstraZeneca vaccine and the Covaxin (developed by local firm Bharat Biotech). Both are manufactured domestically in India[13]. On 11 January 2021, the Prime Minister announced the start of the world's biggest vaccination campaign thereafter[14].

- Phase 1 started on 16 January 2021 and targeted 10 million health workers, first followed by 20 million frontline workers.
- Phase 2 began on 1 March 2021 to cover 45+ year olds with co-morbidities and 60+ year olds. On 1 April, vaccinations were opened for everyone above 45 years.
- Phase 3 of the vaccination campaign was opened to include all eligible adults (18+) from 1 May 2021 following a surge in cases in April 2021. A second wave beginning in March 2021 was much more devastating than the first, with shortages of vaccines, hospital beds, oxygen cylinders and other medical supplies in parts of the country[15]. This expansion resulted in immediate, increased, and prolonged vaccine shortages. Following the second Covid-19 wave, most states announced additional lockdown measures in the first quarter of 2021.

From 3 January 2020 to 21 October 2022, India had the second-highest number of confirmed cases in the world (after the United States of America) with 44,636,517 confirmed cases of Covid-19 with and the third-highest number of Covid-19 deaths (after United States and Brazil) at 528,943 deaths reported to WHO. As of 19 October 2022, a total of 2,194,143,525 vaccine doses had been administered according to WHO statistics.

3.4 Immunisation data

Routine immunisation data is primarily captured through the Health Management Information System (HMIS) at health facilities and the Reproductive and Child Health (RCH) portal.

- HMIS captures facility based aggregate vaccination data monthly and has been rolled out to all 36 states/UTs with 726 districts, 6,858 sub-districts and over 200,000 health facilities[16]. Reporting of HMIS data is direct from the health facility to the central repository with no intervention at either block, district, or state levels. If a health facility does not have internet coverage, then the data will be entered at block level but while utilising health facility log-in credentials.

[10] National Expert Group on Vaccine Administration for COVID-19 deliberates on strategy

[11] Government Launches Mission COVID Suraksha to accelerate Indian COVID-19 Vaccine Development

[12] Rs 35,000 crore budget marked for procuring vaccines is being used

[13] India Approves Oxford-AstraZeneca Covid-19 Vaccine and 1 Other

[14] PM Launches pan India rollout of COVID-19 vaccination drive

[15] India's shocking surge in Covid cases follows baffling decline

[16] HMIS coverage report 2020

- The RCH portal covers women and children's health, maternity, postnatal, prenatal, and family planning services based on the integrated Reproductive and Child Health Register. RCH captures beneficiary user data including eligible couples, pregnant women, and children of 0-5 years. RCH has been rolled out to 30 states/UTs, the remaining six states have their own applications and two states (i.e., Gujarat and Rajasthan) have been integrated to RCH while the applications of the remaining four states (i.e., Madhya Pradesh, West Bengal, Tamil Nadu, and Telangana) are not integrated to RCH. In 2015, the Ministry of Health and Family Welfare launched the Auxiliary Nurse Midwives Online (ANMOL) which a tablet-based application for real-time RMNCH+A services data collection. The application acts as a job aid to the Auxiliary Nurse Midwives (ANMs) by providing them with readily available information such as due list, dashboard and guidance based on data entered. The information uploaded into ANMOL is then linked to the RCH portal. ANMOL has been rolled-out in 26 states/UTs (roll out in three states i.e., Meghalaya, Mizoram, Nagaland is on hold while seven states/UTs i.e., Dadra and Nagar Haveli, Daman and Diu, Gujarat, Kerala, Rajasthan, Tamil Nadu, and West Bengal are using their own applications).
- States have also developed other customized immunisation data systems to meet their needs.
  - Uttar Pradesh designed the e-Kavach system which is planned to complement ANMOL and the Uttar Pradesh Health Mission and Information System (UPHMIS) which is used for collecting and aggregating data in the state before relevant data elements are uploaded in the National HMIS.
  - West Bengal state has developed the MatriMaa application for capturing detailed information on pregnant women and new-born children. Relevant data components are downloaded from the system and uploaded in the National HMIS. As already noted, West Bengal does not use the RCH portal.
  - Tamil Nadu has developed a state based HMIS which is used for collecting and aggregating data in the state before relevant data elements are uploaded in the National HMIS. The state has also developed the Pregnancy and Infant Cohort Monitoring and Evaluation which is used to record beneficiary details for RMNCH+A services.
  - Rajasthan state developed the Pregnancy, Child Tracking & Health Services Management System (PCTS) which is used for an online tracking of pregnant women & children and monitoring of health services provided to beneficiaries.
- Adverse events following immunisation (AEFIs) are recorded in Surveillance and Action for Events following vaccination (SAFE-VAC) system.

There are three main ways the country measures its immunisation coverage:

a) Online web-based Health Management Information System (HMIS) portal wherein administrative coverage is being reported through health facilities across the country. As per HMIS data for FY 2020-21, the "full immunisation coverage" of the country stands at 88.05% (April to October 2021 as on 10 December 2021).
b) Periodic surveys like National Family Health Survey (NFHS) - As per NFHS-5 (2019-2021), the "full immunisation coverage" in the country stands at 76.4%.
c) Concurrent monitoring of the Universal Immunisation Programme is conducted through sessions as well as community monitoring.

Covid-19 immunisation data is recorded in the Covid-19 Vaccine Intelligence Network (CoWIN) system which facilitates registration and booking of appointments for vaccination, regular reminders and communication, provision of vaccination certificates for citizens and helps programme managers and vaccinators to create and manage sessions, develop reports, and monitor progress. CoWIN is also utilised in the recording of all AEFIs related to Covid-19 vaccines. More than 1.1 billion citizens were registered on CoWIN portal through online and on-site modes and more than 2.1 billion doses of Covid-19 vaccines were administered and duly recorded on CoWIN as end of September 2022.

3.5 Gavi's relationship with India

Over the years, Gavi has supported the country with over USD 1 billion of new and underutilised vaccine introductions, health systems support for equitable uptake and technical assistance. India is the largest Gavi-eligible country with almost 27 million children born each year and contributes one-third of Gavi's performance on children immunised and routine coverage. However, given this large birth cohort, Gavi has limited its support to catalytic funding to India. The Gavi Board continues to review any new support on a case-by-case basis and because of this approach, Gavi commitments to India have been considerably lower, in proportion to the country's size, compared to Gavi support for other eligible countries[17]. Gavi and the government of India signed a Partnership Framework Agreement in June 2015 that sets out the terms and conditions that apply to all programmes undertaken by the government and funded by Gavi during the term of the agreement.

[17] Report to the Gavi Board Programme and Policy Committee 7-8 October 2015: Alliance Partnership Strategy with India, 2016-2021

For the period under review, the Gavi Board had approved the Gavi strategic partnership with India (2016-2021) in December 2015. This included vaccines and cash support of up to USD 500 million. The strategic partnership was designed to maximise benefits for both India and Gavi by:

a) increasing immunisation coverage and equity in India through targeted support to strengthen the routine immunisation system.
b) maximising health impact by accelerating adoption of new vaccines.
c) maximising procurement savings and vaccine supply security by sharing information, coordinating tactics and by building a long-term strategy that strengthens local public and private sector manufacturers; and
d) ensuring that vaccine programmes in India will be sustainable beyond 2021 by supporting the Government to plan for the transition and advocating for increased domestic financing of immunisation.

80% (USD 400 million) of the strategic funding was allocated towards the introduction of PCV, Rota, HPV and MR vaccines and 20% (USD 100 million) allocated to the Health Systems Strengthening (HSS) grant.

The HSS grant for the period of 2017-2021 (named as HSS2 phase) intended to improve the coverage, equity, and quality of the immunisation programme in India with four sub-objectives:

a) To strengthen and maintain robust data systems to improve evidence-based decision-making.
b) To improve service delivery through improved capacity of human resources for equitable and efficient immunisation services
c) To strengthen cold chain and vaccine logistics system through improved data systems, infrastructure strengthening and human resource capacity
d) To improve demand generation for immunisation services to improve coverage and inequities.

As a part of these key four objectives, 22 activities were to be undertaken by GoI, in consultation with Gavi and four lead development agencies: UNDP, WHO, UNICEF and JSI.

Gavi through COVAX also supported the country's Covid-19 response with grants for vaccines (140 million doses), passive cold chain Equipment (USD 8.7 million), COVAX technical assistance (USD 21.2 million) and vaccine deployment support (USD 15 million). The lead implementers for the COVAX cash grants were UNDP, WHO and UNICEF.

During the same period, Gavi provided additional USD 26.5 million under the framework of Targeted Country Assistance (TCA), with the funds being disbursed to the Gavi Alliance's core and extended partners.

There is a multi-stakeholder forum – the Immunisation Action Group (IAG) – which is chaired by the Joint Secretary that regularly meets to regularly review performance of the lead implementers and plans where necessary, to ensure alignment and complementarity of development partners' support.

3.6 Entities involved in the executing and managing Gavi's funds.

The Ministry of Health and Family Welfare (MoHFW) is the central authority responsible for funding and oversight of various programmes and schemes in areas of family welfare, prevention, and control of major diseases. In 2013, the Government of India launched the National Health Mission (NHM) overarching two sub-missions – the National Urban Health Mission (NUHM) and the National Rural Health Mission (NRHM). NHM encompasses the programs related with RMNCH+A (including immunisation), disease control programs, urban health and quality assurance and aids the states for related infrastructure development and HR assistance. The Universal Immunisation Program (UIP) under NHM oversees all immunisation activities in India including management of Gavi-supported activities. Implementation of majority of Gavi-supported activities is through four partners i.e., UNDP, WHO, UNICEF and JSI.

3.7 Good Practices

The audit team noted the following good practices while executing the audit:

1. Strong political commitment to ensure immunisation success.

As already noted under section 3.3 above, the Government of India provides majority of immunisation programme funding (92% over the period 2018-22). The Government of India also launched an ambitious programme called "Mission Indradhanush" in 2014. Mission Indradhanush is a targeted approach focused to reach all left out and dropped out children in pockets of low immunisation coverage (like hard-to-reach areas, vacant Sub-Centers, areas with recent outbreaks of vaccine preventable diseases, resistance pockets etc.). The aim of the programme was to achieve full immunisation coverage of more than 90% by 2020. The activity was monitored closely by the highest levels of the Indian government i.e., Prime Minister of India and Cabinet Secretary.

Mission Indradhanush had completed ten phases (from April 2015 to March 2021) covering 701 Districts where 38.6 million children were reached, and 9.68 million pregnant females were immunised.

As per report of Integrated Child Health and Immunisation Survey (INCHIS), the first two phases of Mission Indradhanush led to an increase of 6.7% in full immunisation coverage in one year as compared to 1% increase/year in the past. This increase was more in rural areas (7.9%) as compared to urban areas (3.1%).

2. Electronic Vaccine Intelligence Network (eVIN) and Covid-19 Vaccine Intelligence Network (CoWIN) rollout

a) The Government of India, with support from Gavi through UNDP, introduced the Electronic Vaccine Intelligence Network (eVIN) system in 2015. The system digitises the entire vaccine stock management, their logistics and temperature tracking at all levels of vaccine storage, for both RI and Covid vaccines – from National to the Sub-District. This enables programme managers to have real time view of the vaccine stock position and their storage temperature across all the cold chain points providing a detailed overview of the vaccine cold chain logistics system across the entire country. With Gavi HSS1 support (2015-17), eVIN was implemented in 12[18] out of 36 states/UTs. Gavi HSS2 support (2017-21) enabled introduction of eVIN in the remaining 24 states/UTs and eVIN is now fully operational in all the districts across 36 states and UTs covering 29,000 cold chain points (CCPs). A Techno-Economic Assessment of Electronic Vaccine Intelligence Network carried out in 2018 demonstrated that eVIN had led to improved visibility of stock till last cold chain point which led to better vaccine management practices such as reduction in vaccine wastage and stock-out events.
   - After implementation of eVIN, fewer beneficiaries were getting omitted due to stock-out as compared to the pre-eVIN period. The highest reduction was observed in DPT (reduced by 70%), and lowest in BCG (reduced by 6%)
   - Health facilities reporting wastage of any vaccine due to reasons such as non-usable vaccine vial monitor (VVM), freezing, expiry and broken vials had reduced when compared to the pre-eVIN period.

b) Thereafter, the Government of India, with support from Gavi through UNDP, rolled out the Covid-19 Vaccine Intelligence Network (CoWIN) as the digital backbone of India's Covid-19 vaccination programme (one of the world's largest) in 2021. This system facilitates registration and booking of appointments for vaccination, regular reminders and communication, provision of vaccination certificates for citizens and helps programme managers and vaccinators to create and manage sessions, develop reports, and monitor progress. More than 1.1 billion citizens registered on CoWIN portal through online and on-site modes and more than 2.1 billion doses of vaccine were administered and duly recorded on CoWIN at end of September 2022.

3. Gavi's catalytic support is subsequently sustained by domestic budget and examples are included below:

a) Vaccine introductions subsequently supported by domestic funding.

- India is committed to the goal of measles and rubella elimination as stated in the National Strategic Plan for Achieving and Sustaining Measles and Rubella Elimination in India. In 1985, India introduced the first dose of measles-containing vaccine (MCV1) in the routine immunisation programme and introduced a second dose of measles-containing vaccine (MCV2) into the routine programme schedule in 2010. Measles vaccine also containing Rubella was introduced as MRCV1 and MRCV2 in 2017. To accelerate efforts towards measles and rubella elimination, India launched a massive nation-wide MR vaccination campaign beginning in February 2017. The MR vaccine was launched with Gavi support in 26 states/UTs and through domestic budget in eight states/UTs. The MR campaign was completed in 34 states wherein 324 million children were vaccinated against the target of 330 million with a coverage of 98%. MR vaccine is now part of routine immunisation with domestic financing.
- Rota Virus Vaccine (RVV) was introduced in 2017 to reduce mortality and morbidity caused by Rotavirus diarrhea. Gavi provided support for 3 years in one state (i.e., Uttar Pradesh) and subsequently RVV was expanded nationally in 2019 with domestic financing.
- PCV was introduced in a phased manner by the Government of India in May 2017 under the Universal Immunisation Programme (UIP) for reducing Under-Five (U-5) mortality and morbidity caused by Pneumococcal Pneumonia. Gavi support was utilised for the introduction in five states namely Bihar, Himachal Pradesh, Madhya Pradesh, Rajasthan, and Uttar Pradesh. Haryana also introduced PCV as a state initiative. PCV was expanded nationwide in 2021 to all 36 states/UTs with domestic financing.

b) *Initial joint investments for creating structures and institutions.*

- The GoI established the National Cold Chain & Vaccine Management Resource Centre (NCCVMRC), New Delhi and National Cold Chain Resource/training Centre (NCCRC), Pune with support from Gavi through UNICEF.

[18] The 12 states were Uttar Pradesh, Rajasthan, Madhya Pradesh, Assam, Nagaland, Manipur, Bihar, Jharkhand, Chhattisgarh, Odisha, Gujarat and Himachal Pradesh.

- The NCCVMRC, placed in the National Institute of Health & Family Welfare (NIHFW) is the apex body for technical support on immunisation supply chain to the Government of India. NCCVMRC is the nodal resource centre for all immunisation supply chain related research, training, planning and policy initiatives in India. The centre has also been designated as the secretariat for effective vaccine management (EVM) assessment, and cold chain equipment specifications. The institute undertakes capacity building of cold chain technicians, programme managers and policy makers at all levels.
- The NCCRC has the mandate of strengthening cold chain and immunisation supply chain through cold chain equipment testing, developing the skills of Cold Chain Technicians and other immunisation staff on managing & expanding technical supply chain & training infrastructure and its management, the introduction of new technologies, and assisting Indian manufacturers to participate in the marketplace for Cold Chain equipment. The centre is ISO 9001:2015 (quality management systems) certified and has developed an in-house National Accreditation Board for Testing and Calibration Laboratories (NABL) facility. NCCRC now developing WHO-PQS Laboratory for testing cold chain equipment as per the WHO-PQS Norms.

c) *Fund infusion into ongoing initiatives to invigorate their scale-up.*

- The Social Mobilization Network (SMNet) is the core of UNICEF India's polio eradication programme, and a key reason for its strong level of community ownership and success. Launched in the northern state of Uttar Pradesh in early 2001, the SMNet was created to tackle resistance to OPV, often due to Muslim parents fearing that the regular polio campaigns were a plot to sterilise their children. In August that year, UNICEF deployed the first Community Mobilisation Coordinators (CMCs), building support for the polio programme. Gavi HSS resources funded the SMNet focus on boosting routine immunisation and working with the government to strengthen communication planning, capacity development, social mobilisation, media sensitisation, monitoring, supportive supervision, and evidence-based, real-time planning for routine immunisation activities. SMNet also played a critical role in MR campaigns in 18 states with commendations from state government in overcoming major bottlenecks. Consequently, the Ministry of Health and Family Welfare at the national level has progressively funded the states Uttar Pradesh and Bihar to fully own and govern SMNet through PIPs. The Social Mobilisation Network (SMNet), a network of 8000+ transformed HR in size, geographical and programmatical scope and is completely owned by the state government in Uttar Pradesh and Bihar.
- India registered its last case of polio in January 2011, and the South-East Asia Region of WHO was certified polio free on 27 March 2014. The WHO National Polio Surveillance Project (NPSP), along with other partner organisations, played a critical role in making this monumental public health accomplishment possible. The National Polio Surveillance Project (NPSP) played a critical role in achieving and maintaining India's polio-free status. NPSP developed an extensive network of human resources, infrastructure, and support to GoI at the union, state, and sub-state levels. While initially focused exclusively on polio eradication, NPSP gradually expanded its activities to include support for RI, measles elimination, rubella, and congenital rubella syndrome control and multiple other public health initiatives. With Gavi funding, WHO expanded VPD surveillance to 17 states during HSS2 period against the target of 15 states with more than 5,200 sites added since January 2020. This expansion was achieved during the Covid-19 pandemic and guidelines for conducting surveillance activities during the Covid pandemic were drafted and shared with states. The MoHFW established the Core Group for Polio Legacy Transition Planning for WHO NPSP which developed the NPSP Transition Planning Framework (2018-2021 and 2022-2026). Under polio transition, NPSP is expected to continue to devote its time and efforts towards keeping India polio-free, strengthening RI, and accelerating progress towards vaccine-preventable disease elimination goals. NPSP will also support strengthening urban health programmes, particularly those addressing immunisation coverage and equity issues.

4. Findings

4.1 Sustainability of Gavi investments

4.1.1 eVIN system sustainability challenges must be addressed

Context and Criteria

In the period 2012-13, the Immunisation Technical Support Unit (ITSU) and Government of India i.e., Ministry of Health and Family Welfare (MoHFW) developed an idea of having a system that could give the Universal Immunisation Programme (UIP) visibility into its vaccine stock balances held across the country. The country was experiencing vaccine stock outs and challenges with vaccine expiry management. ITSU developed an SMS-enabled real time management information system (MIS) for cold chain and vaccine logistics management (VLM) and rolled it out in two districts of Uttar Pradesh i.e., Barelly and Shajahanpur. The goal of the system was to enable:

- Use of real-time of vaccine stock data to hold those at every level accountable for maintaining cold chain temperatures, overstocking and stock outs.
- Allow programme managers to perform corrections and ensure accountability at all levels of the supply chain.

The pilot was successful, and this formed the basis for the HSS 1 (2014-2017) proposal to Gavi for the development of the electronic Vaccine Intelligence Network (eVIN) with the United Nations Development Programme (UNDP) as the partner chosen by the MoHFW to support the implementation. Since 2015, India has had a phased rollout of the electronic Vaccine Intelligence Network (eVIN) and the system had been scaled nationally (i.e., all 36 states) in all public health facilities to oversee the logistics of India's Universal Immunisation Programme (UIP) by end of 2020.

In the period May to July 2021, UNDP executed major changes to the eVIN system aimed at improving the sustainability of the system by:

a) Developing an open-source product as the previous version of eVIN developed by Logistimo was not a fully open-source product.
b) Changing ownership of the intellectual property rights (IPR) as the previous eVIN was an off-the shelf product, hence IPR was with the vendor (Logistimo). It was important that IPR belongs to Ministry of Health and Family Welfare.
c) Adding further features including indent management and reports
d) Developing application programming interfaces to easily integrate with other systems.

The new version of eVIN i.e., eVIN Advanced Edition (eVIN AE) was simultaneously rolled out across the country on 1st August 2021.

Gavi (through UNDP) has to date invested over USD 67 million in the period 2015-2022 (HSS 1 and HSS 2) for the development and implementation of eVIN. This eVIN costs represent 34% of total HSS support to India in this period.

To respond to the growing needs of the Covid-19 vaccination response, the MOHFW developed the Covid-19 Vaccine Intelligence Network (CoWIN) digital platform to complement eVIN and facilitate the delivery of Covid-19 vaccines. Gavi (through UNDP) funded the development and deployment of CoWIN with over USD 15 million (using COVAX Delivery Support early access and needs-based grant funding).

The Government of India has also initiated a pilot to leverage the learnings from CoWIN for the last-mile data digitisation of immunisation services under the national Universal Immunisation Programme (UIP). A new UIP module (U-WIN) is being developed under CoWIN, which will enhance its use for routine immunisation. It will digitise the registration and vaccination of pregnant women, vaccination of their new-born babies, and subsequent vaccination events. It will feature individualised tracking of beneficiaries including vaccination status, digitisation of

session planning, and updating vaccination status and service delivery on a real-time basis. It is hoped that this will not only improve the delivery of routine immunisation services but also facilitate a special intervention for reaching zero-dose children and missed communities. The linking of CoWIN to eVIN for all vaccines in UIP will provide end-to-end visibility of vaccine stocks, facilitate last-mile delivery and beneficiary tracking to improve timeliness of vaccination, reduce drop-out, and promote equity in vaccination coverage. Thus, while the story of CoWIN started during the Covid-19 pandemic, the initiative will not end with the pandemic: it will continue into a repurposed digital platform for more health use-cases. Gavi is planning to finance these CoWIN enhancements through the HSS 3 (2023-2025) grant.

ISO/IEC 27002:2013 (Information security standard) statement on operations security, states that, *"backup copies of information, software and system images should be taken and tested regularly in accordance with an agreed backup policy"*

Condition

Sustainability of the eVIN system requires for all costs, fixed and operational, to be transitioned to national and state budgets. The audit team reviewed the eVIN system and noted the following gaps:

There was no comprehensive plan to transition all Gavi supported eVIN costs at national and subnational levels – While the MOHFW had requested all states to include human resource and other operational costs in the 2022-2024 budget format, we noted the following at the time of the audit:

- Data for eVIN was hosted on an amazon third-party server and all costs were Gavi-supported. The Ministry had not completed planning for a cost schedule to include in the national level budget. Additionally, other costs including system upgrades, patch management, quality assurance, preventative and reactive maintenance for temperature loggers at the GMSDs, project management had not been costed or included in the national budget.
- The costs schedule shared with the states did not include costs for preventive maintenance, calibration, or replacement costs for temperature loggers. Consequently, state budget planning did not include these costs for 2023.
- 11/36 states/UTs had not included human resource costs in their state budgets at the true cost of the staff required. As a result, top up salaries were provided through Gavi support.
- 27 staff were deployed at national and regional levels and another 673 staff at sub-national level. All national level staff were Gavi-supported in 2022. At subnational level 313/673 (47%) were fully funded through Gavi support while 259/673 received top ups. In total, 572/673 (85%) of the sub-national level staff were funded through Gavi support. There was a plan to transition 313 subnational level staff by December 2022, leaving 259 (38%) of sub-national level staff unfunded.

There was no change management policy resulting in a loss of vaccine transaction data – A change management policy was not in place to assure the transition and security of data assets in event of a shift between vendors. Furthermore, the vendor licensing and intellectual property rights with the first version of the eVIN system development were not well defined. This resulted in a loss of data within the system when vendors were switched. Vaccine stock transactions data for the six and half year period (2015 to July 2021) was not available in the eVIN system. All sampled vaccine stores (GMSDs, SVS, DVSs and CCPs) did not have access to this vaccine stock transactions data and the required data extraction required additional resources at national level to retrieve missing data as there were no readily available back-ups or evidence of

While the eVIN investment was implemented through UNDP, the overall responsibility for the eVIN system is MoHFW/UIP who will be responsible for addressing the recommendations and sustaining the system after transition.

Recommendation 1

To address the sustainability challenges identified UIP should:

- Request and review a comprehensive quantification of all fixed and recurring operational costs for eVIN maintenance and ensure all costs are included for national and state level planning;
- Ensure that a comprehensive transition plan detailing all associated costs required to operate and maintain eVIN at state and national level is developed; and
- Ensure that the plan is used as resource mobilisation tool with the MoHFW to ensure eVIN operational costs are budgeted for and fully financed.

Recommendation 2

To address gaps identified in policies, UIP should liaise with UNDP to ensure that that the following mitigating actions are taken prior to handover of eVIN to UIP:

- Develop a policy to manage data governance, master data management, and change management. This will be critical as eVIN management is transitioned to the UIP;

data backup and restoration testing for this period. This resulted in limited usability of historical system data for decision making at national and subnational levels. Data analysis and trend review was reliant on manual documents. Additionally, in the absence of system records, the audit had to rely on incomplete manual records. See detailed findings in section 4.2.2

Vaccine data was not updated in a timely manner - The audit team also noted that the system is not updated in a timely manner as evidenced by the volume of stock adjustments during our field work. In the period 1 to 22 September 2022 (period of audit field work), stock edits amounting to 98,598,986 doses/pieces were made in the four sampled states. This represented a 43% increase in stock edits made in the previous month (August 2022) and a 172% increase in adjustments made in the month of July 2022. We noted that 30% (29,114,451 doses/pieces) of the adjustments made had no justification documented in the eVIN system, stock adjustments without justifications were 41% of July 2022 adjustments and 34% of the August 2022 adjustments. The audit team also noted that stock adjustments (i.e., stock edits) in eVIN are made without a review and approval process.

Data restoration testing was not done – For the period August 2021 to September 2022, backups were completed but restoration testing was not done. There is therefore no evidence that data can be restored in a timely manner in event of a failure in the system. Additionally, there was no guidance on restoration of eVIN system backed up data.

Inadequate technical resources for project management and implementation – eVIN system development, project management and quality assurance for eVIN were all outsourced by UNDP. There was no sufficient in-house technical capacity at either UNDP or MoHFW (UIP) to offer technical oversight of system development, deployment and change management processes.

There were gaps in the follow up of IAG directives during project implementation – Some IAG directives were not implemented. Examples include:

- *System integration* - On 29 April 2019, The IAG Chair requested that implementing partners complete the full and comprehensive integration of eVIN and NCCMIS by November 2019. The partners were reminded to complete the integration at the IAG meeting on 17 Sep 2019 and again at the meeting on 23 April 2022. The integration was still not done by end of audit work in September 2022.
- *eVIN costs and budgeting* - On 3 January 2018, UNDP was directed to consult all 24 states where eVIN was to be scaled up on human resource salary structure and take consent of the states and share with MoHFW before any process of recruitment is undertaken. On 16 May 2018, The IAG chairperson noted concerns raised by some states on the salary structure of HR under the eVIN project and directed UNDP to rework the salary structure in consultation with MoHFW and respective states. On 18 February 2020, the IAG Chairperson raised concerns on the non-achievement of the targeted 15 states for eVIN transition by December 2019. At that time, only 12 states had been partially transitioned and salary top ups were being paid by UNDP which is not a sustainable model.

- Revise the current data back policy documentation to include a schedule for restoration testing of backups including frequency of restoration tests, responsible parties for both test management, reporting and quality assurance of successful tests completed;
- Include a system protocol/permission that does not accept stock adjustments without required approvals. This protocol should be in place for all system users in eVIN. Super users should also include approvals before adjustments are made to maintain the integrity of data; and
- Define the minimum vaccine stock data transactions required from the eVIN database together with UIP. These definitions should be used to determine future transaction back-ups and data required from previous vendor.

Recommendation 3

To address gaps identified with project management capacity, the UIP should liaise with UNDP to consider obtaining a suitably qualified in-house resource to oversee the various IT investments including eVIN, U-WIN, CoWIN and NCCMIS. Core competencies in design and implementation of digital systems, database management, security and compliance should be obtained to oversee implementation of software development processes and ensure quality, security and availability of data assets.

