



## India Landscape Analysis of RMNCH+A Supply Chains

### Himachal Pradesh, Punjab, and Uttarakhand



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## **USAID | DELIVER PROJECT, Task Order 4**

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### **Abstract**

In June 2014, USAID | DELIVER PROJECT, Task Order 4, in collaboration with the Ministry of Health and Family Welfare (MoHFW), conducted a comprehensive landscape analysis of the reproductive, maternal, newborn, child health + adolescent (RMNCH+A) minimum essential commodities supply chains in Himachal Pradesh, Punjab, and Uttarakhand.

The assessment mapped the supply chain management contributions of the main stakeholders at various levels, describing their roles and responsibilities, as well as the current functionality of the health commodity supply chain system. This report identifies and documents bottlenecks and recommendations. It also forms the basis for future interventions to strengthen the logistics systems that support the MoHFW.

Cover photo: Community Health Center in Udham Singh Nagar, Uttarakhand.

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# Acronyms

AIDS	acquired immune deficiency syndrome
ANM	auxiliary nurse midwife
ASHA	Accredited Social Health Activists
BMO	block medical officers
CDAC	Centre for Development of Advanced Computing
CHC	community health center
CMO	chief medical officer
CMSD	central medical stores department
CSS	Centrally Sponsored Schemes
DH	district hospital
DoHFW	Department of Health and Family Welfare
EDL	Essential Drug List
EM	Essential Medicines
EML	essential medicines list
FEFO	first-to-expire, first-out
FP	Family Planning
GoI	Government of India
HIV	human immunodeficiency virus
HMIS	health management information system
IT	information technology
IPD	Inpatient Department
HPCSC	Himachal Pradesh Civil Supply Corporation
JSI	John Snow, Inc.
LMIS	logistics management information system
LSAT	logistics systems assessment tool
MCHIP	Maternal and Child Health Integrated Program
MCTS	Mother and Child Tracking System
MoHFW	Ministry of Health and Family Welfare
NHM	National Health Mission

OPD	Outpatient Department
PHC	primary health center
PHSC	Punjab Health Systems Corporation
ProMIS	Procurement Management Information System
QA	quality assurance
RMNCH+A	reproductive, maternal, newborn, child health + adolescent
SC	Supply Chain
SOH	stock on hand
SOP	standard operating procedure
TA	Technical Assistance
HSC	Health subcenter
USAID	U.S. Agency for International Development

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We hope that this report will contribute to improving the access to and availability of essential priority medicines included in the Reproductive, Maternal, Newborn, Child Health, and Adolescent (RMNCH+A) strategy.



# Introduction

## Background and Objectives

The Government of India's (GoI's) Ministry of Health and Family Welfare (MoHFW) requested the U.S. Agency for International Development (USAID) technical assistance (TA) in the strengthening of supply chains for reproductive, maternal, newborn, child health + adolescent (RMNCH+A) program commodities as part of ongoing support for the implementation of the RMNCH+A strategy. USAID engaged the USAID | DELIVER PROJECT (the project), implemented by John Snow Inc. (JSI), to provide the TA for strengthening the supply chains associated with RMNCH+A and HIV and AIDS commodities, including condoms, sexually transmitted infection and opportunistic infection treatment drugs. The project supports these supply chains at the national level and within six designated states ( , Delhi, Haryana, Himachal Pradesh, Jharkhand , Punjab, and Uttarakhand ) where USAID is the lead development partner under the Call to Action for Child Survival and Development.

In the beginning of the activity, the project, with guidance from the National Health Mission (NHM), undertook a landscape assessment of the supply chain management system(s) in five states under the purview of the USAID | DELIVER PROJECT. Findings from these assessments helped identify bottlenecks within commodity movement, priority actions for improvement, and provides a baseline for interventions designed to strengthen the supply chain systems within these six states.

This landscape analysis, conducted in June 2014, focused on mapping the organizational structure for RMNCH+A (including family planning and essential medicines) and HIV and AIDS supply chains in three states: Himachal Pradesh, Punjab, and Uttarakhand (with Jharkhand and Haryana analyses completed in May 2014). The project examined three essential areas within the supply chain (SC): the people, processes, and infrastructure. It assessed key supply chain functions, such as organizational structure and staffing; commodity flow mapping; inventory control procedures; warehousing and storage; transport and distribution; quantification (including product selection and forecasting); procurement; and logistics management information systems (LMIS).

## Methodology

To conduct the landscape analysis, project team members used two primary mechanisms to collect the necessary data through a series of interactive sessions with state health officials, health facility staff, and stakeholders from each state.

First, at a high level, the team organized a round-table to deploy the rapid diagnostic USAID | DELIVER PROJECT Supply Chain Compass Tool at the state level with key officials (<https://scc.delivertest.jsi.com/>). The Compass Tool was not used as a comprehensive assessment, but as a diagnostic tool to help consider various future strategic approaches for supply chain strengthening. Together, the group completed the tool 30-question self-assessment to benchmark the supply chain against an evidence-based set of best practices. The group learned the key components of a strong public health supply chain and how supply chains can evolve over time through planned interventions. Compass Tool results for each state are included in Annex 1.

Second, team members administered key stakeholder interviews using adapted versions of the USAID | DELIVER PROJECT Logistics State Assessment Tool (LSAT) ([http://deliver.jsi.com/dlvr\\_content/resources/allpubs/guidelines/LSAT.doc](http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/LSAT.doc)). LSAT is a diagnostic tool extensively used to assess supply chains throughout the world and to better understand the overall functioning of the supply chain system and identify areas of improvement. Team members implemented interviews onsite at the following supply chain levels: the state warehouse, district warehouse, district hospital (DH), community health center (CHC), primary health center (PHC), and health subcenter (HSC) levels. LSAT versions for the state and district levels are included in Annex 2.

Compass Tool exercise and interview participants were selected based on the following criteria: they were directly involved in and have hands-on commodity management experience in one of the supply chain levels (e.g., central, state, district, subdistrict); they represented at least one of the commodity supply chains being assessed (e.g., essential medicines, vaccines, or family planning); and they specialized in one or more areas of focus (e.g., LMIS or warehousing).

The states selected site visits and interview participants. As such, caution should be used in generalizing findings for the entire state; it is possible that some findings may be applicable only to a specific facility or district visited.

# Himachal Pradesh

## Overview

Per 2011 Census results, Himachal Pradesh has a population of approximately 6,864,602, with almost 90 percent living in rural areas. In the state, 2,065 HSCs; 475 PHCs; 77 CHCs; 39 civil hospitals; and 9 regional, 3 zonal, 2 medical, and 4 specialized hospitals serve 12 districts. The products highlighted by the RMNCH+A strategy currently fall within four independent supply chains: essential medicines, family planning, vaccines, and RTI/STI and HIV and AIDS. Vaccines, HIV/AIDS and family planning are GoI-mandated and -managed programs at central level, while coordination and management of essential medicines is done through the NHM at the state level. In Himachal Pradesh, differences between the essential medicines, vaccines, and family planning supply chains exist. All three have different procurement, storage, and distribution processes. A total of 502 essential medicines are on the State Essential Drug List (EDL); however, only 270 are being procured.

Three regional vaccine stores are used for storing vaccines for the districts. Family planning commodities are stored at 12 family planning district stores, while essential medicines are delivered directly from the various vendors to the 12 essential medicines district stores.

Starting this fiscal year, the chief medical officer (CMO) will manage local procurement at district level which is 15% of total budget of district. The Himachal Pradesh Civil Supplies Corporation (HPCSC) will support state NHM to process the tender and finalize the rate contracts along with financial committee with the vendors.

To better understand operations of the health supply chains at different service delivery levels, the assessment team visited two state stores for vaccines and family planning. The team also visited a CHC, a PHC, and HSC and district storerooms in Mandi District. Since the team only visited one district, it is difficult to extrapolate conclusions about what is occurring statewide.

## Compass Tool

The assessment team administered the Compass Tool at the state level with a couple of key personnel at the NHM. The results show that the state is in an ad hoc phase for seven functions of the supply chain: Strategic Planning and Oversight, Management Information Systems, Human Resources, Forecasting and Supply Planning, and Product Selection and Procurement, Warehousing and Inventory Management, and Transportation. However, Himachal Pradesh is undergoing efforts to transition from an ad hoc state to an organized state, making efforts to define logistics roles and processes, establish procedures to collect basic logistics data, and collaborate on a supply chain strategy.

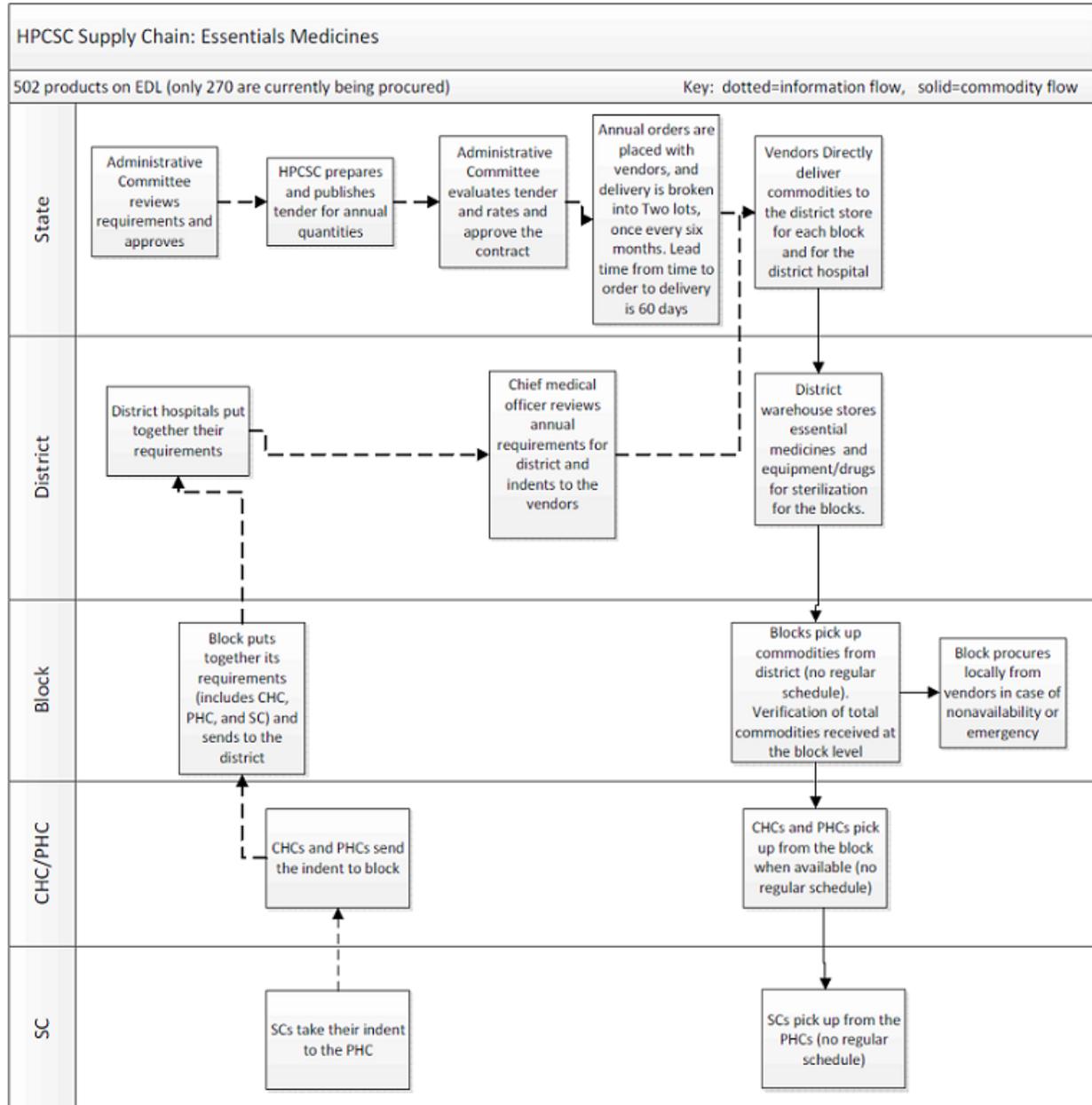
**Figure I. Himachal Pradesh Compass Tool Results**



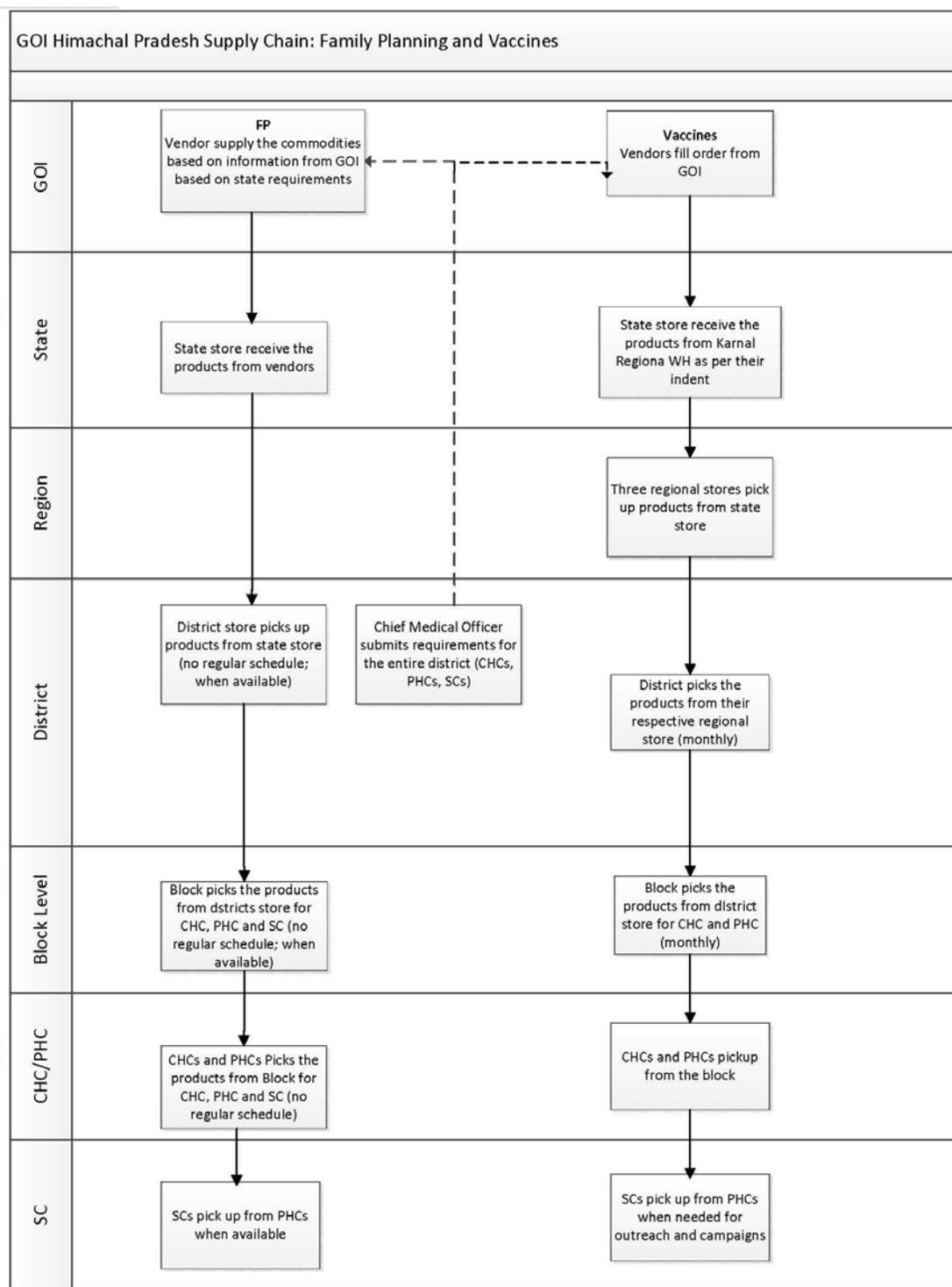
## Supply Chain Process Flow

As indicated from the Supply Chain Compass Tool the NHM are in an ad hoc state, some processes and procedures are in place for managing the movement of commodities and stock management, but these are mostly working through informal mechanisms. Family planning, essential medicines, and vaccines are moving through a different basic supply chain of people, process, and infrastructure, which is detailed in the supply chain process flow below. These differences in the management of vaccines, family planning products, and essential medicines are also detailed in the supply chain process flow below.

