

# CHAPTER 5

## MEDICINE PROCUREMENT AND DISTRIBUTION SYSTEMS IN RAJASTHAN

### 5.1 DESCRIPTION OF DIFFERENT PROCUREMENT MODELS IN INDIA

One of the key components of access to medicine is reliable and sustainable supply chain management to procure and distribute required medicines and vaccines in a timely manner. Different models of procurement and distribution of medicines and other medical supplies are followed in different states of India. The model followed depends on institutional capacity, priority, demography and other factors. The efficiency of the procurement model can be estimated on the basis of level of decentralization/centralization, selection of medicines and medical supplies, tendering process (to include scope of competition, timeline, bidding process, evaluation and selection process, quality checks and penalty clause for supply default and quality default) and payment mechanism. Inefficiency in any component of supply chain management may lead to sub-optimum performance of the health system in relation to access to medicines and can be observed through inadequate supply of medicines resulting in frequent stock-outs.

Procurement of medicines and medical supplies takes place at various levels, viz. at the level of the national government, state government, local government and autonomous bodies of national and state governments. In India, the management and control of communicable diseases and preventive services for these is under the purview of the national government and is implemented through various vertical programmes called the national disease control programmes. The procurement of medicines for the same is primarily carried out at a national level but we find that in some states funds are also routed through state procurement agencies for procurement of necessary medicines. While states such as Tamil Nadu, Kerala and now Rajasthan follow a centralized procurement and decentralized distribution system, several other states follow a decentralized procurement and distribution process with annual rate contracts. We outline different models of procurement across states below.

### 5.1.1 GOVERNANCE IN MEDICINE PROCUREMENT

Governance in the procurement process plays a critical role for optimum utilization of resources in the public health system. Given the technical complexity of procurement for pharmaceutical products where high variation in quality may result in serious adverse events with patients, a transparent, high quality, efficient and cost-effective procurement process is desirable. The national and state governments adopt different models of procurement based on their priority, needs and administrative convenience.

At the state level, procurement systems vary in terms of autonomy of the procurement agency, level of decentralization, transparency and efficiency. Traditionally, procurement for medicines is done by the central medical stores department through annual rate contracts (quantity based) by most of the states in India. In this system of procurement, bidders are invited to quote for lowest rate for the list of medicines through an open tender process. Tenders are scrutinized and the lowest eligible bidders are asked to submit necessary security deposits and sign the agreement with the respective departments for regular supply of medicines based on need from health facilities. The CMO at the district level or medical superintendent at the district hospital is empowered to place orders for the required medicines with the contracted supplier and is responsible for maintaining stocks at all the public health facilities. They are also empowered to make payments through the general treasury within the limit of their budget. Most often, budget for medicines is also prepared on a pro-rata basis rather than a need basis. This often leads to scarce funding for medicines. Coupled with irregular supplies by weaker suppliers, the overall result is unavailability of medicines at public health facilities. Bidders also quote the lowest rate (sometimes below cost) to get empanelled with government supplies departments to increase their credibility in the private market. Many states such as Uttar Pradesh, Bihar and Gujarat among others have such central medical stores departments under the department of health and family welfare responsible for procurement of medicines and other medical supplies.

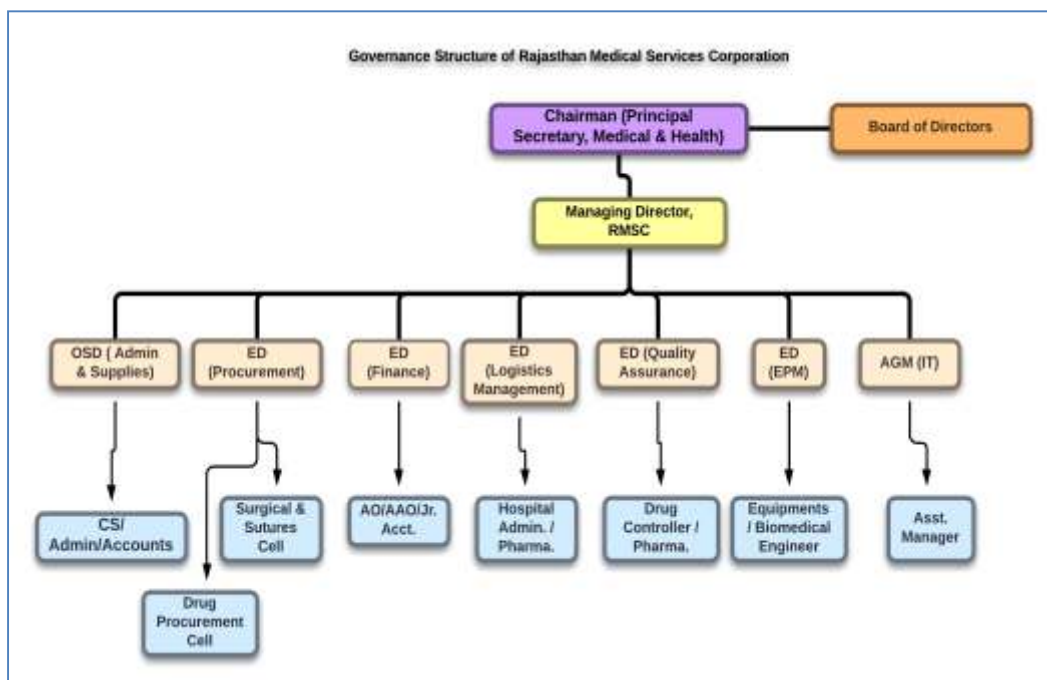
States such as Haryana and Madhya Pradesh have empowered the health facilities at lower levels of care to procure medicines from the open market within certain limits from the revenue generated from user charges. The management of the fund generated through nominal user charges is monitored through the *Rogi Kalyan Samiti*, a board with members from the hospital, civil society and elected members of the local government.