<table>
<tr><td colspan="2">Post audit - At the end of the audit, Gavi country management included a provisional lumpsum of $1.4 million in the 2023 to 2025 strategic plan and budget. These funds will be used to support the transition in 2023.</td><td colspan="2"></td></tr>
<tr><td colspan="2">Root Cause

The audit team noted the following root causes:
• While transition planning had commenced, there was no overall cost schedule to ensure all fixed and operational costs were known and budgeted for;
• Gaps in policies and guidance to support project management;
• Gaps in policy and guidance to support integration of systems developed by partners;
• Inadequate training when the advanced edition of eVIN was rolled out; and
• Lack of in-house technical resources for programme management.</td><td colspan="2">Management comments

See detailed management responses - <u>Annex 11</u></td></tr>
<tr><td colspan="2">Risk / Impact / Implications
• As India is in the accelerated transition phase, meaningful and specific consideration of the sustainability dimensions of Gavi investments such as eVIN is critical. The issues noted above impact the sustainability of the eVIN system. While there are inherent limitations imposed by implementing a system within a federalised context, there is a risk that user challenges and inability to absorb operational costs especially at subnational levels may result in switches to other systems. The audit team noted two states that were considering using other systems (instead of eVIN) and the switch would limit the return on Gavi's over USD 67 million investment.
• The lack of data back up and restoration policy limits UIP's ability to recover to optimal operation efficiency in event of data loss due to system failures, ransomware, or malicious action by internal staff or external vendors.
• Inaccurate and incomplete vaccine data throughout the system limits the states and UIP's ability to use system driven real time data for decision making and does not achieve the objective of having visibility over stock balances at all levels in the country. This would compromise the country's immunisation goals and Gavi's mission.
• Sustainability concerns for eVIN may also impact the investments in CoWIN and U-WIN investments as system and other operational costs would transition from Gavi support by 2025.</td><td>Responsibility

MoHFW</td><td>Deadline / Timetable

31 December 2024</td></tr>
</table>

4.1.2 Security exposures in the National Cold Chain Management Information System need to be addressed

Context and Criteria

In 2014, the UIP piloted the National Cold Chain Management Information System (NCCMIS) for real-time monitoring and management of cold chain equipment. HSS 2 (2017-2021) funding from Gavi was utilised to accelerate NCCMIS implementation across all the states. Gavi (through UNICEF) invested USD 1.2 million for augmentation of NCCMIS and USD 0.5 million for development of a monitoring and supportive supervision application. NCCMIS was expanded to six modules including cold chain equipment inventory, cold chain equipment spare parts, immunisation training management information system (iTMIS), EVM continuous improvement plans, dashboard for UIP and Support supervision for Immunisation(S4i). Implementation of NCCMIS and the Support Supervision application was executed through the the National Cold Chain and Vaccine Management Resource Centre (NCCVMRC) which is under the National Institute of Health & Family Welfare (NIHFW).

The National Institute of Health and Family welfare (NIHFW) India adopted ISO 27799:2016 – Health informatics as the basic advisory standard for security management for systems and web applications. ISO 27799 states the following on encryption and its use on web and mobile applications:

- *"Generally, all electronic health information must be encrypted and decrypted as necessary according to organization defined preferences in accordance with the best available encryption key strength (minimum 256-bits key*).
- *During data exchange all electronic health information must be suitably encrypted and decrypted when exchanged in accordance with an encrypted and integrity protected link.*
- *Secure Transmission standards and mechanisms must be used to allow access to health information as well as transmit data from one application / site to another. For this purpose, HTTPS, SSL v3.0, and TLS v1.2 standards should be used."*

ISO 22600:2014 Health informatics – Privilege Management and Access Control (Part 1 through 3) implementation guideline provides an advisory standard for policy-based access control. The section on audit log states that:

- *"All actions based on user-defined events must be recorded.*
- *All or a specified set of recorded audit information, upon request or at a set period of time, must be electronically displayed or printed for user/administrative review."*

ISO/IEC 27002:2013 (Information security standard) Statement on operations security, states that backup copies of information, software and system images should be taken and tested regularly in accordance with an agreed backup policy. ISO 27001 / ISO 27002 (Information security standard) sets the minimum requirements / recommended controls including the requirement for a password policy outlining complexity requirements, periodic password resets, and best effort technical controls. The standard requires a system developer to:

- *Enforce the use of individual user IDs and passwords to maintain accountability.*
- *Allow users to select and change their own passwords and include a confirmation procedure to allow for input errors.*
- *Enforce a choice of quality passwords.*
- *Force users to change their passwords at the first log-on.*

- *Enforce regular password changes and as needed.*
- *Maintain a record of previously used passwords and prevent re-use.*
- *Not display passwords on the screen when being entered.*
- *Store password files separately from application system data.*
- *Store and transmit passwords in protected form.*

Condition

We noted the following gaps in the NCCMIS system:

NCCMIS was not compliant with security standards as defined by ISO 27799:2016 – The NCCMIS system is within the public domain and required to be accessible at state and district levels. However, first level authentication using Secure Sockets Layer (SSL) was not installed on the NCCMIS web application or any of the modules (i.e., iTMIS, support supervision, EVM, S4i). This means that the data sent between the NCCMIS online portal, and the web server was not secured from malicious attacks or manipulation. See Annex 6 for screenshot of portal.

Security assessments were not completed – Security assessments are required by ISO/IEC 27001. The IAG had also requested that security assessments be completed on the NCCMIS system on the 29th of April 2019 meeting. There were no security assessments completed at the time of the audit and no follow up to the IAG directive.

There were gaps in data backup and restoration testing management for NCCMIS – While there was an email indicating that the latest back up was done on 17th March 2022, there was no documented evidence of this back up (i.e., backup log) and no restoration test was completed as required by ISO/IEC 27002:2013. Best practice requires that important data should be backed up at least once a week, but preferably once every twenty-four hours.

Weak password controls on NCCIMIS database- There is no password policy defined for the NCCMIS system in line with ISO 27001. Consequently, plain text and unencrypted passwords were used on the NCCMIS database table (i.e., *dbo_Login*). This could lead to security breaches, data loss and corruption of data. See Annex 6 for screenshot of password controls.

There was no audit log for the NCCMIS system – There was no audit log to track user actions maintained for the NCCMIS application. This may inhibit trouble shooting and reconstruction in the event of any security breaches.

NCCMIS system modules were not used as intended – Examples noted include:

- The 2018 national level EVM improvement plan was not uploaded to the EVM module of the system, we noted that of the 11-state level EVMs that had been completed, only two (i.e., Bihar and Madhya Pradesh) had been uploaded into the EVM module.
- Trainings conducted were not uploaded to the iTMIS module e.g., Gavi funded UNICEF BRIDGE and RISE trainings.

Recommendation 4

NCCVMRC should procure and setup Secure Socket Layer (SSL) certificate for the NCCMIS domain to ensure web traffic for the application is encrypted.

Recommendation 5

The UIP should commission a comprehensive security audit of the NCCMIS mobile, web and database application.

Recommendation 6

NCCVMRC should implement audit trail for user actions and encrypt all passwords stored on the NCCMIS database.

Recommendation 7

NCCVMRC should ensure that all modules are utilised and with support from UIP should engage states to ensure that missing data is input into the system.

Recommendation 8

NCCVMRC should Institute policies in place to manage data governance, master data management, and change management and include a schedule for restoration testing of backups as part of the data backup policy including frequency of restoration tests and responsible parties for both test management, reporting and QA of successful tests completed.

- Preventive maintenance plans of all cold chain equipment across the country were not included in the CCE module of NCCMIS.
- Preventive maintenance logs of all cold chain equipment across the country were not included in the CCE module of NCCMIS.

There were insufficient technical resources to support project implementation–There was no technical capacity to offer technical oversight of system development and deployment at either NCCVMRC or MoHFW (UIP). Several directives of the IAG including the need for integration of eVIN and NCCMIS and the need for a security audit on NCCMIS (both issued on 29th April 2019) were not implemented. Consequently, the NCCMIS and the support supervision application were deployed without sufficient quality assurance performed on software development tasks and with no security assessment completed on the applications.

Gaps in the design of the support supervision application linked to NCCMIS **-**The Support supervision app version 2.0 does not have complete data validation on some text fields. The audit noted that numeric/number inputs were allowed in text fields- under the routine immunisation district communication monitoring form, the fields (text fields) of "*Name of Monitor*" and "*Designation*" allow for numeric and special character inputs as opposed to only text inputs, additionally there is no staging area in the central database repository where data cleaning can be performed.

Root Cause

- The were no documented policies to guide data backup and restoration testing at NCCVMRC.
- There are no documented policies to guide security audits for systems developed and IAG directives on the need for security audits were not implemented.
- There are no documented policies to guide password management for the database and application.
- NCCMIS was not rolled out to all states to ensure data is input in all system modules. The audit team noted that all sampled state and district stores visited had no access to NCCMIS.

Management comments

See detailed management responses - ***Annex 11***

Risk / Impact / Implications	Responsibility	Deadline / Timetable
Exposure of the NCCMIS application to security risks like confidential data leakage, phishing attacks and insertion of malicious content to the web application by hackers. The NCCMIS system could also expose other systems within the immunisation space to bugs and data breaches should it be integrated to eVIN and/or CoWIN.	MoHFW and NCCVMRC	31 December 2024

4.1.3 The various immunisation and logistics systems need to be integrated

Context and Criteria

India has several immunisation data systems as noted under section 3.4 and 3.6 of this report. These systems include HMIS, eVIN, CoWIN, ANMOL, RCH portal and several other systems developed by states. Some these systems are utilising the same data variables and tracking similar reproductive and child health indicators.

Gavi has made significant investments in IT systems including eVIN (USD 67 million in the period 2015-2022 (HSS 1 and HSS 2), CoWIN (over USD15 million (CDS Early access and CDS Needs based grants), ANMOL (over USD 7 million through HSS 2), NCCMIS and support supervision (over USD 1.5 million). Gavi is also planning to invest significantly in U-WIN in the HSS 3 period.

Gavi developed target software standards for vaccine supply chain information systems to include open standards for data exchange of key metadata, facilities, and products, (*interoperability*) using industry data standards (e.g., GS1 and HL7), support for data acquisition from barcode readers and remote temperature monitoring devices.[19]

Condition

The audit evaluated the interoperability of the systems operating within the immunisation space, including those supported by Gavi. eVIN and NCCMIS remain the main vaccines logistics system utilised across the country managing vaccine stocks and cold chain equipment respectively.

We noted the following:

- eVIN includes an asset module and a temperature monitoring module. However other Gavi supported assets that do not require automated temperature loggers like vaccine carriers are not included in the assets.
- NCCMIS has a listing of all assets that do not require automated temperature loggers. However, the system does not have a complete record of other assets. NCCMIS utilised the eVIN assets listing to update the assets listing resulting in duplicate data sets. NCCMIS however remains reliant on eVIN for completeness and accuracy of electronic cold chain equipment.
- Use of NCCMIS is limited at subnational levels.
- There were no third-party integrations between eVIN and NCCMIS.
- There were no third-party integrations between eVIN, NCCMIS and other immunisation data systems like HMIS and RCH portal.
- eVIN is integrated to CoWIN and there is a plan to integrate to the U-WIN system which will include all universal immunisation data. However, the integration of data within the RCH portal is still unclear as the system is in development.

Recommendation 9

The MoHFW should establish a process to integrate its systems containing vaccine and logistics data, by establishing a singular data warehouse to improve visibility and reduce cases of duplication of data points.

[19] Gavi targeted software standards

There are systemic challenges inherent in the interoperability and sustainability of existing systems, as their operation is reliant on limited human resources at subnational level to ensure that data is complete and accurate. There is therefore a need for integration of systems to ensure:

- one point of data entry for required immunisation information i.e., immunisation data entered should be accessible at national and subnational levels.
- one point of entry for vaccines and vaccines logistics information to enable management of the vaccine supply chain.
- An interface with required dashboards to support decision making at national and subnational levels.
- Integrated support at national and state levels to provide trouble shooting and other system support.

Root Cause

There is insufficient technical expertise to manage and oversee all system related investments, consequently, systems were not designed with interoperability considerations.

Management comments

*See detailed management responses - **Annex 11***

Risk / Impact / Implications

Limited interoperability creates data redundancies and risk that the ongoing operation of systems, including those which are Gavi supported, may not be sustainable.

Responsibility	Deadline / Timetable
MoHFW	31 December 2024

4.2 Vaccine Supply Chain Management

4.2.1 Physical and human resource capacities at the GMSDs need improvement

Context and Criteria

India has a tiered immunisation supply chain structure with Government Medical Supplies Depots (GMSDs) under the Medical Stores Organisation (MSO) being one of the primary storage mechanisms. The Medical Stores Organisation (MSO) is a sub-ordinate wing of the Directorate General of Health Services under the Ministry of Health & Family Welfare. MSO has seven Government Medical Store Depots (GMSDs), in New Delhi, Mumbai, Kolkata, Chennai, Hyderabad, Karnal & Guwahati[20]. Routine immunisation vaccines are stored at four depots located in Karnal, Mumbai, Kolkata and Chennai for northern, western, eastern and southern states of India respectively.

GMSDs receive routine vaccine supplies for 17 states and Union Territories and supply the remaining 19 states and Union Territories on a call basis from buffer stocks. 19 States receive routine vaccines directly from the manufacturer as well as from GMSDs.[21] Additionally, the GMSDs are the repository for spare parts for cold chain equipment across the country from which States requisition through the NCCVMRC. The GMSDs received 25% of Covid-19 vaccine doses and syringes in 2021-2022[22]. GMSDs are therefore a critical component of the immunisation supply chain structure in India.

Section 7.3.7 of the Procurement and operational manual for Medical Stores Organisation (MSO) and Government Medical Store Depots (GMSDs) requires maintenance of accurate stock records with the minimal information that should be collected on stock records for medicines and other health supplies including: Product name/description (including the form [capsule, tablet, liquid suspension, vials, doses] and strength), Stock on hand/beginning stock balance, Receipts, Issues, Losses/Adjustments, Closing/Ending Balance, Transaction Reference.

The section further states that, "*Depending on the system, stock records might also include additional product information such as; Special storage conditions (2°–8°C), Unit Prices, Lot Numbers/Bin Locations, Item Codes, Expiry Dates, Manufacturing Date*."

Section 7.3.8 states that, "*A complete inventory should be taken at least once a year. More frequent inventory (quarterly or monthly) is recommended*."

[20] About Medical Stores Organisation

[21] 2018 EVM assessment report

[22] 2021-2022 Annual report Department of Health & Family Welfare, Ministry of Health & Family Welfare, Government of India

Condition	Recommendation 10
The audit team visited all four GMSDs across the country where vaccines are kept and noted the following gaps. ***Limited storage capacity at the GMSDs*** **-** The GMSDs had inadequate space with two of four GMSDs leasing additional storage space. The following examples were noted during our visit: • All the cold rooms at the GMSD in Kolkata were filled right to the entrance and stock counts could not easily be performed. • 11% of walk-in cold rooms and walk in freezers at all GMSDs were not functional and four of the walk-in freezers at GMSD Karnal had been condemned. See Annex 7d for listing of non-functional cold rooms. • Vaccines stored at the external locations consisted of in walk in fridges/freezers which contained other items including foodstuffs in contravention of the principles of good vaccine storage. The GMSDs opted to contract and pay external providers for additional capacity based on the surface area required, rather than leasing entire storage units. See Annex 7a for an example of third-party storage conditions. ***Stock outs at GMSDs*** **-** The audit team reviewed vaccines records across seven antigens and identified various stock out incidents. Stock outs ranged from one to 161 days and the average number of stocks out days for the seven sampled antigens was 85 days. See Annex 7b for details. Examples include: • Stock outs of at least one antigen for a sample of seven[23] antigens at all four GMSDs. • The GMSD in Chennai had the highest stock out rate with four of seven sampled antigens stocked out in the period of review. Notable stock outs at GMSD Chennai included 161 days for the OPV Vaccine, 130 days for the MR vaccine and 99 days for the Rota Virus vaccine. • The Kolkata GMSD stocked out for two of seven sampled antigens with the MR vaccine being stocked out for 52 days and Covishield vaccine being stocked out for 17 days. • The Mumbai GMSD was also stocked out for two of seven sampled antigens with 43 stock-out days for both the Rota Virus and Covishield antigens. • The Karnal GMSD was stocked out of one of seven sampled antigens with the Covishield antigen stocked out for 48 days. ***Gaps in the conduct of periodic stock counts*** **-** There was no evidence of periodic stock counts at three of the four GMSDs visited. At the Chennai GMSD while there was evidence of stocktakes, there were no investigations of any variances identified. The audit team performed a stock count on the date of visit and noted the existence of variances between the manual and eVIN records at all four GMSDs. See Annex 7c for details.	The UIP should work with the Directorate of Health Services to ensure that an appropriate level of staff are deployed at the GMSDs. Recommendation 11 The UIP should work with the Directorate of General Health to ensure that condemned cold rooms at the GMSDs are decommissioned to free up space so that replacement walk-in cold rooms can be installed. Recommendation 12 The MoHFW should develop a standard operating procedure to guide GMSD staff on inventory counts and adjustment procedures. All inventory adjustments in eVIN should be approved by an appropriate level of management. Recommendation 13 The GMSDs should put in place robust service level agreements with private firms providing cold chain storage services, which includes the stipulation of ensuring proper storage for vaccines.

[23] Vaccines sampled to check for stock outs included Pentavalent, Rota Virus, PCV, Measles Rubella, Covishield, BCG and OPV

Limited human resource capacity for vaccine management at GMSDs- We noted that the GMSDs were understaffed with key vaccine stock management staff positions vacant. We noted that staff had been seconded from UNDP to manage eVIN related operations, however, this is not sustainable.

- None of the GMSDs had a designated cold chain officer or technician to oversee managed cold chain equipment.
- At the GMSD in Karnal, 36% (26/72) of the sanctioned strength or staff positions were vacant with key missing staff including: 1 Depot Manager, 2 Assistant Depot Managers, 4 Depot Superintendents etc. See Annex 7e for details of vacant positions.

Root Cause

- There is limited physical space at the GMSDs to aid the installation of new Walk-in-Cold rooms (WIC). Condemned WIC have not yet been decommissioned - decommissioning would create space for installation of new cold rooms.
- None of the GMSDs visited by the audit team had received any support supervision from the MOHFW over the 12 months prior to the date of visit to identify issues and resolve them.
- There was no evidence that staff at three of the four GMSDs had received training on vaccines stocks management over the period 2019 to 2022.
- There was no documented protocol to guide the personnel on routine inventory counts including investigations for any variances that may be detected during the exercise. We also noted that stock balances in eVIN were adjusted using the stock edit function without prior approval, see issue on 4.1.1.
- The 2018 EVM report recommended positions of a dedicated post of Cold Chain Technician and WIC/WIF operator at each GMSD. It also recommended training of GMSD staff within the immunisation supply chain with regular support supervision. These actions had not yet been implemented.

Management comments

*See detailed management responses - **Annex 11***

Risk / Impact / Implications

- Vaccine potency may be compromised if vaccine storage conditions are inadequate.
- Vaccine stocks outs could interrupt achievement of immunisation coverage targets.
- Weaknesses in stock count and edit process may lead to gaps in vaccine accountability.

Responsibility
MoHFW

Deadline / Timetable
31 December 2024

4.2.2 Stock management practices at sub-national level need to be strengthened

Context and Criteria

80% of routine immunisation vaccines are delivered directly to the state vaccine stores which supply vaccines to the regional/divisional and district level vaccine store. The district vaccine stores then supply vaccines to cold chain points (CCPs) located at Community Health Centres, Primary Health Centres, Urban Health Centres, and at Sub-centres across the country. See Annex 7f for supply chain structure. For the sampled states visited by the audit team, a mixture of push and pull systems were being utilised with the lower tier store collecting vaccines from the upper tier in most of the cases. A combination of manual and electronic records are used to monitor the inventory of vaccines. Stock registers are utilised for manual entry of vaccine transactions while eVIN was used as the electronic inventory management tool capturing stock received, stock issued and stock adjustments (stock edits).

Section 2.3 of the WHO Guidelines on stock records for immunisation programme and vaccines store managers states that, "*Minimum/maximum (min/max) inventory control system is recommended in vaccine stock management in which, each organizational level of the programme is assigned maximum and minimum levels for its supplies. Using a min/max inventory control system will help managers to prevent both over-stocking (which leads to higher wastage) and shortages or stock outs of vaccine and other Immunisation supplies*" The MoHFW has set a stock holding threshold of 0.75 months for state, Division and district vaccine stores.

Section 2.5 of the WHO Guidelines on stock records for immunisation programme and vaccines store managers provides the minimum information required to be recorded during the receipt and distribution of vaccines as; type of vaccine, presentation (vial size), quantity received (doses), vaccine manufacturer, manufacturing batch or lot number or numbers (there may be more than one batch or lot in a consignment, expiry date for each batch and status of temperature monitoring indicators.

Section 3.3 of the WHO Guidelines on stock records for immunisation programme and vaccines store managers recommends that physical stock checks should be completed on a monthly or three-monthly period and in addition to monthly or three-monthly checks, an annual physical stock check is also essential. WHO further guides that corrected balances identified should be entered on a separate line in all related cards such as batch card, inventory stock card, and/or stock ledger, below the old balance, and a note should be written with responsible staff signature beside it, to indicate that a physical check has confirmed the new balance.

Condition

No evidence of periodic vaccine stock counts done – There was no documentation to demonstrate that physical stock counts of vaccines were conducted at one of four state vaccine stores (SVS), seven of 21 Division and district vaccine stores and 54% (38) of the CCPs visited by the audit team.

Variances noted on executing a stock count -The audit team conducted a physical stock count on the day of visit and noted variances between physical and manual stock records at two of four state Vaccine stores, four of 21 Division and District Vaccine Stores and, 57% (40) of the CCPs. Similarly, variances were noted between the physical and eVIN system stock balances at three of four SVS, four of 21 Division and District Vaccine Stores and 59% (41) CCPs. See Annex 7g for details.

Variances noted on stock reconciliation - The audit team performed vaccine stock reconciliations for the period January 2022 to the day of the audit (i.e., opening stock plus receipts less issuances and wastages) and noted variances at one of four state Vaccine Stores, four of eight Division and District Vaccine Stores and 71% (50) CCPs that had complete inventory records for the review period. These variances were mainly because of data entry omissions, incorrect entries on the stock cards and other arithmetic errors that further compounded the variances in stock reconciliation results for the sampled vaccine storage points. See Annex 7g for details.

Recommendation 14

The UIP should work with states to strengthen support supervision arrangements related to stock management at the subnational level.

Recommendation 15

The UIP should work with states to provide training and standard operating procedures and/or job aids for sub national level staff on:

- Recording the results of each physical stock count, investigating the variances, reconciling with the stock records, and documenting the whole process along with justification for adjustments; and

Stocks were below the minimum recommended by the MoHFW – Low stock levels were noted at state, division and district vaccine stores. See Annex 7g for details. ***Stock outs and sub-national level*** – The audit team noted stock outs of at all four SVSs. The average number of stock-out days for all antigens was 96 and the maximum number of stock-out days for a single antigen was 239 for the MR vaccine. At all 21 division and district vaccine stores visited, the average number of stock-out days for all antigens was 69 and the maximum number of stock-out days for a single antigen was 374 for the OPV vaccine and 224 for MR. See Annex 7h for details.	• Reviewing the consumption patterns at the corresponding subsidiary level before re-supplying their direct reports with further vaccines.
Root Cause Several root causes were identified including: • There was no documented protocol to guide personnel on routine inventory counts including investigations for any variances that may be detected during the exercise. • eVIN stock balances were adjusted during fieldwork without support of stock takes or approval for the significant variances. • There was no documented evidence of support supervision from the central level at all the three regional and six provincial/city vaccine storage points visited. The audit team also noted no documented evidence of support supervision at 37% (14/37) of health facilities on from the province.	Management comments *See detailed management responses - **Annex 11***

Risk / Impact / Implications	Responsibility	Deadline / Timetable
• Vaccine stocks outs could interrupt achievement of immunisation coverage targets. • Weaknesses in stock count and edit process may lead to gaps in vaccine accountability	MoHFW	31 December 2024

4.2.3 Temperature monitoring and mapping was inadequate and needs to be addressed

Context and Criteria

Delivering vaccines to all corners of the India can be a complex undertaking. It takes a chain of precisely coordinated events in temperature-controlled environments to store, manage and transport these life-saving products. The climate in India is frequently warm, with an annual average of 32 degrees centigrade[24] and yet vaccines must be continuously stored at a relatively constant cool temperature range – from the time they are manufactured until vaccination. This is because temperatures that are too high or too low can result in vaccines losing their potency. Once a vaccine loses potency, it cannot be regained or restored[25]. Monitoring temperature data can therefore help verify that cold chain equipment is functioning as needed to protect vaccine potency, and, when out-of-range temperatures are detected, enable corrective action to be promptly taken.

Section 8.3 of the Procurement and operational manual for Medical Stores Organisation (MSO) and Government Medical Store Depots (GMSDs) states that, "*Temperature monitoring devices i.e., Wireless data loggers and electrical switches/lightning etc should be at appropriate places. Please note that one power switch at the vehicle loading place should be installed for running refrigerator of transporting van*."

Section 8.5 states that, "...*The chances of breakdown of cold chain during the transportation of the vaccines are very high. There is need to monitor temperature during entire period of transportation of vaccines from dispatch to receipt*..." The section further states that, "...*The precaution one should take that temperature sensors should be regularly calibrated as per manufacturer's guidelines*..."

Section 8.6 states that, "...*The staff of Store-3 Section of all GMSDs responsible for receipt, storage and dispatch of Vaccine / Sera and other cold chain items will be imparted training for cold chain maintenance management. The training and orientation programme will be arranged by MSO*..."

The primary level stores (i.e., GMSDs and state vaccine stores) in India hold millions of dollars' worth of vaccines. The walk-in cold rooms (WIC) and walk-in freezers (WIF) at these primary stores have varying sizes ranging from 16 to 100 cubic meters. The WICs and WIFs also have varying shapes including squares, rectangles and L-shapes. Temperature mapping to ensure that every part of the WICs and WIFs can maintain a stable temperature during use is critical. The WHO effective vaccine management (EVM) initiative sets standards for safe vaccine handling and storage to ensure that heat and freezing temperatures do not damage vaccines. The standards require all vaccine cold and freezer rooms to be temperature mapped routinely every 2 years[26].

Condition

Temperature monitoring at receipt and during distribution of vaccines is not consistently done – There was no evidence of temperature monitoring during vaccine transportation to lower tiers at three GMSDs (Karnal, Kolkata and Chennai). Similarly, three of four State vaccine stores, 17/21 Division and District Vaccine Stores and none of the 70 CCPs had evidence of temperature monitoring during distribution of vaccines.

Temperature monitoring devices were either unavailable or were non-functional – There were no devices for continuous temperature monitoring in the walk-in cold rooms (WIC) and walk in freezers (WIF) at the GMSDs and the remote temperature monitoring and alert system (including eVIN) was not functional. Similarly, there were no devices for continuous temperature

Recommendation 16

The UIP should develop and disseminate work instructions/procedures on temperature monitoring and documentation during transit and on receipt of vaccines at the vaccine handling points.

[24] Climate in India

[25] UNICEF on importance of cold chain

[26] How to temperature map cold chain equipment and storage areas

monitoring at state, Division/District and CCP vaccine stores. The remote temperature monitoring and alert systems (including eVIN) at three of four state vaccine stores and 15/21 Division and District vaccine stores were non-functional.

The 2018 EVM report also noted that a temperature monitoring study in accordance with WHO/IVB/05.01 "Study protocol for temperature monitoring in the cold chain" had not carried out in last 5 years.

Temperature mapping of cold rooms was not done **-**We noted that temperature mapping was not done for:

- all the Walk in Cold rooms (WIC) and Walk in Freezers (WIF) at all the sampled GMSDs and state vaccine stores.
- 93% (14/15) of Division and District Vaccine stores with WIC and WIFs

This compromises the identification of optimal sites for placement of the temperature monitoring devices or sensors within the cold room.

The 2018 EVM report also indicated that temperature mapping study was not uniformly done across all states.

Recommendation 17

The UIP should work with the NCCVMRC to develop guidelines for GMSDs and states on temperature mapping and ensure that eVIN modules are activated. Costing for alerts should be completed and evaluated for frequency and functionality.

Root Cause

- There were no work instructions to guide the vaccine handlers at different points on temperature monitoring requirements for vaccines in transit and upon receipt.
- Delays in rectifying the temperature alert function of eVIN when it was disabled during the upgrade to the Advance Edition of eVIN in 2021.
- Costs for temperature alerts (SMS) were not calculated to evaluate frequency and functionality.

