

Strengthening logistics and supply chain mechanism in primary healthcare settings by leveraging private sector expertise for delivering essential medicines till last mile in State of Meghalaya

I. Need/Rationale

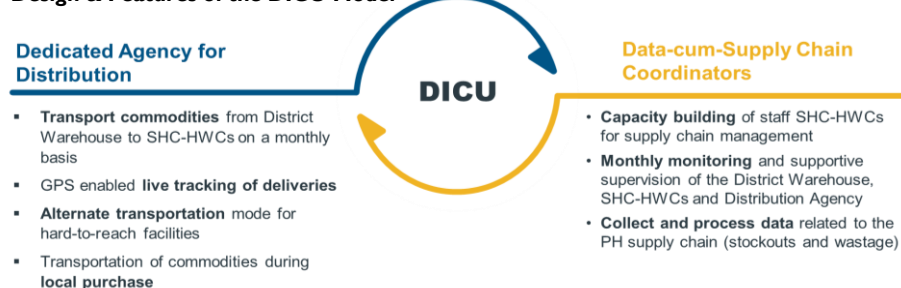
Any healthcare delivery system necessitates an ecosystem of supply chain to guarantee the availability of affordable and high-quality medicines, vaccines and health products for the end user at all health service delivery points. Logistics is the backbone of any economy, as it ensures free flow of goods and services required for the functioning of industries and the economy. Each state in India is unique with its own set of challenges making them very different from each other i.e., in terms of unreliable mode of transport, lack of dedicated transport, multiplicity of medicines supplies channels from different sources, and poor coordination between distributor, SCM and program managers. Meghalaya is one of very few states in the north eastern part of the country in which over two-thirds of households (65%) use government health facilities when they are sick, in contrast to the national practice where on average only 35% of people use government facilities. With respect to supply chain and procurement system in the state, the state does not have a laid down supply chain process for medicine procurement, storage, and distribution. The issues pertaining to inadequate warehouse, human resource constraints, stagnant resource allocation etc. is a matter of the concern in the state. Procurement and distribution of medicines are done in a fragmented manner, responding to immediate needs but often not based on medium-term planning of district and facility-level requirements. Quality assurance methods require improvements, and storage space in CPHCs is often not adequate.¹

2. Description of the model

Addressing the above challenges, State NHM team in Meghalaya undertook the challenge to demonstrate an innovative model to strengthen the public health supply chain mechanism in state of Meghalaya. The main objectives of the intervention is to reduce the lead times in delivery of essential drugs at the lowest level of healthcare delivery system (SHCs) and reduce wastages of the stock-in-hand. A three-step approach i.e. a) landscaping of existing mechanism b) designing intervention solution basis the identified gaps and c) implementing the scalable and sustainable solution, was adopted for the development of an innovative model called Delivery and Information Capture Unit (DICU). The DICU Model based on public private partnership mode is being introduced for the first time in India to ensure timely delivery of key essential drugs directly to public health facilities including the Sub-Health Centers (SHCs). DICU model is a push-based supply system, where a dedicated distribution agency (DA) from private sector will be onboarded along with deployment of trained Data-cum-supply chain coordinator(s) (DSCC) to streamline the deliveries of commodities to SHC-HWCs. The pilot will be demonstrated in all the health facilities of Ri-Bhoi district for a period of 10 months.

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Design & Features of the DICU Model



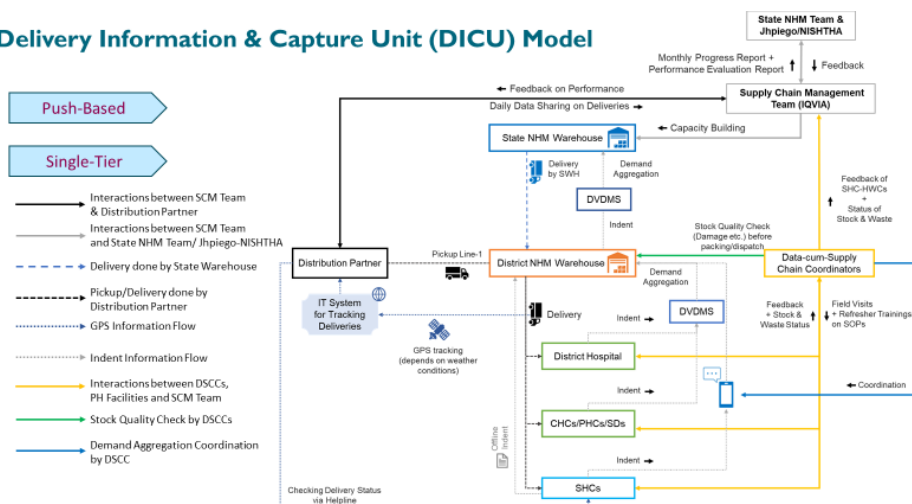
¹ Draft Evaluation Report on PPP for Health Care Delivery in Meghalaya 2011, NHSRC, NRHM, MoHFW, Govt. of India

The two core components introduced by the DICU model into the State NHM's public health supply chain are- 1) Distribution Agency and 2) Data-cum-Supply Chain Coordinator (DSCC).