**Figure 2. Himachal Pradesh Supply Chain Process Flow: Essential Medicines**



**Figure 3. Himachal Pradesh Supply Chain Process Flow: Family Planning and Vaccines**



## People

Having a proper organizational structure and a good support team in place is an important first step in having a successful and well-functioning supply chain. Before making a significant investment in a

supply chain, requirements for personnel roles required should be assessed, as well as internal staff abilities to perform supply chain tasks.

## **Supply Chain Organization and Staffing**

Compass Tool results describe supply chain organization and human resources as moving from the ad hoc to the organized phase of supply chain development. General consensus was reached on there being a lack of defined or implemented processes regarding strategic planning, training, and supervision. State officials acknowledged that no committee or body is in place to coordinate broad supply chain efforts except procurement to improve the product availability and respond to overall supply chain challenges.

According to the state NHM website, in Himachal Pradesh, a separate NHM Directorate has been created within the DoHFW, which the Mission Director heads. The Mission Directorate functions in close coordination with the DoHFW and reports to the Principal Secretary of Health. The DoHFW Director Health Services looks after the general establishment, budget, planning, and other programs through additional/joint/deputy directors and other program officers. The CMOs control the implementation of all programs in their districts through program officers and block medical officers (BMOs). Sixty-nine BMOs are responsible for overall management and coordination of the block and supply chain activities of the CHCs, PHCs, and HSCs within the block. A medical officer is in charge of the PHC, while the HSCs are staffed with a male and a female health worker.

Dedicated, hard-working staff members manage commodities at all levels, despite significant human resource challenges. At the state level, they include procurement director, cold chain officer, storekeeper for vaccines and family planning and HIV and AIDS. Pharmacists are generally responsible for managing commodities. Shortage of critical manpower is evident throughout the supply chain. For example, the BMO also serves as an indenting officer and has multiple administrative responsibilities. Supply chain functions are informally managed; no guidelines for supply chain responsibilities exist. Facility staff members receive training on service delivery; however, training for commodity management is not emphasized. At present, no schedule exists for routine monitoring and supervision; furthermore, minimal emphasis is placed on supply chain functions.

## **Processes**

The supply chain processes includes all business activities the organization performs, e.g. associated guidelines, SOPs, data, and metrics information.

## **Procurement**

Compass Tool results show that the procurement process is in the ad hoc stage, but it is moving toward organized. Efforts are under way to improve the existing procurement processes. The state provides funds to districts for procurement based on district needs. In turn, districts and blocks/CHCs use these allocated funds to procure drugs from vendors approved through the tendering process. Procurement is done based on the previous year's requirements and population. Local procurement can be done in case of an emergency or nonavailability of essential medicines from validated suppliers obtaining the quotation. There are no standard operating procedures in existence for the procurement. Procurement is based on available budget, and no monitoring of the procurement plan exists.

Until March 2014, the HPCSC did all procurement, but this is being changed due to delays in their process, with a total lead time of approximately 9–12 months. The HPCSC uses an indenting portal to process orders that the district and block levels place; the portal shows allotted budget information according to the populations in a particular district and block. No mechanism is in place to share information from the vendor with the HPCSC and the districts and blocks regarding scheduled delivery of commodities.

Starting at the next procurement cycle, the HPCSC will support state NHM to process the tender and finalize the rate contracts with vendors. The CMOs at the district level will be responsible for local procurement; and indenting responsibility will shift from the BMOs to the CMOs, though the BMOs will still be responsible for sending their requirements to the CMOs for aggregation. The CMOs will be responsible for issuing purchase orders and payment to the vendors.

For family planning products, vaccines, and other MoHFW centrally sponsored schemes products, the DoHFW reviews state requirements. The requirements are based on numbers of patient data, plus commodity issues data. The MoHFW also takes into account demographic data and any national- or state-level goals to develop its annual forecast for the state. The MoHFW then submits indents to preselected vendors.

## **Product Quality**

A quality assurance (QA) process has not been formalized for essential medicines. Providers must choose the lowest priced option, independent of quality concerns. Essential medicines are being sent occasionally for testing at independent labs. No QA check is involved for any of the products that are acquired during emergency from the local market. At present, no written policies exist for treatment and standard safety precautions for essential medicines. However, for vaccines, proper QA processes are followed; the *Handbook for the Vaccine and Cold Chain Handlers* is available and widely disseminated. Through the GoI, all vaccines and family planning commodities are tested at independent labs to ensure QA.

## **LMIS**

Compass Tool results demonstrate that Himachal Pradesh is moving from an ad hoc to an organized supply chain phase, with LMIS processes not having been formally defined and implemented. The procurement-in-charge confirmed the state's desire to move toward an electronic LMIS (eLMIS) system for ordering and reporting logistics data. At present, the state is exploring various eLMIS options offered through the GoI to standardize tools and business processes for data collection and reporting; to consolidate its data sources; and to begin using data for logistics decision making.

At present, a limited, informal, paper-based LMIS is in place, where facility staff members use store-bought stock registers to keep track of health commodities. These registers come with preprinted columns for capturing basic information on issues, receipt, and balance. The registers do not capture data on losses or adjustments; bin cards and stockcards are not used for inventory management. Furthermore, the use of the stock register is not standardized. Different types of forms are used and capture varying types of information. No standardized forms are used for tracking commodities issued from one level to the next. All logistics data are not captured and reported to any level. Only the vaccines register used at health facilities includes information on expiries.

All indenting for essential medicines for the block level is done via an online portal that is used only to submit indents from the block level and above. At the district transit store, the GR Register is

maintained for receipt or issues of total commodities for all blocks. However, the district does not validate the commodities received. When the commodities arrive at the block level, they are counted and verified, and the chief pharmacist enters them in the stock register.

The only consistently reported data that are submitted on a monthly basis are from the health management information system (HMIS) and the Mother and Child Tracking System (MCTS), which is a GoI requirement. An online portal is used for entering HMIS and MCTS data at the CHC level and above. This information is collected on paper from the HSCs and PHCs; it is then compiled and entered using the online portal.

## **Inventory Control**

The Compass Tool does not have a specific category related to inventory control; however, information captured through questions in the tool and key informant interviews show that no formal inventory control system is in place. Health facilities do not maintain a maximum or a minimum inventory level. They only indent for commodities based on their perceived need but may not receive the quantities they indent; they pick up commodities when they are available and needed. No formula is used for systematically determining quantities to indent and the quantities that are resupplied. Lead time to deliver any indented items is approximately 2-5 days from facility to facility and 60 days from vendor.

Vaccines are maintained based on the target population size. As a GoI-managed program that requires cold chain, a more systemized process for calculating inventory based on need is in place. CHCs and PHCs pick up vaccines monthly from districts based on their total need. HSCs pick up vaccines from the PHCs and CHCs when needed (e.g., for outreach sessions and vaccination campaigns).

## **Transportation/Distribution**

Compass Tool results show transportation moving from the ad hoc phase to the organized phase. Regarding essential medicines and family planning SCs, each level is responsible for picking up commodities from the next higher level. For FP, vendors directly deliver commodities to the state family planning store, which is where the district picks up commodities when they are available. CHCs in turn pick up commodities from the district. PHCs pick up from the CHCs, and HSCs pick up from the PHCs.

For EM, vendors deliver essential medicines to the district store within 60 days after an indent is placed. A district hospital has one 16-year-old six ton truck that it is occasionally used for delivering essential medicines to a specific block; however, these deliveries only happen if the truck can be packed to full capacity with drugs for that block. As such, no established routes or distribution system is in place for delivering commodities. In all other instances, each level picks up commodities from the next higher level above (i.e., blocks from district, PHCs from blocks/CHCs, and HSCs from PHCs).

Vans are available for each of the 12 districts for transporting vaccines from the three regional stores in Shimla, Kangra, and Mandi. Four districts receive vaccines from each regional store. Vaccines are distributed monthly instead of quarterly due to shortage of vaccines at the state level. Sufficient numbers of vehicles are available for vaccine distribution, though drivers who are contractors are in short supply; they are requested when needed.

## Infrastructure

Even the best planned organizations and best implemented processes cannot overcome a poorly designed supply chain. A properly designed supply chain takes into account the environment/geography, population, volume of commodity flow, and available technologies. It also can elevate the impact supply chain interventions can have across an organization.

## Supply Chain Tiers

Himachal Pradesh's population of 6,856,000 people is divided into 12 districts; 2,065 HSCs; 475 PHCs; 77 CHCs; 39 civil hospitals; and 9 regional, 3 zonal, 2 medical, and 4 specialized hospitals serve the districts. (See below.)

**Table 1. Health Facilities in Himachal Pradesh**

Facility	Count
Zonal Hospitals	3
Medical Colleges	2
Specialized Hospitals	4
Regional Hospitals	9
Civil Hospitals	39
Community Health Centers	77
Primary Health Centers	475
Health Subcenters	2,065

## Warehousing

Similar to other supply chain components, warehousing is in an ad hoc phase and moving toward an organized phase. Compass Tool results were validated through storeroom visits at all levels of the supply chain.

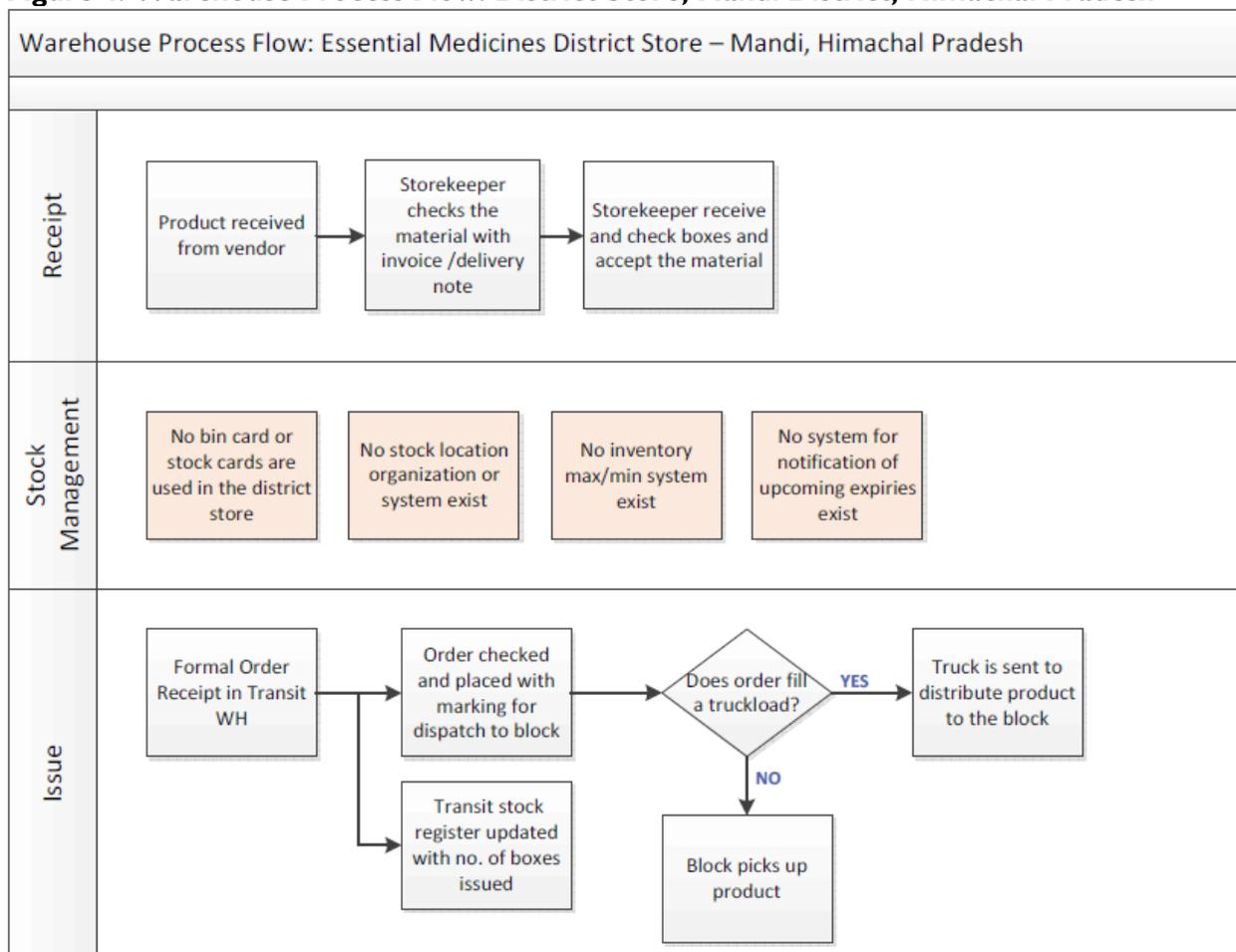
Himachal Pradesh does not have a regional/state warehouse for essential medicines. Vendors directly deliver essential medicines to the district store. The assessment team visited Mandi District warehouse, which is a transit store for commodities allocated for the blocks. The store has limited storage capacity, creating a challenge for efficient maintenance of proper storage conditions. No provision for picking and packing exists, and shelving and pallets are inadequate. Commodities were stocked in prepackaged boxes per block, and no verification of quantities inside each box was done at the district level. No bin cards/stockcards or sorting system is used. Lack of sufficient staff to manage the store is also evident, with the pharmacist in-charge trying to juggle multiple responsibilities without much support or infrastructure in place. Overall, lack of sufficient space and infrastructure was seen at all health facility storerooms that were visited (CHC, PHC, and HSC). At the PHC and CHC, waste management guidelines were followed, but pharmacists/storekeepers were not trained on the use of a standardized stock-keeping format.

The state family planning store was poorly maintained, and not in compliance with industry standard storage requirements. Commodities were placed everywhere, with no proper organization and

sorting. They also were stored with other products, such as bicycle tires. Boxes of contraceptives were broken, with contraceptives openly laying on the floor, exposed to heat and potential water damage. The store could benefit from better organization, compliance with proper storage practices, and the use of a stock register. The team was not able to visit the district family planning storeroom.