Management comments

- *See detailed management responses -* ***Annex 11***

Risk / Impact / Implications	Responsibility	Deadline / Timetable
Failure to monitor and document temperature of the vaccines during storage, distribution and upon receipt poses a risk of non-detection of any temperature excursions which could compromise the potency of the vaccines.	NCCVMRC & MoHFW	31 December 2024

4.3 Governance and Oversight

4.3.1 The scope of Immunisation Action Group needs to be expanded to ensure sustainability as the country transitions out of Gavi support

Context and Criteria

The MoHFW formed the Immunisation Action Group (IAG) which oversees the performance of Gavi grants. The IAG is chaired by the Joint Secretary RCH and has membership from UIP and development partners (four lead implementers UNDP, WHO, JSI and UNICEF and other immunisation partners) along with representation from NIHFW, NCCVMRC, ITSU and one CSO.

Condition

The IAG is a single governance entity which oversees the work of Gavi grant recipients implementing activities outside of government structures. We noted areas that need improvement including:

Documentation of IAG mandate: There is no documented mandate or terms of reference for the Immunisation Action Group and hence it is difficult to enforce governance administrative practices including:

- Frequency of meetings: whereas the 'undocumented' intention is to meet on a quarterly basis, the IAG only met for 40% (8/20) of meetings during the audit period 2017 to 2021.
- Structure of the IAG: The IAG does not have representation from the states who are charged with implementation of immunisation activities.
- Requirements for declaration of conflicts of interest in a multisectoral body of this nature are not followed.

The 2017 Independent Review Team (IRT) to the HSS 2 proposal also recommended that the IAG and working groups have clear terms of reference and objectives but this was not implemented.

Integration with the overall national immunisation agenda - From the review of the IAG minutes, the audit team noted that the focus of discussions is performance of Gavi grants i.e., funds absorption, challenges with implementation, grants application approvals to ensure alignment and complementarity of development partners' support. There was no integration with the national immunisation agenda to ensure oversight continues after Gavi support ceased. This is integral as India is in its accelerated transition phase from Gavi support.

Root Cause

There was no documented mandate for the IAG and working groups.

Recommendation 18

The UIP should document the mandate of the IAG to include:

- The scope of oversight within the immunisation programme to include all immunisation activities in addition to Gavi grants;
- Requirement for members to adhere to conflict-of-interest declarations best practice;
- Representation from varied stakeholders that implement the immunisation programme including states and CSOs.
- Frequency of meetings; and
- Areas of oversight including programmatic, operational, and financial management for grantees.

Management comments

*See detailed management responses - **Annex 11***

Risk / Impact / Implications	Responsibility	Deadline / Timetable
Immunisation Program is not reviewed holistically especially as the country transitions out of Gavi support.	MoHFW	31 December 2024

4.3.2 The implementation of previous EVM assessment recommendations was not yet complete

Context and Criteria

Effective Vaccine Management (EVM) is a national planning process endorsed and supported by WHO and UNICEF to assess and prioritise improvements in the immunisation supply chain managed by the Universal Immunisation Programme (UIP). EVM is embedded within the Immunisation Supply Chain (ISC) continuous improvement planning process.

Immunisation Supply Chain (ISC) continuous Improvement Plans (cIP) help countries build an evidence-based case for national supply chain investments and to develop an improvement plan that engages relevant stakeholders, thus setting the immunisation programme on a path for successful implementation.

Condition

Delayed implementation of previous EVM assessment recommendations - India carried out an EVM assessment in 2018 to assess its vaccine management for 23 states and 145 vaccine stores. The assessment indicated that all nine indicators had improved since 2013, with one indicator meeting the 80% target. The assessment gave an overall score of 68% for 2018 (an increase from the prior score of 53% for 2013).

Criteria		Scores	
		2013	2018
E1	Pre–shipment and arrival	43%	60%
E2	Storage temperature	54%	72%
E3	Capacity	63%	80%
E4	Building, equipment and transport	69%	76%
E5	Maintenance	57%	64%
E6	Stock management	51%	65%
E7	Distribution	45%	62%
E8	Vaccine Management	46%	75%
E9	MIS and supportive functions	56%	59%

An EVM Improvement plan was prepared with 32 recommendations to the MoHFW. At the time of the audit in September 2022, we noted that 44% (14/32) of these recommendations were partially or not yet implemented to mitigate the impact of the EVM assessment findings. Examples of recommendations partially or not yet implemented include:

- MOHFW to monitor use of standard GoI formats for RI supportive supervision in NCCMIS (S4I) app and triangulate it with PIP expenditure on supportive supervision at state and district levels with quarterly feedback to states.
- MOFW to issue standard guidelines for reconciliation of physical vaccine stock with store records.
- MOHFW to resend the guidelines, SOPs and formats for Planned Preventive Maintenance (PPM) of equipment to states and follow up quarterly on the number and quality of PPM.

See Annex 8 for details

Recommendation 19

The MOHFW should:

- Assess whether the status of implementation of EVM recommendations and assess whether actions taken thus far mitigate the impact of the findings of the EVM report. UIP should develop a costed action plan to address the additional gaps identified through this assessment; and
- Consider an updated EVM assessment using the new EVM2 tool to provide a more comprehensive review of the status of vaccine management.

<table>
<tr><td>Root Cause
Proposed recommendations of the EVM did not fully address the root causes and risks associated with the EVM findings. Consequently, where proposed actions were taken, the risks were not mitigated.</td><td colspan="2">
Management comments
See detailed management responses - <u>Annex 11</u></td></tr>
<tr><td>Risk / Impact / Implications
Delays in implementation of EVM recommendations can be evidenced by the challenges in vaccine supply chain management in section 4.2.</td><td>Responsibility
NCCMVMRC and MoHFW</td><td>Deadline / Timetable
31 December 2024</td></tr>
</table>

4.3.3 The implementation of Measles-Rubella Campaign in West Bengal and New Delhi was delayed

Context and Criteria

To accelerate efforts towards measles and rubella elimination, India launched a nation-wide MR vaccination campaign beginning in February 2017. The MR vaccine was launched with Gavi support in 26 states/ Union Territories and through domestic budget in eight states/UTs. To date, the MR campaign has been completed in 34 states wherein 324 million children were vaccinated against the target of 330 million with a coverage of 98%.

Condition

Delays in conducting MR campaign: While West Bengal state had the highest percentage of Measles cases representing 27% to 41% of all reported cases[27] in India over the period 2017 to 2021, the audit team noted that the Measles-Rubella campaign delayed in West Bengal and New Delhi. The UIP had targeted to immunise 25,490,000 children in West Bengal and 5,539,000 in New Delhi. These campaigns had not been implemented by end of audit field work.

Post audit events

After the audit fieldwork was completed, Gavi received an update from the country as follows;

- The West Bengal Health Department started the Measles-Rubella Vaccination Campaign (MRVC) across the state on January 9, 2023.
- Four years after Delhi's Measles-Rubella vaccination campaign was halted due to a court case on informed consent, the health department rolled out a month-long campaign in February 2023 to vaccinate all children between the ages of six months and five years, irrespective of their vaccination status.

Root Cause

- A petition filed against the MR campaign and the Delhi high court deferred the implementation of the MR campaign by the Delhi government stating that vaccination cannot be administered "forcibly" and without the consent of parents[28].
- In West Bengal, a day prior to campaign launch, the campaign was interrupted due to intervention of state government[29].

Recommendation 20

The UIP should work with the two states (West Bengal and New Delhi) to ensure that the campaigns are completed as planned. Results from these campaigns, including lessons learned from the overall Measles-Rubella campaign should be shared with Gavi to inform the organisation learning agenda.

Management comments

*See detailed management responses - **Annex 11***

Risk / Impact / Implications

- Delays in implementation of campaigns may result in expiry of allocated vaccines.
- Delayed implementation of campaigns could lead to outbreaks e.g., India experienced the highest measles cases in the period July 2022 to December 2022[30]. In 2023, the country has continued to experience an increased number of measles cases and MR outbreak have been reported (based on HMIS) from some of the districts of Maharashtra, Jharkhand, Kerala, Gujarat, Bihar, and Rajasthan.

Responsibility	Deadline / Timetable
MoHFW	31 December 2024

[27] Based on HMIS

[28] HC orders deferring MR vaccine campaign in Delhi after parents' objection

[29] Summary Measles and Measles-Rubella SIA Technical Report

[30] Global measles outbreaks June 2022 to December 2022

4.4 Budgeting and Financial Management

4.4.1 Gaps in financial internal controls resulted in questioned expenditure

Context and Criteria

Section 4.3.2 of the grant agreement between the Gavi Alliance ("Gavi") and United Nations Children's Fund ("UNICEF") states that, "*UNICEF shall maintain accurate accounting records documenting how Grant funds are used and disbursed. UNICEF will remain solely responsible for disbursing Grant funds for budgeted Activities*."

Section 20.1 Annex 2 of the PFA states that, *"In respect of all funds and vaccines and related supplies provided to the Government under the Programme(s), the Government shall comply with obligations and requirements on the use of such funds and supplies, including the following:*

a) the Government shall use the funds and vaccines and related supplies received from GAVI under a Programme for the sole purpose of carrying out the Programme Activities of such Programme.
b) the Government shall ensure that there is no misuse or waste of, or corrupt, illegal, or fraudulent activities involving the funds and vaccines and related supplies; and
the Government shall ensure that all expenses relating to the use or application of funds are properly evidenced with supporting documentation sufficient to permit GAVI to verify such expenses."

Condition

The audit team noted that 24% (i.e., USD 11,895,457) of HSS 2 cash grant funding managed by UNICEF was sub-contracted to either government agencies (USD 8.2 million) or CSOs (USD 3.6 million). We sampled USD 4,558,292 for testing and results are shown in the table below.

Partner type	Reported expenditure (USD)	Sampled for testing (USD)	Percentage reviewed	Adequately supported (USD)	Inadequately supported (USD)	Unsupported (USD)
UNICEF	*37,994,761*	*0*	0%	N/A	N/A	N/A
Government	*8,223,863*	*3,626,000*	44%	*3,526,417*	*50,220*	*49,636*
CSO	*3,671,594*	*932,294*	25%	*847,492*	*47,438*	*0*
Total	***49,890,218***	***4,558,294***	**9%**	***3,526,417***	***97,658***	***49,636***

Unsupported expenditure - Unsupported expenditure relates to reported expenditure for which supporting documentation was not available for our review at one of the government entities that received funding.

Inadequately supported expenditure - Inadequately supported expenditure relates to reported expenditure for which the underlying records provided to support the expenditure were inconsistent (higher or lower) with the reported amounts and DSA expenditure not supported by policy guidance.

- *Variances between reported expenditure and FACE forms*: Funding Authorization and Certificate of Expenditure (FACE) forms are the basis of recording/retiring expenditure incurred by all UNICEF partners i.e., CSO and Government

Recommendation 21

While the Gavi funding was received by UNICEF, the overall responsibility for overseeing Gavi investments is the MoHFW.

To resolve the gaps noted in the operating effectiveness of the MoHFW's oversight over Gavi funds disbursed by UNICEF to CSOs and government agencies, we recommend that:

- All implementing partners (CSOs and government agencies) prepare detailed reconciliations of funds received from UNICEF. These reconciliations should include source of funding;
- MoHFW liaise with UNICEF to ensure that the templates for the FACE forms enable implementing partners to report on all expenditure by source of funding; and
- MoHFW liaise with UNICEF to conduct a thorough review and reconciliation of all expenditures reported by implementing partners, including supporting documents before expenditure is liquidated.

This recommendation should be implemented with reference to the global HACT mechanism that informs the UNICEF's financial management approach and processes.

partners based on UNICEF financial management guidelines/policies. The audit team reviewed all the available Funding Authorization and Certificate of Expenditure (FACE) forms for the sampled expenditure to ensure that the UNICEF reported expenditure has the corresponding report from the grantees for the period 2017 to 2021. The audit team noted variances between the reported expenditure and the sub grantee FACE forms amounting to INR 19,406,235 and INR 150,694,945 for CSO and government entities respectively during the audit field work mission in September 2022. **See Annex 10** for details. UNICEF performed a subsequent reconciliation of all available FACE forms and at the follow-on review in August 2023, the audit team noted that the variances had reduced as follows.

UNICEF CSO grantees FACE form expenditure verses reported expenditure.

Name of Agency	Reported expenditure-USD	Reported expenditure-INR	FACE form expenditure-INR	Difference- INR	Difference- USD
VOLUNTARY HEALTH ASSOCIATION OF INDIA – 2500240308	*88,681*	6,207,750	2,839,993	3,367,757	*47,438*

UNICEF government agency grantees FACE form expenditure verses reported expenditure.

Name of Agency	Reported expenditure-USD	Reported expenditure-INR	FACE form expenditure-INR	Difference-INR	Difference-USD
NATIONAL INSTITUTE OF HEALTH AND FAMILY WELFARE – 2500223738	*50,220*	3,590,244	0	3,590,244	*50,220*

- *No standardised policy on Daily Subsistence Allowances (DSA):* The audit team reviewed a sample of expenditure incurred at one of the CSO grantees i.e., Self Employed Women's Association (SEWA) and noted that Daily Subsistence Allowances (DSA) amounting to USD 38,800 (INR 2,754,851) had been paid without a guiding policy to support the amounts paid. The amounts paid were either INR 200, INR 225, INR 300, INR 325 or INR 400 per day to various recipients of the same cadre. The organisation indicated that the DSA was negotiated with each recipient accordingly.

Root Cause

- There were no periodic reconciliations of partner FACE forms to reported expenditure. The partner agencies also did not reconcile expenditure reported to grant agreements to enable tracking to sources of funding.
- Some FACE forms were missing due to related shifts in reporting practices during the Covid-19 pandemic.
- The CSO reviewed had no policy on DSA

Risk / Impact / Implications

If implementing partners receiving Gavi support subcontracted via UNICEF do not account for funds received appropriately, this could result in errors in financial reports submitted to Immunisation Action Group (IAG) thus limiting the decision making of those charged with governance.

Recommendation 22

UIP should ensure that reports presented to the IAG by HSS Implementers indicate funding advanced to CSOs and to Government agencies. The reports should also provide comparative financial performance of CSOs and government agencies.

Management comments

- *See detailed management responses - **Annex 11***

Responsibility	Deadline / Timetable
MoHFW	31 December 2024

4.4.2 Some Gavi-funded expenditures did not demonstrate value for money

Context and Criteria

The concept of Value for Money (VfM) implies a concern with economy (cost minimization), efficiency (output maximization) and effectiveness (full attainment of the intended results). The audit team reviewed key programmatic outputs funded by Gavi to assess whether these provided value for money.

Section 16 of the PFA states that: "The Government's use of GAVI's vaccine and cash support is subject to strict performance monitoring. GAVI seeks to use the Government reports and existing country-level mechanisms to monitor performance. The Government shall monitor and report on the use of vaccines and related supplies and the funds provided by GAVI stating the progress made towards achieving the objectives of the Programmers) during the preceding year by submitting the Annual Progress Report(s). The Government shall also share their internal management reports on the use of funds on a quarterly or periodic basis with GAVI. The Government shall also submit all documents and reports that are required to be submitted as part of the Annual Progress Reports and country applications. For certain cash support, GAVI shall monitor and review annually the progress made in the Country towards the funded objectives of the Programmers) by participating in the annual health sector review through existing country-level mechanisms. The Government shall submit all documents relevant to annual health sector reviews as requested by GAVI.

Condition

Limited utility and value for money from the coverage evaluation survey – The country conducted a Coverage Evaluation Survey (CES) in 2018 at a cost of USD 750,000 using Gavi support. The survey results were never formally endorsed or released by the Government of India and the draft report was not shared with Gavi. This limits the utility and value for money of the survey. The HSS 3 grant has activities that are of a survey nature including the behavioral and social driver (BeSD) assessments and immunisation coverage surveys in 143 high-priority zero-dose districts.

***Accountability for investment in Auxiliary Nurse Midwife Online (ANMOL*) –** Gavi through UNICEF invested USD 7 million to facilitate the introduction of ANMOL to improve data collection and management. The funds were utilised to procure 30,441 tablets, train ANMs, continued technical support on enhancement and testing of new features of ANMOL application and resolution of issues at national and state level through a consultant. ANMOL was rolled-out in 26 states/UTs, roll out in three states was on hold while seven states/UTs were using their own applications. The audit team noted the following value for money inefficiencies:

- There was no asset value included in the handover documents for all 30,441 tablets delivered to ensure completeness of the state asset listings.
- According to the HSS performance review report, the key indicator relating to the roll out of ANMOL i.e., Percentage of ANMs reporting data via ANMOL is at only 30% against a target of 80%.

Root Causes

Recommendation 23

Following the approval of funding for HSS 3, U-WIN will now be utilised as the immunisation registry for UIP. We recommend that UIP:

- Documents and approves a plan on how ANMOL will be utilised for other RMNCH+A services in the states to ensure that this investment is sustained; and
- Review the integration of ANMOL and UWIN through established dashboards to ensure completeness of information and that one source of data entry is used.

Recommendation 24

For any future surveys funded by Gavi, we recommend cascading approvals for funding at multiple stages to ensure that funds are only released when key activities are approved. The UIP should ensure that:

- Key milestones are developed and signed off by MoHFW. These milestones should then be utilised to determine release of funds at each stage;

<table>
<tr><td rowspan="2">

- Coverage survey results were not approved by the MoHFW.
- The 2017 Independent Review Team (IRT) to the HSS 2 proposal recommended that disbursements for ANMOL should be based on evidence of completion of assessment with assurance of state readiness. This was not done at the time.
- Although ANMOL was rolled out to 26 states, ANMOL has not yet been widely utilised despite the investments by Gavi.

</td><td colspan="2">

- Preliminary survey design and methodology should be signed off;
- Pre-testing of survey methodology should be agreed upon and signed off after the initial pilots; and
- Final survey design and methodology should be agreed upon and signed off before data collection, analysis and reporting.

</td></tr>
<tr><td colspan="2">

Management comments

*See detailed management responses - **Annex 11***

</td></tr>
<tr><td>

Risk / Impact / Implications

There is a risk that value for money was not obtained for these investments. There is a missed opportunity to ensure that limited catalytic funding on the India portfolio could have been spent on other activities which would yield better value for the country.

</td><td>

Responsibility

MoHFW

</td><td>

Deadline / Timetable

31 December 2024

</td></tr>
</table>

4.5 Immunisation Data Management

4.5.1 There were inconsistencies in administrative immunisation coverage reports

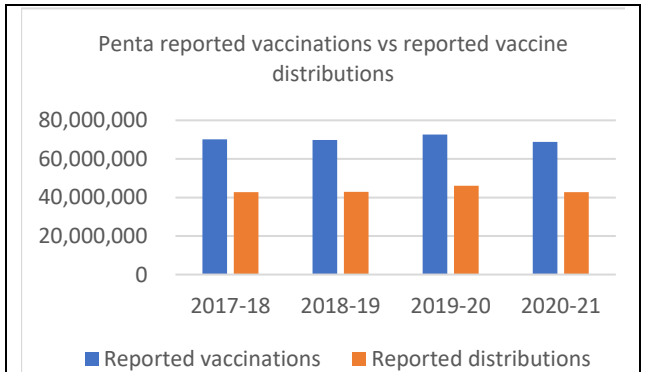
Context and Criteria

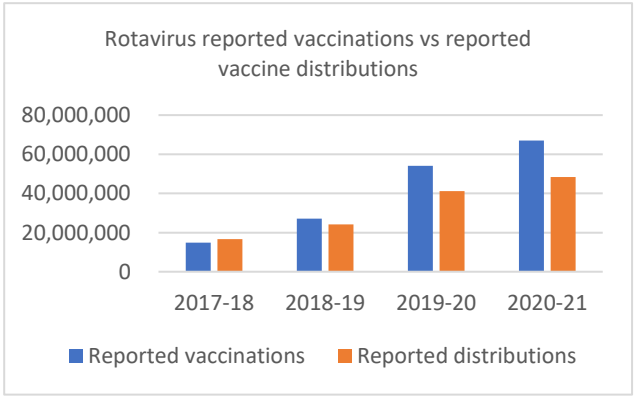
Gavi's application guidelines require Gavi-supported countries to improve data availability, data quality and use of data for their planning, programme management, understanding and documentation of results. The guidelines encourage the use of immunisation coverage data as an ongoing institutionalized process for better planning, improved programme performance and resource management.

The signed 2015 PFA (under Clause No. 8 (d)) requires that all information that is provided to Gavi including its applications, progress reports, any supporting documentation, and other related operational and financial information or reports, is accurate and correct as of the date of the provision of such information. In addition, the PFA (Article 16) sets out additional provisions on the monitoring and reporting, specifying that "*the Government's use of Gavi's vaccine and cash support is subject to strict performance monitoring*," such that: "*Gavi seeks to use the Government's reports and existing country-level mechanisms to monitor performance*."

Condition

Anomalies in reported administrative Coverage – There were inconsistencies in the administrative coverage reported by the country for the period under review. A comparison between the number vaccines distributed as recorded in HMIS[31] and the reported vaccinations indicated that the number of children reported as vaccinated for Pentavalent and Rota vaccines over the years 2017/18 to 2020/21 was consistently higher than the quantities of vaccines reported as utilised. The variances are an indication of over-reporting or inaccurate vaccine distribution information being input into HMIS.





Recommendation 25

UIP should work with the states to:

- Routinely perform a triangulation of their immunisation data between doses distributed, vaccine utilisation and administrative coverage; and
- Consistently complete data verification and validation exercises at the health facility levels.

[31] Reported vaccine distributions were extracted from HMIS as eVIN data was not readily available for the period under review i.e., 2017-2021, see section 4.1.4

<table>
<tr><td>Similarly, there were discrepancies between the number of reported vaccinations and distributed doses for Pentavalent, Measles and Rubella, Rota Virus and Pneumococcal Conjugate Vaccine with more vaccinations generally reported compared to the number of doses distributed during the review period in sampled states of Uttar Pradesh, Maharashtra, Tamil Nadu and West Bengal.

Inconsistences in HMIS reported data and underlying records **-** The audit team conducted a comparison of reported vaccinations in the months of July 2021 and December 2021 at the CHC/PHC and variances were noted for 71% of reports reviewed between monthly summary report records and data input in HMIS. The audit team also noted that 56% of monthly reports at health facilities were missing and hence could not be compared to HMIS data. See Annex 9 for details.</td><td colspan="2"></td></tr>
<tr><td>Root Cause
Several factors contributed to the erroneous administrative immunisation data including:
• Data input errors at the health facility level and absence of effective data supervision and data verification processes;
• Data reviews carried out at national level only focus on data timeliness and completeness of reporting without emphasis on data quality aspects like triangulation of coverage data to logistics/distribution data, reconciliations between tally sheets and monthly reports. In addition, the audit team noted that Districts and health facilities carried out self-assessments to review data and identify any gaps in the immunisation data. However, there was no evidence that reports from district and HF self-assessments were synthesised and analysed by UIP for decision making and follow up.</td><td colspan="2">Management comments

See detailed management responses - ***Annex 11***</td></tr>
<tr><td>Risk / Impact / Implications
Unexplained data anomalies undermine the credibility of the reported immunisation administrative coverage. Reporting inaccurate coverage via Gavi's performance framework is not compliant with the Partnership Framework Agreement. Lack of reliable vaccination coverage compromises the immunisation programme's ability to identify under immunised children.</td><td>Responsibility

MoHFW</td><td>Deadline / Timetable

31 December 2024</td></tr>
</table>

4.5.2 There were gaps in the quality of immunisation data

Context and Criteria

Gavi's grant application guidelines require applicant countries to improve access to good quality immunisation data by: (a) conducting annual desk reviews to monitor coverage data; (b) have routine mechanisms in place to independently assess the quality of administrative data. This includes possibility of using Gavi-support to develop a plan (following annual Joint Appraisals) to improve the quality of data over time; and (c) undertake regular population-based surveys to assess immunisation coverage.

Condition

Variances between Pentavalent and Rota virus vaccines Coverage - According to the immunisation schedule for India (see Annex 5), children are supposed to receive Pentavalent 1 and Rota virus 1 at six weeks, Pentavalent 2 and Rota virus 2 at ten weeks and Pentavalent 3 and Rota virus 3 at 14 weeks. Rota virus was rolled out nationally in 2019, the audit team compared coverage data for Pentavalent 1,2 and 3 against coverage data for Rota 1,2 and 3 for the period 2019 to 2021 and noted variances as illustrated below:

Variances between Penta and Rota Coverage

Period	Penta 1	Rota 1	Var	Penta 2	Rota 2	Var	Penta 3	Rota 3	Var
2018-19	23,859,890	9,806,322	59%	23,079,644	8,880,391	62%	22,897,722	8,364,565	63%
2019-20	24,488,815	19,332,648	21%	24,034,587	17,797,743	26%	24,059,748	16,914,746	30%
2020-21	23,266,454	22,700,401	2%	22,782,291	22,194,966	3%	22,816,009	22,116,269	3%
Total	**71,615,159**	**51,839,371**	**28%**	**69,896,522**	**48,873,100**	**30%**	**69,773,479**	**47,395,580**	**32%**

The above data indicates that an average of 6 million children could have been missed with a Rota virus vaccine dose in 2019-20 and an average 600,000 children missed with a Rota virus vaccine dose in 2020-21.

No triangulation of data within RCH portal and HMIS - The audit team also noted that data in HMIS is not triangulated with the RCH portal to validate the accuracy of both systems.

No Data Management policy and Data Quality Improvement Plan: India last carried out a national wide data quality audit (DQA) to assess the extent of gaps in the data quality in 2009-2010. Based on the audit's team's visits 99% (69) of CHC/PHC indicated that they have never received a DQA from the supervisory level. The audit team also noted that the country has no costed Data Quality improvement plan with clear action points and strategies to address the data quality challenges.

Root Cause

- There were multiple data collection systems at sub-national level collecting data in parallel to the national system, leading to work overload, complexity and duplication of effort for those that would need to carry out a data triangulation exercise.

Recommendation 26

UIP should design and put in place a consistent process that systematically identifies and corrects data anomalies at both national and sub-national levels.

Additionally, UIP should work with the state-level data teams to ensure that immunisation data is regularly reviewed and compared to underlying records at both the health facility levels and that the results of this process are documented.

Management comments

*See detailed management responses - **Annex 11***

<table>
<tr><td colspan="2">• Data quality reviews were not integrated into the supportive supervision tool and there were no records evidencing that data issues were regularly identified, timebound actions proposed and thereafter followed up. Also, there were no reports available, specifically acknowledging data issues, even though it is a known, recognised issue.</td><td></td></tr>
<tr><td>Risk / Impact / Implications

Without an effective data verification and validation process, data anomalies will not be identified and promptly corrected – resulting in inaccurate or erroneous immunisation data, impacting on resulting trends.</td><td>Responsibility

MoHFW</td><td>Deadline / Timetable

31 December 2024</td></tr>
</table>

4.6 Cold Chain Equipment

4.6.1 CCE functionality needs to be better monitored

Context and Criteria

Cold chain equipment (CCE) (for example: distribution trucks/vans, cold rooms, freezers, refrigerators, cold boxes, and carriers) that ensures the integrity of the cold chain are a critical component of the vaccine supply chain system. Ensuring that CCE components maintain their optimal temperature range, requires regular preventive maintenance. The primary goal of equipment maintenance and repair system is therefore to eliminate or avoid unnecessary or unplanned equipment downtime. Maintenance activities can be divided into two broad categories:

a) inspection and preventive maintenance: these maintenance activities are scheduled to ensure equipment functionality and prevent breakdowns or failures. Inspections verify proper functionality and safe use of a device. Preventive maintenance activities are scheduled to extend the life of a device and prevent failure. Examples of these activities are calibration, part replacement, lubrication, and cleaning.
b) corrective maintenance: corrective and unscheduled maintenance (repairs) are performed after there has been a failure of equipment. This is necessary to keep the equipment functioning optimally, to maintain the vaccines quality and effectiveness against a disease, and to save lives.[32]

To support effective maintenance systems, temperature monitoring data should be integrated into an information system that also includes cold chain equipment inventory, spare part stock control, and service history data. A computerized maintenance management system can offer the following advantages: facilitate decision-making by technicians; provide evidence on the impact of investments in effective maintenance systems; monitor equipment performance over time; and demonstrate compliance with good storage and distribution practices[33]. To this end, the Ministry of Health and Family (through NCCVMRC) with support from Gavi (through UNICEF) developed the National Cold Chain Management Information System (NCCMIS). The system's main goal is to track the cold chain equipment availability, functional status, inventory, cold chain space planning, forecasting and critical cold chain indicators.