Some of the key features of the model are:

- Capacity Building & SOPs:** Training materials, training methodology and SOPs for supply chain management on DICU model will be disseminated in the orientation workshop for all health facilities
- Indenting:** Each SHC-HWC and PHCs will raise their monthly requirements of essential drugs during the 3rd Week of each month using paper forms/ Mobile App.
- Demand Aggregation:** During the 3rd and 4th week of the month, the District Warehouse Storekeeper will collate all the indents raised by facilities and allocate the stock available at the District Warehouse to each facility based on the requirements mentioned in each indent.
- Distribution Schedule:** During the 4th Week of the month, the District Warehouse Storekeepers, Data-cum-Supply Chain Coordinator (DSCC) and the Distribution Agency will together prepare the distribution schedule of the next month
- Frequency of Deliveries:** The frequency of deliveries envisaged under this model is one delivery per health facility per month.
- Communication between Health Staff and Distribution Agency-** The Distribution Agency will provide a helpline no. which health facility staff can use to check status of their deliveries.
- GPS enabled tracking of Deliveries:** Each delivery vehicle will be tracked through GPS, by the Delivery Agency using a GPS tracking software.
- Monitoring of Deliveries:** Delivery related data e.g. date and time of departure from the district warehouse, date and time of actual delivery, name of the delivery point, distance travelled, amount of load carried (in Kilograms), etc. will be shared by the Distribution Agency
- Record-keeping of Deliveries:** For each delivery, receipts will be signed and documented in a standard format by all the key actors involved.
- Collection of Supply Chain Data:** The Data-cum-Supply Chain Coordinators will collect the stock status and wastage related data for the EDL and identify the reasons for stockouts and wastage.
- Risk Mitigation Strategies:** For incidents like Vehicle Breakdown or Accidents; b. Situations of restricted movement like Lockdown, Curfew, Pandemic, etc; damage/ Loss of commodities
- Monitoring & Evaluation:** collect baseline data from all SHC-HWCs during the Zero-Month, Interim Report (mid-line evaluation) & Final Report (end-line evaluation) on performance of the DICU Model for all stakeholders

Delivery Information & Capture Unit (DICU) Model



3. Human Resources (Existing and/or New)

Key Actor	Roles and Responsibilities
Delivery Agency (B2C)	<ul style="list-style-type: none"> Transport commodities (including loading and unloading) from District Warehouse to SHC-HWCs on monthly basis Maintain delivery records and receipts and share them with Implementing Partner on daily basis
Data-cum-Supply Chain Coordinator (DSCC)	<ul style="list-style-type: none"> Capacity building of health facility staff on SOPs for effective supply chain management Conduct monthly monitoring and supportive supervision of the District Warehouse, SHC-HWCs and Distribution Partner Agency Collect and process data related to the supply chain (stock status, wastage, feedback from SHC-HWCs, etc.)
District Warehouse In-Charge	<ul style="list-style-type: none"> Demand Aggregation based on indents received from SHC-HWCs Packaging of Commodities
Health Facility Staff (CHO/MLHP/ANM/ Pharmacist)	<ul style="list-style-type: none"> Forecast their commodity requirements based on pre-defined SOPs Raise Indents manually through paper indent forms or on the mobile app. Receive commodities from the Delivery Agency Store and manage commodities and manage their storage space according to pre-defined SOPs
State NHM Team	<ul style="list-style-type: none"> State Procurement Officer, State DVDMS I/C, District Warehouse Officer and DVDMS I/C for facilitating the operations and hand-holding support
Jhpiego/ NISHTHA USAID and Implementing Partner (IQVIA)	<ul style="list-style-type: none"> Supervise Implementation of the DICU Model Analyze supply chain related data collected by Data-cum-Supply Chain Coordinators (DSCC) and share necessary feedback with key actors in the DICU model Monitor daily progress and deliveries of the Delivery Agency and give feedback to it for improvement of performance. <p>Prepare interim report on the performance of the DICU model in the mid of the implementation period, and a final report on performance evaluation of the DICU model at the end of implementation period.</p>