The team also visited a regional and a district vaccine store. GoI supplies all vaccines to the state from the nationally designated regional warehouse in Karnal, Haryana. At both locations, vaccines are maintained per GoI guidelines, including the ones for proper storage and waste management. The GoI's *Handbook for the Vaccine and Cold Chain Handlers* is available and widely referenced for ensuring proper cold chain storage practices. Proper records for temperature monitoring are well maintained and updated daily. Provision exists for a back-up generator in case of a power outage. The storekeepers at both storerooms followed standard procedures for cold chain.

**Figure 4. Warehouse Process Flow: District Store, Mandi District, Himachal Pradesh**



## Bottlenecks and Recommendations

Below are the observed bottlenecks, i.e., issues holding back the advancement and strengthening of the supply chain within Himachal Pradesh. While many bottlenecks were observed and recommendations listed, those identified as priorities and interventions the project can reasonably implement within the time frame given are highlighted in blue.

**Table 2. Himachal Pradesh Bottlenecks and Recommendations**

	<b>Bottleneck</b>	<b>Recommendation</b>
<b>People</b>		
Organization and Staffing	<ul style="list-style-type: none"> <li>Managers/supervisors have no formal or very little informal supply chain training.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct basics of supply chain course that focuses on different components of supply chain, including LMIS, inventory control, forecasting and procurement, and storage and distribution.</li> <li>Provide specialized logistics training in one or more of the following: forecasting, procurement, LMIS, inventory control, or warehousing.</li> </ul>
	<ul style="list-style-type: none"> <li>Staff is not sufficient to manage commodities at all levels (e.g., pharmacists and storekeepers).</li> </ul>	<ul style="list-style-type: none"> <li>Hire additional staff to support commodity management, especially pharmacists or storekeepers.</li> </ul>
	<ul style="list-style-type: none"> <li>Formal guidance is needed on roles and responsibilities for supply chain management.</li> </ul>	<ul style="list-style-type: none"> <li>Develop SOPs/formal guidance for roles and responsibilities for staff involved in supply chain activities.</li> </ul>
<b>Process</b>		
Procurement/ Product Quality	<ul style="list-style-type: none"> <li>Procurement process is not documented.</li> </ul>	<ul style="list-style-type: none"> <li>Develop processes and guidelines to support procurement and quality assurance process.</li> </ul>
	<ul style="list-style-type: none"> <li>District-level procurement responsibilities have shifted from the BMO to the CMO, creating additional work for the CMO.</li> </ul>	<ul style="list-style-type: none"> <li>Identify a committee or an individual with expertise in procurement to manage this process.</li> </ul>
	<ul style="list-style-type: none"> <li>Logistics data (consumption, issues, and stock balance) are not used for quantification and procurement of commodities.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a systemized approach for forecasting and procurement using logistics data, such as consumption and issues, in addition to patient data.</li> </ul>
	<ul style="list-style-type: none"> <li>No key performance indicators exist for any procurement/product quality measures.</li> </ul>	<ul style="list-style-type: none"> <li>Create a monitoring and evaluation plan to identify key performance indicators and assess supply chain performance and improvement.</li> </ul>
LMIS/Inventory Control	<ul style="list-style-type: none"> <li>No inventory control system is in place.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct a system design that includes review of existing supply chain processes for essential medicines.</li> <li>Create SOPs/guidelines for commodity management.</li> </ul>
	<ul style="list-style-type: none"> <li>Existing reporting system is ad hoc. Forms do not capture all logistics data, and information collected is not used for making resupply decisions.</li> </ul>	<ul style="list-style-type: none"> <li>Develop paper-based standardized LMIS forms for all facility levels.</li> <li>Develop SOPs/formal guidance for implementation of LMIS involved in supply chain activities.</li> </ul>

	Bottleneck	Recommendation
Transportation/ Distribution	<ul style="list-style-type: none"> <li>No distribution schedule exists for delivering commodities. Each level is responsible for picking up essential medicines from the higher level above, which results in the breakdown of other supply chain functions,</li> </ul>	<ul style="list-style-type: none"> <li>Conduct a transportation optimization study to assess essential medicines transportation needs and options.</li> <li>Develop SOPs/guidelines for transportation and distribution.</li> </ul>
<b>Infrastructure</b>		
Warehousing	<ul style="list-style-type: none"> <li>Storage space and infrastructure for essential medicines and family planning commodities are not sufficient at all levels.</li> <li>Lack of proper shelving and pallets was observed.</li> <li>Space for picking and packing at the district and state warehouses is lacking.</li> </ul>	<ul style="list-style-type: none"> <li>Support state in the development of a warehouse strategy for new regional warehouses.</li> <li>Create a model for warehouse network.</li> <li>Determine physical storage space requirements.</li> <li>Develop formal procedures and guidelines for best storage practices.</li> </ul>

## Next Steps

Given the limited time frame of the project (until September 2015), recommended next steps focus on supply chain strengthening tasks that can be accomplished within the next 15 months and have a relatively medium to high impact on overall supply chain performance.

- Standardize LMIS data requirements
  - Develop paper-based standardized LMIS forms for all facility levels.
  - Develop SOPs/formal guidance for implementation of LMIS involved in supply chain activities.
  - Determine specific data for incorporation into eLMIS and training plan.
- Capacity building on supply chain management
  - Develop and conduct a supply chain management training for supply chain staff at all levels.
  - Develop SOPs/formal guidance for roles and responsibilities of staff involved in supply chain activities.
- Development of standard operating procedures
  - Conduct a system design that includes review of existing supply chain processes for essential medicines.
  - Create SOPs/guidelines for commodity management.
- Specialized logistics training in one or more of the following (based on state's interest and immediate need)—
  - Forecasting
  - LMIS / IC
  - Procurement

# Punjab

## Overview

Punjab supply chain activities and oversight are coordinated by the Punjab Health Systems Corporation (PHSC) for most of the RMNCH+A commodities. The RMNCH+A commodities are part of the 235 products on the Essential Medicines List (EML), with 40 additional consumables. The EM supply chain is coordinated from the state level. It has an organized and staffed procurement team, oversight and supervision structure, and a management information system implementation plan.

The civil surgeon in each district runs and manages the Centrally Sponsored Schemes (CSS), which include family planning, tuberculosis, malaria, leprosy, and vaccines. For the Punjab landscape analysis, a regional drug warehouse and a civil hospital were visited in Bathinda District. Another regional drug warehouse, district hospital and subdivisional hospital were visited in Mohali District.

## Compass Tool

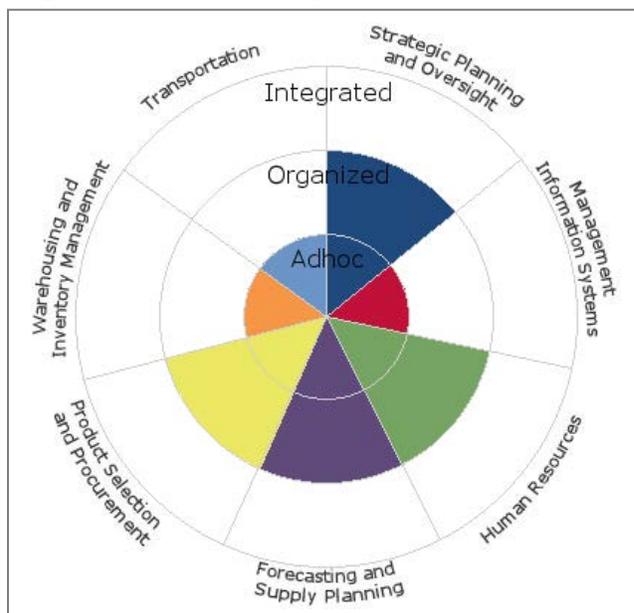
The Compass Tool was delivered at the state level to several key supply chain personnel within the PHSC. Through the administration of the Compass Tool, state officials self-assessed that within the categories of Strategic Planning and Oversight, Management Information Systems, Human Resources, and Product Selection and Procurement, they are already at an “organized” level and are moving towards integrated. It should be noted that the participants rated themselves organized within the management information systems based on the upcoming implementation of their eLMIS application, e-Aushadhi.

For the three remaining supply chain categories—Transportation, Warehousing and Inventory Management, and Forecasting and Supply Planning—Punjab self-assessed itself at the ad hoc level, moving to organized. A strong consensus was reached around the need to create, formalize, and document its warehouse procedures, as well as the need to organize inventory and improve storage procedures. In addition, participants expressed the need to start collecting more consumption data to improve their forecasting processes.

## Supply Chain Process Flow

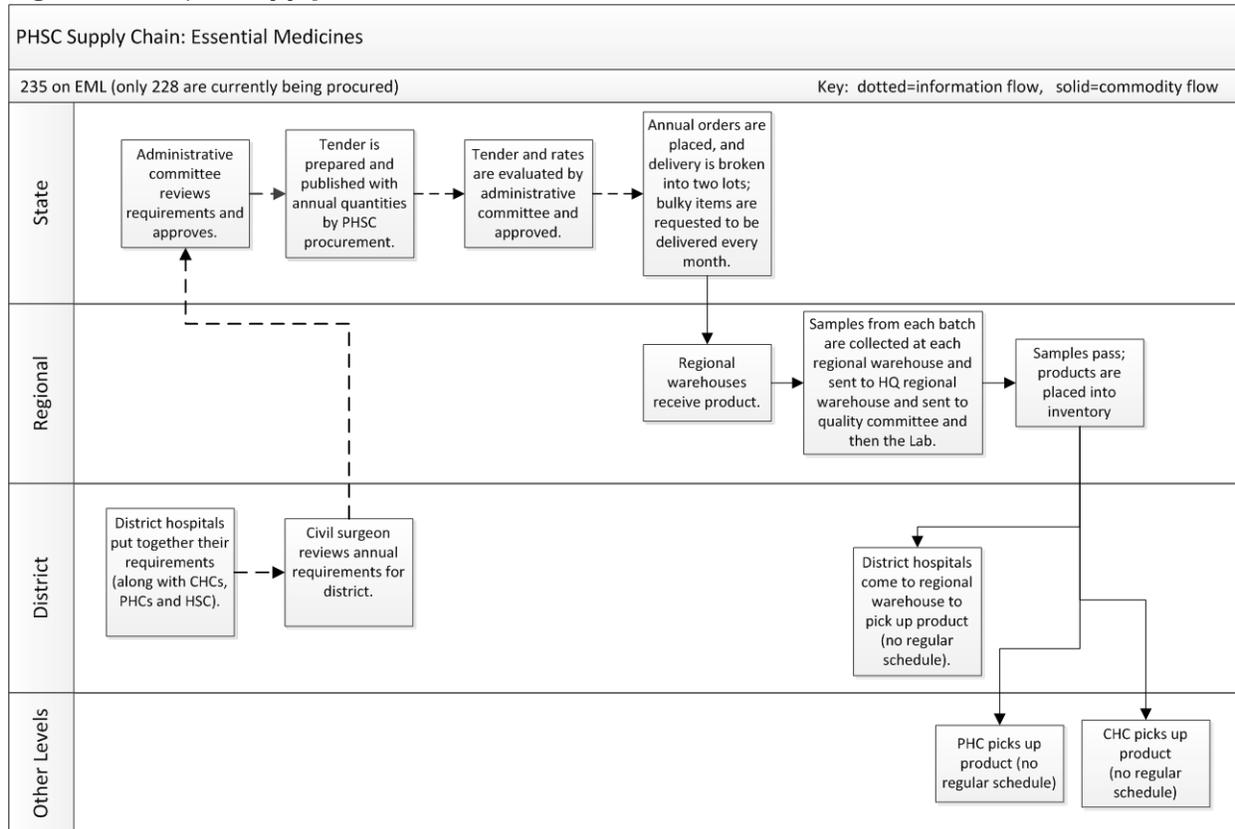
Some processes and procedures are in place for collecting logistics data and moving commodities, but the processes and procedures are mostly obtained through informal mechanisms. Overall, most medicines are moving through the same basic supply chain of people, process, and infrastructure,

**Figure 5. Punjab Compass Tool Results**

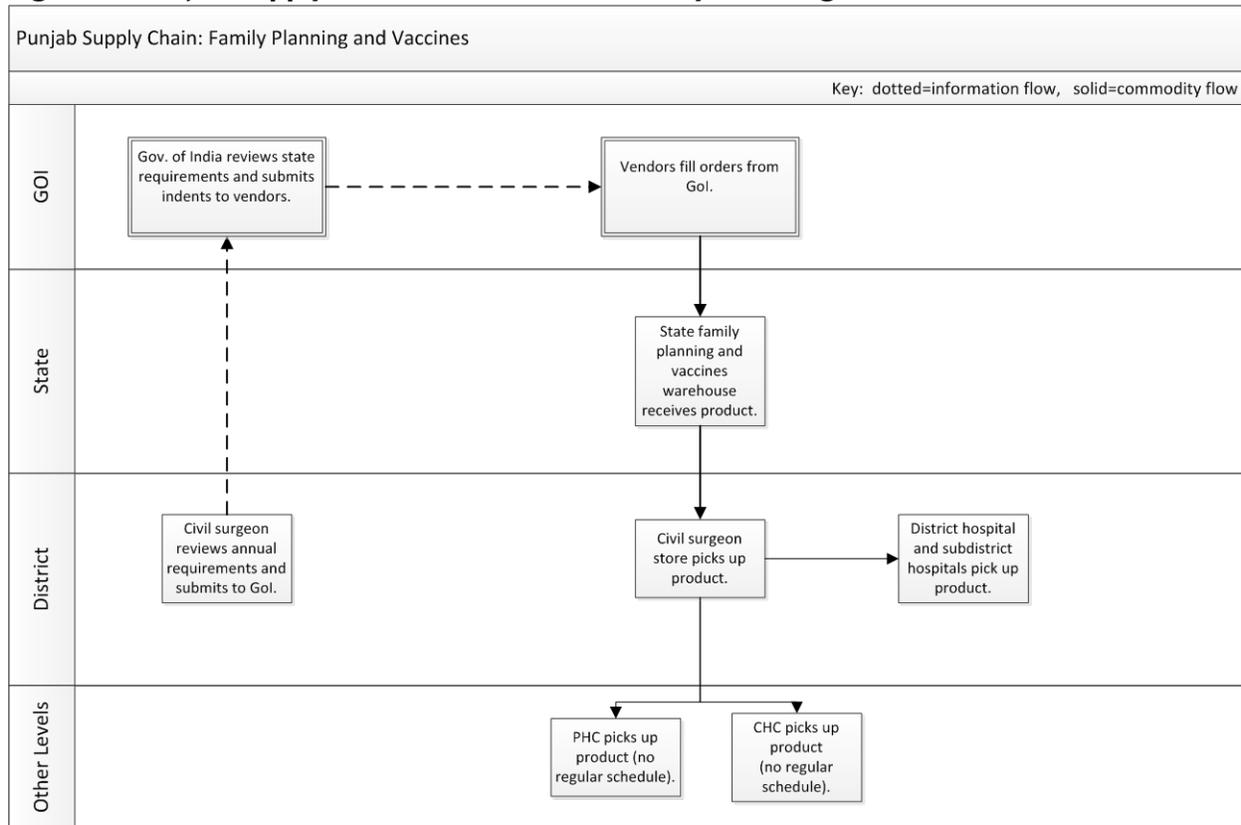


which is detailed in the supply chain process flow below. A few exceptions exist regarding the management of vaccines, family planning products, and essential medicines. These exceptions also are detailed in the supply chain process flow below.