Condition

Inadequate protocols for Cold chain equipment maintenance - The audit team noted several gaps in the cold chain equipment arrangements at the national and sub-national level including:

- Equipment maintenance logs were not available at three of four GMSDs visited by the audit team, posing a challenge due to lack of visibility regarding the equipment maintenance and repair history at these three GMSDs.
- Equipment preventative maintenance plans were not available for two of four (50%) GMSDs visited.
- At subnational level, preventative maintenance plans and cold chain equipment maintenance logs – which are a prerequisite to proper equipment maintenance, care, documentation and follow up – were also not available at majority of the cold chain handling points. Preventative maintenance plans were not available at two of four SVS, 12/21 Divisional and District vaccine Stores and 62% (43) of the CCPs. Similarly, CCE maintenance logs for tracking equipment maintenance activities were not available at three of four SVS, 19/21 Divisional and District vaccine Stores and 74% (51) CCPs.

Recommendation 27

NCCVMRC should work with states to conduct routine calibration, lubrication, and cleaning of the CCE and cold chain trucks to ensure that they provide accurate and reliable temperature readings.

Recommendation 28

NCCVMRC should work with states to incentivise the use of NCCMIS to track CCE maintenance. Old equipment should be decommissioned and disposed to create space for new equipment.

[32] WHO Vaccine Management Handbook Module VMH-E5-01.1

[33] WHO computerised maintenance management systems

In the absence of regular equipment monitoring and repair, 11% of the CCE at GMSD was not functional. See finding 4.2.1. At sub-National level, 14% of the CCE at SVSs and 7% (19) of the CCE at District and Division Stores were not functional. See Annex 7i for details. ***Cold Chain Equipment is not calibrated*** – The audit team noted that three of four GMSDs visited did not have evidence of conducting periodic cold chain equipment calibration. The three GMSD that had refrigerated trucks could not demonstrate that the trucks were calibrated and therefore the temperature readings from the truck refrigerated cabins were a true representation of the conditions therein. At the sub-national level, we noted that four states and eleven division and district vaccine stores that had cold chain trucks did not have evidence of having calibrated them. We also noted three of four state vaccine stores, 90% (19/21) of Division and District Vaccine Stores and all lower tier cold chain points had not calibrated their cold chain storage equipment.		
Root Cause • There is no initiative at the affected GMSDs, SVS, Division and District stores in place to conduct routine calibration and certification of cold chain equipment and cold chain trucks. • Underutilisation of the NCCMIS which was meant to automate the cold chain equipment management and monitoring process. None of the GMSDs, state Vaccine Stores and District Vaccine Stores visited were actively utilising NCCMIS. We also noted that NCCMIS does not have maintenance plan module where equipment maintenance plans could be input, scheduled, and monitored	Management comments *See detailed management responses - **Annex 11***	
Risk / Impact / Implications CCE that is not well-maintained or monitored for repair or replacement can result in deficiencies in the cold chain storage capacity. As observed, the necessity to lease ad-hoc additional cold chain storage space, which if not properly adapted, could impact upon the potency of vaccines.	Responsibility MoHFW	Deadline / Timetable 31 December 2024

5. Annexes

Annex 1 : Acronyms

AEFI	Adverse Events Following Immunisation
ANMOL	Auxiliary Nurse Midwives Online
CCE	Cold Chain Equipment
cMYP	Comprehensive Multi-Year Plan
CoWIN	Covid-19 Vaccine Intelligence Network
DQA	Data Quality Audit
DVS	District Vaccine Stores
eLMIS	Electronic Logistics Management Systems
eVIN	Electronic Vaccine Intelligence Network
EVM cIP	Effective Vaccine Management Costed Improvement Plan
GMSD	Government Medical Store Depots
GoI	Government of India
HF	Health Facility
HR	Human Resources
HSS	Health System Strengthening
HMIS	Health Management Information Systems
IAG	Immunisation Action Group
INR	Indian Rupee
JSI	John Snow, Inc
LMIS	Logistics Management Information System
MoHFW	Ministry of Health and Family Welfare
NCCMIS	National Cold Chain Management Information System
NCCVMRC	National Cold Chain & Vaccine Management Resource Centre
NEGVAC	National Expert Group on Vaccine Administration for Covid-19
NIHFW	National Institute of Health and Family Welfare
NHM	National Health Mission
NRHM	National Rural Health Mission
NTAGI	National Technical Advisory Group on Immunisation
NUHM	National Urban Health Mission
PIP	Programme Implementation Plan
RCH	Reproductive Child Health portal
RMNCH+A	Reproductive, Maternal, Newborn, Child Plus Adolescent Health
SDG	Sustainable Development Goals
SVS	State Vaccine Store

UIP	Universal Immunisation Programme
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
USD	United States Dollars
VIG	Vaccine Introduction Grant
VPD	Vaccine Preventable Disease
WIC	Walk in Cold room
WIF	Walk in freezer
WHO	World Health Organization
WUENIC	WHO UNICEF Estimates of National Immunisation Coverage

Annex 2 : Methodology

Gavi's Audit and Investigations (A&I) audits are conducted in accordance with the Institute of Internal Auditors' ("the Institute") mandatory guidance which includes the definition of Internal Auditing, the Code of Ethics, and the International Standards for the Professional Practice of Internal Auditing (Standards). This mandatory guidance constitutes principles of the fundamental requirements for the professional practice of internal auditing and for evaluating the effectiveness of the audit activity's performance. The Institute of Internal Auditors' Practice Advisories, Practice Guides, and Position Papers are also be adhered to as applicable to guide operations. In addition, A&I staff will adhere to A&I's standard operating procedures manual.

The principles and details of the A&I's audit approach are described in its Board-approved Terms of Reference and Audit Manual and specific terms of reference for each engagement. These documents help our auditors to provide high quality professional work, and to operate efficiently and effectively. They help safeguard the independence of the A&I's auditors and the integrity of their work. The A&I's Audit Manual contains detailed instructions for carrying out its audits, in line with the appropriate standards and expected quality.

In general, the scope of A&I's work extends not only to the Gavi Secretariat but also to the programmes and activities carried out by Gavi's grant recipients and partners. More specifically, its scope encompasses the examination and evaluation of the adequacy and effectiveness of Gavi's governance, risk management processes, system of internal control, and the quality of performance in carrying out assigned responsibilities to achieve Stated goals and objectives.

Annex 3 : Definitions – audit opinion, audit rating and prioritisation

A. Overall Audit Opinion

The audit team ascribes an audit rating for each area/section reviewed, and the summation of these audit ratings underpins the overall audit opinion. The audit ratings and overall opinion are ranked according to the following scale:

Effective	**No issues or few minor issues noted**. Internal controls, governance and risk management processes are adequately designed, consistently well implemented, and effective to provide reasonable assurance that the objectives will be met.
Partially Effective	**Moderate issues noted.** Internal controls, governance and risk management processes are adequately designed, generally well implemented, but one or a limited number of issues were identified that may present a moderate risk to the achievement of the objectives.
Needs significant improvement	**One or few significant issues noted.** Internal controls, governance and risk management processes have some weaknesses in design or operating effectiveness such that, until they are addressed, there is not yet reasonable assurance that the objectives are likely to be met.
Ineffective	**Multiple significant and/or (a) material issue(s) noted.** Internal controls, governance and risk management processes are not adequately designed and/or are not generally effective. The nature of these issues is such that the achievement of objectives is seriously compromised**.**

B. Issue Rating

For ease of follow up and to enable management to focus effectively in addressing the issues in our report, we have classified the issues arising from our review in order of significance: High, Medium and Low. In ranking the issues between 'High,' 'Medium' and 'Low,' we have considered the relative importance of each matter, taken in the context of both quantitative and qualitative factors, such as the relative magnitude and the nature and effect on the subject matter. This is in accordance with the Committee of Sponsoring Organisations of the Treadway Committee (COSO) guidance and the Institute of Internal Auditors standards.

Rating	Implication
High	At least one instance of the criteria described below is applicable to the finding raised: • Controls mitigating high inherent risks or strategic business risks are either inadequate or ineffective. • The issues identified may result in a risk materialising that could either have: a major impact on delivery of organisational objectives; major reputation damage; or major financial consequences. • The risk has either materialised or the probability of it occurring is very likely and the mitigations put in place do not mitigate the risk. • Management attention is required as a matter of priority. • Fraud and unethical behaviour including management override of key controls.
Medium	At least one instance of the criteria described below is applicable to the finding raised: • Controls mitigating medium inherent risks are either inadequate or ineffective. • The issues identified may result in a risk materialising that could either have: a moderate impact on delivery of organisational objectives; moderate reputation damage; or moderate financial consequences. • The probability of the risk occurring is possible and the mitigations put in place moderately reduce the risk. • Management action is required within a reasonable time period.
Low	At least one instance of the criteria described below is applicable to the finding raised: • Controls mitigating low inherent risks are either inadequate or ineffective. • The Issues identified could have a minor negative impact on the risk and control environment. • The probability of the risk occurring is unlikely to happen. • Corrective action is required as appropriate.

Annex 4 : List of Facilities Visited

GMSD	State Vaccine Store	Division Vaccine Store	District Vaccine Store	Health Facility
Mumbai GMSD	Pune SVS	Mumbai RVS	Mumbai DVS	KEM Hospital, Mumbai,
				Primary Health Centre, V. Shantaram
				Primary Health Centre, Naigaon
		Pune RVS	Pune DVS	Medical Superintendent Office, Rural Primary Health Centre, Bhor
			Pimpri Chinchwad Municipal Corporation DVS	Rural Primary Health Centre, Bhongawali
				Jijamata Hospital, Pune
			Satara DVS	Sub District Hospital, Karad c) Civil Hospital, Satara
				Primary Health Centre, Nagthane
				Primary Health Centre, Bhuinj
				Civil Hospital, Satara
Chennai GMSD	Chennai SVS	Cuddalore	Cuddalore	Upgraded Government Primary Health Centre, Karaikadu
				Old Town Urban Primary Health Centre, Cuddalore
			Villupuram	Government Primary Health Centre, Mailam
				Vikaravandi Government Hospital
				Government Primary Health Centre, Siruvanthadu
				Villupuram Medical College
		Tiruchirappalli	Tiruchirappalli	Upgraded Government Primary Health Centre, Irungalur
				Government Hospital, Srirangam
				Block Primary Health Centre, Thandalai Puthur
				Government Primary Health Centre, Moovanur
				Urban Primary Health Centre, Subramaniyapuram (Tiruchirappalli)
				Mahatma Gandhi Memorial Government Hospital (Tiruchirappalli)
Kolkata GMSD	Kolkata SVS		Kolkata DVS	Borough 5
				Calcutta Medical College and Hospital
				BC Roy Medical College
				Borough 3
			South 24 Parganas DVS	Hariharpur BVS
				Panchgharia PHC
				Sarsuna PHC

GMSD	State Vaccine Store	Division Vaccine Store	District Vaccine Store	Health Facility
				Charail Benjanharia PHC
				Rajpur Sonarpur Municipality BVS
				Garia PHC
			Purba Bardhaman DVS	Jamalpur BVS
				Nabagram PHC
				Kurmun CHC
				Moteswar CHC
				Madhabdihi CHC
				Burdwan Medical College and Hospital Unit
Karnal GMSD	Lucknow SVS		Lucknow DVS	Silver Jubliee UCHC
				Sarojinagar UCHC
				AishBagh UCHC
				Rajendra Nagar UPHC
			Sitapur DVS	Sanda CHC
				Biswan CHC
				Khairabad CHC
				Hargaon CHC
				Sitapur PPC UPHC
				Laharpur CHC
				Reusa CHC
				Tambaur CHC
			Hardoi DVS	District Hospital Female PPC Hardoi
				Bawan CHC
				Sandila CHC
				Kachhoun CHC
		Devipatan Division	Gonda DVS	Haldharmau PHC,
				Paraspur CHC
				District Hospital (Female) PPC,
				Babhanjot CHC
			Balarampur DVS	Gainsari CHC
				Pachperwa CHC

GMSD	State Vaccine Store	Division Vaccine Store	District Vaccine Store	Health Facility
				Utraula CHC
				Urban (Distt. Female Hospital) PPC
				Tulsipur CHC
				Kauwapur (Tulsipur) PHC
				Balrampur rural PHC
				Gaindas Buzurg CHC
			Unnao DVS	Achalganj Chc
				Bighapur PHC
				Nawabganj Chc
				Urban Health Center Motinagar

Annex 5 : India Immunisation Schedule

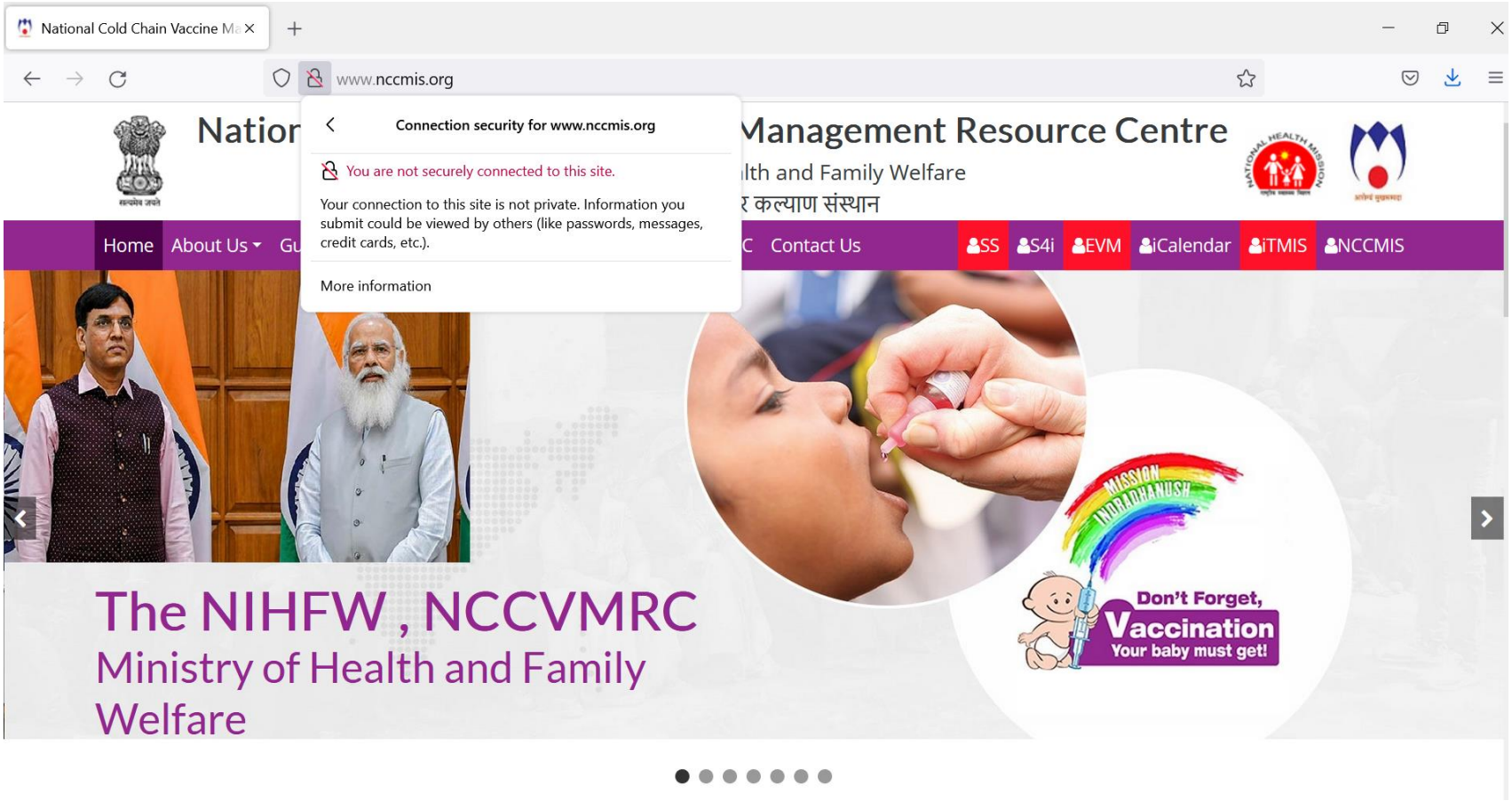
Age	Vaccines given
Birth	BCG, OPV-0, Hepatitis B Birth dose
6 Weeks	OPV-1, Pentavalent-1, fIPV-1, Rota-1 & PCV-1
10 weeks	OPV-2, Pentavalent-2 & Rota-2
14 weeks	OPV-3, Pentavalent-3, fIPV-2, Rota-3 & PCV-2
9-12 months	MR1, JE1*, PCV-B
16-24 months	MR2, JE2*, DPT-B, OPV –B
5-6 years	DPT-B2
10 years	Td
16 years	Td
Pregnant Woman	Td1, 2 or Td Booster**

**In select States and districts*

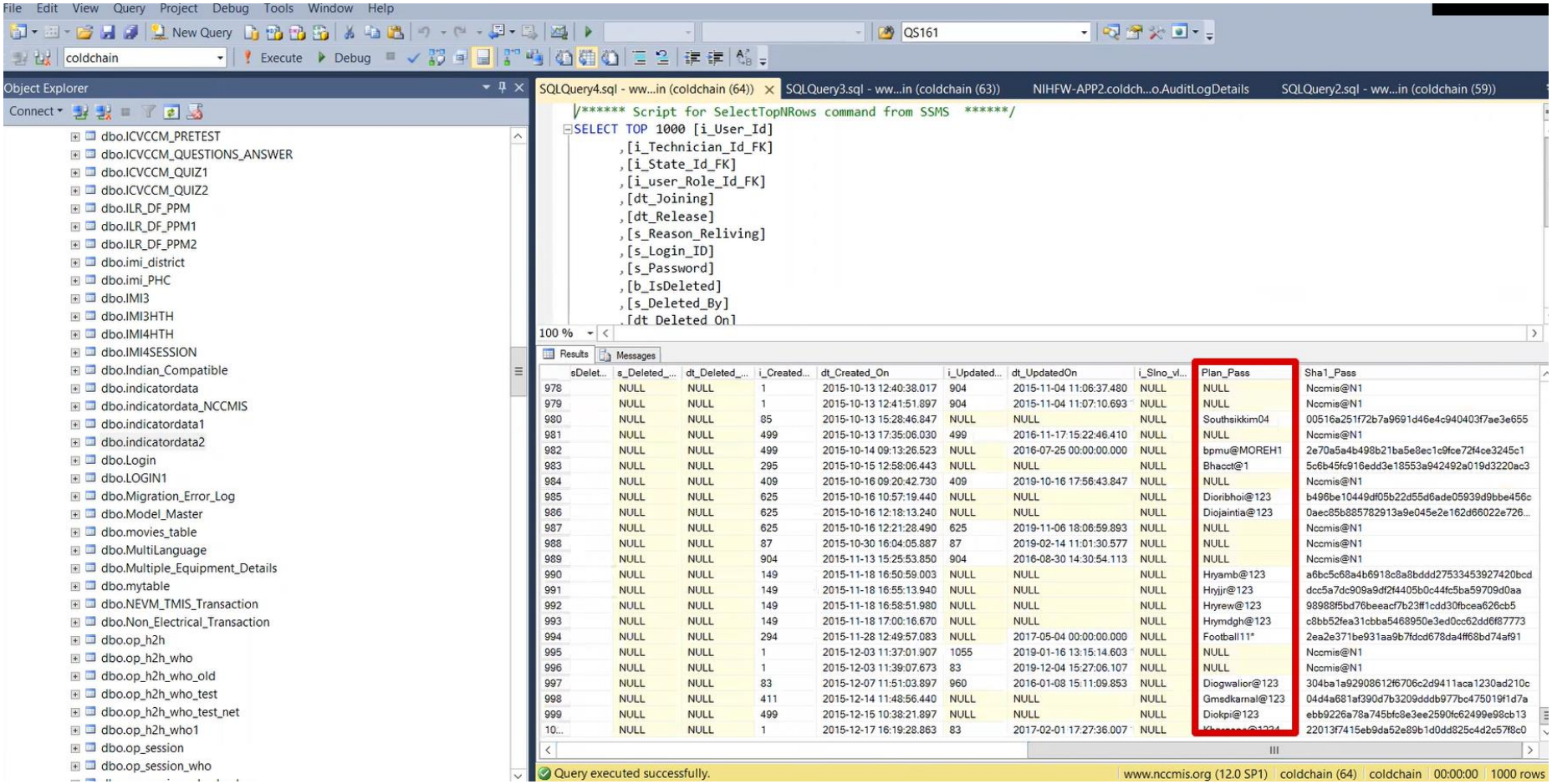
*** one dose if previously vaccinated within 3 years*

Annex 6: Sustainability of Gavi systems

NCCMIS is not compliant with security standards



Weak password controls on NCCIMIS database



Annex 7: Gaps in Vaccine Supply Chain Management

Annex 7a: GMSD Karnal third party warehouse vaccines stored with food items.

Annex 7b: Stockouts at GMSDs

GMSD STOCK OUTS																		
GMSD	Name of Vaccine	Stockout 1		Stockout 2		Stockout 3		Stockout 4		Stockout 5		Stockout 6		Stocked Out	Days	Max
		Starting (Date when the stock balance is NIL)	Ending (Stock being replenished)	Starting (Date when the stock balance is NIL)	Ending (Stock being replenished)	Starting (Date when the stock balance is NIL)	Ending (Stock being replenished)	Starting (Date when the stock balance is NIL)	Ending (Stock being replenished)	Starting (Date when the stock balance is NIL)	Ending (Stock being replenished)	Starting (Date when the stock balance is NIL)	Ending (Stock being replenished)			
Kolkata	Measles and Rubella Vaccine	28/08/2018	01/10/2018	09/09/2019	31/10/2019									YES	86	52
Kolkata	Covishield	06/02/2021	08/02/2021	13/03/2021	30/03/2021	20/04/2021	20/04/2021	19/06/2022	03/07/2022	25/07/2022	31/07/2022			YES	39	17
Chennai	Rota virus Vaccine	21/12/2021	31/12/2021	19/01/2022	10/02/2022	17/02/2022	22/02/2022							YES	37	22
Chennai	Measles and Rubella Vaccine	26/10/2018	05/12/2018	01/04/2020	26/05/2020	28/08/2020	05/01/2021							YES	225	130
Chennai	Covishield	02/02/2021	22/02/2021	11/04/2021	13/04/2021	26/04/2021	27/04/2021	17/06/2022	22/07/2022					YES	58	35
Chennai	Oral Polio Vaccine	20/09/2019	30/09/2019	18/05/2020	15/06/2020	10/01/2022	28/01/2022	18/02/2022	29/07/2022					YES	217	161
Chennai	Rota virus Vaccine (1 Vial = 5 doses)	19/09/2018	26/10/2018												37	37
Chennai	Rota virus Vaccine (1 Vial = 10 doses)	16/04/2018	24/07/2018	24/07/2018	20/08/2018	23/08/2018	31/08/2018	31/10/2018	12/11/2018	06/02/2019	19/03/2019	24/07/2019	20/08/2019		214	99
Chennai	Rota virus Vaccine (1 Vial = 10 doses) …	17/02/2020	19/03/2020												31	31
Mumbai	Rota virus Vaccine	06/12/2021	16/12/2021	23/03/2021	24/03/2021									YES	11	10
Mumbai	Covishield	03/02/2021	26/02/2021	04/03/2021	12/03/2021	09/06/2022	22/07/2022							YES	74	43
Mumbai	Rota virus Vaccine (1 Vial = 5 doses)	18/11/2021	31/12/2021	25/03/2021	28/04/2021	10/03/2022	11/04/2022								109	43
Mumbai	Rota virus Vaccine (1 Vial = 10 doses)	08/08/2019	31/10/2019	14/11/2019	06/12/2019										106	84
Mumbai	Rota virus Vaccine (1 Vial = 2 doses)	08/08/2019	31/08/2019												23	23
Mumbai	Pneumococcal Conjugate Vaccine	28/10/2020	29/10/2020												1	1
Karnal	Covishield	03/02/2021	03/03/2021	08/03/2021	17/03/2021	09/04/2021	15/04/2021	10/06/2022	28/07/2022					YES	91	48

Average # of Stock out Days	**85**
Max # of days for stock out of a single antigen	**161**
# Of stocked out antigens at Chennai GMSD	**4 /7**
# Of stocked out antigens at Kolkata GMSD	**2/7**
# Of stocked out antigens at Maharashtra GMSD	**2/7**
# Of stocked out antigens at Karnal GMSD	**1/7**

Annex 7c: Stock count variances at GMSDs

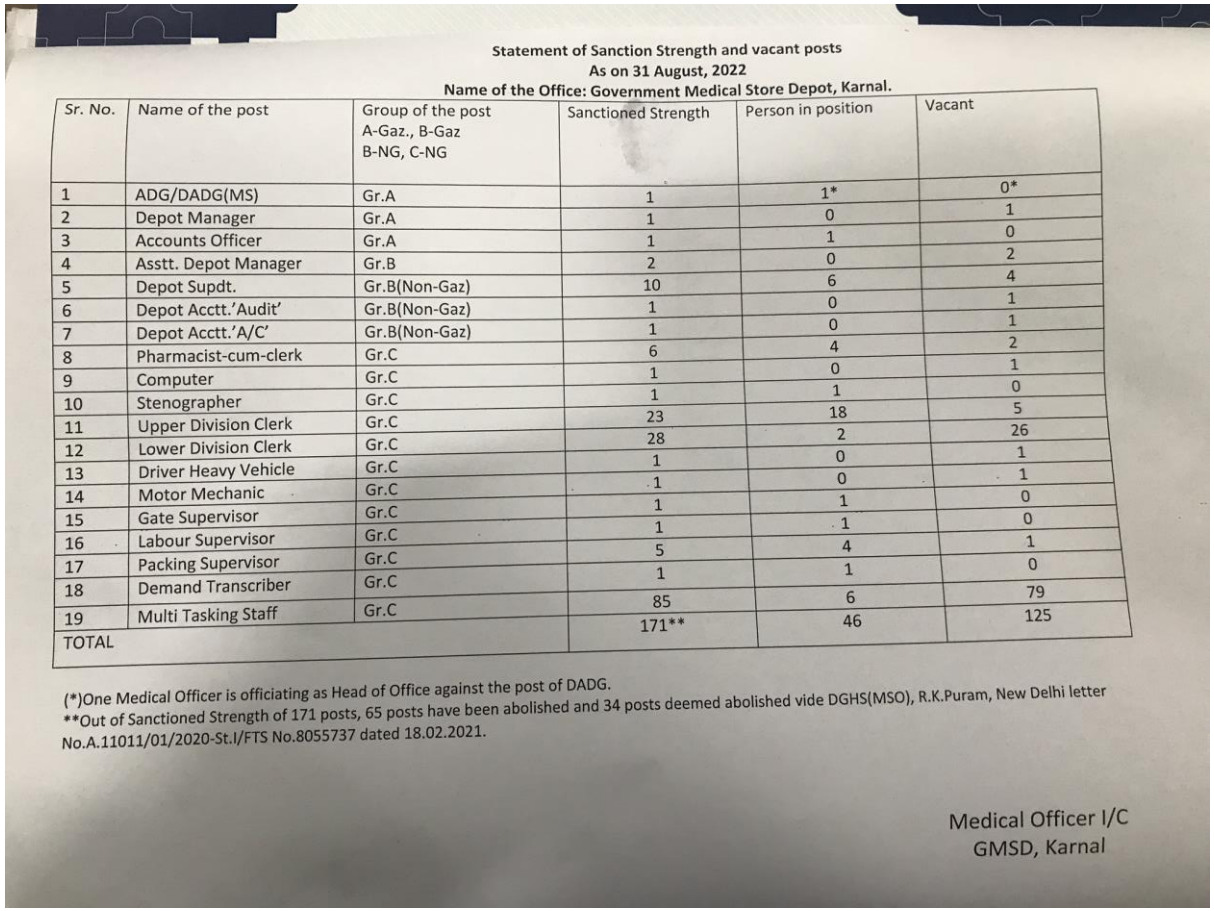
Vaccine	GMSD	Stock Card Balance (A)	Physical Count Balance (B)	EVIN Balance (C)	VAR 3(B-A)	VAR 3(B-C)
Pentavalent Vaccine	Kolkata	4,505,370.00	4,495,390.00	4,505,370.00	9,980.00	9,980.00
Pneumococcal Conjugate Vaccine (PCV)	Kolkata	202,370.00	201,870.00	202,370.00	500.00	500.00
Rota virus Vaccine (1 DOSE)	Kolkata	2,459,000.00	2,430,316.00	2,459,000.00	28,684.00	28,684.00
Measles and Rubella Vaccine	Kolkata	3,588,300.00	3,588,775.00	3,588,300.00	-475.00	-475.00
Pentavalent Vaccine	Chennai	1,428,700.00	2,428,700.00	1,428,720.00	-1,000,000.00	-999,980.00
Pneumococcal Conjugate Vaccine (PCV)	Chennai	11,500.00	211,500.00	11,500.00	-200,000.00	-200,000.00
Rota virus Vaccine	Chennai	608,500.00	608,500.00	609,500.00	-	1,000.00
Measles and Rubella Vaccine	Chennai	1,102,950.00	1,402,950.00	1,103,000.00	-300,000.00	-299,950.00
Pentavalent Vaccine	Mumbai	3,987,530.00	3,687,530.00	3,688,520.00	300,000.00	990.00
Pneumococcal Conjugate Vaccine (PCV)	Mumbai	259,000.00	367,500.00	367,500.00	-108,500.00	-
Rota virus Vaccine	Mumbai	337,000.00	112,000.00	112,011.00	225,000.00	11.00
Covishield Vaccine	Mumbai	70,000.00	500,000.00	500,000.00	-430,000.00	-
Pentavalent Vaccine	Karnal	4,451,330.00	4,381,620.00	4,451,530.00	69,710.00	69,910.00
Pneumococcal Conjugate Vaccine (PCV)	Karnal	160,000.00	140,000.00	160,000.00	20,000.00	20,000.00
Rota virus Vaccine	Karnal	958,065.00	-	958,065.00	958,065.00	958,065.00
Measles and Rubella Vaccine	Karnal	5,469,295.00	5,414,295.00	5,469,295.00	55,000.00	55,000.00