4. Capacity Building Strategies, if applicable

Standard Operating Procedures (SOPs), manuals, supply chain data collection tools and DICU model performance measurement tools have been prepared and disseminated to the health staff in Ri-Bhoi district for:

Following technical skills of health facility staff was developed on

> Forecasting Tool - The MPW and MLHP at HSC – HWC will be oriented about forecasting tool, focusing on,

- ✓ the measure of uncertainty and errors,
- ✓ the nature of data aggregation and how it affects accuracy, and
- ✓ the horizon of health forecasting.

> Calculation of Lead time, Reorder level, EOQ etc.

> Maintenance of Buffer / Safety stock

> Segmentation - Product-specific analysis to get insight about products which are the most and least—

- Frequently ordered
- Voluminous (total physical volume requested during the reporting period)
- Variable (standard deviation of the volume of each product per month).

Patient demand analysis

- Predictability of demand
- Seasonality of demand

- Train resources on
 - Forecasting & Supply Planning
 - Warehousing and Storage
 - Waste Management

5. Evidence of Effectiveness

Continuous review and supervision of the activities at every stage of project implementation has been planned. It will help to achieve efficient performance by providing feedback to the implementation team on whether input deliveries, work schedules, target output, deliveries of services and required actions are proceeding according to predetermine schedules. Baseline, Interim Report (mid-line evaluation) & Final Report (end-line evaluation) on performance of the DICU Model will be prepared by end of 5th Month and 10th Month respectively. Under the DICU model, a core set of indicators are recommended that can be used to measure and monitor the performance the model. The recommended key performance indicators are:

Key Areas of focus	Indicators	Frequency
Quantification (Forecasting and Supply Planning)	Forecast accuracy percentage	Monthly
	Percentage of facilities stocked out of each PH commodity	Monthly
	Percentage of purchase orders issued as emergency orders	Monthly
Distribution and Transportation	Percentage of facility received indented order within defined lead time (1 month)	Monthly
	Percentage deviation from agreed TAT	Monthly
Storage/ Warehousing and Inventory Management	Percentage of deliveries arriving in good condition	Monthly
	Percentage of commodities with accurate stock record balance	Bi-Monthly
Human Resources	Percentage of facilities with at least one active health worker trained in supply chain management	At the end of the project (9 th Month)

6. Cost

The funding for establishing of DICU model for the pilot phase is being done by Jhpiego/NISHTHA and after successful demonstration, would be transitioned to State NHM team for uptake through State PIP and untied funds available at district level.

7. Summary of lessons and challenges

The DICU Model will help reduce the following costs incurred by the State Government due to the current supply chain system:

- a) Cost of Excessive Wastage: By avoiding expiry of drugs at SHC level
- b) Opportunity Costs:
 - Transportation: Using Ambulance in PH supply chain instead of emergency healthcare services
 - HR: Involvement of Healthcare Staff in pickup/ delivery
- c) Disease Burden/ Morbidity Costs
 - Caused by frequent stock-outs
 - Caused by massive wastage of medicines
- d) Reduction in overall OOPE incurred by Patient
 - Purchase of health commodity from private pharmacies and transportation for the same
 - Expenditure on availing health services in private facilities, due to distrust towards public services

8. Potential for scaleup

- This is a resource intensive model and commitment from State is required for readiness to invest in transportation services, hiring professional private partners for managing the supply chain functions like packaging, transportations, delivery tracking etc.
- The ease of operations is high for this model, as professional services providers are onboarded and bring in market expertise
- The cost effectiveness of this model is also high as there is saving of lot of indirect costs (wastages

Commented [SAS2]: Can we add - The model will also Support State in the plan for establishment of Medical Corporation

due to expiry, stockouts, human capital, physical assets required for storing drugs etc. will be reduced)

- The distribution process is streamlined as this model is :
 - Single-Tier- Only one Pickup Point is there i.e. the district warehouse
 - Reduced transportation costs & Simplified Monitoring of Deliveries (Only 1 pickup point)
 - Not Resource Intensive- (DSCCs visit only DWH for stock quality check (damage, etc.) before packing/dispatch)
 - No Additional Workload at CHCs/PHCs/SDs for packaging/dispatch of SHC stock

9. Partners involved in implementation

Jhpiego (NISHTHA), USAID and implementing partner IQVIA

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