**Figure 6. Punjab Supply Chain Process Flow: Essential Medicines**



**Figure 7. Punjab Supply Chain Process Flow: Family Planning and Vaccines**



## People

Having a proper organizational structure and a good support team is an important first step in having a successful and well-functioning supply chain. Before making a significant investment in a supply chain, one should assess the personnel roles required to make that change. One also should honestly evaluate his or her internal staff's abilities to perform these tasks. Reviewing Punjab's organizational structure and staff was an important way to determine the feasibility of moving forward with supply chain-related interventions and improvements in the state.

## Organization and Staffing

As discussed above in the Compass Tool overview, Punjab's supply chain organization and staffing are moving from an organized state to an integrated state, especially in relation to the PHSC. The PHSC is making an active effort to ensure that procurement, warehousing, and information technology (IT) are important parts of its organization.

At the top of the health organization is the Principal Health Secretary. This person heads an administrative committee that comprises senior Indian Administrative Services (IAS) officers and directors (Department of Health Services and Family Welfare) who take the lead on supply chain management-related decisions and issues.

The PHSC purchases and manages all essential medicines. The bulk of day-to-day supply chain activities falls under the Director of Procurement, who oversees the regional warehouse managers, procurement manager, and IT manager. This level contains the team of officials that takes the lead

on the roll-out of supply chain–related activities and day-to-day supply chain–related tasks. The IT Cell has been given the responsibility of leading the implementation of the PHSC’s recently purchased eLMIS system, e-Aushadhi.

For all CSS products, the civil surgeon at the district level manages the programs within his or her district. No formal supply chain–based training is given to anyone in the organization.

## **Processes**

The supply chain processes includes all business activities the organization performs, e.g. associated guidelines, SOPs, data, and metrics information.

## **Procurement**

Punjab’s procurement process is moving from an organized state to an integrated state. District hospitals, subdistrict hospitals, CHCs, PHCs, and HSCs submit their indents to the civil surgeon based on last year’s supply, with an increment of 5 to 10 percent added. The state then requests the annual indent from all civil surgeons, who compile the data from the facilities. Once the anticipated eLMIS (e-Aushadhi) is rolled out, it is hoped that the process of indenting will become more automatic, with indents coming in via the online system.

At present, procurement is done centrally at the state level, and written guidelines are available. The procurement team at the state level (PHSC) carries out two-year rate contracts for all essential medicines (EML of 235 medicines and 40 consumables). Each rate contract takes approximately three to four months (the length of time from issuing a tender to finalization of rate contract). Local procurement is minimal and is funded through user charges.

GoI supplies are received for the CSS for family planning, tuberculosis, malaria, leprosy, and vaccines as per requirement of the state.

## **Product Quality**

Products on the EML, including RMNCH+A commodities, are state-managed. A committee comprising of specialists selects the products, and the Administrative Committee approves them. The State Level Quality Cell is responsible for the quality testing of drugs in preselected labs. It ensures that all batches of items procured through the state are sampled at a regional warehouse (Amritsar or Bathinda) and sent to the headquarters (regional warehouse, Kharar) for further processing before being sent to a lab. The Quality Control Cell takes all samples, codes them, then coordinates with the preapproved labs to send and test the product. Punjab is using the labs the Haryana Government has preapproved. The state is undergoing a process to select and approve labs on their own.

## **LMIS**

The essential medicines supply chain uses paper-based registers from the regional warehouse down to the health facility level (includes all levels below the regional warehouse). The registers record stock receipts and stock issues and capture losses and adjustments. The regional warehouses prepare a list of available medicines in Microsoft® Excel and share it with health facilities via email. Health centers fill the quantity required in Excel and send the list back to the warehouse for approval. After the finalization of quantity, health centers are called to pick up the stock.

Punjab is in the process of implementing an eLMIS application that is based on Rajasthan's eLMIS application, e-Aushadhi. The Centre for Development of Advanced Computing (CDAC) developed the application. Punjab is implementing a new version of the software, which uses open source technology. However, the implementation is encountering various development delays. One of the delays identified is the lack of supply chain requirements and documented processes.

The state has planned the roll-out of the eLMIS software down to the PHC level. Implementation of the software is expected to help diminish ad hoc reporting of data with their current paper-based system and increase visibility in availability of essential commodities at all levels.

## **Inventory Control**

The Compass Tool did not have a specific category related to inventory control; however, information captured through other questions in the tool and key informant interviews shows that an informal max-min system based on a certain percentage of stock levels is in place. In general, 25 percent of stock is kept as a reserve at the regional warehouses. District hospitals and subdistrict hospitals keep 15 days of stock on hand (SOH) before reordering. These are informal guidelines; no documented guidelines for inventory management exist.

For soon-to-expire products, district hospitals, subdistrict hospitals, CHCs, and PHCs first inform the civil surgeon then the state. This is done generally about six months before an upcoming expiry. In the case of an upcoming expiry at a regional warehouse, the health facilities inform the state directly. Products are requested to be relocated to another facility that may be able to dispense before they expire. Again, these procedures are informal, as no documented expiry guidelines exist.

## **Transportation/Distribution**

For the essential medicines supply chain, suppliers deliver directly to the regional warehouses. The regional warehouses request that facilities (district hospitals, subdistrict hospitals, CHCs, and PHCs [HSCs pick up from PHCs]) individually pick up the product at their convenience. This makes the pickup and distribution schedule ad hoc, as little communication or a standard schedule exists. One truck is available at each regional warehouse for distribution of stock to the facilities; however, since no drivers have been hired, they are not being used. The hiring of drivers is underway.

For CSS products, the delivery strategy differs slightly. Suppliers deliver all products to the state program store then each district's civil surgeon picks up the products. Health facilities then pick up the products from the civil surgeon store.

## **Infrastructure**

Even the best planned organizations and best implemented processes cannot overcome a poorly designed supply chain. A properly designed supply chain takes into account the environment/geography, population, volume of commodity flow, and available technologies. It also can elevate the impact supply chain interventions can have across an organization.

## **Supply Chain Tiers**

Punjab's population of 28,884,179 people is divided into 22 districts; more than 4,000 health institutions serve the districts. (See below.)

**Table 3. Health Facilities in Punjab**

Facility	Count
Regional Warehouses	3
District Hospitals	21
Subdivisional Hospitals	35
Community Health Centres (PHSC)*	114
Community Health Centres (DHS)**	15
Block Primary Health Centres	118
Rural Hospitals	45
Dispensaries	1,200
Health Subcentres	2,951***

\*Punjab Health Systems Corporation \*\* Director of Health Services \*\*\* Rural Health Statistics 2012

## Warehousing

In February 2014, the PHSC operationalized three regional drug warehouses at Mohali (Kharar), Amritsar, and Bathinda. At each regional warehouse, a chief pharmacist was designated as the warehouse manager in-charge. In addition there were two to three junior pharmacists and three to four multitask workers.

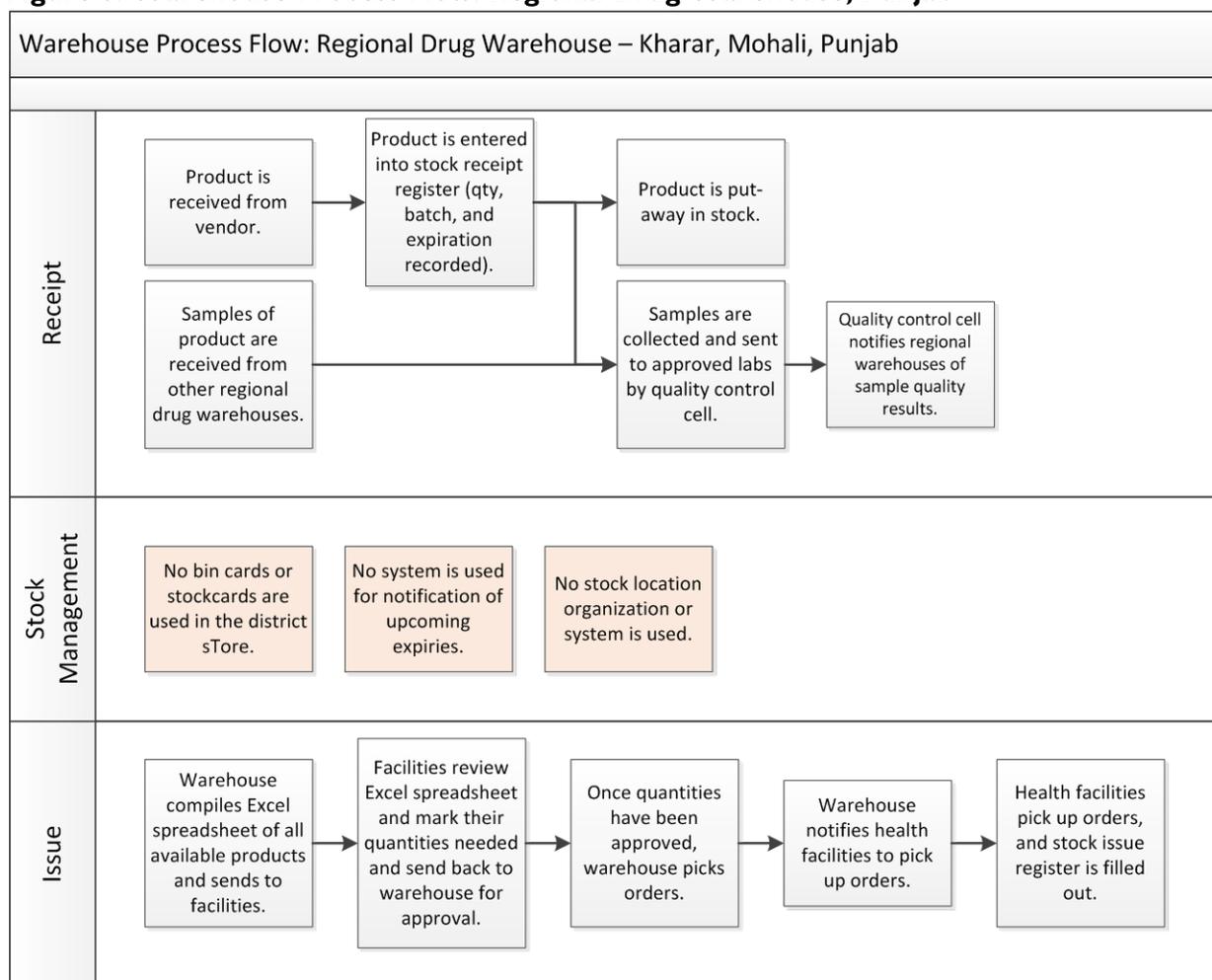
During the visit to the regional warehouse in Kharar, the stock register was reviewed, and incoming and outgoing stock was shown as recorded. Batch numbers and expiry dates were entered, and first-to-expire, first-out (FEFO) was said to be followed when issuing drugs. It was stated though that space, maintenance of standard room temperature, and sunlight exposure are concerns. It was also clear that the space issue was inhibiting workers' ability to organize and account for entire products, as they were placed anywhere available space could be found. Information on warehouse and facility dimensions is not systematically kept. Without this information, it is challenging to assess the commodity capacity and provide recommendations on how best to use the space. State officials in Punjab requested an inventory ABC analysis to help them better manage their inventory and ensure proper storage conditions were being met for each product.

Refrigeration for vaccines and other cold chain products was available. A brand new walk-in refrigerator was installed and was working properly.

Racks and a forklift were present at the warehouse, but neither was being used to their full capacity. Racks were not spaced well, and the aisles were filled with product, making the use of the forklift very difficult.

Below is the process flow as was described and observed at the regional drug warehouse in Kharar, Mohali. No formal or documented guidelines exist for any aspect of warehousing in the state.

**Figure 8. Warehouse Process Flow: Regional Drug Warehouse, Punjab**



## Bottlenecks and Recommendations

Below are the observed bottlenecks, i.e., issues holding back the advancement and strengthening of the supply chain within Punjab. While many bottlenecks were observed and recommendations listed, those identified as priorities and interventions that the project can reasonably make an impact on within the time frame given are highlighted in blue.

**Table 4. Punjab Bottlenecks and Recommendations**

	<b>Bottleneck</b>	<b>Recommendation</b>
<b>People</b>		
Organization and Staffing	<ul style="list-style-type: none"> <li>Managers/supervisors have no formal or very little informal supply chain training.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct a basics supply chain course, with focus on warehouse management to help regional warehouse-level employees.</li> </ul>
<b>Process</b>		
Procurement/ Product Quality	<ul style="list-style-type: none"> <li>Local purchase data are unknown; quality is not monitored.</li> </ul>	<ul style="list-style-type: none"> <li>Track local purchase data to monitor and evaluate procurement process and efficiency.</li> </ul>
	<ul style="list-style-type: none"> <li>No key performance indicators exist for any procurement/product quality measures.</li> </ul>	<ul style="list-style-type: none"> <li>Create a monitoring and evaluation plan to identify key performance indicators and to assess supply chain performance and improvement.</li> </ul>
	<ul style="list-style-type: none"> <li>No formal process exists for lower levels to indent.</li> </ul>	<ul style="list-style-type: none"> <li>Design indenting procedures for PHCs, CHCs, and district levels.</li> </ul>
LMIS/ Inventory Control	<ul style="list-style-type: none"> <li>No SOPs or guidelines exist for inventory control.</li> </ul>	<ul style="list-style-type: none"> <li>Review and form the inventory management guidelines for facilities and warehouses and provide training.</li> </ul>
	<ul style="list-style-type: none"> <li>No LMIS is in place to help track product and gather data through the supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>Support CDAC with project/program management of the implementation of the eLMIS.</li> <li>Ensure eLMIS application captures and meets SC requirements.</li> </ul>
Transportation/ Distribution	<ul style="list-style-type: none"> <li>No distribution schedule or plan exists.</li> </ul>	<ul style="list-style-type: none"> <li>Standardize/optimize distribution schedule for all levels of health facilities.</li> </ul>
	<ul style="list-style-type: none"> <li>No long-term transportation strategy exists.</li> </ul>	<ul style="list-style-type: none"> <li>Review and guide the finalization of transport strategy (owning fleet of vehicles or outsourcing of transport services).</li> </ul>
<b>Infrastructure</b>		
Warehousing	<ul style="list-style-type: none"> <li>No SOPs exist for warehouse employees to follow.</li> </ul>	<ul style="list-style-type: none"> <li>Create SOPs/guidelines for warehousing and storage.</li> </ul>
	<ul style="list-style-type: none"> <li>No organization or proper layout is in place in warehouse.</li> </ul>	<ul style="list-style-type: none"> <li>Determine warehouse specifications to optimize warehousing space and storage and to ensure adequate racking and pallets.</li> </ul>

## Next Steps

Given the limited time frame of the project, recommended next steps focus on supply chain strengthening tasks that can be accomplished within 12-15 months and have a relatively medium to high impact on overall supply chain performance.

### 1. Inventory management

- Design minimum-maximum inventory control procedures.
- Conduct ABC analysis on EML.

- Categorize inventory according to storage conditions and product type. For example, cold chain, cool room, dark room, bulky items, high value, etc.
  - Develop SOPs for inventory management processes.
2. Ordering and distribution design (pilot project)
- Design indenting procedures for PHCs, CHCs, and district levels.
  - Develop standard schedule for distribution.
  - Develop SOPs for indenting and distribution.
3. Warehouse technical assistance
- Develop optimal internal layout for three regional warehouses.
  - Design process flow for the receipt, put-away, picking, and staging of product.
  - Develop SOPs for warehouse functions.