Annex 7d: GSMD cold chain equipment functionality

GMSD CCE Inventory			
GMSD	**Equipment**	**Capacity**	**Functional**
Chennai	WIC-1	40 Cubic Meters	NO
Chennai	WIC-2	40 Cubic Meters	NO
Chennai	WIF-1	20 Cubic Meters	NO
Chennai	WIF-2	20 Cubic Meters	NO
Chennai	WIF-3	32 Cubic Meters	NO
Chennai	WIC-3	100 Cubic Meters	NO
Chennai	WIC-III	100 Cubic Meters	NO
Mumbai	WIC 1	110 Cubic Meters	NO
Mumbai	WIC 2	40 Cubic Meters	NO
Mumbai	WIC 3	40 Cubic Meters	NO
Mumbai	WIC 4	200 Cubic Meters	NO
Mumbai	WIF 3	20 Cubic Meters	NO
Mumbai	WIF 4	16 Cubic Meters	NO
Mumbai	WIF 5	16 Cubic Meters	NO
Mumbai	WIF 6	40 Cubic Meters	NO
Mumbai	WIF 7	40 Cubic Meters	NO
Karnal	Walk In Freezer -1	32,000 Litres	NO
Karnal	Walk In Freezer -2	20,000 Litres	NO
Karnal	Walk In Freezer -3	20,000 Litres	NO
Karnal	Walk In Freezer -4	6000 Cubic Feet	NO
Karnal	Walk in cooler 1	40,000 Litres	NO
Karnal	Walk in cooler 2	40,000 Litres	NO
Karnal	Walk in cooler 3	40,000 Litres	NO
Karnal	Walk in cooler 4	40,000 Litres	NO
Karnal	Walk in cooler 5	40,000 Litres	NO
Karnal	Walk in cooler 6	40,000 Litres	NO
Karnal	Walk in cooler 7	40,000 Litres	NO
Karnal	Walk in cooler 8	40,000 Litres	NO
Karnal	Walk in cooler 9	10,500 Cubic Feet	NO

GMSD CCE Inventory			
GMSD	**Equipment**	**Capacity**	**Functional**
Karnal	WIC-1	11200	NO
Karnal	WIC-2	11200	NO
Karnal	WIC-3	11200	NO
Karnal	WIC-4	56000	NO
Karnal	WIC-5	5128	NO
Karnal	WIF-2	5128	NO
Karnal	WIF-3	5128	NO
Karnal	WIF-4	5128	NO
Karnal	WIF-5	5128	NO
Total CCE			38
% Non-Functional			**11%**

Annex 7e: Vacant positions at GMSD Karnal



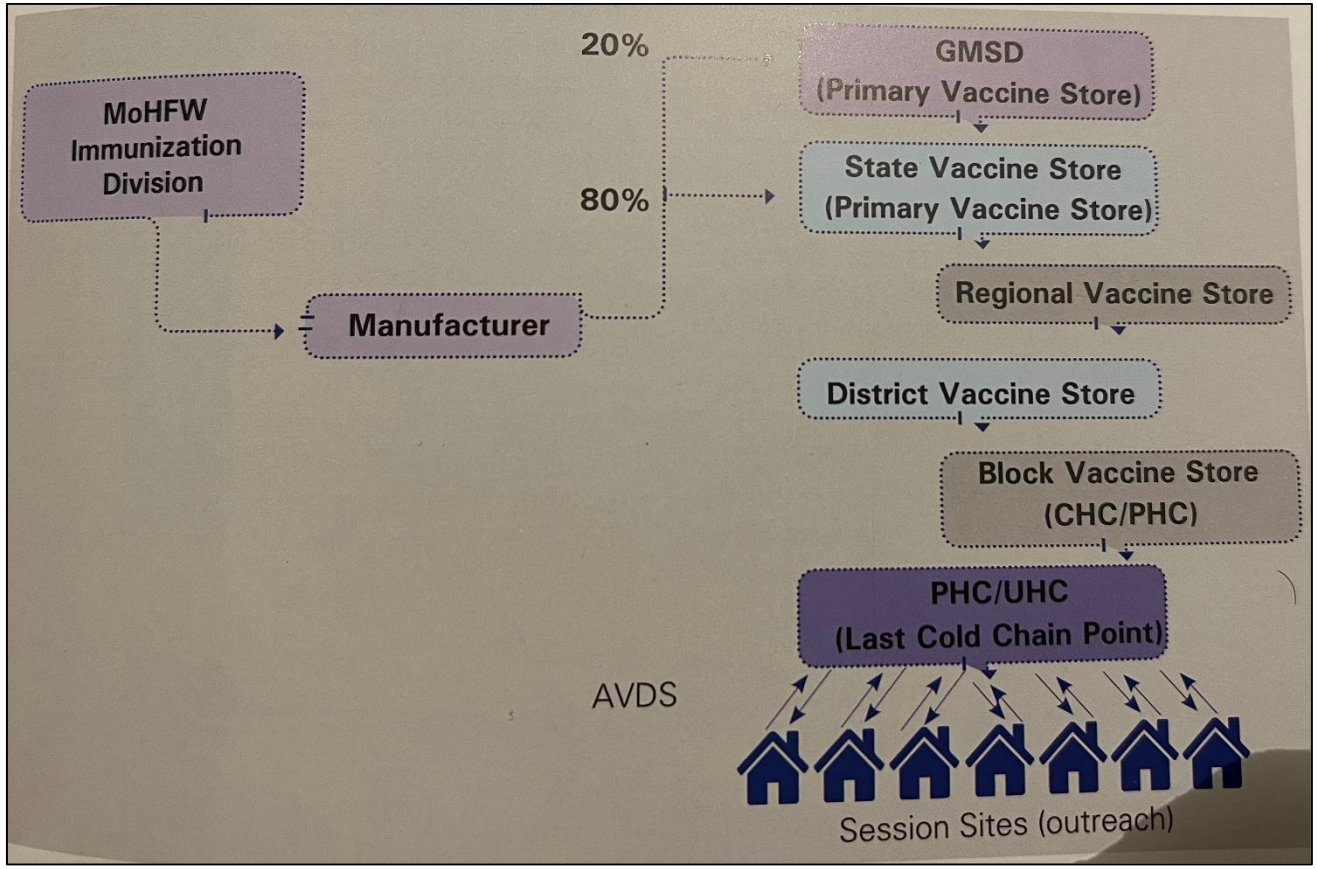
Statement of Sanction Strength and vacant posts
As on 31 August, 2022
Name of the Office: Government Medical Store Depot, Karnal.

Sr. No.	Name of the post	Group of the post A-Gaz., B-Gaz B-NG, C-NG	Sanctioned Strength	Person in position	Vacant
1	ADG/DADG(MS)	Gr.A	1	1*	0*
2	Depot Manager	Gr.A	1	0	1
3	Accounts Officer	Gr.A	1	1	0
4	Asstt. Depot Manager	Gr.B	2	0	2
5	Depot Supdt.	Gr.B(Non-Gaz)	10	6	4
6	Depot Acctt.'Audit'	Gr.B(Non-Gaz)	1	0	1
7	Depot Acctt.'A/C'	Gr.B(Non-Gaz)	1	0	1
8	Pharmacist-cum-clerk	Gr.C	6	4	2
9	Computer	Gr.C	1	0	1
10	Stenographer	Gr.C	1	1	0
11	Upper Division Clerk	Gr.C	23	18	5
12	Lower Division Clerk	Gr.C	28	2	26
13	Driver Heavy Vehicle	Gr.C	1	0	1
14	Motor Mechanic	Gr.C	1	0	1
15	Gate Supervisor	Gr.C	1	1	0
16	Labour Supervisor	Gr.C	1	1	0
17	Packing Supervisor	Gr.C	5	4	1
18	Demand Transcriber	Gr.C	1	1	0
19	Multi Tasking Staff	Gr.C	85	6	79
TOTAL			171**	46	125

(*)One Medical Officer is officiating as Head of Office against the post of DADG.
**Out of Sanctioned Strength of 171 posts, 65 posts have been abolished and 34 posts deemed abolished vide DGHS(MSO), R.K.Puram, New Delhi letter No.A.11011/01/2020-St.I/FTS No.8055737 dated 18.02.2021.

Medical Officer I/C
GMSD, Karnal

Annex 7f: Vaccine supply chain structure



Annex 7g: Stock count and reconciliation variances at sub-national level

State Vaccine Store Stock Reconciliation

Vaccines & Commodities	SVS	CLOSING BALANCE as of 31st Dec 2021 (A)	OPENING BALANCE as of 1st Jan 2022 (B)	TOTAL RECEIPTS (From Stock Card/Vaccine Register)	TOTAL ISSUES (From Stock Card/Vaccine Register)	ADJUSTMENTS (damages, expiries etc)	EXPECTED BALANCE (C)	STOCK CARD BALANCE (D)	PHYSICAL COUNT BALANCE (E)	eVIN BALANCE (F)	AMC	CURRENT MOS
Pentavalent Vaccine	SVS-TN	0	0	2,200,000	2,059,000	90	140,910	140,910	140,910	141,000	257,375	0.55
Pneumococcal Conjugate Vaccine (PCV)	SVS-TN	0	0	1,000,000	1,000,000	0	0	0	0	0	125,000	-
Rota virus Vaccine	SVS-TN	11,000	11,000	769,000	780,000	0	0	0	0	0	97,500	-
Measles and Rubella Vaccine	SVS-TN	357,500	357,500	2,500,000	1,570,000	0	1,287,500	1,287,500	1,287,500	1,287,500	196,250	6.56
Covishield Vaccine	SVS-TN	0	0	18,478,300	18,478,300	0	0	0	0	0	2,309,788	-
Rota virus Vaccine	SVS-TN	2,200	2,200	153,800	156,000	0	0	0	0	0	19,500	-
Rota virus Vaccine	SVS-TN	0	0	1,650,000	1,305,500	0	344,500	344,500	209,500	344,500	163,188	1.28
Measles and Rubella Vaccine Dilutant	SVS-TN	357,500	357,500	2,500,000	1,570,000	0	1,287,500	1,287,500	1,287,500	1,287,500	196,250	6.56
Pentavalent Vaccine	SVS-MH	853,000	853,000	3,160,000	3,840,500	0	172,500	172,500	172,500	172,500	480,063	0.36
Pneumococcal Conjugate Vaccine (PCV)	SVS-MH	9,500	9,500	1,800,000	1,809,500	0	0	0	0	0	226,188	-
Rota virus Vaccine	SVS-MH	13,850	13,850	3,329,365	3,343,215	0	0	0	0	0	417,902	-
Measles and Rubella Vaccine	SVS-MH	239,750	239,750	3,030,000	2,560,750	0	709,000	709,000	709,000	709,000	320,094	2.21
Covishield Vaccine	SVS-MH	4,381,620	4,381,620	7,500,000	11,881,620	0	0	0	0	0	1,485,203	-
Pentavalent Vaccine	SVS-Lucknow (UP)	64,640	64,640	1,700,000	1,584,640	0	180,000	180,000	180,000	180,000	198,080	0.91
Pneumococcal Conjugate Vaccine (PCV)	SVS-Lucknow (UP)	280,000	280,000	1,610,000	1,842,250	0	47,750	47,750	47,750	47,750	230,281	0.21
Rota virus Vaccine	SVS-Lucknow (UP)	368,000	368,000	1,435,000	1,683,000	0	120,000	120,000	120,000	120,000	210,375	0.57
Measles and Rubella Vaccine	SVS-Lucknow (UP)	19,500	19,500	1,330,000	1,107,000	0	242,500	242,500	242,500	242,500	138,375	1.75

State Vaccine Store Stock Reconciliation												
Vaccines & Commodities	**SVS**	**CLOSING BALANCE as of 31st Dec 2021 (A)**	**OPENING BALANCE as of 1st Jan 2022 (B)**	**TOTAL RECEIPTS (From Stock Card/Vaccine Register)**	**TOTAL ISSUES (From Stock Card/Vaccine Register)**	**ADJUSTMENTS (damages, expiries etc)**	**EXPECTED BALANCE (C)**	**STOCK CARD BALANCE (D)**	**PHYSICAL COUNT BALANCE (E)**	**eVIN BALANCE (F)**	**AMC**	**CURRENT MOS**
Covishield Vaccine	SVS-Lucknow (UP)	1,514,080	1,514,080	16,388,470	17,803,050	0	99,500	99,500	99,500	99,500	2,225,381	0.04
Pentavalent Vaccine	SVS-WB	532,550	532,550	3,031,170	2,988,940	0	574,780	572,180	552,180	552,180	373,618	1.48
Pneumococcal Conjugate Vaccine (PCV)	SVS-WB	56,000	56,000	1,500,500	1,523,500	0	33,000	33,000	33,000	33,000	190,438	0.17
Rota virus Vaccine	SVS-WB	0	0	3,401,000	2,509,000	0	892,000	892,000	872,900	872,900	313,625	2.78
Measles and Rubella Vaccine	SVS-WB	146,460	146,460	3,010,000	2,581,460	0	575,000	590,000	575,000	575,000	322,683	1.78
Covishield Vaccine	SVS-WB	4,588,160	4,588,160	25,621,690	30,131,810	0	78,040	78,000	78,000	78,000	3,766,476	0.02

	Total	**Percentage**
MoS< 0.75	14	61%
MoS= 0.75 to 2.75	6	26%
MoS> 2.75	3	13%
Total	**23**	**100%**

Division and District Vaccine Stores Stock Reconciliation

Vaccine Store	Vaccines & Commodities	CLOSING BALANCE as of 31st Dec 2021 (A)	OPENING BALANCE as of 1st Jan 2022 (B)	TOTAL RECEIPTS (From Stock Card/Vaccine Register)	TOTAL ISSUES (From Stock Card/Vaccine Register)	ADJUSTMENTS (damages, expiries etc)	EXPECTED BALANCE (C)	STOCK CARD BALANCE (D)	PHYSICAL COUNT BALANCE (E)	eVIN Balance(F)	VAR 1 (A-B)	VAR 1 (A-B)-Absolute	VAR 2 (C-D)	VAR 2 (C-D)-Absolute	VAR 3(D-E)	VAR 3(D-E)-Absolute	VAR 3(F-E)	VAR 3 (F-E)-Absolute	AMC	CURRENT MOS
RVS, Pune	Pentavalent Vaccine	13,500	13,500	535,000	513,500	0	35,000	35,000	35,000	35,000	0	0	0	0	0	0	0	0	64188	0.55
RVS, Pune	Pneumococcal Conjugate Vaccine (PCV)	0	0	263,250	262,250	0	1,000	1,000	1,000	1,000	0	0	0	0	0	0	0	0	32781	0.03
RVS, Pune	Rota virus Vaccine	0	0	433,850	433,850	0	0	0	0	0	0	0	0	0	0	0	0	0	54231	-
RVS, Pune	Measles and Rubella Vaccine	50,000	50,000	382,000	402,000	0	30,000	30,000	30,000	30,000	0	0	0	0	0	0	0	0	50250	0.60
RVS, Pune	Covishield Vaccine	240,000	240,000	1,454,000	1,694,000	0	0	0	0	0	0	0	0	0	0	0	0	0	211750	-
DVS, Pune	Pentavalent Vaccine	18,480	18,480	142,500	140,830	0	20,150	25,850	24,850	25,850	0	0	-5700	5700	1000	1000	1000	1000	17604	1.41
DVS, Pune	Pneumococcal Conjugate Vaccine (PCV)	4,050	4,050	77,500	78,745	0	2,805	2,805	2,805	2,805	0	0	0	0	0	0	0	0	9843	0.28
DVS, Pune	Rota virus Vaccine	550	550	141,080	131,160	0	10,470	300	300	300	0	0	10170	10170	0	0	0	0	16395	0.02
DVS, Pune	Measles and Rubella Vaccine	11,225	11,225	137,700	139,100	0	9,825	17,850	17,850	17,850	0	0	-8025	8025	0	0	0	0	17388	1.03
DVS, Pune	Covishield Vaccine	268,140	268,140	1,155,600	1,407,580	0	16,160	16,160	4,150	4,150	0	0	0	0	12010	12010	0	0	175948	0.02
PCMC, Pune	Pentavalent Vaccine	11,910	11,910	55,000	56,930	0	9,980	9,980	9,980	9,980	0	0	0	0	0	0	0	0	7116	1.40
PCMC, Pune	Pneumococcal Conjugate Vaccine (PCV)	4,100	4,100	40,250	43,690	0	660	660	660	660	0	0	0	0	0	0	0	0	5461	0.12
PCMC, Pune	Rota virus Vaccine	1,700	1,700	53,000	53,800	0	900	900	900	900	0	0	0	0	0	0	0	0	6725	0.13
PCMC, Pune	Measles and Rubella Vaccine	10,000	10,000	50,250	52,160	0	8,090	8,090	8,090	8,090	0	0	0	0	0	0	0	0	6520	1.24
PCMC, Pune	Covishield Vaccine	24,000	24,000	266,500	289,500	0	1,000	1,000	1,000	1,000	0	0	0	0	0	0	0	0	36188	0.03
DVS, Satara	Pentavalent Vaccine	7,800	7,800	90,000	92,050	0	5,750	5,750	9,880	9,880	0	0	0	0	-4130	4130	0	0	11506	0.86
DVS, Satara	Pneumococcal Conjugate Vaccine (PCV)	550	550	54,500	55,050	0	0	0	0	0	0	0	0	0	0	0	0	0	6881	-
DVS, Satara	Rota virus Vaccine	1,750	1,750	79,000	79,980	0	770	770	770	770	0	0	0	0	0	0	0	0	9998	0.08
DVS, Satara	Measles and Rubella Vaccine	15,190	15,190	63,500	73,880	0	4,810	4,770	4,770	4,770	0	0	40	40	0	0	0	0	9235	0.52
DVS, Satara	Covishield Vaccine	117,700	117,700	235,900	352,830	0	770	670	850	850	0	0	100	100	-180	180	0	0	44104	0.02
RVS, Mumbai	Pentavalent Vaccine	96,500	96,500	170,000	222,500	0	44,000	44,000	44,000	44,000	0	0	0	0	0	0	0	0	27813	1.58
RVS, Mumbai	Pneumococcal Conjugate Vaccine (PCV)	26,910	26,910	137,480	162,890	0	1,500	1,500	1,500	1,500	0	0	0	0	0	0	0	0	20361	0.07
RVS, Mumbai	Rota virus Vaccine	4,100	4,100	266,000	207,300	0	62,800	61,600	61,600	61,600	0	0	1200	1200	0	0	0	0	25913	2.38
RVS, Mumbai	Measles and Rubella Vaccine	218,500	218,500	116,500	311,500	0	23,500	23,500	23,500	23,500	0	0	0	0	0	0	0	0	38938	0.60
CVS, Mumbai	Pentavalent Vaccine	270	270	6,500	5,900	0	870	870	870	870	0	0	0	0	0	0	0	0	738	1.18

Division and District Vaccine Stores Stock Reconciliation

Vaccine Store	Vaccines & Commodities	CLOSING BALANCE as of 31st Dec 2021 (A)	OPENING BALANCE as of 1st Jan 2022 (B)	TOTAL RECEIPTS (From Stock Card/Vaccine Register)	TOTAL ISSUES (From Stock Card/Vaccine Register)	ADJUSTMENTS (damages, expiries etc)	EXPECTED BALANCE (C)	STOCK CARD BALANCE (D)	PHYSICAL COUNT BALANCE (E)	eVIN Balance(F)	VAR 1 (A-B)	VAR 1 (A-B)-Absolute	VAR 2 (C-D)	VAR 2 (C-D)-Absolute	VAR 3(D-E)	VAR 3(D-E)-Absolute	VAR 3(F-E)	VAR 3 (F-E)-Absolute	AMC	CURRENT MOS
CVS, Mumbai	Pneumococcal Conjugate Vaccine (PCV)	525	525	4,250	4,735	0	40	40	40	40	0	0	0	0	0	0	0	0	592	0.07
CVS, Mumbai	Rota virus Vaccine	520	520	6,000	6,300	0	220	150	150	150	0	0	70	70	0	0	0	0	788	0.19
CVS, Mumbai	Measles and Rubella Vaccine	530	530	3,250	3,425	0	355	355	355	355	0	0	0	0	0	0	0	0	428	0.83
CVS, Mumbai	Covishield Vaccine	0	0	26,800	26,650	0	150	150	150	0	0	0	0	0	0	0	-150	150	3331	0.05
Balrampur District	Pentavalent Vaccine	28,740	28,740	104,480	119,370	0	13,850	13,850	7,900	7,900	0	0	0	0	5950	5950	0	0	14921	0.53
Balrampur District	Pneumococcal Conjugate Vaccine (PCV)	6,250	6,250	86,000	92,250	0	0	0	0	0	0	0	0	0	0	0	0	0	11531	-
Balrampur District	Rota virus Vaccine	7,375	7,375	132,140	136,640	0	2,875	2,875	0	0	0	0	0	0	2875	2875	0	0	17080	-
Balrampur District	Measles and Rubella Vaccine	34,750	34,750	101,500	119,500	0	16,750	16,750	15,750	15,750	0	0	0	0	1000	1000	0	0	14938	1.05
Balrampur District	Covishield Vaccine	21,000	21,000	989,300	1,010,300	0	0	0	0	0	0	0	0	0	0	0	0	0	126288	-
Div VS- Gonda	Pentavalent Vaccine	28,800	28,800	61,840	74,880	0	15,760	15,760	15,760	15,760	0	0	0	0	0	0	0	0	9360	1.68
Div VS- Gonda	Pneumococcal Conjugate Vaccine (PCV)	17,500	17,500	10,000	27,500	0	0	0	0	0	0	0	0	0	0	0	0	0	3438	-
Div VS- Gonda	Rota virus Vaccine	47,500	47,500	28,000	67,500	0	8,000	8,000	8,000	8,000	0	0	0	0	0	0	0	0	8438	0.95
Div VS- Gonda	Measles and Rubella Vaccine	27,500	27,500	35,000	47,500	0	15,000	15,000	15,000	15,000	0	0	0	0	0	0	0	0	5938	2.53
Gonda District	Pentavalent Vaccine	12,900	12,900	202,840	200,740	0	15,000	15,000	15,000	15,000	0	0	0	0	0	0	0	0	25093	0.60
Gonda District	Pneumococcal Conjugate Vaccine (PCV)	13,500	13,500	131,550	144,450	0	600	50	45,657	45,657	0	0	550	550	-45607	45607	0	0	18056	2.53
Gonda District	Rota virus Vaccine	13,750	13,750	193,500	201,750	0	5,500	5,500	92,591	92,591	0	0	0	0	-87091	87091	0	0	25219	3.67
Gonda District	Measles and Rubella Vaccine	12,000	12,000	167,000	164,750	0	14,250	14,250	46,295	46,295	0	0	0	0	-32045	32045	0	0	20594	2.25
Gonda District	Covishield Vaccine	14,000	14,000	1,333,000	1,344,250	0	2,750	2,750	44,923	44,923	0	0	0	0	-42173	42173	0	0	168031	0.27
Unnao District	Pentavalent Vaccine	11,760	11,760	130,120	127,880	0	14,000	14,000	14,000	14,000	0	0	0	0	0	0	0	0	15985	0.88
Unnao District	Pneumococcal Conjugate Vaccine (PCV)	11,000	11,000	98,250	108,875	0	375	375	375	375	0	0	0	0	0	0	0	0	13609	0.03
Unnao District	Rota virus Vaccine	17,000	17,000	148,625	164,250	0	1,375	1,375	1,375	1,375	0	0	0	0	0	0	0	0	20531	0.07
Unnao District	Measles and Rubella Vaccine	24,250	24,250	114,750	131,000	0	8,000	8,000	8,000	8,000	0	0	0	0	0	0	0	0	16375	0.49
Unnao District	Covishield Vaccine	6,500	6,500	1,518,210	1,524,710	0	0		0	0	0	0	0	0	0	0	0	0	190589	-
Hardoi District	Pentavalent Vaccine	13,280	13,280	251,120	236,560	0	27,840	12,320		0	0	0	15520	15520	12320	12320	0	0	29570	-

Division and District Vaccine Stores Stock Reconciliation

Vaccine Store	Vaccines & Commodities	CLOSING BALANCE as of 31st Dec 2021 (A)	OPENING BALANCE as of 1st Jan 2022 (B)	TOTAL RECEIPTS (From Stock Card/Vaccine Register)	TOTAL ISSUES (From Stock Card/Vaccine Register)	ADJUSTMENTS (damages, expiries etc)	EXPECTED BALANCE (C)	STOCK CARD BALANCE (D)	PHYSICAL COUNT BALANCE (E)	eVIN Balance(F)	VAR 1 (A-B)	VAR 1 (A-B)-Absolute	VAR 2 (C-D)	VAR 2 (C-D)-Absolute	VAR 3(D-E)	VAR 3(D-E)-Absolute	VAR 3(F-E)	VAR 3(F-E)-Absolute	AMC	CURRENT MOS
Hardoi District	Pneumococcal Conjugate Vaccine (PCV)	35,000	35,000	131,750	166,000	0	750	500		0	0	0	250	250	500	500	0	0	20750	-
Hardoi District	Rota virus Vaccine	21,570	21,570	244,500	247,570	0	18,500	18,500		0	0	0	0	0	18500	18500	0	0	30946	-
Hardoi District	Measles and Rubella Vaccine	15,000	15,000	205,000	208,750	0	11,250	11,500		0	0	0	-250	250	11500	11500	0	0	26094	-
Hardoi District	Covishield Vaccine	113,000	113,000	1,950,000	2,067,800	0	(4,800)	0		0	0	0	-4800	4800	0	0	0	0	258475	-
Lucknow District	Pentavalent Vaccine	12,480	12,480	76,760	75,240	0	14,000		9,500	9,500	0	0	14000	14000	-9500	9500	0	0	9405	1.01
Lucknow District	Pneumococcal Conjugate Vaccine (PCV)	22,750	22,750	50,000	65,000	0	7,750		0	0	0	0	7750	7750	0	0	0	0	8125	-
Lucknow District	Rota virus Vaccine	17,000	17,000	56,000	68,625	0	4,375		125	125	0	0	4375	4375	-125	125	0	0	8578	0.01
Lucknow District	Measles and Rubella Vaccine	6,000	6,000	169,750	175,700	0	50		50	50	0	0	50	50	-50	50	0	0	21963	0.00
Lucknow District	Covishield Vaccine	90,000	90,000	1,325,500	1,415,000	0	500	500	500	500	0	0	0	0	0	0	0	0	176875	0.00
Sitapur District	Pentavalent Vaccine	330	330	239,880	235,460	0	4,750	4,750	4,750	4,750	0	0	0	0	0	0	0	0	29433	0.16
Sitapur District	Pneumococcal Conjugate Vaccine (PCV)	2,250	2,250	172,250	174,465	0	35	35	35	35	0	0	0	0	0	0	0	0	21808	0.00
Sitapur District	Rota virus Vaccine	1,850	1,850	272,000	266,850	0	7,000	7,000	7,000	7,000	0	0	0	0	0	0	0	0	33356	0.21
Sitapur District	Measles and Rubella Vaccine	1,000	1,000	210,000	206,750	0	4,250	4,250	4,250	4,250	0	0	0	0	0	0	0	0	25844	0.16
Sitapur District	Covishield Vaccine	23,000	23,000	2,152,000	2,174,500	0	500	500	500	500	0	0	0	0	0	0	0	0	271813	0.00
RVS- Trichy	Pentavalent Vaccine	12,000	12,000	220,000	214,500	0	17,500	17,500	17,500	17,500	0	0	0	0	0	0	0	0	26813	0.65
RVS- Trichy	Pneumococcal Conjugate Vaccine (PCV)	0	0	88,000	88,000	0	0	0	0	0	0	0	0	0	0	0	0	0	11000	-
RVS- Trichy	Rota virus Vaccine	63,000	63,000	65,000	128,000	0	0	0	0		0	0	0	0	0	0	0	0	16000	-
RVS- Trichy	Measles and Rubella Vaccine	19,500	19,500	175,000	184,500	0	10,000	10,000	10,000	10,000	0	0	0	0	0	0	0	0	23063	0.43
RVS- Trichy	Covishield Vaccine	123,500	123,500	1,635,000	1,758,500	0	0	0	0	0	0	0	0	0	0	0	0	0	219813	-
RVS- Trichy	Rota Virus Vaccine	0	0	152,500	117,800	0	34,700	34,700	34,700	34,700	0	0	0	0	0	0	0	0	14725	2.36
DVS- Trichy	Pentavalent Vaccine	4,270	4,270	85,500	75,350	0	14,420	14,420	14,420	14,420	0	0	0	0	0	0	0	0	9419	1.53
DVS- Trichy	Pneumococcal Conjugate Vaccine (PCV)	3,140	3,140	33,400	36,540	0	0	0	0	0	0	0	0	0	0	0	0	0	4568	-
DVS- Trichy	Rota virus Vaccine	8,125	8,125	52,500	59,750	0	875	875	875	875	0	0	0	0	0	0	0	0	7469	0.12
DVS- Trichy	Measles and Rubella Vaccine	9,400	9,400	70,000	67,700	0	11,700	11,700	11,700	11,700	0	0	0	0	0	0	0	0	8463	1.38
DVS- Trichy	Covishield Vaccine	23,800	23,800	627,620	644,820	0	6,600	6,600	6,600	6,600	0	0	0	0	0	0	0	0	80603	0.08