# Uttarakhand

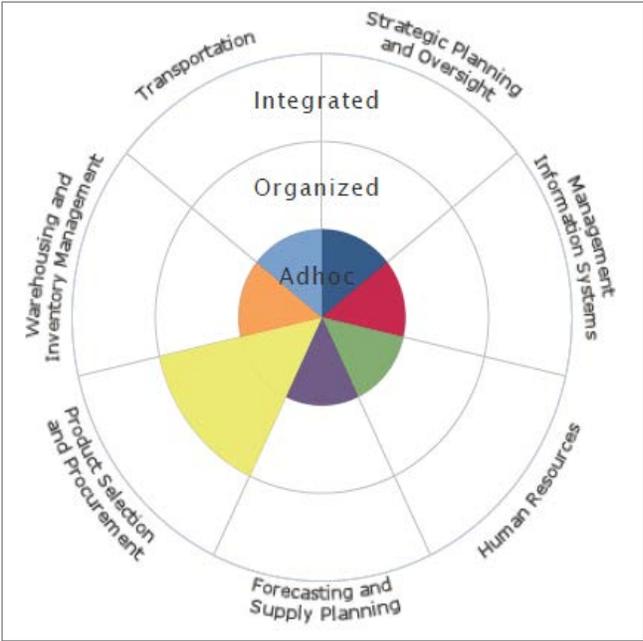
## Overview

The Uttarakhand NHM provides coordination of the supply chain for most essential medicines, which are included in the approximately 625 commodities on the Uttarakhand EDL. The exceptions include commodities that are associated with national program supply chains, such as family planning products, vaccines, HIV and AIDS medicines, tuberculosis, and vector-borne diseases. For these supply chains, the Uttarakhand stakeholders expectation is that GoI is ultimately responsible for supply chain coordination. In Uttarakhand, few differences exist between the essential medicines, vaccines, and family planning supply chains. While the procurement processes are at different levels for FP and vaccines (than for EM), all products move through the same storage locations in state. Distribution of vaccines is handled differently: in addition to vaccines being regularly available, vaccine campaigns are periodically being planned, including the roll-out of the pentavalent vaccine campaign in the beginning of 2015. To better understand the operations of the various supply chains for RMNCH+A commodities at different service delivery levels, the state selected two districts for site visits and interviews: Udham Singh Nagar and Pauri. Both are high priority districts. The state expected the districts to provide a better estimate of the true extent of supply chain needs (compared with visiting districts that are not high priority districts). The state expected the supply chain challenges to be slightly different in each location due to the different geographies (Udham Singh Nagar is located in a plains area and Pauri in a hilly area). For its site visits, the team visited the Udham Singh Nagar Central Medical Stores Department (CMSD), Rudrapur District Hospital, Sitargang CHC, and Sidha Ninak HSC. In Pauri, the team visited the Pauri Garhwal CMSD and the Pauri Garhwal Women’s District Hospital.

## Compass Tool

The Compass Tool was delivered to several key supply chain personnel at the state level. Overall, Uttarakhand State is moving from an ad hoc phase to an organized phase in its supply chain development. Efforts are beginning to define logistics roles and processes and collaborate and build consensus on supply chain strategy. State officials assessed Product Selection and Procurement as a relatively organized supply chain function, with written guidance available and staff clarity regarding procedures. A strong consensus was reached surrounding the creating or formalizing of SOPs to ensure more systematic supply chain processes, to increase data visibility, and to improve data quality and timeliness. (Full results of the Compass Tool are available in Annex 1.)

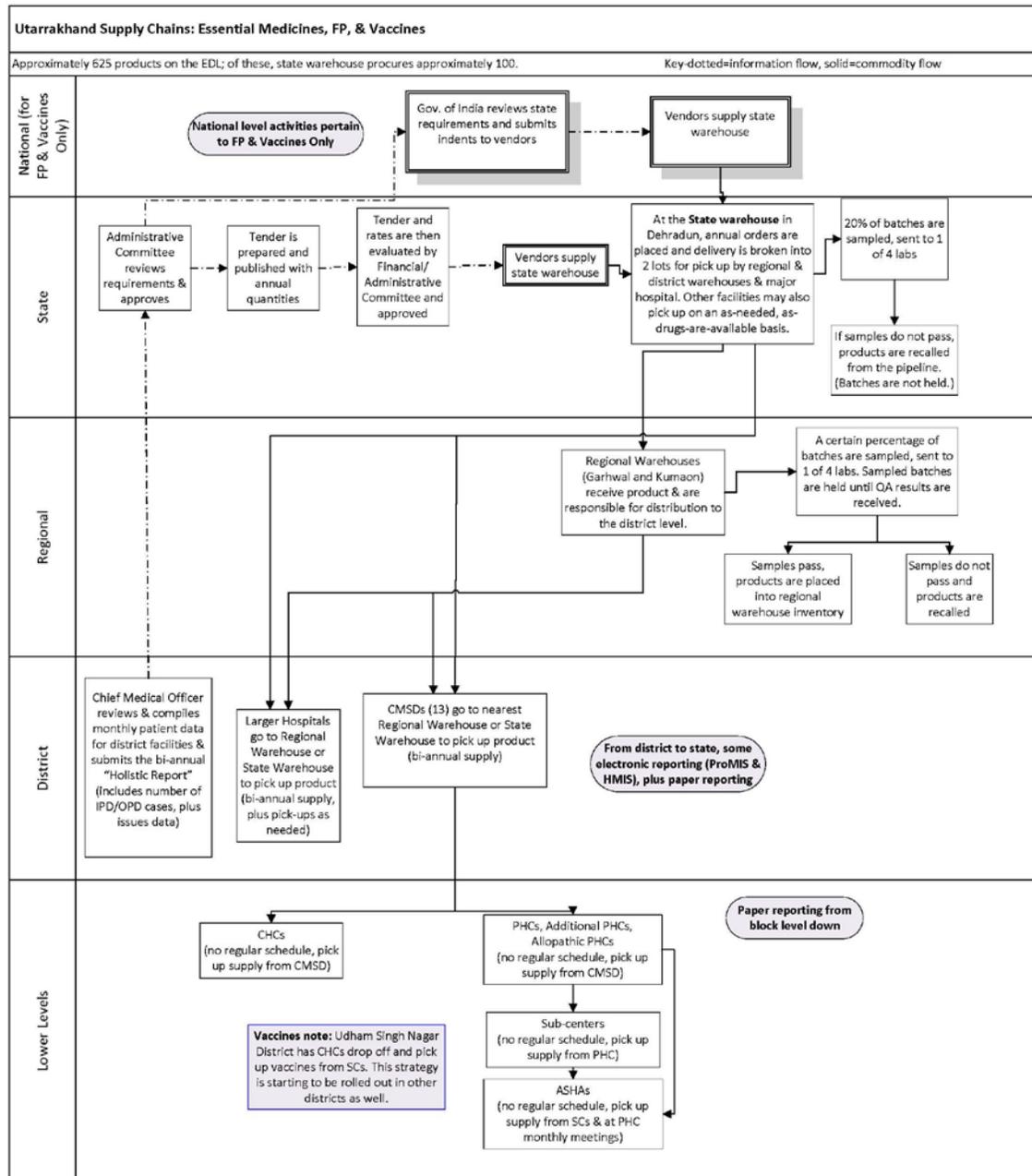
Figure 9. Uttarakhand Compass Tool Results



## Supply Chain Process Flow

Some processes and procedures are in place for collecting logistics data and moving commodities, but most of these processes occur through informal mechanisms. Overall, most medicines are moving through the same basic supply chain of people, process, and infrastructure, which is detailed in the supply chain process flow below. Exceptions regarding the management of vaccines and family planning products are also provided.

**Figure 10. Uttarakhand Supply Chains Process Flow**



For FP commodities, the GoI, through the MoHFW, reviews Uttarakhand State requirements, which are based on the numbers of patient data, plus issues data. The MoHFW also takes into account demographic data and any national- or state-level goals to develop its annual forecast for the

state. The MoHFW then submits indents to preselected vendors. The manufacturers transport supplies to the state warehouse. After this point, the GoI provides little to no oversight of the management of family planning commodities. The state is responsible for storing, distributing, and managing the commodities.

The vaccine supply chain is the most organized of the supply chains investigated, with regularly trained staff, sufficient cold chain storage space, and written guidance on vaccine supply management. For vaccine commodities, the MoHFW also reviews Uttarakhand State requirements, which are based on patient and issues data, as well as state-level goals (such as the roll-out of the pentavalent vaccine in the beginning of 2015), to determine the state forecast. The MoHFW submits indents to preselected vendors, who are responsible for transport of supplies to the state warehouse. Another distinction regarding the vaccine supply chain is its innovative approach in distribution and transportation, with a new strategy being rolled out between the CHC and HSC levels in Udham Singh Nagar and other districts.

## People

Having a proper organizational structure and a good support team in place are important first steps in having a successful and well-functioning supply chain. Before making a significant investment in a supply chain, logistics personnel roles required should be assessed, as well as internal staff's abilities to perform supply chain tasks.

## Supply Chain Organization and Staffing

Compass Tool results described supply chain organization and human resources as moving from the ad hoc phase to the organized phase of supply chain development. General consensus was reached on there being a lack of defined or implemented processes regarding strategic planning, training, and supervision. No committee or body is in place to coordinate broad supply chain efforts to improve product availability and to respond to overall supply chain challenges. State officials agreed that it would be beneficial to enhance the capacity of a State Logistics Management Working Group that meets regularly for oversight of supply chain resources. This group consists only of staff working at the state warehouse, and they are primarily focused on state warehouse issues in particular, rather than supply chain dynamics more broadly.

Staff members assigned to supply chain activities are dedicated and hard working, despite significant human resource challenges. At the state and district warehouses, chief pharmacists, pharmacists, pharmacist assistants, and a Procurement Management Information System (ProMIS) data manager are engaged in supply chain activities. Staff ultimately report to the director store at state level.

For vaccines, dedicated immunization officers are at the state and district levels. At the district hospital level, staff assigned to supply chain activities primarily include pharmacists, pharmacist assistants (including interns, who rotate assignments every two to three weeks), and data managers. In some cases, at various levels of the system, the same data manager is responsible for entering data in multiple electronic reporting systems, such as ProMIS, HMIS, and MCTS. In the antenatal care clinic section of the facility, auxiliary nurse midwives (ANMs) and their staff in charge of antenatal care store and manage separately family planning products at the district level. Pharmacists and data managers are expected to be present down to the CHC level, with usually more than one pharmacist at the district hospital level; pharmacists are also expected to be present at the PHC level. At the HSC level, only ANMs and or ASHAs are responsible for all supply chain-related activities.

The most institutionalized training available is pre-service training for pharmacists, as well as in-service training for staff managing vaccines. Vaccine staff receives quarterly supportive supervision and training, which are provided primarily through meetings scheduled at the state level, as well as site visits. Vaccine trainings are also being held for staff at all levels of the system for the planned roll-out of the new pentavalent vaccine.

With the exception of vaccines, supportive supervision to lower levels of the supply chain occurs infrequently and with little focus on supply chain management. The NHM in Uttarakhand places a strong reliance on staff coming into the system already trained and an expectation for staff to learn the informal processes and procedures from their predecessors, co-workers, or neighboring facility staff. In the two districts that were visited for this assessment, human resources vacancies were observed for pharmacists, pharmacist assistants, and data managers. Staff turnover may be a challenge, particularly in remote areas and among data managers, who are often in contracted positions.

## Processes

The supply chain processes includes all business activities the organization performs, e.g. associated guidelines, SOPs, data, and metrics information.

## Procurement

The output from the Compass Tool revealed procurement as the state's most organized supply chain function. Compared with other supply chain functions, written guidance is available (*Uttarakhand Procurement Guide*, updated in 2011), and staff members are knowledgeable about procedures and their roles and responsibilities. The state is responsible for procuring approximately 40 percent of total budget. However, while procurement processes have been defined and are being implemented, products are not always consistently available. Of the 625 products on the state EDL, approximately 100 are available at the state warehouse. Districts procure locally the remaining 60 percent of total budget required for consumption directly from the vendors under rate contract by various Government, bodies with order frequency and procurement time period varying.

For state-procured commodities, CMOs at the district level review and compile monthly patient data for facilities in that district and create an annual *Holistic Report*. The *Holistic Report* contains inpatient and outpatient service statistics, as well as issues data. At the state level, data are reviewed and forecasts for the upcoming year are developed which rely mostly on the service statistics. One-year rate contracts are primarily used for most essential medicines. Rate contracts take approximately three to four months on average (maximum eight months), from the length of time to issue a tender to finalization of rate contract. Contracts spend a substantial amount of time in financial/administrative committees at the state level waiting for approval. Depending on the amount of time spent waiting, the state warehouse also must rely on ordering smaller quantities through the local procurement process to fill gaps.

At lower levels, local procurements are funded through reimbursements through the Janani Shishu Suraksha Karyakram scheme; however, delays often occur in this reimbursement process, and local procurement cannot happen without the reimbursement. Similarly for lower-level facilities, because the amount of time from issuing a tender to receiving the product can be lengthy (approximately three to four months, on average), facilities avoid this process by ordering relatively small quantities of needed commodities directly from the local market. Efficiencies could be increased here. Healthcare providers and pharmacists are responsible for local procurement, and placing numerous

orders takes substantial amounts of time away from patient care, stock management, and their other primary duties.

## **Product Quality**

State-managed essential medicine products are selected based on the parameters of the EDL. The QA process has not been formalized; however, informal processes are in place. At the state warehouse, 20 percent of batches are randomly sampled and sent to one of four independent laboratories in Delhi for testing. Batches that are randomly selected are not held at the warehouse until QA results are completed; instead, they are distributed with other commodity batches. In the case of batch failure, the batch number would ideally be recalled throughout the supply chain pipeline. However, this has not yet occurred, so the feasibility of such a recall has not yet been tested.

At regional and some district warehouses, a certain percentage of batches are sampled (the percentage of batches sampled is unclear), and products from that batch are held in the warehouse stock until the product passes inspection. Products are sent for testing to one of four laboratories in the state. If a product fails inspection, that batch would be recalled from the warehouse and returned to the vendor.

Products obtained through the local procurement process are not tested for their quality. All vaccines are tested through GoI, at independent labs to ensure QA.

## **LMIS**

Compass Tool results show the state moving from an ad hoc phase to an organized supply chain phase, with LMIS processes not having been defined and implemented. Consensus during the Compass Workshop highlighted the state's desire to standardize tools and business processes for data collection and reporting; to consolidate its data sources; and to begin using data for logistics decisionmaking (including developing key performance indicators).

The electronic ProMIS provides data down to the district level and only for GoI-procured commodities. Expansion of ProMIS to lower levels is being planned; however, no clear training roll-out schedule exists, and staff capacity may be limited. HMIS is also automated down to the district level (with paper-based reporting at lower levels). It includes some monthly commodity information on family planning products and vaccines. However, in general, HMIS is not used for logistics purposes; instead, it is used for programmatic planning based on the case management data (for example, information on total number of family planning procedures performed). For both systems, concerns surround timeliness and data quality; as a result, data from neither of the systems are used for logistics management decisionmaking.