Division and District Vaccine Stores Stock Reconciliation

Vaccine Store	Vaccines & Commodities	CLOSING BALANCE as of 31st Dec 2021 (A)	OPENING BALANCE as of 1st Jan 2022 (B)	TOTAL RECEIPTS (From Stock Card/Vaccine Register)	TOTAL ISSUES (From Stock Card/Vaccine Register)	ADJUSTMENTS (damages, expiries etc)	EXPECTED BALANCE (C)	STOCK CARD BALANCE (D)	PHYSICAL COUNT BALANCE (E)	eVIN Balance(F)	VAR 1 (A-B)	VAR 1 (A-B)-Absolute	VAR 2 (C-D)	VAR 2 (C-D)-Absolute	VAR 3(D-E)	VAR 3(D-E)-Absolute	VAR 3(F-E)	VAR 3 (F-E)-Absolute	AMC	CURRENT MOS
DVS- Trichy	Rota virus Vaccine	0	0	61,200	35,700	0	25,500	25,500	25,500	25,500	0	0	0	0	0	0	0	0	4463	5.71
RVS- Cuddalore	Pentavalent Vaccine	17,000	17,000	195,000	192,000	0	20,000	20,000	20,000	20,000	0	0	0	0	0	0	0	0	24000	0.83
RVS- Cuddalore	Pneumococcal Conjugate Vaccine (PCV)	0	0	77,000	77,000	0	0	0	0	0	0	0	0	0	0	0	0	0	9625	-
RVS- Cuddalore	Rota virus Vaccine	51,875	51,875	72,985	124,860	0	0	0	0	0	0	0	0	0	0	0	0	0	15608	-
RVS- Cuddalore	Measles and Rubella Vaccine	23,000	23,000	150,000	153,000	0	20,000	20,000	20,000	20,000	0	0	0	0	0	0	0	0	19125	1.05
RVS- Cuddalore	Covishield Vaccine	0	0	1,669,500	1,669,500	0	0	0	0	0	0	0	0	0	0	0	0	0	208688	-
RVS- Cuddalore	Rota virus Vaccine	0	0	111,900	65,000	0	46,900	46,900	46,900	46,900	0	0	0	0	0	0	0	0	8125	5.77
DVS- Cuddalore	Pentavalent Vaccine	6,990	6,990	80,000	75,250	0	11,740	11,740	5,030	5,030	0	0	0	0	6710	6710	0	0	9406	0.53
DVS- Cuddalore	Pneumococcal Conjugate Vaccine (PCV)	0	0	30,500	30,500	0	0	0	0	0	0	0	0	0	0	0	0	0	3813	-
DVS- Cuddalore	Rota virus Vaccine	0	0	36,000	23,765	0	12,235	12,235	6,755	6,755	0	0	0	0	5480	5480	0	0	2971	2.27
DVS- Cuddalore	Measles and Rubella Vaccine	7,990	7,990	63,000	58,675	0	12,315	12,315	5,865	5,865	0	0	0	0	6450	6450	0	0	7334	0.80
DVS- Cuddalore	Covishield Vaccine	0	0	522,000	523,000	0	(1,000)	0	0	0	0	0	-1000	1000	0	0	0	0	65375	-
DVS- Cuddalore	Rota virus Vaccine	5,685	5,685	49,860	53,910	0	1,635	1,635	1,670	1,635	0	0	0	0	-35	35	-35	35	6739	0.25
DVS- Vellipuram	Pentavalent Vaccine	3,950	3,950	67,000	60,550	0	10,400	10,400	10,400	10,400	0	0	0	0	0	0	0	0	7569	1.37
DVS- Vellipuram	Pneumococcal Conjugate Vaccine (PCV)	415	415	9,000	9,415	0	0	0	0	0	0	0	0	0	0	0	0	0	1177	-
DVS- Vellipuram	Rota virus Vaccine	14,090	14,090	66,000	68,010	0	12,080	12,080	12,080	12,080	0	0	0	0	0	0	0	0	8501	1.42
DVS- Vellipuram	Measles and Rubella Vaccine	5,650	5,650	56,000	53,200	0	8,450	8,450	8,450	8,450	0	0	0	0	0	0	0	0	6650	1.27
DVS- Kolkata	Pentavalent Vaccine	32,030	32,030	55,000	78,370	0	8,660	8,810	8,810	8,810	0	0	-150	150	0	0	0	0	9796	0.90
DVS- Kolkata	Pneumococcal Conjugate Vaccine (PCV)	4,950	4,950	51,750	56,300	0	400	400	400	400	0	0	0	0	0	0	0	0	7038	0.06
DVS- Kolkata	Rota virus Vaccine	0	0	66,000	52,050	0	13,950	13,950	13,950	13,950	0	0	0	0	0	0	0	0	6506	2.14
DVS- Kolkata	Measles and Rubella Vaccine	0	0	75,000	59,900	0	15,100	15,100	15,100	15,100	0	0	0	0	0	0	0	0	7488	2.02
DVS- Kolkata	Covishield Vaccine	320,960	320,960	1,060,420	1,365,280	0	16,100	16,100	16,100	16,100	0	0	0	0	0	0	0	0	170660	0.09
DVS- Kolkata	Rota virus Vaccine	9,700	9,700	12,000	21,700	0	0	0	0	0	0	0	0	0	0	0	0	0	2713	-
DVS- S. 24 Paragna	Pentavalent Vaccine	22,320	22,320	182,280	203,720	0	880	880	880	880	0	0	0	0	0	0	0	0	25465	0.03
DVS- S. 24 Paragna	Pneumococcal Conjugate Vaccine (PCV)	18,950	18,950	90,000	108,900	0	50	50	50	50	0	0	0	0	0	0	0	0	13613	0.00

Division and District Vaccine Stores Stock Reconciliation

Vaccine Store	Vaccines & Commodities	CLOSING BALANCE as of 31st Dec 2021 (A)	OPENING BALANCE as of 1st Jan 2022 (B)	TOTAL RECEIPTS (From Stock Card/Vaccine Register)	TOTAL ISSUES (From Stock Card/Vaccine Register)	ADJUSTMENTS (damages, expiries etc)	EXPECTED BALANCE (C)	STOCK CARD BALANCE (D)	PHYSICAL COUNT BALANCE (E)	eVIN Balance(F)	VAR 1 (A-B)	VAR 1 (A-B)-Absolute	VAR 2 (C-D)	VAR 2 (C-D)-Absolute	VAR 3(D-E)	VAR 3 (D-E)-Absolute	VAR 3(F-E)	VAR 3 (F-E)-Absolute	AMC	CURRENT MOS
DVS- S. 24 Paragna	Rota virus Vaccine	14,300	14,300	158,200	171,450	0	1,050	1,050	1,050	1,050	0	0	0	0	0	0	0	0	21431	0.05
DVS- S. 24 Paragna	Measles and Rubella Vaccine	15,000	15,000	155,900	158,700	0	12,200	12,200	12,200	12,200	0	0	0	0	0	0	0	0	19838	0.61
DVS- S. 24 Paragna	Covishield Vaccine	0	0	1,362,710	1,203,271	0	159,439	0	1,700	1,700	0	0	159439	159439	-1700	1700	0	0	150409	0.01
DVS- P. Burdwan	Pentavalent Vaccine	14,030	14,030	148,010	150,600	0	11,440	11,440	11,420	11,420	0	0	0	0	20	20	0	0	18825	0.61
DVS- P. Burdwan	Pneumococcal Conjugate Vaccine (PCV)	11,470	11,470	70,000	80,970	0	500	500	500	500	0	0	0	0	0	0	0	0	10121	0.05
DVS- P. Burdwan	Rota virus Vaccine	0	0	113,000	112,350	0	650	650	650	650	0	0	0	0	0	0	0	0	14044	0.05
DVS- P. Burdwan	Measles and Rubella Vaccine	6,000	6,000	129,750	125,250	0	10,500	10,500	10,545	10,545	0	0	0	0	-45	45	0	0	15656	0.67
DVS- P. Burdwan	Covishield Vaccine	0	0	1,943,680	1,943,680	0	0	0	0	0	0	0	0	0	0	0	0	0	242960	-
DVS- P. Burdwan	Rota virus Vaccine	12,000	12,000	24,000	36,000	0	0	0	0	0	0	0	0	0	0	0	0	0	4500	-
DVS- P. Burdwan	Measles and Rubella Vaccine	10,750	10,750	0	10,710	0	40	40	0	0	0	0	0	0	40	40	0	0	1339	-

MoS< 0.75	76	70%
MoS= 0.75 to 2.75	30	28%
MoS> 2.75	3	3%

Count of variance (<0)	0		6		12		2	
Total count	0		19		26		**3**	
%	0%		17%		24%		3%	

Annex 7h: Vaccine stockouts at subnational level

State Vaccine Store Stock Outs									
Name of Vaccine	**SVS**	**Stockout 1**	**Stockout 2**	**Stockout 3**	**Stockout 4**	**Stockout 5**	**Stockout 6**	**Sum**	**Max**
Measles and Rubella Vaccine	SVS-TN	73	51	23	130	0	0	277	130
Rota virus Vaccine	SVS-MH	55	22	10	36	4	16	143	55
Measles and Rubella Vaccine	SVS-MH	8	17	12	239	0	0	276	239
BCG	SVS-MH	1	2	0	0	0	0	3	2
Oral Polio Vaccine	SVS-MH	4	20	10	2	16	0	52	20
Rota virus Vaccine	SVS-MH	15	24	0	0	24	0	63	24
Pneumococcal Conjugate Vaccine (PCV)	SVS- Lucknow (UP)	4	4	7	3	12	1	31	12
Measles and Rubella Vaccine	SVS- Lucknow (UP)	21	168	18	5	0	0	212	168
BCG	SVS- Lucknow (UP)	5	0	0	0	0	0	5	5
Oral Polio Vaccine	SVS- Lucknow (UP)	132	11	21	89	1	1	255	132
Oral Polio Vaccine	SVS- Lucknow (UP)	0	0	0	0	0	1	1	1
Pentavalent Vaccine	SVS- WB	13	0	0	0	0	0	13	13
Pneumococcal Conjugate Vaccine (PCV)	SVS- WB	1	0	0	0	0	0	1	1
Measles and Rubella Vaccine	SVS- WB	2	13	0	0	0	0	15	13

Average # of stock out days	**96**
Maximum # of stock out days	**239**

Division and District Vaccine Stores Stock Outs

Name of Vaccine Store	Name of Vaccine	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Sum	Maximum
DVS Satara	Rota virus Vaccine	26	0	0	0	0	0	26	26
DVS Satara	Measles and Rubella Vaccine	26	16	27	31	0	0	100	31
CVS Mumbai	Pentavalent Vaccine	7	13	0	6	0	0	26	13
CVS Mumbai	Pneumococcal Conjugate Vaccine (PCV)	18	0	0	0	0	0	18	18
CVS Mumbai	Measles and Rubella Vaccine	3	1	0	0	0	0	4	3
CVS Mumbai	BCG	5	0	0	0	0	0	5	5
CVS Mumbai	Oral Polio Vaccine	1	11	13	12	0	0	37	13
RVS Mumbai	Rota virus Vaccine	18	8	0	0	0	0	26	18
PCMC Pune	Pneumococcal Conjugate Vaccine (PCV)	49	1	6	2	7	0	65	49
PCMC Pune	Rota virus Vaccine	8	21	1	5	0	14	49	21
PCMC Pune	Measles and Rubella Vaccine	137	17	51	9	32	0	246	137
PCMC Pune	BCG	18	0	0	0	0	0	18	18
PCMC Pune	Oral Polio Vaccine	2	0	0	0	0	0	2	2
Pune RVS	Pentavalent Vaccine	0	9	7	16	3	0	35	16
Pune RVS	Pneumococcal Conjugate Vaccine (PCV)	29	12	33	38	23	4	139	38
Pune RVS	Rota virus Vaccine	34	1	72	18	69	14	208	72
Pune RVS	Measles and Rubella Vaccine	2	3	0	0	0	0	5	3
Pune RVS	Oral Polio Vaccine	6	0	0	0	0	0	6	6
Pune DVS	Pneumococcal Conjugate Vaccine (PCV)	8	0	0	0	0	0	8	8
Pune DVS	Rota virus Vaccine	3	2	49	47	0	0	101	49
Pune DVS	BCG	1	0	0	0	0	0	1	1
Unnao District	Pneumococcal Conjugate Vaccine (PCV)	5	3	7	12	1	10	38	12
Unnao District	Rota virus Vaccine	1	46	2	7	5	5	66	46
Unnao District	Measles and Rubella Vaccine	13	1	3	1	4	9	31	13
Unnao District	BCG	7	2	4	0	0	0	13	7
Sitapur District	Pentavalent Vaccine	8	19	19	0	0	0	46	19

Division and District Vaccine Stores Stock Outs

Name of Vaccine Store	Name of Vaccine	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Sum	Maximum
Sitapur District	Pneumococcal Conjugate Vaccine (PCV)	23	3	8	17	0	0	51	23
Sitapur District	Rota virus Vaccine	9	8	17	6	2	0	42	17
Sitapur District	Measles and Rubella Vaccine	17	7	11	0	0	0	35	17
Sitapur District	BCG	9	9	20	15	17	23	93	23
Sitapur District	Oral Polio Vaccine	14	14	61	3	3	0	95	61
Lucknow District	Rota virus Vaccine	8	3	0	0	0	0	11	8
Lucknow District	Measles and Rubella Vaccine	17	5	2	2	0	0	26	17
Lucknow District	BCG	7	0	0	0	0	0	7	7
Hardoi Distrcit	Pneumococcal Conjugate Vaccine (PCV)	6	6	3	4	8	9	36	9
Hardoi Distrcit	Pneumococcal Conjugate Vaccine (PCV)	7	0	0	0	0	0	7	7
Hardoi Distrcit	Rota virus Vaccine	3	0	0	0	0	0	3	3
Hardoi Distrcit	BCG	7	5	3	5	0	0	20	7
Hardoi Distrcit	Oral Polio Vaccine	2	34	3	3	10	0	52	34
Div VS- Gonda	Pentavalent Vaccine	33	18	0	0	0	0	51	33
Div VS- Gonda	Pneumococcal Conjugate Vaccine (PCV)	103	41	123	43	80	44	434	123
Div VS- Gonda	Rota virus Vaccine	35	43	101	18	0	0	197	101
Div VS- Gonda	Measles and Rubella Vaccine	1	13	38	0	0	0	52	38
Div VS- Gonda	BCG	35	28	48	0	0	0	111	48
Div VS- Gonda	Oral Polio Vaccine	33	9	26	101	0	0	169	101
Balrampur Distrcit	BCG	22	6	12	5	12	4	61	22
Balrampur Distrcit	Oral Polio Vaccine	374	10	3	0	0	0	387	374
Balrampur Distrcit	Pneumococcal Conjugate Vaccine (PCV)	3	18	1	8	15	1	46	18
Balrampur Distrcit	Pneumococcal Conjugate Vaccine (PCV)	21	0	0	0	0	0	21	21
Balrampur Distrcit	Rota virus Vaccine	10	4	9	7	0	0	30	10
Balrampur Distrcit	Measles and Rubella Vaccine	11	0	2	0	0	0	13	11
RVS- Trichy	Pneumococcal Conjugate Vaccine (PCV)	23	48	32	32	61	23	219	61

Division and District Vaccine Stores Stock Outs

Name of Vaccine Store	Name of Vaccine	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Sum	Maximum
RVS- Trichy	Measles and Rubella Vaccine	6	2	0	0	0	0	8	6
RVS- Trichy	Pneumococcal Conjugate Vaccine (PCV)	65	19	15	0	0	0	99	65
RVS- Trichy	Rota virus Vaccine	3	0	0	0	0	0	3	3
DVS- Trichy	Pentavalent Vaccine	3	0	0	0	0	0	3	3
DVS- Trichy	Pneumococcal Conjugate Vaccine (PCV)	19	14	15	2	9	11	70	19
DVS- Trichy	Rota virus Vaccine	70	0	0	0	0	0	70	70
DVS- Trichy	Measles and Rubella Vaccine	1	3	2	10	3	9	28	10
DVS- Trichy	Oral Polio Vaccine	4	6	0	0	0	0	10	6
DVS- Trichy	Measles and Rubella Vaccine	6	8	0	0	0	0	14	8
DVS- Trichy	Measles and Rubella Vaccine	15	172	0	0	0	0	187	172
DVS- Trichy	Rota virus Vaccine	50	2	1	3	3	25	84	50
DVS- Trichy	Pneumococcal Conjugate Vaccine (PCV)	13	49	0	0	0	0	62	49
RVS- Cuddalore	Pentavalent Vaccine	3	0	0	0	0	0	3	3
RVS- Cuddalore	Pneumococcal Conjugate Vaccine (PCV)	45	42	33	63	24	31	238	63
RVS- Cuddalore	Rota virus Vaccine	36	7	50	7	14	56	170	56
RVS- Cuddalore	Measles and Rubella Vaccine	16	19	15	2	0	0	52	19
RVS- Cuddalore	Pneumococcal Conjugate Vaccine (PCV)	65	33	39	0	0	0	137	65
DVS- Cuddalore	Pneumococcal Conjugate Vaccine (PCV)	2	23	29	15	37	43	149	43
DVS- Villupuram	Pneumococcal Conjugate Vaccine (PCV)	18	0	0	0	0	0	18	18
DVS- Kolkata	Pneumococcal Conjugate Vaccine (PCV)	1	5	4	0	0	0	10	5
DVS- Kolkata	Measles and Rubella Vaccine	188	3	19	0	0	0	210	188
DVS- Kolkata	Rota virus Vaccine	2	3	0	0	0	0	5	3
DVS- S. 24 Paragna	Pneumococcal Conjugate Vaccine (PCV)	11	0	0	0	0	0	11	11
DVS- S. 24 Paragna	Rota virus Vaccine	0	1	7	0	0	0	8	7
DVS- S. 24 Paragna	BCG	0	4	0	0	0	0	4	4
DVS- S. 24 Paragna	Oral Polio Vaccine	0	6	0	0	0	0	6	6

Division and District Vaccine Stores Stock Outs									
Name of Vaccine Store	Name of Vaccine	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Stock Out Days	Sum	Maximum
DVS- S. 24 Paragna	Measles and Rubella Vaccine	55	28	224	0	0	0	307	224
DVS- S. 24 Paragna	Rota virus Vaccine	2	0	0	0	0	0	2	2
DVS- S. 24 Paragna	Pentavalent Vaccine	8	0	0	0	0	0	8	8
DVS- P. Burdwan	Pneumococcal Conjugate Vaccine (PCV)	10	21	0	0	0	0	31	21
DVS- P. Burdwan	Measles and Rubella Vaccine	55	36	0	0	0	0	91	55
Average # of stock out days for all antigen		**69**							
Maximum # of stock out days		**374 (OPV)**		**224 (M&R)**					

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Reusa	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Reusa	Pneumococcal Conjugate Vaccine (PCV)	7	10	24	37	12	5	95	37
Reusa	Pneumococcal Conjugate Vaccine (PCV)	16	14	10	10	13	0	63	16
Reusa	Rota virus Vaccine	2	9	24	11	12	24	82	24
Reusa	Rota virus Vaccine	3	8	3	20	5	0	39	20
Reusa	Measles and Rubella Vaccine	2	12	7	11	7	0	39	12
Reusa	Covishield	0	0	0	0	0	0	0	0
Reusa	BCG	3	0	0	0	0	0	3	3
Reusa	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Sanda	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Sanda	Pneumococcal Conjugate Vaccine (PCV)	9	19	7	0	0	0	35	19
Sanda	Rota virus Vaccine	9	0	0	0	0	0	9	9
Sanda	Measles and Rubella Vaccine	0	0	0	0	0	0	0	0
Sanda	Covishield	0	0	0	0	0	0	0	0
Sanda	BCG	4	5	5	0	0	0	14	5

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Sanda	Oral Polio Vaccine	8	48	16	0	0	0	72	48
Sitapur PPC	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Sitapur PPC	Pneumococcal Conjugate Vaccine (PCV)	6	3	3	2	0	0	14	6
Sitapur PPC	Rota virus Vaccine	6	5	0	0	0	0	11	6
Sitapur PPC	Measles and Rubella Vaccine	2	0	0	0	0	0	2	2
Sitapur PPC	Covishield	0	0	0	0	0	0	0	0
Sitapur PPC	BCG	0	0	0	0	0	0	0	0
Sitapur PPC	Oral Polio Vaccine	5	2	16	0	0	0	23	16
Tambaur CHC	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Tambaur CHC	Pneumococcal Conjugate Vaccine (PCV)	6	3	3	2	0	0	14	6
Tambaur CHC	Rota virus Vaccine	6	5	0	0	0	0	11	6
Tambaur CHC	Measles and Rubella Vaccine	2	0	0	0	0	0	2	2
Tambaur CHC	Covishield	0	0	0	0	0	0	0	0
Tambaur CHC	BCG	0	0	0	0	0	0	0	0
Tambaur CHC	Oral Polio Vaccine	5	2	16	0	0	0	23	16
Achalganj	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Achalganj	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Achalganj	Rota virus Vaccine	4	1	7	10	1	2	25	10
Achalganj	Measles and Rubella Vaccine	6	6	13	2	2	6	35	13
Achalganj	Covishield	1	1	2	1	1	3	9	3
Achalganj	BCG	0	0	0	0	0	0	0	0
Achalganj	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Nawabganj	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Nawabganj	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Nawabganj	Rota virus Vaccine	0	0	0	0	0	0	0	0
Nawabganj	Measles and Rubella Vaccine	0	0	0	0	0	0	0	0
Nawabganj	Covishield	1	1	2	2	3	2	11	3

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Nawabganj	BCG	0	0	0	0	0	0	0	0
Nawabganj	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Bigharpur	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Bigharpur	Pneumococcal Conjugate Vaccine (PCV)	24	0	0	0	0	0	24	24
Bigharpur	Rota virus Vaccine	18	6	2	1	4	10	41	18
Bigharpur	Measles and Rubella Vaccine	10	6	1	6	2	5	30	10
Bigharpur	Covishield	1	9	3	7	4	2	26	9
Bigharpur	BCG	11	13	9	2	7	4	46	13
Bigharpur	Oral Polio Vaccine	2	14	10	2	31	1	60	31
Motinagar	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Motinagar	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Motinagar	Rota virus Vaccine	5	3	0	0	0	0	8	5
Motinagar	Measles and Rubella Vaccine	4	0	0	0	0	0	4	4
Motinagar	Covishield	3	2	1	1	3	1	11	3
Motinagar	BCG	0	0	0	0	0	0	0	0
Motinagar	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Laharpur	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Laharpur	Pneumococcal Conjugate Vaccine (PCV)	2	8	13	11	0	0	34	13
Laharpur	Rota virus Vaccine	3	2	3	2	32	6	48	32
Laharpur	Rota virus Vaccine	7	10	4	0	0	0	21	10
Laharpur	Measles and Rubella Vaccine	5	0	0	0	0	0	5	5
Laharpur	Covishield	0	0	0	0	0	0	0	0
Laharpur	BCG	10	6	0	0	0	0	16	10
Laharpur	Oral Polio Vaccine	3	2	5	14	43	8	75	43
Laharpur	Oral Polio Vaccine	2	0	0	0	0	0	2	2
Khairabad CHC	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Khairabad CHC	Pneumococcal Conjugate Vaccine (PCV)	8	0	0	0	0	0	8	8

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Khairabad CHC	Rota virus Vaccine	11	19	28	6	10	14	88	28
Khairabad CHC	Measles and Rubella Vaccine	10	24	6	21	6	8	75	24
Khairabad CHC	Covishield	3	0	0	0	0	0	3	3
Khairabad CHC	BCG	3	4	7	13	13	8	48	13
Khairabad CHC	Oral Polio Vaccine	3	10	10	3	19	188	233	188
Hargaon	Pentavalent Vaccine	10	0	0	0	0	0	10	10
Hargaon	Pneumococcal Conjugate Vaccine (PCV)	8	6	13	2	13	21	63	21
Hargaon	Rota virus Vaccine	10	13	0	0	0	0	23	13
Hargaon	Measles and Rubella Vaccine	6	17	0	0	0	0	23	17
Hargaon	Covishield	0	0	0	0	0	0	0	0
Hargaon	BCG	16	0	0	0	0	0	16	16
Hargaon	Oral Polio Vaccine	6	3	15	0	0	0	24	15
Biswan CHC	Pentavalent Vaccine	5	4	0	0	0	0	9	5
Biswan CHC	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Biswan CHC	Pneumococcal Conjugate Vaccine (PCV)	14	16	29	2	3	9	73	29
Biswan CHC	Pneumococcal Conjugate Vaccine (PCV)	3	4	21	4	16	12	60	21
Biswan CHC	Pneumococcal Conjugate Vaccine (PCV)	12	13	9	21	4	13	72	21
Biswan CHC	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Biswan CHC	Rota virus Vaccine	14	25	6	13	14	25	97	25
Biswan CHC	Rota virus Vaccine	14	3	2	6	5	9	39	14
Biswan CHC	Rota virus Vaccine	3	14	8	6	23	12	66	23
Biswan CHC	Rota virus Vaccine	27	0	0	0	0	0	27	27
Biswan CHC	Rota virus Vaccine	0	0	0	0	0	0	0	0
Biswan CHC	Measles and Rubella Vaccine	9	46	3	11	8	6	83	46
Biswan CHC	Measles and Rubella Vaccine	0	0	0	0	0	0	0	0
Biswan CHC	BCG	7	14	10	0	0	0	31	14
Biswan CHC	BCG	0	0	0	0	0	0	0	0

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Biswan CHC	Oral Polio Vaccine	5	6	3	16	18	5	53	18
Biswan CHC	Oral Polio Vaccine	6	3	3	3	6	15	36	15
Biswan CHC	Oral Polio Vaccine	11	3	19	55	6	0	94	55
Sandila CHC	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Sandila CHC	Pneumococcal Conjugate Vaccine (PCV)	2	26	16	24	12	9	89	26
Sandila CHC	Rota virus Vaccine	2	3	10	3	2	2	22	10
Sandila CHC	Measles and Rubella Vaccine	3	7	0	0	0	0	10	7
Sandila CHC	BCG	3	8	0	0	0	0	11	8
Sandila CHC	Oral Polio Vaccine	3	2	2	3	0	0	10	3
PPC Hardoi	Pentavalent Vaccine	0	0	0	0	0	0	0	0
PPC Hardoi	Pneumococcal Conjugate Vaccine (PCV)	3	5	13	3	0	0	24	13
PPC Hardoi	Rota virus Vaccine	2	2	0	0	0	0	4	2
PPC Hardoi	Measles and Rubella Vaccine	4	2	2	0	0	0	8	4
PPC Hardoi	BCG	0	0	0	0	0	0	0	0
PPC Hardoi	Oral Polio Vaccine	2	2	3	2	0	0	9	3
Rajendranagar	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Rajendranagar	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Rajendranagar	Rota virus Vaccine	0	0	0	0	0	0	0	0
Rajendranagar	Measles and Rubella Vaccine	4	0	0	0	0	0	4	4
Rajendranagar	BCG	0	0	0	0	0	0	0	0
Rajendranagar	Oral Polio Vaccine	110	0	0	0	0	0	110	110
Aishbagh	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Aishbagh	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Aishbagh	Rota virus Vaccine	0	0	0	0	0	0	0	0
Aishbagh	Measles and Rubella Vaccine	130	20	1	0	0	0	151	130
Aishbagh	BCG	0	0	0	0	0	0	0	0
Aishbagh	Oral Polio Vaccine	2	0	0	0	0	0	2	2