Paper-based logistics management information processes exist at all levels of the system; however, most current paper forms are informal. Medicine stock books observed at all levels of the system were purchased from local "general" stores; the state did not design them. Informal expiry and inventory logs were also present at the facilities visited. In general, the forms do not capture losses or adjustments, and bin cards and stockcards are not used. At the HSC level, the HMIS Health Department Monthly Format for Sub-center and Equivalent Institutions form is used, which provides patient and some commodity information.

A formal "triplicate" indent/issues form exists, which is designed to originate at the facility level for indenting purposes (with a second copy for the warehouse and a third copy returned to the facility).

In practice, however, the triplicate form is initiating with whichever level receives the indent (district/regional or state). As a result, at the CHC and PHC levels, handwritten paper indents for essential medicines are submitted to district or regional warehouses, as needed. Facilities are provided with an assigned pickup date, but the schedule allows for flexibility.

The only consistently reported data submitted monthly are the quantity of patients facilities serve. The CMO aggregates this information, which is used biannually to estimate demand at the state level.

## **Inventory Control**

Few established processes or procedures exist for the inventory control of essential medicines. At the CHC, PHC, and HSC facility levels, minimum and maximum amounts are determined based on a certain percentage of maximum stock levels. However, this process is informal and inconsistent. In some instances, pharmacists are reviewing the stock status every month and place orders using the last month of consumption adjusted with a buffer stock. For products nearing expiry, in practice products are returned to the CMSD approximately two months prior to expiry, although no established return time frame exists.

The vaccines program may have a more systemized process for calculating minimum and maximum levels due to the more stringent practices required for cold chain products. It also can offer an opportunity to learn from a supply chain that is functioning well in Uttarakhand.

A committee exists (comprising the medical department controller, store director, and additional director of medical care) to assess expired and damaged products. In addition, GoI biohazard guidelines are in place, and the drug controller enforces them.

## **Transportation/Distribution**

Transportation and distribution processes are conducted informally, without written guidelines or procedures from the state. The state initiates the distribution process by sending an “issue letter” biannually (e.g., April/May and September/October) to the CMSDs, district hospitals and other large hospitals, and regional warehouses. The letter contains assigned facility pickup dates, as well as a list of available products from the EDL. In turn, these larger facilities send back an indent to the state or bring it with them when they pick up their order. The process allows facilities to coordinate an alternative date if they are unable to pick up products on the selected date. However, while advantageous for facilities, ad hoc distribution changes may result in an undue burden on state warehouse staff to meet demands.

Lower-level facilities (CHCs and PHCs) are responsible for pickup on an as-needed basis from the nearest distribution site (which may be a regional warehouse, district warehouse, or state warehouse). The distribution plan was for the regional warehouses to supply many district warehouses and district hospitals, which are farther away from the state warehouse in Dehradun. However, this distribution process is not actually happening because of the condition of the regional warehouses, which are not fully functioning as such.

The main strength of this supply chain function is the availability of vehicles and other transportation means; all facilities are responsible for their own transportation to the nearest (functioning) distribution point. Providing transportation subsidies for some service providers may be helpful (e.g., in some cases ANMs are responsible for fuel costs).

For the vaccine supply chain, in preparation for the roll-out of the pentavalent vaccine, the state, in collaboration with the GoI, has been proactive in introducing a new transportation/distribution

strategy to the HSC level. The approach is being tested in Udham Singh Nagar and is aimed at decreasing wastage, particularly during the new pentavalent roll-out. ANMs pick up and return unused vaccine the same day. This can be time consuming, taking up to 30 percent of the ANM's day and taking away time from patient care. The change in distribution was made to save the ANM time and reduce wastage (which happened when returning the same day was impossible, particularly at night during the winter). The new model places the onus on CHCs to deliver vaccines to ANMs and collect unused product at the end of each vaccine delivery day.

## Infrastructure

Even the best planned organizations and best implemented processes cannot overcome a poorly designed supply chain. A properly designed supply chain takes into account the environment/geography, population, volume of commodity flow, and available technologies. It also can elevate the impact supply chain interventions can have across an organization.

## Supply Chain Tiers

Uttarakhand's population of 10,116,752 is divided into 13 districts; 2,239 health facilities serve the districts. (See below.)

**Table 5. Health Facilities in Uttarakhand**

Facility	Count
Regional Warehouses	2
Central Medical Stores Departments (district level)	13
Hospitals (including district hospitals and smaller institutions)	38
CHCs	55
PHCs	42
Additional PHCs	212
Allopathic PHCs	45
Health Subcenters	1,847

## Warehouse

The Compass Tool self-assessment also ranked warehousing as moving from an ad hoc phase to an organized phase of supply chain management. When possible, staff members are working to ensure fundamental warehousing and storage practices are adhered to, such as FEFO; however, guidance is lacking from the state regarding the organization, storage, and distribution of products.

For vaccines, the state warehouse uses the *Cold Chain Handler's Immunization Handbook for Medical Officers* by the Department of Health and Family Welfare and the NHM (revised 2009). Following best practices, signage was in place at the state and district warehouses, including an emergency plan for vaccine storage, with alternative storage arrangements in the case of a lapse in the cold chain. While adequate space was available for vaccines (including for additional vaccine for the pentavalent

roll-out), broken walk-in refrigeration units were onsite; the GoI needs to retrieve or fix them. FP products were also stored at the state and district warehouses but in different, discrete sections of the warehouse.

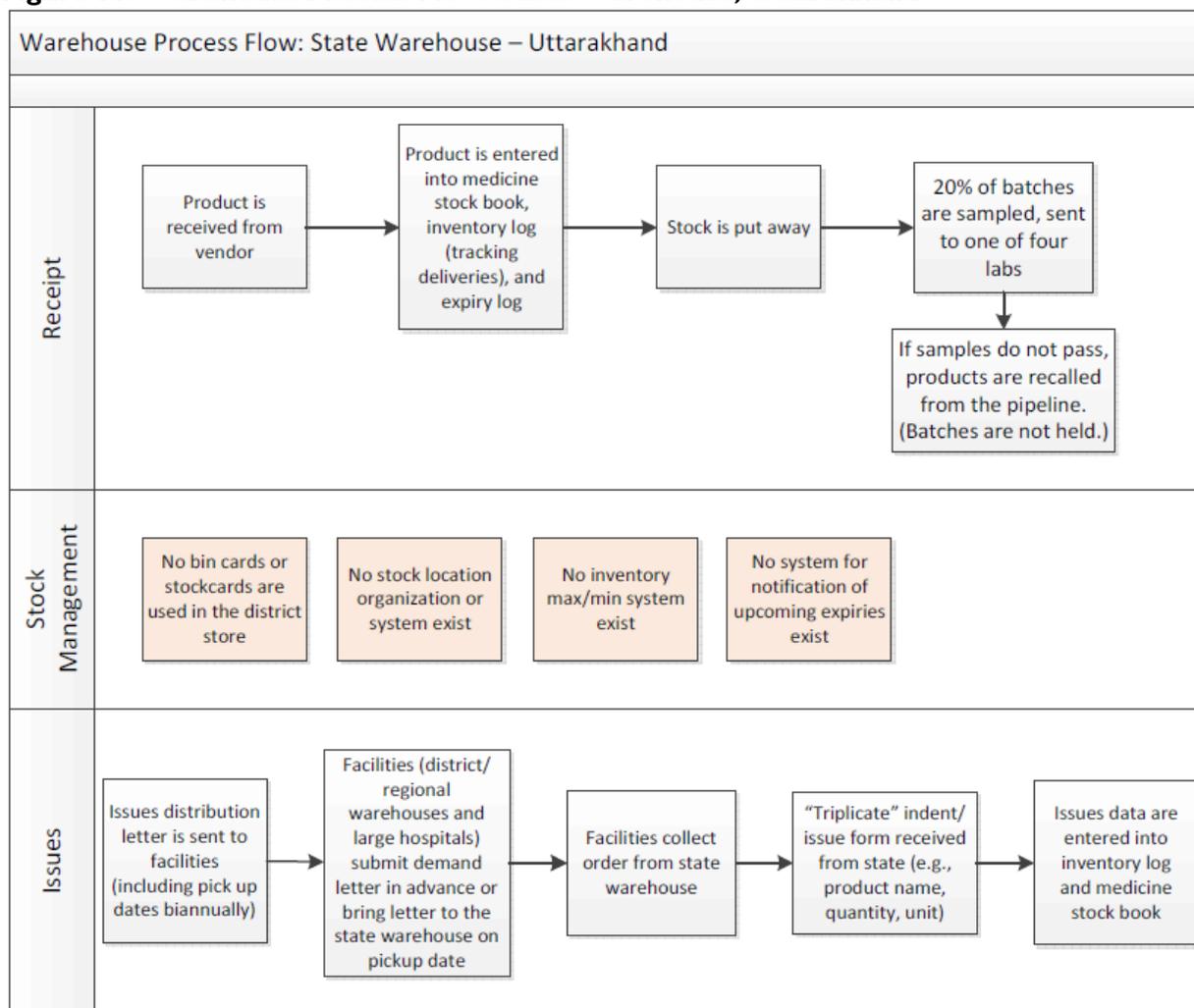
Information on warehouse and facility dimensions is not systematically kept. Without this information, it is challenging to assess the commodity capacity and provide recommendations on how to best use space. In general, space was observed to be a challenge, and shelving and pallets were inadequate. Exposure to sunlight and control of room temperature were also concerns. While refrigeration for vaccines was available, this was not the case for other products in need of refrigeration, such as oxytocin, an essential life-saving drug to prevent hemorrhaging during delivery. To maintain its efficacy, oxytocin must be refrigerated; improper storage of oxytocin is of particular concern given Uttarakhand's current maternal mortality rate, which is nearly double that of India as a whole.

While this team did not have the opportunity to visit the sites, the issues of space, as well as having sufficient human resource capacity, appear to be major concerns for both regional warehouses. The warehouses are not operating at their full capacity as distribution points for the nearest district warehouses and hospitals as was intended. As a result, the state warehouse continues to resupply many facilities.

Shelves and cabinets were labeled with the names of products, but stockcards for individual products were not used. Instead, a single stock register was used to record basic stock information, including SOH, issues, and receipts. Losses and adjustments were not captured.

The Pauri CMSD has a particular need, with products being stored in a temporary warehouse. At the time of visit, these products were being moved for the second monsoon season to a nearby apartment because the temporary warehouse floods. The state has not responded to an application for funding to construct a new district warehouse, which was submitted over a year ago.

**Figure 11. Warehouse Process Flow: State Warehouse, Uttarakhand**



## Bottlenecks and Recommendations

Below are the observed bottlenecks, i.e., issues holding back the advancement and strengthening of the supply chain within Uttarakhand. While many bottlenecks were observed and recommendations listed, those identified as priorities and interventions that the project can reasonably make an impact on within the time frame given are highlighted in blue.

**Table 6. Uttarakhand Bottlenecks and Recommendations**

	Bottleneck	Recommendation
<b>People</b>		
Organization and Staffing	<ul style="list-style-type: none"> <li>No committee or body is in place to coordinate supply chain efforts to improve product availability and to respond to overall supply chain challenges.</li> </ul>	<ul style="list-style-type: none"> <li>Enhance the capacity of a State Logistics Management Working Group that meets regularly for the oversight of supply chain resources.</li> </ul>

	Bottleneck	Recommendation
	<ul style="list-style-type: none"> <li>A lack of consistent training and supportive supervision is a challenge.</li> </ul>	<ul style="list-style-type: none"> <li>Assess the current staff workload and capacities, and create formal guidance (including an organogram) on roles and responsibilities for staff involved in supply chain activities.</li> <li>Once standard guidance is developed for the paper-based LMIS, provide capacity building and training for recordkeeping and reporting at all levels.</li> </ul>
	<ul style="list-style-type: none"> <li>Managers and supervisors have no formal or very little overall informal supply chain training.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct basics of supply chain course for key personnel that focuses on all components of supply chain, including LMIS, inventory control, forecasting and procurement, and storage and distribution.</li> </ul>
	<ul style="list-style-type: none"> <li>Relatively high staff turnover exists, particularly in remote areas and among data officer positions.</li> </ul>	<ul style="list-style-type: none"> <li>Investigate ways to retain staff, particularly those in remote areas.</li> </ul>
<b>Process</b>		
Procurement/ Product Quality	<ul style="list-style-type: none"> <li>The local procurement process is time consuming for staff and often a lengthy process.</li> </ul>	<ul style="list-style-type: none"> <li>Support the enhancement of the Procurement (purchase) Committee to identify additional participants, to formalize regular meetings, to review current policies, and to generate recommendations to increase procurement flexibility.</li> <li>Conduct an evidence-based assessment of possible ways to reduce procurement time.</li> </ul>
	<ul style="list-style-type: none"> <li>No key performance indicators exist for any procurement/product quality measures.</li> </ul>	<ul style="list-style-type: none"> <li>Track local purchase data to monitor and evaluate the procurement process and efficiency.</li> <li>Create a monitoring and evaluation plan to identify additional key performance indicators to assess supply chain performance and improvement more broadly.</li> </ul>
	<ul style="list-style-type: none"> <li>No standardized procedures exist for the QA processes and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>Develop written guidelines/SOPs for a standard QA process.</li> </ul>
LMIS/Inventory Control	<ul style="list-style-type: none"> <li>Formal guidelines or SOPs are lacking from the state on LMIS processes and forms.</li> </ul>	<ul style="list-style-type: none"> <li>Review/update/create standardized paper-based forms for data collection, indents, and reporting for all facility levels, including subcenters and ASHAs. Ensure the triplicate form originates at facilities placing indents.</li> <li>Create SOPs/guidelines for the paper-based LMIS.</li> </ul>
	<ul style="list-style-type: none"> <li>Staff is not adequately trained to manage LMIS functions and inventory control processes.</li> </ul>	<ul style="list-style-type: none"> <li>Once policies are defined, provide training to staff at all levels on inventory control processes and use of data for decision making.</li> <li>Identify lessons learned from vaccine logistics counterparts.</li> </ul>

	<b>Bottleneck</b>	<b>Recommendation</b>
	<ul style="list-style-type: none"> <li>Formal guidelines or SOPs are lacking from the state on inventory control processes and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>Create SOPs and other guidelines for the inventory control process.</li> </ul>
Transportation/ Distribution	<ul style="list-style-type: none"> <li>Informal distribution processes allow flexibility but challenge efficiency at all levels.</li> </ul>	<ul style="list-style-type: none"> <li>Standardize/optimize the distribution schedule and transportation routes for increased efficiency at all levels of the system.</li> <li>Develop SOPs/guidelines.</li> </ul>
	<ul style="list-style-type: none"> <li>Staff capacity challenges at the regional warehouse level exist.</li> </ul>	<ul style="list-style-type: none"> <li>Assess staff roles and responsibilities and address lack of staff or trained staff to minimize pickup time for facilities.</li> </ul>
<b>Infrastructure</b>		
Warehousing	<ul style="list-style-type: none"> <li>A variety of space and infrastructure warehouse and storage challenges pervade the system. Regional warehouses are not being used to their full, intended capacity in the supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>Determine warehouse specifications to optimize space and storage and to ensure adequate racking and pallets.</li> </ul>
	<ul style="list-style-type: none"> <li>Formal guidelines or SOPs are lacking from the state.</li> </ul>	<ul style="list-style-type: none"> <li>Create SOPs/guidelines for warehousing and storage.</li> </ul>

## Next Steps

Given the limited time frame of the project, recommended next steps focus on supply chain strengthening tasks that can be accomplished within 15 months and have a relatively medium to high impact on overall supply chain performance.