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Sarojninagar	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Sarojninagar	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Sarojninagar	Rota virus Vaccine	0	0	0	0	0	0	0	0
Sarojninagar	Measles and Rubella Vaccine	0	0	0	0	0	0	0	0
Sarojninagar	BCG	0	0	0	0	0	0	0	0
Sarojninagar	Oral Polio Vaccine	19	2	0	0	0	0	21	19
Kachauna	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Kachauna	Pneumococcal Conjugate Vaccine (PCV)	2	11	2	2	15	9	41	15
Kachauna	Pneumococcal Conjugate Vaccine (PCV)	2	14	3	5	6	5	35	14
Kachauna	Pneumococcal Conjugate Vaccine (PCV)	5	0	0	0	0	0	5	5
Kachauna	Rota virus Vaccine	5	2	3	3	3	2	18	5
Kachauna	Rota virus Vaccine	4	0	0	0	0	0	4	4
Kachauna	Measles and Rubella Vaccine	0	0	0	0	0	0	0	0
Kachauna	BCG	0	0	0	0	0	0	0	0
Kachauna	Oral Polio Vaccine	5	2	0	0	0	0	7	5
Parasapur	Pneumococcal Conjugate Vaccine (PCV)	7	10	3	0	0	0	20	10
Parasapur	Rota virus Vaccine	3	378	3	0	0	0	384	378
Parasapur	Measles and Rubella Vaccine	1	7	0	0	0	0	8	7
Parasapur	Measles and Rubella Vaccine	0	0	0	0	0	0	0	0
Parasapur	Oral Polio Vaccine	2	0	0	0	0	0	2	2
Haldarmau	Pneumococcal Conjugate Vaccine (PCV)	31	3	4	0	0	0	38	31
Haldarmau	Rota virus Vaccine	2	8	6	2	1	2	21	8
Haldarmau	Measles and Rubella Vaccine	6	0	0	0	0	0	6	6
Haldarmau	Oral Polio Vaccine	74	19	0	0	0	0	93	74
Haldarmau	BCG	1	1	4	0	0	0	6	4
Bhabanjot	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Bhabanjot	Pneumococcal Conjugate Vaccine (PCV)	49	3	4	2	10	27	95	49

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Bhabanjot	Rota virus Vaccine	1	3	17	0	0	0	21	17
Bhabanjot	Measles and Rubella Vaccine	2	17	0	0	0	0	19	17
Bhabanjot	Covishield	1	0	0	0	0	0	1	1
Bhabanjot	BCG	3	4	9	0	23	0	39	23
Bhabanjot	Oral Polio Vaccine	2	3	0	0	0	0	5	3
Bawan CHC	Pentavalent Vaccine	4	0	0	0	0	0	4	4
Bawan CHC	Pneumococcal Conjugate Vaccine (PCV)	3	12	5	5	6	3	34	12
Bawan CHC	Pneumococcal Conjugate Vaccine (PCV)	2	15	11	5	0	0	33	15
Bawan CHC	Rota virus Vaccine	3	5	3	12	4	3	30	12
Bawan CHC	Rota virus Vaccine	3	0	0	0	0	0	3	3
Bawan CHC	Measles and Rubella Vaccine	44	0	0	0	0	0	44	44
Bawan CHC	Covishield	3	2	0	0	0	0	5	3
Bawan CHC	BCG	7	2	2	0	0	0	11	7
Bawan CHC	Oral Polio Vaccine	9	5	3	3	5	3	28	9
Bawan CHC	Oral Polio Vaccine	13	27	4	9	2	6	61	27
Balrampur rural chc	Pentavalent Vaccine	2	0	0	0	0	0	2	2
Balrampur rural chc	Pneumococcal Conjugate Vaccine (PCV)	1	3	1	3	2	0	10	3
Balrampur rural chc	Rota virus Vaccine	0	0	0	0	0	0	0	0
Balrampur rural chc	Measles and Rubella Vaccine	0	14	5	0	0	0	19	14
Balrampur rural chc	Covishield	0	2	2	1	2	2	9	2
Balrampur rural chc	BCG	7	13	0	0	0	0	20	13
Balrampur rural chc	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Gaindas Buzurg	Pentavalent Vaccine	3	0	0	0	0	0	3	3
Gaindas Buzurg	Pneumococcal Conjugate Vaccine (PCV)	20	4	3	0	10	1	38	20
Gaindas Buzurg	Rota virus Vaccine	1	2	2	3	13	2	23	13
Gaindas Buzurg	Measles and Rubella Vaccine	20	2	0	0	0	0	22	20
Gaindas Buzurg	Covishield	3	1	2	1	5	6	18	6

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Gaindas Buzurg	BCG	6	12	8	4	6	3	39	12
Gaindas Buzurg	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Kauwapur	Pentavalent Vaccine	2	2	1	8	2	2	17	8
Kauwapur	Pneumococcal Conjugate Vaccine (PCV)	27	2	0	0	0	0	29	27
Kauwapur	Rota virus Vaccine	2	4	2	0	0	0	8	4
Kauwapur	Measles and Rubella Vaccine	20	0	0	0	0	0	20	20
Kauwapur	Covishield	6	3	3	4	7	1	24	7
Kauwapur	BCG	1	5	1	5	14	1	27	14
Kauwapur	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Tulsipur	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Tulsipur	Pneumococcal Conjugate Vaccine (PCV)	7	28	7	1	10	0	53	28
Tulsipur	Rota virus Vaccine	1	10	0	0	0	0	11	10
Tulsipur	Measles and Rubella Vaccine	5	2	19	1	15	0	42	19
Tulsipur	Covishield	1	2	1	1	3	1	9	3
Tulsipur	BCG	16	0	0	0	0	0	16	16
Tulsipur	Oral Polio Vaccine	2	0	0	0	0	0	2	2
Urban female hospital	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Urban female hospital	Rota virus Vaccine	0	-28	2	0	0	0	-26	2
Urban female hospital	Measles and Rubella Vaccine	3	1	0	0	0	0	4	3
Urban female hospital	Covishield	2	0	0	0	0	0	2	2
Urban female hospital	Pentavalent Vaccine	1	0	0	0	0	0	1	1
Urban female hospital	OPV	3	2	0	0	0	0	5	3
Utraula	Pneumococcal Conjugate Vaccine (PCV)	4	16	27	2	7	6	62	27
Utraula	Pneumococcal Conjugate Vaccine (PCV)	20	0	0	0	0	0	20	20
Utraula	Rota virus Vaccine	2	1	5	0	0	0	8	5
Utraula	Measles and Rubella Vaccine	2	20	0	0	0	0	22	20
Utraula	BCG	37	1	3	2	0	0	43	37

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Pachperwa	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Pachperwa	Pneumococcal Conjugate Vaccine (PCV)	2	9	5	5	28	7	56	28
Pachperwa	Rota virus Vaccine	2	6	2	2	20	5	37	20
Pachperwa	Measles and Rubella Vaccine	10	0	0	0	0	0	10	10
Pachperwa	Covishield	1	2	1	1	2	1	8	2
Pachperwa	BCG	6	2	9	2	10	17	46	17
Pachperwa	Oral Polio Vaccine	1	7	0	0	0	0	8	7
Gainsari	Pentavalent Vaccine	19	17	33	34	0	0	103	34
Gainsari	Pneumococcal Conjugate Vaccine (PCV)	6	2	10	0	0	0	18	10
Gainsari	Rota virus Vaccine	2	19	1	0	0	0	22	19
Gainsari	Measles and Rubella Vaccine	1	1	1	0	1	0	4	1
Gainsari	Covishield	1	16	0	0	0	0	17	16
Gainsari	BCG	0	0	0	0	0	0	0	0
Gainsari	Oral Polio Vaccine	0	0	0	0	0	0	0	0
BC ROY MED COLLEGE	Pentavalent Vaccine	8	3	1	0	0	0	12	8
BC ROY MED COLLEGE	Rota virus Vaccine	9	0	0	0	0	0	9	9
BC ROY MED COLLEGE	Measles and Rubella Vaccine	-86	0	0	0	0	0	-86	0
BC ROY MED COLLEGE	Covishield	0	0	0	0	0	0	0	0
BC ROY MED COLLEGE	BCG	1	5	0	0	0	0	6	5
BC ROY MED COLLEGE	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Borough III	Pentavalent Vaccine	0	0	0	0	0	0	0	0
Borough III	Pneumococcal Conjugate Vaccine (PCV)	0	0	0	0	0	0	0	0
Borough III	Oral Polio Vaccine	1	1	0	0	0	0	2	1
Borough V	Rota virus Vaccine (2 dose)	6	0	0	0	0	0	6	6
Borough V	Oral Polio Vaccine	0	0	0	0	0	0	0	0
Borough V Medical College	Pentavalent Vaccine	3	0	0	0	0	0	3	3
Borough V Medical College	Measles and Rubella Vaccine	43	0	0	0	0	0	43	43

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Borough V Medical College	BCG	7	8	7	0	0	0	22	8
Borough V Medical College	Oral Polio Vaccine	1	3	3	29	0	0	36	29
CHP Nabagram	Pentavalent Vaccine	7	6	0	0	0	0	13	7
CHP Nabagram	Pneumococcal Conjugate Vaccine (PCV)	5	13	6	0	0	0	24	13
CHP Nabagram	Rota virus Vaccine	7	6	0	0	0	0	13	7
CHP Nabagram	Measles and Rubella Vaccine	7	6	12	20	7	0	52	20
CHP Nabagram	Oral Polio Vaccine	12	7	6	12	7	4	48	12
CHP Nabagram	Oral Polio Vaccine	13	7	7	0	0	0	27	13
BPHC Jamalpur	Pneumococcal Conjugate Vaccine (PCV)	4	5	28	7	7	0	51	28
BPHC Jamalpur	Rota virus Vaccine	1	0	0	0	0	0	1	1
BPHC Jamalpur	Measles and Rubella Vaccine	7	6	21	12	7	11	64	21
BPHC Jamalpur	BCG	1	0	0	0	0	0	1	1
BPHC Jamalpur	Oral Polio Vaccine	14	11	0	0	0	0	25	14
BPHC Jamalpur	Measles and Rubella Vaccine	7	11	15	3	29	19	84	29
BPHC Jamalpur	Measles and Rubella Vaccine	6	0	0	0	0	0	6	6
Madhabdihi	Pentavalent Vaccine	1	11	11	12	0	0	35	12
Madhabdihi	Pneumococcal Conjugate Vaccine (PCV)	26	12	25	14	0	0	77	26
Madhabdihi	Rota virus Vaccine	3	0	0	0	0	0	3	3
Madhabdihi	Measles and Rubella Vaccine	19	2	61	0	0	0	82	61
Madhabdihi	Covishield	1	9	2	2	1	3	18	9
Madhabdihi	Oral Polio Vaccine	16	2	6	18	6	12	60	18
Monteswar	Pentavalent Vaccine	10	0	0	0	0	0	10	10
Monteswar	Pneumococcal Conjugate Vaccine (PCV)	115	18	6	11	0	0	150	115
Monteswar	Measles and Rubella Vaccine	6	13	7	6	2	0	34	13
Monteswar	Covishield	1	1	1	1	1	1	6	1
Monteswar	Oral Polio Vaccine	8	1	1	1	8	3	22	8
Monteswar	Covishield	1	1	0	0	0	0	2	1

CHC/PHC Cold Chain Points Stock Outs									
CHC/PHCs	Name of Vaccine	Stockout 1	Stockout 2	Stockout 3	Stockout 4	Stockout 5	Stockout 6	Sum	Max.
Kurmun	Pneumococcal Conjugate Vaccine (PCV)	14	14	0	0	0	0	28	14
Kurmun	Covishield	3	2	2	1	2	1	11	3
Kurmun	Covishield	3	2	3	1	4	1	14	4
Garia UPHC	Pneumococcal Conjugate Vaccine (PCV)	8	0	0	0	0	0	8	8
Garia UPHC	Rota virus Vaccine	4	3	0	0	0	0	7	4
Garia UPHC	Oral Polio Vaccine	1	0	0	0	0	0	1	1
Benjanharia Charial	Pentavalent Vaccine	7	0	0	0	0	0	7	7
Benjanharia Charial	Covishield	0	0	2	0	0	0	2	2
Panchagachia	Pentavalent Vaccine	5	0	0	0	0	0	5	5
Panchagachia	Pneumococcal Conjugate Vaccine (PCV)	13	14	0	0	0	0	27	14
Panchagachia	Rota virus Vaccine	3	0	0	0	0	0	3	3
Panchagachia	Oral Polio Vaccine	7	3	0	0	0	0	10	7
Panchagachia	MR 10 DOSE	167	0	0	0	0	0	167	167
Hariharpur	Rota virus Vaccine	14	31	3	0	0	0	48	31
Hariharpur	Measles and Rubella Vaccine	7	0	0	0	0	0	7	7
Hariharpur	Oral Polio Vaccine	9	0	0	0	0	0	9	9
Rajpur Sonarpur	Pneumococcal Conjugate Vaccine (PCV)	12	0	0	0	0	0	12	12
Sarsuna	Rota virus Vaccine	7	0	0	0	0	0	7	7
Sarsuna	Covishield	0	1	2	1	0	1	5	2

SUMMARY

Name of vaccines	Count Column D	Count Column E	Count Column F	Count Column G	Count Column H	Count Column I	Total Count	Maximum stock out days	Total Sum of stock out days	Average stock out days
Pentavalent Vaccine	15	6	4	3	1	1	30	34	234	7.80
Pneumococcal Conjugate Vaccine (PCV)	38	32	29	23	17	13	152	115	1632	10.74
Rota virus Vaccine	39	30	23	15	15	14	136	378	1316	9.68
Measles and Rubella Vaccine	33	22	15	10	11	6	97	130	977	10.07
BCG	20	16	12	6	6	5	65	37	461	7.09
Oral Polio Vaccine	34	27	19	14	11	10	115	188	1293	11.24

Annex 7i: Sub-National level non-functional CCE

State Vaccine Store CCE			
#	SVS	Equipment	Functional
1	SVS-TN	WIF	NO
2	SVS-TN	Deep Freezer	NO
3	SVS-TN	Deep Freezer	NO
4	SVS-TN	Deep Freezer	NO
5	SVS-TN	Deep Freezer	NO
6	SVS-TN	Deep Freezer	NO
7	SVS-TN	Deep Freezer	NO
8	SVS-TN	Deep Freezer	NO
9	SVS-TN	Deep Freezer	NO
10	SVS-TN	WIC	NO
11	SVS-TN	WIC (Sensor "B")	NO
12	SVS-TN	Deep Freezer	NO
13	SVS-TN	Deep Freezer	NO
14	SVS-MH	Walk in Cooler 2	NO
15	SVS-MH	Walk in Cooler 3	NO
16	SVS-MH	Walk in Cooler 4	NO
17	SVS-MH	Walk in Cooler 5	NO
18	SVS-MH	Walk in Cooler 6	NO
19	SVS-MH	Walk in Cooler 7	NO
20	SVS-MH	Walk in Cooler 8	NO
21	SVS-MH	Walk in Freezer 1	NO
22	SVS-MH	Walk in Freezer 2	NO
23	SVS-MH	ILR 1	NO
24	SVS-MH	ILR 2	NO
25	SVS-MH	Deep Freezer 1	NO
26	SVS-MH	Deep Freezer2	NO
27	SVS- LuckNOw (UP)	Walk in Cooler	NO
28	SVS- LuckNOw (UP)	Walk in Cooler	NO
29	SVS- LuckNOw (UP)	Walk in Freezer	NO
30	SVS- LuckNOw (UP)	Deep Freezer	NO
31	SVS- LuckNOw (UP)	Deep Freezer	NO

State Vaccine Store CCE			
#	**SVS**	**Equipment**	**Functional**
32	SVS- LuckNOw (UP)	Deep Freezer	NO
33	SVS- LuckNOw (UP)	Deep Freezer	NO
34	SVS- Lucknow (UP)	Deep Freezer	NO
35	SVS- Lucknow (UP)	Deep Freezer	NO
36	SVS-WB	WIC 1	NO
37	SVS-WB	WIC 2	NO
38	SVS-WB	WIC 3	NO
39	SVS-WB	WIC 4	NO
40	SVS-WB	WIC 5	NO
41	SVS-WB	WIC 6	NO
42	SVS-WB	WIF 1	NO
43	SVS-WB	WIF2	NO
44	SVS-WB	WIF3	NO
45	SVS-WB	WIF 4	NO
46	SVS-WB	WIF 5	NO
47	SVS-WB	WIF 6	NO
48	SVS-WB	WIF 7	NO
49	SVS-WB	WIC 7	NO
		Total	**49**
		% Non-functional	**14%**

Division and District Vaccine Store CCE Inventory			
#	Vaccine Store	Equipment Model Name	Functional
1	RVS, Pune	ILR 9	No
2	RVS, Pune	ILR 10	No
3	RVS, Pune	DF 5	No
4	RVS, Pune	DF 6	No
5	DVS, Satara	ILR M Store	No
6	DVS, Satara	ILR M Store	No
7	DVS, Satara	ILR M Store	No
8	DVS, Satara	ILR M Store	No
9	DVS, Satara	ILR M Store	No
10	DVS, Satara	DF M Store	No
11	Gonda District	ILR	No
12	RVS- Trichy	WIF	NO
13	DVS- Trichy	DF	NO
14	DVS- Trichy	DF	NO
15	RVS- Cuddalore	WIF	NO
16	DVS- S. 24 Paragna	ILR 5	NO
17	DVS- S. 24 Paragna	ILR 6	NO
18	DVS- S. 24 Paragna	DF-2	NO
19	DVS- P. Burdwan	Deep Freezer	NO
	Total Count		**260**
	% Non-functional		**7%**

CHC/PHC Cold Chain Points CCE Inventory

#	HFs	Equipment Model Name	Functional
1	Utraula	GMF 200 godrej	NO
2	Kauwapur	HBD 116	NO
3	Sarojninagar CHC	Vestfrost MK 144	NO
4	Aishbagh	Vestfrost - MF-144	NO
5	Silver Jubilee UCHC	Godrej	NO
6	Silver Jubilee UCHC	Haier	NO
7	UPHC Rajendranagar	Hailer	NO
8	Sandila CHC	Vestfrost ILR VLS 300	NO
9	Laharpur CHC	Vestfrost MF 144	NO
10	Reusa	Vestfrost ILR MK 142	NO
11	Sanda CHC	Haier HBC 200	NO
12	Sanda CHC	Haier HBD 116	NO
13	Sitapur PPC	Haier HBC 200	NO
14	Sitapur PPC	Godrej GVR 225L	NO
15	Sitapur PPC	Godrej DF GMF 125	NO
16	Sitapur PPC	Haier DF HBD 116	NO
17	Cuddalore OT UPHC	Deep Freezer	NO
18	Irungalur APHC	ILR	NO
19	MGMGH	DF	N/A
20	Hariharpur	DF3	NO
21	Hariharpur	DF4	NO
		Total Count	**333**
		# Functional	**312**
		% Non-Functional	**6%**

Annex 8: Status of implementation of EVM Improvement plan

EVM Criteria	Finding	MoHFW recommendation	Status
E1 Pre-shipment and arrival procedures	Absence of standard temperature logbooks and non-compliance to standard practices especially on holidays	MoHFW to resend template of temp logbook from VCCH module to all States and partners along with SOPs	Not fully implemented
E2 Vaccine Storage Temperature	Nonfunctional temperature recording devices, untrained manpower, non-availability of temperature recording devices and lack of funds to replenish the requirement for WIC/WIF	MoHFW to review inventory of temperature monitoring devices in all States and provide supplies in deficient States	Not fully implemented
	Temperature logbooks and alarm events were not being reviewed at most of the stores and documentation was found to be deficient	MOHFW to review eVIN based temperature monitoring summary from all WIC/WIFs and send quarterly feedback to States	Not fully implemented
E4 Buildings, Cold Chain Equipment and transport systems	Temperature alarm system non-functional for WICs and WIFs	MoHFW to issue standard guidelines for hooter alarm systems and follow up on its installation at all WIC/WIFs	Not fully implemented
E5 Maintenance and Repair	No documented Planned Preventive Maintenance (PPM) for buildings	MoHFW to follow up with all States for a copy of the documented PPM for vaccine store buildings and use the document as part of consideration for allocating funds for further store construction in the PIP	Not fully implemented
	No documented PPM for Vehicles	MoHFW to follow up with all States for a copy of the documented PPM for vehicles and use the document as part of consideration for further vaccine van procurement for States	Not fully implemented
E6 Stock Management	PPM checklist for equipment already developed and available in VCCH module but not universally followed	MOHFW to resend the guidelines, SOPs and formats for PPM of equipment to States and follow up quarterly on the number and quality of PPM	Not fully implemented
	Incomplete and inaccurate updating of vaccine registers	MOHFW to resend the soft copies of the print ready vaccine registers along with guidelines and SOPs for their use	Not fully implemented
	Lack of Monitoring of vaccine transactions	MOHFW to monitor monthly vaccine transactions at the SVS of all States with quarterly feedback to all States	Not fully implemented
	Lack of effective pre-delivery and pre-collection notification system	MOHFW to ensure pre delivery notification of all vaccine shipments to all States	Not fully implemented

EVM Criteria	Finding	MoHFW recommendation	Status
	Lack of awareness and practices of standard stock management principles	MOHFW to ensure training of VCCH of all SVS/RVS on VCCH module	Not fully implemented
	Lack of physical count of vaccine stocks	MOFW to issue standard guidelines for reconciliation of physical vaccine stock with store records	Not fully implemented
E7 Distribution	Non availability of specific vaccines leading to delay in supply from higher to lower store	MoHFW to monitor monthly stock position using eVIN and reports from States to identify potential threats of stock outs and provide monthly feedback to States	Not fully implemented
E9 MIS & Supportive Functions	Inadequate number of supportive supervision visits by supervisors and lack of documentation of Support Supervision Visits	MoHFW to monitor use of standard GoI formats for RI supportive supervision in NCCMIS (S4I) app and triangulate it with PIP expenditure on supportive supervision at State and district levels with quarterly feedback to States	Not fully implemented

Annex 9: Gaps in Data Management

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-18	Gainsari	Not received		
Jun-20	Gainsari	Not received	1438	
Jun-22	Gainsari	Not received	2475	
Jun-18	Pachperwa	Not received	1513	
Jun-20	Pachperwa	Not received	2068	
Jun-22	Pachperwa	Not received	2149	
Jun-18	Utraula	Not received	958	
Jun-20	Utraula	Not received	1409	
Jun-22	Utraula	Not received	1458	
Jun-20	Urban Female Hospital	Not received	713	
Jun-22	Urban Female Hospital	Not received	695	
Jun-18	Urban Female Hospital	Not received		
Jun-18	Tulsipur	Not received	1723	
Jun-20	Tulsipur	Not received	1849	
Jun-22	Tulsipur	Not received	1735	
Jun-20	Kauwapur	Not received	820	
Jun-22	Kauwapur	Not received	716	
Jun-18	Kauwapur	Not received		
Jun-18	Gaindas Buzurg	Not received	554	
Jun-20	Gaindas Buzurg	Not received	1008	
Jun-22	Gaindas Buzurg	Not received	1343	
Jun-18	Balrampur Rural PHC	Not received	1469	
Jun-20	Balrampur Rural PHC	Not received	3288	
Jun-22	Balrampur Rural PHC	Not received	2729	
Jun-18	Bawan CHC	Not received	1187	

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	Bawan CHC	Not received	784	
Jun-22	Bawan CHC	Not received	1651	
Jun-18	Gonda PPC	164	164	0
Jun-20	Gonda PPC	386		386
Jun-22	Gonda PPC	969	969	0
Jun-18	Bhabanjot CHC	1556		1556
Jun-20	Bhabanjot CHC	1802	1726	76
Jun-22	Bhabanjot CHC	Not received	2079	
Jun-18	Haldarmau CHC	Not received	814	
Jun-20	Haldarmau CHC	1063	1073	-10
Jun-22	Haldarmau CHC	Not received	1437	
Jun-18	Paraspur CHC	Not received		
Jun-20	Paraspur CHC	1590		1590
Jun-22	Paraspur CHC	Not received	1958	
Jun-18	Kachauna CHC	Not received		
Jun-20	Kachauna CHC	Not received		
Jun-22	Kachauna CHC	Not received		
Jun-18	Sarojninagar chc	1203		1203
Jun-20	Sarojninagar chc	1365	1992	-627
Jun-22	Sarojninagar chc	1092	979	113
Jun-18	Aishbagh CHC	666		666
Jun-20	Aishbagh CHC	844	269	575
Jun-22	Aishbagh CHC	627	141	486
Jun-18	uchc Silver Jubilee	178	170	8
Jun-20	uchc Silver Jubilee	580	580	0
Jun-22	uchc Silver Jubilee	190	250	-60
Jun-18	Rajendranagar uphc	213		213

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	Rajendranagar uphc	107		107
Jun-22	Rajendranagar uphc	177		177
Jun-18	Hardoi PPC	Not received	0	
Jun-20	Hardoi PPC	Not received	512	
Jun-22	Hardoi PPC	Not received	619	
Jun-18	Sandila CHC	Not received	188	
Jun-20	Sandila CHC	Not received	114	
Jun-22	Sandila CHC	Not received		
Jun-18	Sanda CHC	Not received	120	
Jun-20	Sanda CHC	Not received	2370	
Jun-22	Sanda CHC	Not received	1860	
Jun-18	Hargaon CHC	Not received	1410	
Jun-20	Hargaon CHC	Not received	1669	
Jun-22	Hargaon CHC	Not received	1646	
Jun-18	Khairabad CHC	Not received	0	
Jun-20	Khairabad CHC	Not received	1463	
Jun-22	Khairabad CHC	Not received	1640	
Jun-18	Laharpur	Not received		
Jun-20	Laharpur	Not received	1375	
Jun-22	Laharpur	Not received	1591	
Jun-18	Reusa Sitapur	Not received		
Jun-20	Reusa Sitapur	Not received	2024	
Jun-22	Reusa Sitapur	Not received	1668	
Jun-18	Sanda Sita Pur	Not received	1194	
Jun-20	Sanda Sita Pur	Not received	36190	
Jun-22	Sanda Sita Pur	Not received	1536	
Jun-18	Sitapur PPC	Not received	1150	

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	Sitapur PPC	Not received	1040	
Jun-22	Sitapur PPC	Not received	790	
Jun-18	Tambaur CHC	Not received	1170	
Jun-20	Tambaur CHC	Not received	1870	
Jun-22	Tambaur CHC	Not received	1050	
Jun-18	Achalganj	Not received		
Jun-20	Achalganj	1167	1098	69
Jun-22	Achalganj	885	844	41
Jun-18	Nawabganj	790	873	-83
Jun-20	Nawabganj	904	791	113
Jun-22	Nawabganj	819	767	52
Jun-18	Bighapur	Not received	546	
Jun-20	Bighapur	Not received	720	
Jun-22	Bighapur	716	716	0
Jun-18	Motinagar	Not received		
Jun-20	Motinagar	Not received		
Jun-22	Motinagar	605		605
Jun-18	Karaikadu	Not Received	118	
Jun-20	Karaikadu	Not Received	161	
Jun-22	Karaikadu	Not Received	150	
Jun-18	Cuddalore OT UPHC	97	114	-17
Jun-20	Cuddalore OT UPHC	87	109	-22
Jun-22	Cuddalore OT UPHC	105	106	-1
Jun-18	Srirangam GH	Not Received	Not Received	
Jun-20	Srirangam GH	Not Received	Not Received	
Jun-22	Srirangam GH	Not Received	Not Received	
Jun-18	Irungalur APHC	80	80	0

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	Irungalur APHC	79	79	0
Jun-22	Irungalur APHC	68	68	0
Jun-18	Puntur BPHC	143	143	0
Jun-20	Puntur BPHC	136	136	0
Jun-22	Puntur BPHC	133	133	0
Jun-18	Moovanur APHC	85	85	0
Jun-20	Moovanur APHC	85	85	0
Jun-22	Moovanur APHC	90	90	0
Jun-18	MGMGH	Not Received	Not Received	
Jun-20	MGMGH	Not Received	Not Received	
Jun-22	MGMGH	Not Received	Not Received	
Jun-18	Subarmaniampuram UPHC	Not Received	187	
Jun-20	Subarmaniampuram UPHC	134	134	0
Jun-22	Subarmaniampuram UPHC	126	126	0
Jun-18	Mailam RPHC	61	64	-3
Jun-20	Mailam RPHC	45	42	3
Jun-22	Mailam RPHC	59	63	-4
Jun-18	Siruvanthadu RPHC	Not Received	77	
Jun-20	Siruvanthadu RPHC	Not Received	49	
Jun-22	Siruvanthadu RPHC	Not Received	43	
Jun-18	Villupuram Medical College	Not Received	44	
Jun-20	Villupuram Medical College	Not Received	20	
Jun-22	Villupuram Medical College	Not Received	60	
Jun-18	Vikaravandi GH	Not Received		
Jun-20	Vikaravandi GH	Not Received		
Jun-22	Vikaravandi GH	Not Received		
Jun-18	PHC Bhor	Not received	Not received	

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	PHC Bhor	Not received	78	
Jun-22	PHC Bhor	68	59	9
Jun-18	PHC Bhongawali	77	Not received	
Jun-20	PHC Bhongawali	68	14	54
Jun-22	PHC Bhongawali	83	16	67
Jun-18	CHC- Jijamata	Not received	Not received	
Jun-20	CHC- Jijamata	121	121	0
Jun-22	CHC- Jijamata	182	182	0
Jun-18	PHC Karad	Not received	Not received	
Jun-20	PHC Karad	Not received	41	
Jun-22	PHC Karad	84	84	0
Jun-18	PHC Nagthane	249	47	202
Jun-20	PHC Nagthane	214	52	162
Jun-22	PHC Nagthane	202	41	161
Jun-18	Civil Hospital	Not received	Not received	
Jun-20	Civil Hospital	47	47	0
Jun-22	Civil Hospital	227	227	0
Jun-18	PHC Bhuinj	Not received	Not received	
Jun-20	PHC Bhuinj	126	34	92
Jun-22	PHC Bhuinj	184	51	133
Jun-18	KEM Hospital	Not received	Not received	
Jun-20	KEM Hospital	50	50	0
Jun-22	KEM Hospital	128	128	0
Jun-18	V. Shantaram	91	Not received	
Jun-20	V. Shantaram	44	44	0
Jun-22	V. Shantaram	61	61	0
Jun-18	Naigaon	70	Not received	

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	Naigaon	Not received	22	
Jun-22	Naigaon	52	52	0
Jun-18	Jamalpur	Not received	887	
Jun-20	Jamalpur	Not received	1065	
Jun-22	Jamalpur	853	817	107
Jun-18	Nabagram	Not received		
Jun-20	Nabagram	446	446	-446
Jun-22	Nabagram	312	312	-52
Jun-18	Kurmun	779	779	-149
Jun-20	Kurmun	636	636	-46
Jun-22	Kurmun	675	675	-55
Jun-18	Montesar	899	887	51
Jun-20	Montesar	1087	1059	-227
Jun-22	Montesar	866	848	-86
Jun-18	Madhabdihi	Not received		
Jun-20	Madhabdihi	578	578	-78
Jun-22	Madhabdihi	465	463	-55
Jun-18	BMCH	47	47	-17
Jun-20	BMCH	18	18	12
Jun-22	BMCH	43	43	-13
Jun-18	Benjanharia Charial	18	not available	-18
Jun-20	Benjanharia Charial	26	26	-26
Jun-22	Benjanharia Charial	24	24	-24
Jun-18	Panchgachia	Not received	not available	
Jun-20	Panchgachia	31	31	-31
Jun-22	Panchgachia	20	20	-20
Jun-18	Garia	Not received		

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
Jun-20	Garia	Not received		
Jun-22	Garia	Not received		
Jun-18	BC Roy	Not received	not available	
Jun-20	BC Roy	47	47	5
Jun-22	BC Roy	53	53	-1
Jun-18	Borough 3	Not received		
Jun-20	Borough 3	Not received		
Jun-22	Borough 3	Not received		
Jun-18	Borough 5	Not received		
Jun-20	Borough 5	Not received		
Jun-22	Borough 5	Not received		
Jun-18	MCH	100	not available	0
Jun-20	MCH	17	17	3
Jun-22	MCH	81	81	19
Jun-18	Hariharpur	Not received		
Jun-20	Hariharpur	99	99	-99
Jun-22	Hariharpur	83	83	-83
Jun-18	Rajpur Sonarpur	Not received		
Jun-20	Rajpur Sonarpur	Not received		
Jun-22	Rajpur Sonarpur	Not received		
Jun-18	Sarsuna	80	80	-80
Jun-20	Sarsuna	55	55	-55
Jun-22	Sarsuna	36	36	-36

Not received the Monthly reports	117
Total Count/CHC	210

Month	CHC/PHC	Monthly report	HMIS report	Variance
		Total No. of immunisations	Total No. of immunisations	
	% Of Monthly Reports not received	**56%**		

Variance between HMIS and Monthly reports	Variance
Variance >0	33
Variance<0	31
Total variance	64
Total count	90
% Variance	**71%**

Annex 10: Variances between FACE form and reported expenditure.

UNICEF CSO grantees FACE form expenditure verses reported expenditure.

Name of Agency	Reported expenditure-USD	Exchange rate	Reported expenditure-INR	FACE form expenditure-INR	Difference (in INR)
ALLIANCE FOR IMMUNISATION AND HEALTH – 2500236862	*282,832*	72.8	20,590,186	25,045,123	(4,454,937)
SELF EMPLOYED WOMENS ASSOCIATION – 2500241313	*268,756*	72.8	19,565,423	21,884,344	(2,318,921)
VOLUNTARY HEALTH ASSOCIATION OF INDIA – 2500240308	*200,815*	72.8	14,619,329	27,251,706	(12,632,377)
TOTAL	***752,403***		**54,774,938**	**74,181,173**	**(19,406,235)**

UNICEF government agency grantees FACE form expenditure verses reported expenditure.

Name of Agency	Reported expenditure-USD	*Exchange rate	Reported expenditure-INR	FACE form expenditure-INR	Difference (in INR)
ADDL DIRECTOR HEALTH SERVICES FW MCH SH PUNE – 2500234128	*474,362*	70.38	33,385,583	102,523,149	(69,137,566)
AIIMS PATNA – 2500226039	*515,322*	70.38	36,268,371	37,051,214	(782,843)
DIRECTOR STATE INSTITUTE OF HEALTH AND FAMILY WELFARE – 2500205251	*796,003*	70.38	56,022,678	71,831,351	(15,808,673)
DY DIRECTOR HEALTH SERVICES TRANSPORT PUNE – 2500221225	*240,701*	70.38	16,940,525	15,647,782	1,292,743
H O D COMMUNITY MEDICINE LLRMMC MRT – 2500205163	*208,727*	70.38	14,690,194	26,806,264	(12,116,070)
NATIONAL INSTITUTE OF HEALTH AND FAMILY WELFARE – 2500223738	*1,255,917*	70.38	88,391,409	57,939,619	30,451,790
STRENGTHENING IMPLEMENTATION OF BSPM COLLEGE AGRA – 2500205288	*218,857*	70.38	15,403,132	27,887,704	(12,484,572)
VICE CHANCELLOR KGMU LUCKNOW – 2500231060	*668,480*	70.38	47,047,605	119,157,359	(72,109,754)
TOTAL	***4,378,367***		**308,149,496**	**458,844,442**	**(150,694,945)**

**Average exchange rate over the period 2017 to 2021*

Annex 11: Detailed management responses

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
eVIN system sustainability challenges must be addressed	**Recommendation 1** To address the sustainability challenges identified UIP should: • Request and review a comprehensive quantification of all fixed and recurring operational costs for eVIN maintenance and ensure all costs are included for national and state level planning. • Ensure that a comprehensive transition plan detailing all associated costs required to operate and maintain eVIN at state and national level is developed; and • Ensure that the plan is used as resource mobilisation tool with the MoHFW to ensure eVIN operational costs are budgeted for and fully financed.	**Action 1** • MoHFW has initiated the transition of eVIN cost at State and district levels since 2018 for HSS I States and subsequently for HSS II States demarcating clearly the eVIN HR and operational costs under state PIPs and for 2023-24, all states and UTs have also proposed the same under state PIPs. • Hosting cost for eVIN for year 2023 (with a no cost extension till June 2024) has now been budgeted and approved under CDS-3 proposal by GAVI and recurring cost is shared by UNDP with MoHFW for post December 2024 by UNDP. Later, it will be incorporated under the domestic budget at national level as per the details shared by UNDP.	MoHFW	31 December 2024
	Recommendation 2 To address gaps identified in policies, UIP should liaise with UNDP to ensure that the following mitigating actions are taken prior to handover of eVIN to UIP: • Develop a policy to manage data governance, master data management, and change management. This will be critical as eVIN management is transitioned to the UIP; • Revise the current data back policy documentation to include a schedule for restoration testing of backups including frequency of restoration tests, responsible parties for both test management, reporting and quality assurance of successful tests completed; • Include a system protocol/permission that does not accept stock adjustments without required approvals. This protocol should be in place for all system users in eVIN. Super users should also include approvals before adjustments are made to maintain the integrity of data; and • Define the minimum vaccine stock data transactions required from the eVIN database together with UIP. These definitions should be used to determine future transaction back-ups and data required from previous vendor.	**Action 2** As part of overall eVIN management policy, the following will be taken up in consultation with UNDP. • **Master Data Management (MDM)** - eVIN master data comprises of vaccines master data, locations master data (state /districts/blocks), stores master data, users master data, users master data and assets master data (cold chain equipment and temperature loggers. The MDM will be achieved by: ○ Cleansing and Correction of Erroneous Data ○ Regular Data Quality Monitoring and Reporting. ○ Deduplication, Matching and Unique Keying. ○ Use of relevant MDM software tool ○ Easily Integrates and Coexists with other health systems using Local government directory (LGD) code for mapping of location at each level. As of now verification of LGD code is done at state and district level. Unique Code for Land/Region will enable Interoperability. eVIN Cert-in Security and safety • **Audit is scheduled in September 2023**. Post Audit recommendations, uniform messages to developer and users will be shared for cleansing and correction of erroneous data, regular data quality monitoring and reporting.	MoHFW	31 December 2024

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
		• **Current Policy for Backup Services:** UNDP applications require backups should follow the 3-2-1 rule and be maintained at both off-site and on-site locations in secure fireproof and environmentally controlled environments so that the backup media are not harmed. If the offsite is in a different seismic zone from the primary data centre, then S3 in Disaster recovery site can be used instead of offsite backup. o Ensure database backup (full volume and incremental) with a latency of maximum 1 day. This means that at any point of time maximum data loss would be of the last 1-day data. o To avoid performance degradation of the system, such backup should be scheduled out of working hours daily. o Apart from backing up data at the server room, backups should be taken on external media as per the following schedule: o Backup type - Incremental, Frequency-Daily, Storage type- 1 week o Backup type - Incremental, Frequency-weekly, Storage type- 1 month o Backup type – Full Backup, Frequency-monthly, Storage type- 2 months o Service Provider will be responsible for coordinating the retrieval of off-site media in the event of any disaster recovery. o For audit purpose service provider will maintain logs of backup/ restoration • **Proposed Additions to the current policy for backup services** will include the following Backup restoration Plan: o Restoration Testing Mechanism o Frequency of Restoration Testing- once in 6 months o Responsibility of Restoration Testing and reporting- Technical partners o (Development partner as well as hosting provider) o Quality Assurance of Restoration Testing- UNDP (through data analysis)		

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
		The Data back-up policy documentation to be shared further with E-Health, MoHFW division for endorsement. • **Data Governance**- We will have robust data governance mechanism by defining roles for managing data, defining data access policies and processes for data security. eVIN root account of hosting platform will be a child account of CoWIN parent account where complete ownership of data by Ministry of Health will be well defined. Data governance policy will be documented covering the following: ○ Ensure integrity and usability of data. ○ Standardize data definitions, rules, and descriptions. ○ Define access policies and optimize data-related workflows and communication. ○ Data access and storage ○ Data Security ○ Data Privacy • **Change Management-** Version control and code deployment will be done through Continuous Integration / Continuous Delivery (CI/CD) feature on GitHub or relevant feature of AWS Code Commit. Currently whenever a user performs stock edit/adjustment, he/she has to input a valid reason for the same. The programme managers at higher levels can extract the report of such adjustments reason wise from eVIN. Subsequently the user with high number of adjustments is identified and the stocks are reviewed at the DTFI/STFI. As far as approvals for the stock adjustments are concerned, a policy level decision will be taken up at the UIP level. • The number of transactions depend on the programmatic aspects. Routinely only RI vaccines transactions are being done for the UIP sessions, but the transactions keep increasing during the Special immunization weeks, Mission Indradhanush, IMI, Covid vaccination. The back up of all the transactions is being done on eVIN and at the end of the month, the transactions can be exported from the national level.		

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
	Recommendation 3 To address gaps identified with project management capacity, the UIP should liaise with UNDP to consider obtaining a suitably qualified in-house resource to oversee the various IT investments including eVIN, U-WIN, CoWIN and NCCMIS. Core competencies in design and implementation of digital systems, database management, security and compliance should be obtained to oversee implementation of software development processes and ensure quality, security and availability of data assets.	**Action 3** • Technical documentation is ready for eVIN for the knowledge transfer aspect. Under GAVI - HSS-3 proposal, PMU is budgeted which includes IT team with expert in cloud infrastructure, database management who can work on smooth eVIN oversight, infrastructure management and knowledge transfer.	MoHFW	31 December 2024
Security exposures in the National Cold Chain Management Information System need to be addressed	**Recommendation 4** NCCVMRC should procure and setup Secure Socket Layer (SSL) certificate for the NCCMIS domain to ensure web traffic for the application is encrypted.	**Action 4** SSL certificate is now implemented in the NCCMIS website.	MoHFW and NCCVMRC	31 December 2024
	Recommendation 5 The UIP should commission a comprehensive security audit of the NCCMIS mobile, web and database application.	**Action 5** The security audit for the current year is under process and commenced on 1 April 2023. The audit report is expected by 31 October 2023 and necessary actions will be taken accordingly.		
	Recommendation 6 NCCVMRC should implement audit trail for user actions and encrypt all passwords stored on the NCCMIS database.	**Action 6** The audit trail for NCCMIS was implemented in year 2016 and all the passwords are encrypted as of March 2016. NCCMIS data is hosted on the govt. server (RailTel). All the mentioned requirement is already taken care by the Govt. Service provider. ***Audit note***: At the time of the audit, audit trail within NCCMIS was not evident. NCCVMRC is encouraged to implement audit trail within NCCMIS and report on the status of implementation to the IAG on annually.		
	Recommendation 7 NCCVMRC should ensure that all modules are utilised and with support from UIP should engage states to ensure that missing data is input into the system.	**Action 7** MoHFW is currently reviewing the NCCMIS and eVIN systems. The review is aimed at assessing possibilities for: • Integration of some modules of NCCMIS into eVIN • Instituting policies to manage data governance, master data management and change management for NCCMIS. • Including a schedule for restoration testing of backups as part of the data backup policy including frequency of restoration tests and responsible		
	Recommendation 8 NCCVMRC should Institute policies in place to manage data governance, master data management, and change management and include a schedule for restoration testing of backups as part of the data backup policy including frequency of			

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
	restoration tests and responsible parties for both test management, reporting and QA of successful tests completed.	parties for both test management, reporting and QA of successful tests completed for NCCMIS		
The various immunisation and logistics systems need to be integrated	**Recommendation 9** The MoHFW should consider establishing a process to integrate its systems containing vaccine and logistics data, by establishing a singular data warehouse to improve visibility and reduce cases of duplication of data points.	**Action 9** As noted in Action 7 above, the process of integration of some modules of NCCMIS with eVIN is currently under process. MoHFW has conducted consultative meetings with UNDP and NCCVMRC in this regard.	MoHFW	31 December 2024
Physical and human resource capacities at the GMSDs need improvement	**Recommendation 10** The UIP should work with the Directorate of Health Services to ensure that an appropriate level of staff are deployed at the GMSDs	**Action 10** MoHFW is in discussion with DGHS and GMSDs to improve human resource capacities at the GMSDs.	MoHFW and DGHS	31 December 2024
	Recommendation 11 The UIP should work with the Directorate of General Health to ensure that condemned cold rooms at the GMSDs are decommissioned to free up space so that replacement walk-in cold rooms can be installed.	**Action 11** MoHFW is in discussion with DGHS and GMSDs to improve physical capacities at the GMSDs including decommissioning condemned cold rooms.		
	Recommendation 12 The MoHFW should develop a standard operating procedure to guide GMSD staff on inventory counts and adjustment procedures. All inventory adjustments in eVIN should be approved by an appropriate level of management.	**Action 12** • Standard operating procedure are available to guide GMSD staff on inventory counts and adjustment procedures. As per the VCCH Module of the UIP (MOHFW), all the store managers/cold chain handlers are supposed to perform the stock count and verify the stock once a month. • The approval for stock edit transactions is a policy level decision which would be taken at the level of MOHFW. ***Audit note*** The standard operating procedures were not available at GMSDs during audit field work. The MoHFW should: • Disseminate the standard operating procedures to all GMSDs. • Carry out trainings on the SOPs for GMSD staff charged with the responsibility of vaccine stock management.		
	Recommendation 13 The GMSDs should put in place robust service level agreements with private firms providing cold chain storage services, which includes the stipulation of ensuring proper storage for vaccines	**Action 13** MoHFW is in discussion with DGHS and GMSDs to improve physical capacities at the GMSDs including establishing robust service level agreements with private firms providing cold chain storage services.		

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
Stock management practices at sub-national level need to be strengthened	**Recommendation 14** The UIP should work with states to strengthen support supervision arrangements related to stock management at the subnational level.	**Action 14** Monitoring & Mentorship has been proposed under HSS-3 which will strengthen supportive supervision at various levels of vaccine stores including GMSDs. Monitoring formats have been revised recently for sub national cold chain points and further monitoring formats shall be developed for higher stores like GMSDs, SVS etc.	MoHFW	31 December 2024
	Recommendation 15 The UIP should work with states to provide training and standard operating procedures and/or job aids for sub national level staff on: • Recording the results of each physical stock count, investigating the variances, reconciling with the stock records, and documenting the whole process along with justification for adjustments; and • Reviewing the consumption patterns at the corresponding subsidiary level before re-supplying their direct reports with further vaccines.	**Action 15** As indicated on Action 12, the VCCH Module of the UIP (MOHFW), requires that all store managers/cold chain handlers perform a stock count and verify the stock once a month. The MoHFW will work with states under HSS-3 to: • Disseminate the standard operating procedures to all states. • Carry out trainings on the SOPs for state staff charged with the responsibility of vaccine stock management.	MoHFW	31 December 2024
Temperature monitoring and mapping was inadequate and needs to be addressed	**Recommendation 16** The UIP should develop and disseminate work instructions/procedures on temperature monitoring and documentation during transit and on receipt of vaccines at the vaccine handling points.	**Action 16** UIP will develop necessary SOP & guideline for temperature monitoring during transit and on receipt of vaccines at the vaccine handling points.	NCCVMRC & MoHFW	31 December 2024
	Recommendation 17 The UIP should work with the NCCVMRC to develop guidelines for GMSDs and states on temperature mapping and ensure that eVIN modules are activated. Costing for alerts should be completed and evaluated for frequency and functionality.	**Action 17** UIP will work with the NCCVMRC to develop guidelines for GMSDs and states on temperature mapping and ensure that eVIN modules are activated.	NCCVMRC & MoHFW	31 December 2024
The scope of Immunisation Action Group needs to be expanded to esure sustainability as the country transitions out of Gavi support	**Recommendation 18** The UIP should document the mandate of the IAG to include: • The scope of oversight within the immunisation programme to include all immunisation activities in addition to Gavi grants; • Requirement for members to adhere to conflict-of-interest declarations best practice; • Representation from varied stakeholders that implement the immunisation programme including states and CSOs. • Frequency of meetings; and • Areas of oversight including programmatic, operational, and financial management for grantees.	• The scope of IAG has been expanded to review all aspects of UIP (beyond Gavi support) oversight including programmatic, operational, and financial management for grantees. • States, districts and CSOs now have representation at the IAG. • The IAG will meet on a quarterly basis during HSS-3	MoHFW	31 December 2024

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
The implementation of previous EVM assessment recommendations was not yet complete	**Recommendation 19** The MOHFW should: • Assess whether the status of implementation of EVM recommendations and assess whether actions taken thus far mitigate the impact of the findings of the EVM report. UIP should develop a costed action plan to address the additional gaps identified through this assessment; and • Consider an updated EVM assessment using the new EVM2 tool to provide a more comprehensive review of the status of vaccine management.	**Action 19** • NCCMIS has a cIP tracking Tool for monitoring implementation of EVM recommendations. • In the recent IAG, NCCVMRC has been instructed to provide the National EVM report for the recent EVM assessments held in 2022 and further share the improvement plans (including costed plans) to streamline the proposals under state programme implementation plan (PIP).	NCCVMRC & MoHFW	31 December 2024
Delayed implementation of Measles-Rubella Campaign in West Bengal and New Delhi	**Recommendation 20** The UIP should work with the two states (West Bengal and New Delhi) to ensure that the campaigns are completed as planned. Results from these campaigns, including lessons learned from the overall Measles-Rubella campaign should be shared with Gavi to inform the organisation learning agenda.	**Action 20** • MR campaigns were completed in both the states i.e., West Bengal and New Delhi with coverages of 91% and 92.7% respectively. • Lesson learnt from MR campaigns will be shared with Gavi. • The two states had already included MR vaccine under routine immunization.	MoHFW	31 December 2024
There were gaps in financial internal controls resulting in questioned expenditure	**Recommendation 21** To resolve the gaps noted in the operating effectiveness of the MoHFW's oversight over Gavi funds disbursed by UNICEF to CSOs and government agencies, we recommend that: • All implementing partners (CSOs and government agencies) prepare detailed reconciliations of funds received from UNICEF. These reconciliations should include source of funding; • MoHFW lisie with UNICEF to ensure that the templates for the FACE forms enable implementing partners to report on all expenditure by source of funding; and • MoHFW liaise with UNICEF to conduct a thorough review and reconciliation of all expenditures reported by implementing partners, including supporting documents before expenditure is liquidated. This recommendation should be implemented with reference to the global HACT mechanism that informs the UNICEF's financial management approach and processes.	**Action 21** The discrepancy observed by the audit team between the reported expenditure and Funding Authorization and Certificate of Expenditure (FACE) Form is due to multiple sources of funding being used in a single FACE form, since partners implement activities beyond immunisation. Going forward, • Implementing Partners will be asked to submit separate FACE Forms for activities supported by Gavi. UNICEF will advise the partners on what activities will be funded by Gavi to facilitate the process. • During liquidation of FACE Forms, a review to be done by UNICEF of reported expenditure against advance approved by ensuring that the actual expenses incurred are aligned to agreed budget in Itemized Cost Estimate (ICE) format and also that there is no deviation beyond 20% of the approved budget. In case any deviation is noted, UNICEF will ensure that the approvals are taken on a prior basis and are documented. • As a remedial measure, UNICEF will plan to hold a refresher orientation of the partners on HACT procedures and processes to ensure that the	MoHFW	31 December 2024

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
		supporting documentation is effectively maintained by the partner and that no unapproved/unsupported/ineligible expenses are claimed by the partner. • Verification of supporting documents and authenticity of transactions can be investigated during the planned HACT assurance activities (Spot Checks, Program Monitoring Visits, Scheduled Audits, etc.) as per the standard policy.		
	Recommendation 22 UIP should ensure that reports presented to the IAG by HSS Implementers indicate funding advanced to CSOs and Government agencies. The reports should also provide comparative financial performance of CSOs and government agencies.	**Action 22** • With the support of Community of Practice on Demand (CoPD) which has been proposed under HSS-3, a stringent oversight mechanism will ensure the transparent and effective engagement of CSOs. • Reports on funds advanced to CSOs as HSS implementers will be presented to the IAG on a regular basis.	MoHFW	31 December 2024
Some Gavi-funded expenditures did not demonstrate value for money	**Recommendation 23** Following the approval of funding for HSS 3, U-WIN will now be utilised as the immunisation registry for UIP. We recommend that UIP: • Documents and approves a plan on how ANMOL will be utilised for other RMNCH+A services in the states to ensure that this investment is sustained; and • Review the integration of ANMOL and UWIN through established dashboards to ensure completeness of information and that one source of data entry is used.	**Action 23** U-WIN developed for Routine Immunisation has been integrated with ABDM (Ayushman Bharat Digital Mission) for the components of Health Facility Registry, Health Professionals Registry and ABHA (Ayushman Bharat Health Account) ID for citizens. U-WIN has been made ABDM compliant to ensure inter-operability with any other software, which is there/further developed under the overarching umbrella of ABDM. • The Gavi implementing partner and MoHFW will encourage utilization of ANMOL Tablets for U-WIN data entries. • ANMOL will continue to be used for RCH services and there is already a plan to integrate the immunisation data on UWIN with RCH data once the new version of RCH is implemented.	MoHFW	31 December 2024
	Recommendation 24 For any future surveys funded by Gavi, we recommend cascading approvals for funding at multiple stages to ensure that funds are only released when key activities are approved. The UIP should ensure that: • Key milestones are developed and signed off by MoHFW. These milestones should then be utilised to determine release of funds at each stage; • Preliminary survey design and methodology should be signed	**Action 24** MoHFW will ensure cascading approvals for further surveys proposed under HSS-3 to ensure that funds are only released when key activities are approved. This will be implemented subject to approval of HSS 3. Cascade of activities will include but is not limited to; • Development of key milestones and signoff by MoHFW. These milestones should then be utilised to determine release of funds at each stage.	MoHFW	31 December 2024

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
	off; • Pre-testing of survey methodology should be agreed upon and signed off after the initial pilots; and • Final survey design and methodology should be agreed upon and signed off before data collection, analysis and reporting	• Sign off on preliminary survey design and methodology. • Agreement and signoff on pre-testing of survey methodology after the initial pilots. • Agreement and sign off on final survey design and methodology before data collection, analysis and reporting. • Agreement and sign off on draft report with comments to facilitate finalisation.		
Inconsistencies in administrative immunisation coverage reports	**Recommendation 25** UIP should work with the states to: • Routinely perform a triangulation of their immunisation data between doses distributed, vaccine utilisation and administrative coverage; and • Consistently complete data verification and validation exercises at the health facility levels	**Action 25** UIP has a planned intervention i.e., Data analytics for RI review under HSS-3. Activities planned under this intervention include: • Data validation. • Data validation Committee meetings are planned under HSS-3. • Data triangulation from all the data sets to overcome gaps	MoHFW	31 December 2024
There were gaps in the quality of immunisation data	**Recommendation 26** UIP should design and put in place a consistent process that systematically identifies and corrects data anomalies at both national and sub-national levels. Additionally, UIP should work with the state-level data teams to ensure that immunisation data is regularly reviewed and compared to underlying records at both the health facility levels and that the results of this process are documented.	**Action 26** U-WIN will be instrumental in improving the recording & reporting at the field level and further improve the data quality. The pilot on UWIN is completed and will now be scaled up to ensure that: • IMI 5.0 and UIP reports are generated and available. • Dash boards to assist in the review and analysis of data at national and subnational levels are developed. • Reviews with state level data teams is done on an ongoing basis. • Data analysis of UWIN and its triangulation with other data sets is done to overcome data anomalies at national and sub national level. • UWIN data is integrated with HMIS or UWIN data is uploaded onto HMIS.	MoHFW	31 December 2024
Monitoring of the CCE functionality was inadequate	**Recommendation 27** NCCVMRC should work with states to conduct routine calibration, lubrication, and cleaning of the CCE and cold chain trucks to ensure that they provide accurate and reliable temperature readings.	**Action 27** NCCVMRC and MoHFW will work with states to conduct routine calibration, lubrication, and cleaning of the CCE and cold chain trucks to ensure that they provide accurate and reliable temperature readings.	MoHFW and NCCVMRC	31 December 2024

Issues	Audit Recommendations	Management Action	Action Owner	Timelines
	Recommendation 28 NCCVMRC should work with states to incentivise the use of NCCMIS to track CCE maintenance. Old equipment should be decommissioned and disposed to create space for new equipment.	**Action 28** NCCVMRC will work with work with states to: • incentivise the use of NCCMIS to track CCE maintenance. • Decommission and dispose old equipment to create space for new equipment.	MoHFW and NCCVMRC	31 December 2024