- Paper-based tool review and LMIS and inventory control system design
  - Review and update forms for data collection, as well as ones for reporting and ordering and resupply.
  - Create SOPs/guidelines for the paper-based LMIS, including developing business processes for collecting and reporting data and providing timely feedback.
  - Provide capacity building and training for recordkeeping and reporting.
- Human resources/staff capacity building
  - Assess the current staff workload, and create formal guidance (including an organogram) for roles and responsibilities for staff involved in supply chain activities. This is particularly important for staff operating at the regional warehouses.
  - Develop and conduct a supply chain management training for supply chain staff at all levels once SOPs and policies has been defined.

- Enhance the capacity of a State Logistics Management Working Group that meets regularly for oversight of supply chain resources. Map key supply chain stakeholders, identify additional participants, and determine roles and responsibilities.
- Support the enhancement of the Procurement (purchase) Committee to review current policies, to map stakeholders, to identify additional participants, to formalize regular meetings, and to generate ways to increase procurement flexibility. This may include advocating for or developing processes for the use of longer-term, multiyear agreements.

### 3. Warehouse technical assistance

- Optimize warehousing space, layout, and storage; develop SOPs and guidelines.
- Design process flow for the receipt, put-away, picking, and staging of product.
- Standardize/optimize the distribution schedule and transportation routes for increased efficiency at all levels of the system.

## **Annex I**

# **Compass Tool Results**



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FROM THE AMERICAN PEOPLE

## Supply Chain Compass: An Online Diagnostic and Planning Tool

### Results for Uttarakhand

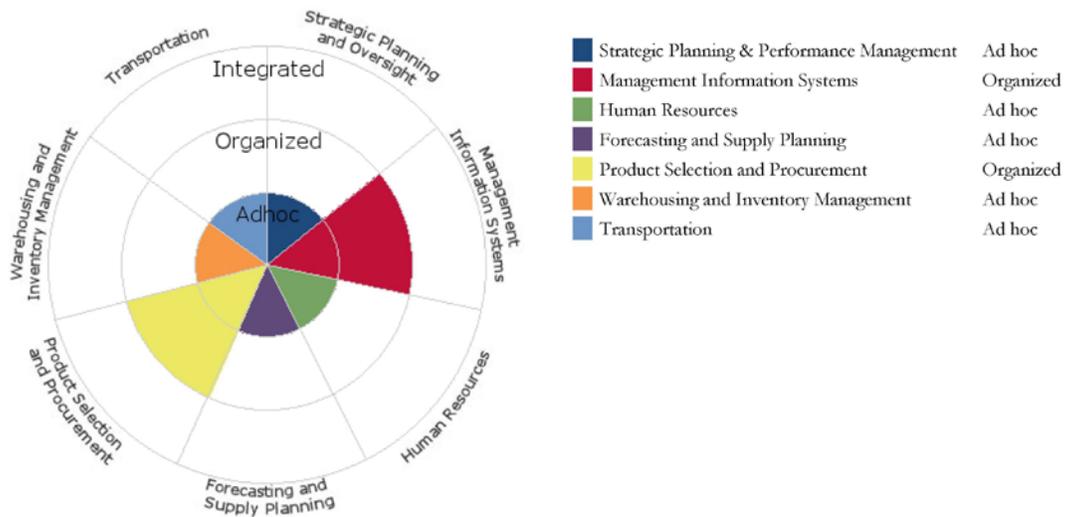
The Compass dashboard does NOT provide a comprehensive assessment your supply chain performance. It is a high-level, rapid diagnostic to help you learn about building integrated public health supply chains. Explore options for a more in-depth evaluation at [deliver.jsi.com](http://deliver.jsi.com).

Using your answers to each question, your supply chain has been assigned a maturity phase (ad hoc, organized, or integrated). Each supply chain area has also been assigned a stage. This report provides you with activity-based interventions and resources, by supply chain area and stage, specifically selected to help advance your supply chain.



**Your supply chain overall is moving from the ad hoc to the organized phase.**

This means you have begun to define formal logistics roles and processes, you are establishing procedures to collect basic logistics data, and you are beginning to collaborate and build consensus on supply chain strategy.





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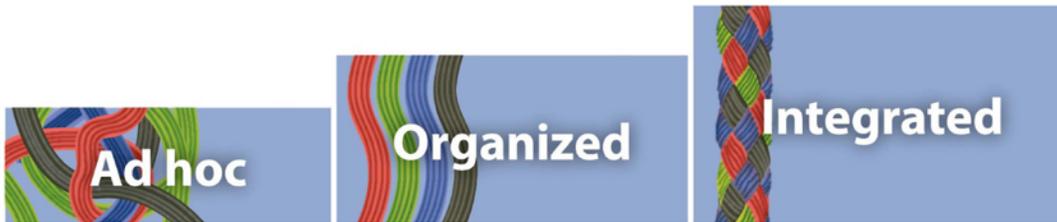
FROM THE AMERICAN PEOPLE

## Supply Chain Compass: An Online Diagnostic and Planning Tool

### Results for Punjab SCC Assessment

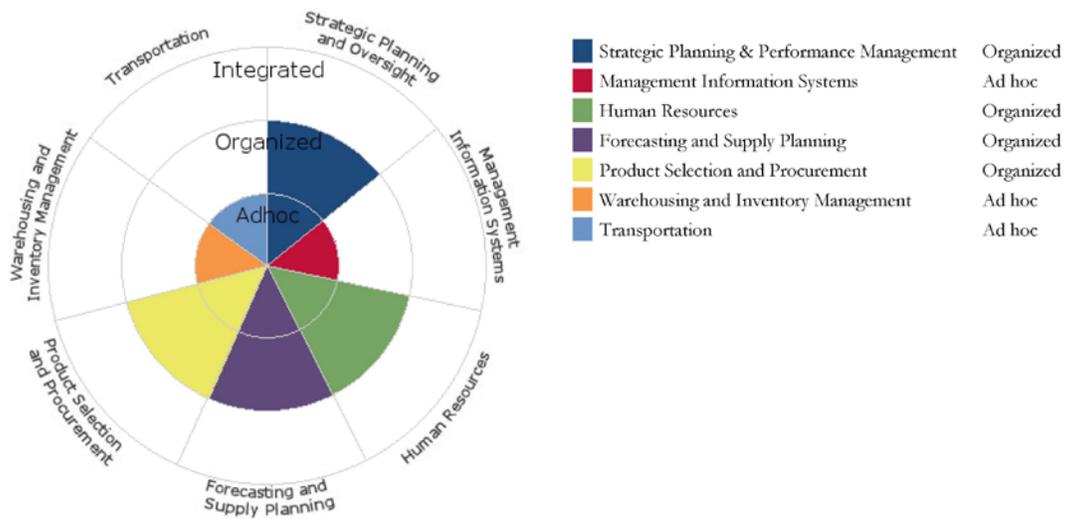
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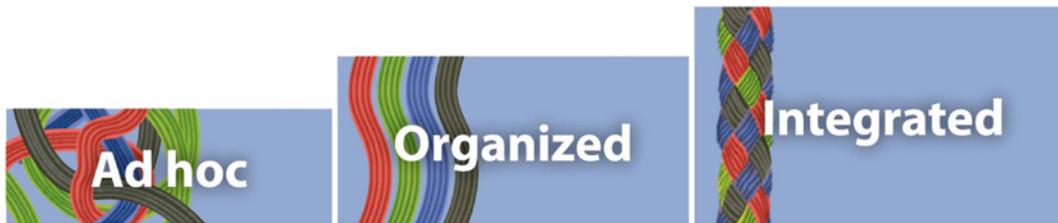
FROM THE AMERICAN PEOPLE

## Supply Chain Compass: An Online Diagnostic and Planning Tool

### Results for Essen Medicines SC- HP

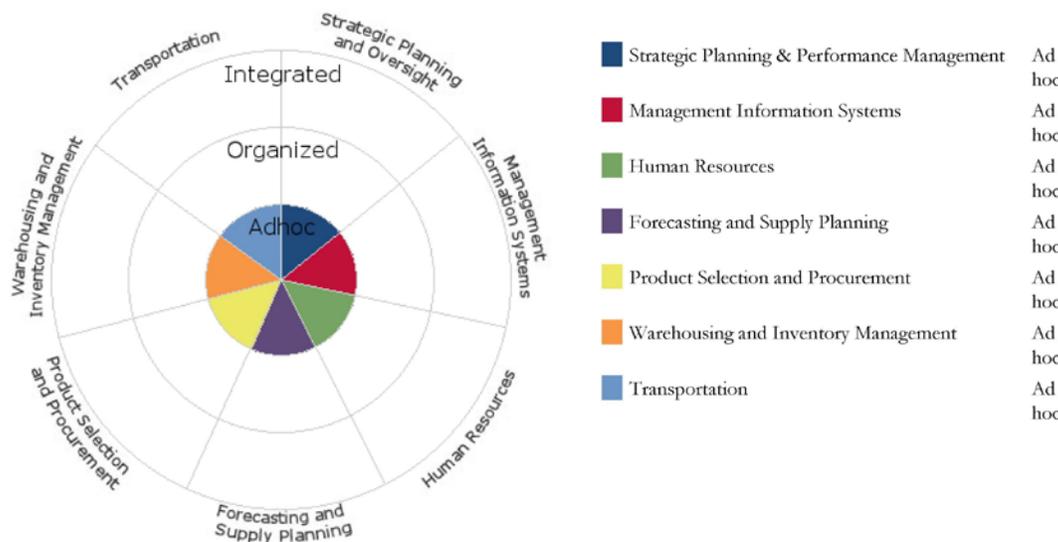
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Using your answers to each question, your supply chain has been assigned a maturity phase (ad hoc, organized, or integrated). Each supply chain area has also been assigned a stage. This report provides you with activity-based interventions and resources, by supply chain area and stage, specifically selected to help advance your supply chain.



**Your supply chain overall is moving from the ad hoc to the organized phase.**

This means you have begun to define formal logistics roles and processes, you are establishing procedures to collect basic logistics data, and you are beginning to collaborate and build consensus on supply chain strategy.



## Annex 2

# State and District/Facility Level LSAT Questions

### State level questions

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#### Background Information

---

Date: \_\_\_\_\_ (DD/MM/YY)

Facilitator: \_\_\_\_\_ Country: \_\_\_\_\_

Note-taker: \_\_\_\_\_

Name of program: \_\_\_\_\_

Name of facility visited: \_\_\_\_\_

Level visited:     State             Regional             District  
                          CHC                 PHC                     Sub-Centers

Product categories covered in this assessment & number of products being assessed: (Check all that apply.)

- Family Planning \_\_\_\_\_
- HIV/AIDS \_\_\_\_\_
- Essential Drugs/Medicines \_\_\_\_\_
- Vaccines \_\_\_\_\_

---

List the name and title of participants (or provide attached list):

---

Name	Title	Organization	Contact Info
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

---

## **Background Information**

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**SECTION I: Organization and Staffing**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. Create an organizational chart that describes key personnel in the Supply Chain with contact information.

Is there someone who's primarily focused on managing the supply chain?

- 
2. Describe supervisory structure by job position/title and by level. Indicate if any position receives supervision from more than one person or unit.

- 
3. Is there a supervision system that covers supply chain activities?

Yes  No Comments:

- 
4. Has training been given to current staff, in the following areas (formal or informal & frequency):

- a. completion and submission of LMIS reports?

Yes  No Comments:

- b. proper storage of health products?

Yes  No Comments:

- c. maintaining proper stock levels?

Yes  No Comments:

- d. determining order quantities?

Yes  No Comments:

- e. determining issue quantities?

Yes  No Comments:

- f. estimating annual needs?

Yes  No Comments:

- g. reviewing reports and records?

Yes  No Comments:

- h. other? (list):

Yes  No Comments:

- 
5. Are there written procedures and guidelines (e.g., manuals, job aids, standards) to help staff carry out their supply chain responsibilities? If yes, ask for a copy of the guidelines.

Yes  No Comments:

---

---

**SECTION I: Organization and Staffing**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

6. Do staff who manage commodities have a written job description that includes supply chain responsibilities?

---

7. What types of activities take place during supervisory visits:

a. review procedures for forecasting needs?

Yes  No      Comments:

b. review procedures for ordering/indenting products?

Yes  No      Comments:

c. observe product storage?

Yes  No      Comments:

d. conduct physical inventory?

Yes  No      Comments:

e. review logistics records and reports?

Yes  No      Comments:

f. discuss budgeting for logistics activities?

Yes  No      Comments:

g. review changes made since last supervisory visit?

Yes  No      Comments:

h. on-the-job training to improve job performance?

Yes  No      Comments:

i. discuss what is working and what is not working?

Yes  No      Comments:

j. discuss what help is needed (staff, equipment, forms, etc.)?

Yes  No      Comments:

---

8. What are your biggest challenges impacting the functioning of the supply chain?

---

**SECTION II: Logistics Management Information System (LMIS)**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. Is there a logistics management information system (either paper-based or automated)?  
 Only Paper Based    Automated/Computer Based    Both    Neither

Comments:

- 
2. Map the flow of information from the central level to the health sub-center. Please include information about forms (automated vs. paper) used, frequency of reporting, who's responsible, and where data is aggregated. (Attach a diagram.)

- 
3. If an automated / computer based system is being used please provide the following answers:

- (a) Was the application developed by a third party? If so, what is the name of the third party and do they continue to provide ongoing support?

If not, who currently supports the application?

- (b) What is the development platform (e.g. .Net, OpenSource etc.) and programming languages used (JAVA, C#, Python, etc.) ?

- (c) What is the database and version being used (i.e. Oracle vs. MS SQL Server)?

- (d) Is the application web based vs. client server?

- (e) Is the application hosted in-house vs. cloud based?

- (f) Does the system currently interface with external systems? If so, what protocol is used to exchange data (i.e. XML)?

---

**SECTION II: Logistics Management Information System (LMIS)**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

4. If there is an automated system, does it generate the following?

a. report generation?

Yes  No      Comments:

b. calculations?

Yes  No      Comments:

c. alerts/messages?

Yes  No      Comments:

d. other

Yes  No      Comments:

---

5. Is logistics information collected through another information system (e.g., HMIS)? If so, name, describe briefly here and answer the following questions in this section referring to the specific information system, if necessary.

---

6. Are the LMIS or other information systems reports reviewed at the state level and provide information on stock status at the health facility level? (i.e., does the state-level staff have accurate routine information on which facilities are stocked out, under stocked, adequately stocked, or overstocked?) Please explain.

(a) Are these reports used to assist in any decision making:

- a. For continuous monitoring of stock balances?
  - b. To calculate quantities for forecasting / resupply?
  - c. For any other purposes?
- 

7. How do managers monitor reporting rates and follow-up to obtain missing logistics reports?

---

8. Other comments on the LMIS (i.e. How useful is the application/process in helping you perform your duties?):

---

---

**SECTION II: Product Selection**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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---

**SECTION II: Logistics Management Information System (LMIS)**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. Are all the commodities used in this health program on the essential drug list (EDL)?

---

2. How many products on the EDL are currently being procured for:

state \_\_\_\_\_

district \_\_\_\_\_

CHC \_\_\_\_\_

PHC \_\_\_\_\_

---

3. To which levels of the system is the essential drugs list officially distributed?

state

CHC (block)

district

PHC

---

---

<b>STRENGTHS</b>	<b>WEAKNESSES</b>

---

**RECOMMENDATIONS**

---

---

**SECTION IV: Forecasting & Procurement**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. Describe the forecasting process.

a. Who initiates it?

b. When does it take place?

c. How long does the process take?

---

2. Are forecasts developed using:

a. distribution/issues data?

Yes  No    Comments:

b. consumption data?

Yes  No    Comments:

c. national/state targets (population)?

Yes  No    Comments:

---

3. a. Is technical (outside) assistance provided to develop forecasts?

Yes  No

b. If yes, by whom?

---

4. How is the budget determined for procurement?

---

5. Do you have sufficient funds each year for procurement of all products on EDL? If no, how do you determine which commodities to procure?

---

---

**SECTION IV: Forecasting & Procurement**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

6. Please describe the steps of the procurement process? How long does the procurement process take from tender to product delivery?

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<b>RECOMMENDATIONS</b>	

---

**SECTION VI: Inventory Control Procedures**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

- I. Specify how products move from the state warehouse to the district/health facilities. Who decides quantities to order for each level (e.g. does the state or the district decide quantities to order, or do the health facilities decide)? *Note: Add to the diagram developed in the LMIS section, showing the relationships between the various levels.*

---

**SECTION VI: Inventory Control Procedures**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

---

2. Are there guidelines and established policies for maximum and minimum stock levels at which full supply products should be maintained? (Please note current maximum and minimum levels in comments section.)

a. At the state level?

Yes  No  NA Comments:

b. At the district level?

Yes  No  NA Comments:

c. At the facility level (CHC, PHC, HSC levels)?

Yes  No  NA Comments:

---

3. What is done when low levels or a stock out of certain commodities are experienced at the following levels:

a. State?

b. District?

c. CHC/PHC/HSC?

---

**SECTION VI: Inventory Control Procedures**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

4. Are damaged/expired products physically separated from inventory and removed from stock at the following levels:

a. State?  
 Yes     No             NA            Comments:

b. District?  
 Yes     No             NA            Comments

c. CHC/PHC/HSC levels?  
 Yes     No             NA            Comments:

---

5. Does the program track product losses and other adjustments?  
 Yes             No            Comments:

---

6. How does each level of the system calculate resupply quantities?

a. State?

b. District?

c. CHC/PHC/HSC?

---

**SECTION VII: Warehousing and Storage**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. Please map each step of the warehousing and storage process, starting with arrival of commodities at the warehouse, and ending with the final steps of picking and packing the products for distribution.

- 
2. Are there written guidelines for storage and handling of all products at state/district of the system (e.g., manuals, posters, etc.)?

Yes  No Comments:

- 
3. Are there written procedures or guidelines for destroying damaged and expired products? If yes, please request a copy of the guidelines.

Yes  No Comments:

- 
4. Are there written guidelines for disposal of sharps, bio-hazardous material, and other medical waste?

Yes  No Comments:

- 
5. Do you conduct at least one physical inventory of all products annually at storage facilities, at the following levels:

a. District?

Yes  No Comments:

b. Facility (CHC/PHC/HSC)?

Yes  No Comments:

- 
6. What do you do with expired products?

- 
7. Are there cold chain requirements in the essential medicines/family planning/vaccines/HIV supply chains? Please provide relevant details.

---

**SECTION VII: Warehousing and Storage**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

---

If no, skip to question 9.

---

8. Are cold chain storage resources (e.g., refrigerator, paraffin/kerosene, and temperature chart) available at state/district/facility levels of the system, where needed?  
 Yes     No     NA    Comments:
- 

9. How is the cold chain monitored to ensure that products are consistently maintained at appropriate temperatures? (Check all that apply.)  
 written guidelines     supervision  
 temperature log sheets     other \_\_\_\_\_
- 

10. Is there a designated area for receiving product? Size of this area?
- 

11. Is there a designated area for picking and packing product? Size of this area?
- 

12. What is the existing storage capacity at the following levels? Please note contact information for staff who will be able to provide storage capacity measurements and more detailed information at a later date.
- a. state?
  - b. district?
  - c. health facilities (CHC, PHC, HSC levels)
-

---

**SECTION VII: Warehousing and Storage**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

13. Specify storage conditions that need improvement, if any (e.g., cleanliness, organization, temperature, building structure, etc.).

- 
14. Describe the plans for accommodating growth (e.g., infrastructure, distribution, etc.).

- 
15. Describe notable problems encountered in the past year, if any, regarding wastage due to damage or expirations. Please note product, level, location, approximate amount of goods, and actions taken.
-

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**SECTION VIII: Transport and Distribution**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. How are products delivered between each level of the system? Include frequency and means of transportation.

a. How are routes determined?

---

2. Is there a documented distribution schedule?

Yes  No    Comments:

---

3. Which health products are distributed together? Specify by level.

---

4. Are a sufficient number of functioning vehicles available, with petrol and drivers, to meet the desired product distribution schedule?

b. state?

Yes  No  NA    Comments:

c. district?

Yes  No  NA    Comments:

d. facility (CHC, PHC, SC levels)?

Yes  No  NA    Comments:

---

5. Are vehicles regularly available for supervision activities?

b. state?

Yes  No    Comments:

c. district?

Yes  No    Comments:

---

---

**SECTION VIII: Transport and Distribution**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

6. a. Is transportation outsourced at any level of the system?  
 Yes  No
- b. If yes, how effective has it been?

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<b>RECOMMENDATIONS</b>	

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**SECTION XI: Donor Coordination**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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- I. Are there any other donor's assisting you with supply chain?

# DISTRICT & FACILITY LEVEL QUESTIONS

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## Background Information

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Date: \_\_\_\_\_ (DD/MM/YY)

Facilitator: \_\_\_\_\_ Country: \_\_\_\_\_

Note-taker: \_\_\_\_\_

Name of program: \_\_\_\_\_

Name of facility visited: \_\_\_\_\_

Level visited:     State             Regional             District  
                          CHC                 PHC                     Sub-Centers

Product categories covered in this assessment & number of products being assessed: (Check all that apply.)

- Family Planning \_\_\_\_\_
- HIV/AIDS \_\_\_\_\_
- Essential Drugs/Medicines \_\_\_\_\_
- Vaccines \_\_\_\_\_

---

List the name and title of participants (or provide attached list):

Name	Title	Organization	Contact Info
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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## SECTION I: Organization and Staffing

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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**SECTION I: Organization and Staffing**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

3. Create an organizational chart that describes key personnel in the supply chain with contact information.

Is there someone who's primarily focused on managing the supply chain?

- 
4. Describe supervisory structure by job position/title and by level. Indicate if any position receives supervision from more than one person or unit.

- 
5. Is there a supervision system that covers supply chain activities?

Yes  No Comments:

- 
4. Has training been given to current staff, in the following areas (formal or informal & frequency):

a. completion and submission of LMIS reports?

Yes  No Comments:

b. proper storage of health products?

Yes  No Comments:

c. maintaining proper stock levels?

Yes  No Comments:

d. determining order quantities?

Yes  No Comments:

e. determining issue quantities?

Yes  No Comments:

f. estimating annual needs?

Yes  No Comments:

g. reviewing reports and records?

Yes  No Comments:

h. other? (list):

Yes  No Comments:

- 
5. Are there written procedures and guidelines (e.g., manuals, job aids, standards) to help staff carry out their supply chain responsibilities? If yes, ask for a copy of the guidelines.

Yes  No Comments:

---

---

**SECTION I: Organization and Staffing**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

6. Do staff who manage commodities have a written job description that includes supply chain responsibilities?

---

7. What types of activities take place during supervisory visits:

a. review procedures for forecasting needs?

Yes  No      Comments:

b. review procedures for ordering/indenting products?

Yes  No      Comments:

c. observe product storage?

Yes  No      Comments:

d. conduct physical inventory?

Yes  No      Comments:

e. review logistics records and reports?

Yes  No      Comments:

f. discuss budgeting for logistics activities?

Yes  No      Comments:

g. review changes made since last supervisory visit?

Yes  No      Comments:

h. on-the-job training to improve job performance?

Yes  No      Comments:

i. discuss what is working and what is not working?

Yes  No      Comments:

j. discuss what help is needed (staff, equipment, forms, etc.)?

Yes  No      Comments:

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## SECTION II: Logistics Management Information System (LMIS)

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. Is there a logistics management information system (either paper-based or automated)?

Only Paper Based  Automated/Computer Based  Both  Neither

---

2. Map the flow of information from the state level to the health sub-center. Please include information about forms (automated vs. paper) used, frequency of reporting, who's responsible, and where data is aggregated. (Attach a diagram.)

---

3. Is logistics information collected through another information system (e.g., HMIS)? If so, name, describe briefly here and answer the following questions in this section referring to the specific information system, if necessary.

---

4. Does the information system (please specify, e.g., LMIS, HMIS, other) include:

---

a. stockkeeping records (e.g., inventory control cards, bin cards, stock registers) at district/CHC/PHC/sub-center level?

Yes  No Comments:

---

b. requisition/indenting and issue records (e.g., bills of lading, shipping records, requisition/issue vouchers) at the district/CHC/PHC/sub-center level?

Yes  No Comments:

---

c. dispensed-to-user records at the district/CHC/PHC/sub-center level?

Yes  No Comments:

---

d. summaries of consumption data at the district/CHC/PHC/sub-center level?

No Comments:

Yes

---

e. stock on hand at the district/CHC/PHC/sub-center level?

Yes  No Comments:

---

f. quantities received at the district/CHC/PHC/sub-center level?

Yes  No Comments:

---

---

**SECTION I: Organization and Staffing**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

5. Are the LMIS or other information systems reports reviewed at the state level and provide information on stock status at the health facility level? (i.e., does the state-level staff have accurate routine information on which facilities are stocked out, under stocked, adequately stocked, or overstocked?) Please explain.
- a. Are these reports used to assist in any decision making:
- i. For continuous monitoring of stock balances?
  - ii. To calculate quantities for forecasting / resupply?
  - iii. For any other purposes?

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<b>RECOMMENDATIONS</b>	

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**SECTION VI: Inventory Control Procedures**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

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**SECTION VI: Inventory Control Procedures**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

7. Specify how products move from the state warehouse to the district/health facilities. Who decides quantities to order for each level (e.g. does the state or the district decide quantities to order, or do the health facilities decide)? *Note: Add to the diagram developed in the LMIS section, showing the relationships between the various levels.*

- 
8. Are there guidelines and established policies for maximum and minimum stock levels at which full supply products should be maintained? (Please note current maximum and minimum levels in comments section.)

d. At the district level?

Yes  No  NA Comments:

e. At the facility level (CHC, PHC, HSC levels)?

Yes  No  NA Comments:

- 
9. What is done when you experience low levels or a stock out of certain commodities at the following levels:

d. District?

e. CHC/PHC/HSC levels?

- 
10. Are damaged/expired products physically separated from inventory and removed from stock at the following levels:

d. District?

Yes  No  NA Comments

e. CHC?

Yes  No  NA Comments:

f. PHC?

Yes  No  NA Comments:

g. HSC?

Yes  No  NA Comments:

---

**SECTION VI: Inventory Control Procedures**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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---

11. Do you track product losses and other adjustments?

Yes

No

Comments:

---

12. How does each level of the system calculate resupply quantities?

d. District?

e. CHC/PHC/HSC ?

---

<b>STRENGTHS</b>	<b>WEAKNESSES</b>

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**RECOMMENDATIONS**

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**SECTION VII: Warehousing and Storage**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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16. Please map each step of the warehousing and storage process, starting with arrival of commodities at the warehouse, and ending with the final steps of picking and packing the products for distribution.

---

17. Are there written guidelines for storage and handling of all products at state/district of the system (e.g., manuals, posters, etc.)?

Yes  No Comments:

---

18. Are there written procedures or guidelines for destroying damaged and expired products? If yes, please request a copy of the guidelines.

Yes  No Comments:

---

19. Are there written guidelines for disposal of sharps, bio-hazardous material, and other medical waste?

Yes  No Comments:

---

20. Do you conduct at least one physical inventory of all products annually at storage facilities, at the following levels:

c. District?

Yes  No Comments:

d. Facility (CHC/PHC/HSC)?

Yes  No Comments:

---

21. What do you do with expired products?

---

22. Are there cold chain requirements in the essential medicines/family planning/vaccines/HIV supply chains?

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**SECTION VII: Warehousing and Storage**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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Please provide relevant details.

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If no, skip to question 9.

---

23. Are cold chain storage resources (e.g., refrigerator, paraffin/kerosene, and temperature chart) available at state/district/facility levels of the system, where needed?

Yes     No     NA    Comments:

---

24. How is the cold chain monitored to ensure that products are consistently maintained at appropriate temperatures? (Check all that apply.)

written guidelines     supervision  
 temperature log sheets     other \_\_\_\_\_

---

25. Is there a designated area for receiving product? Size of this area?

---

26. Is there a designated area for picking and packing product? Size of this area?

---

27. What is the existing storage capacity at the following levels? Please note contact information for staff who will be able to provide storage capacity measurements and more detailed information at a later date.

d. state?

e. district?

f. health facilities (CHC, PHC, HSC levels)

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**SECTION VII: Warehousing and Storage**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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28. Specify storage conditions that need improvement, if any (e.g., cleanliness, organization, temperature, building structure, etc.).

---

29. Describe the plans for accommodating growth (e.g., infrastructure, distribution, etc.).

---

30. Describe notable problems encountered in the past year, if any, regarding wastage due to damage or expirations. Please note product, level, location, approximate amount of goods, and actions taken.

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<b>STRENGTHS</b>	<b>WEAKNESSES</b>

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## RECOMMENDATIONS

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### **SECTION VIII: Transport and Distribution**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

1. How are products delivered between each level of the system? Include frequency and means of transportation.

b. How are routes determined?

---

2. Is there a documented distribution schedule?

Yes  No    Comments:

---

3. Which health products are distributed together? Specify by level.

---

---

**SECTION VIII: Transport and Distribution**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

---

4. Are a sufficient number of functioning vehicles available, with petrol and drivers, to meet the desired product distribution schedule?

b. state?

Yes  No  NA Comments:

c. district?

Yes  No  NA Comments:

d. facility (CHC, PHC, SC levels)?

Yes  No  NA Comments:

---

5. Are vehicles regularly available for supervision activities?

b. state?

Yes  No Comments:

c. district?

Yes  No Comments:

---

6. a. Is transportation outsourced at any level of the system?

Yes  No

b. If yes, how effective has it been?

---

<b>STRENGTHS</b>	<b>WEAKNESSES</b>

**RECOMMENDATIONS**

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**SECTION VIII: Transport and Distribution**

*If answers vary by commodity supply chain (e.g. family planning; other essential medicines pertaining to RMNCH+A), please specify the supply chain.*

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For more information, please visit [deliver.jsi.com](http://deliver.jsi.com).

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