States such as Tamil Nadu, Kerala and recently Rajasthan have set up an autonomous corporation for procurement and distribution of medicines and other medical supplies for all public health facilities to achieve economies of scale using its monopsony purchasing power, and in the process negotiate better with suppliers. States such as Punjab and Haryana are in transition to adopt the centralized procurement and decentralized distribution model.

### 5.1.2 GOVERNANCE IN MEDICINE PROCUREMENT IN RAJASTHAN

The Government of Rajasthan had set up the RMSC under the Companies Act, 1956. It has the Principal Secretary, Medical and Health as the ex-officio chairperson with other directors from the Department of Finance (Expenditure), NRHM, Medical Education, Ayurveda, Public Health, Reproductive and Child Health (RCH), Drugs Controller and a full time Managing Director. Prior to the establishment of RMSC, procurement was done by state procurement officials; this procedure faced numerous challenges. The governance structure of RMSC is shown in Fig. 5.1.

Fig. 5.1. Governance structure of Rajasthan Medical Services Corporation



The governance structure above indicates that Rajasthan has created a centralized organization with a high level of autonomy with the Board of Directors in the procurement process. The final decisions for procurement are approved by the Board of Directors; however, the day-to-day operations related to it lie with the Managing Director of RMSC, who is also the Secretary of the Board of Directors. Within RMSC, there are different functional department structures, each headed by a director, supported by colleagues in that department responsible for procurement, finance, administration, logistics, quality, equipment and IT, undertaking day to day operations. It is worth noting here that RMSC has separate departments for procurement of medicine, equipment and quality assurance for maintaining high quality standards of medicines. An in-house IT department has been setup to maintain the supply chain and inventory management of this mega project, which manages supplies of more than 600 medicines across 2000 health facilities.

## **5.2 PREPARATION OF EML AND ITS QUANTIFICATION**

The RMSC has developed its own list of medicines to be procured. The list of medicines and their specifications are decided in consultation with the Technical Advisory Committee (TAC) of RMSC. The Committee is chaired by the Managing Director and is represented by various stakeholders from medical colleges, Department of Medical and Health (Public Health, RCH, Health Administration), Medical Superintendent, Department of Finance, Rajasthan Drugs and Pharmaceuticals Ltd. (RDPL), Shakri Upbhokta Wholesale Bhandar Ltd. (Medical Branch), subject experts and other nominated members. Although the list of medicines is prepared by the TAC after taking into consideration the needs of the State, the NLEM and EML of WHO are also considered. In addition, the EMLs of Tamil Nadu, Kerala, Delhi and Karnataka are also considered during the preparation of the list of medicines to be procured by RMSC.

The EML of RMSC is prepared based on the principles of efficacy, safety, suitability and cost effectiveness. The list is revised from time to time by RMSC in consultation with its TAC and end users. The list is also a guiding basis for medical officers at the state health facilities for prescription of medicines using their pharmacopoeial/generic names. The list of essential medicines for RMSC comprised 477 medicines in 2012–13 and gradually reached 607 medicines in 2013–14.

Quantification of the medicines that are required by the state health-care facilities in the state of Rajasthan is based on the requirements as ascertained from all state-controlled health facilities based on previous consumption patterns of the items by the medical institutions. The annual demand is provided to RMSC by the respective departments of Medical and Health and Medical Education.

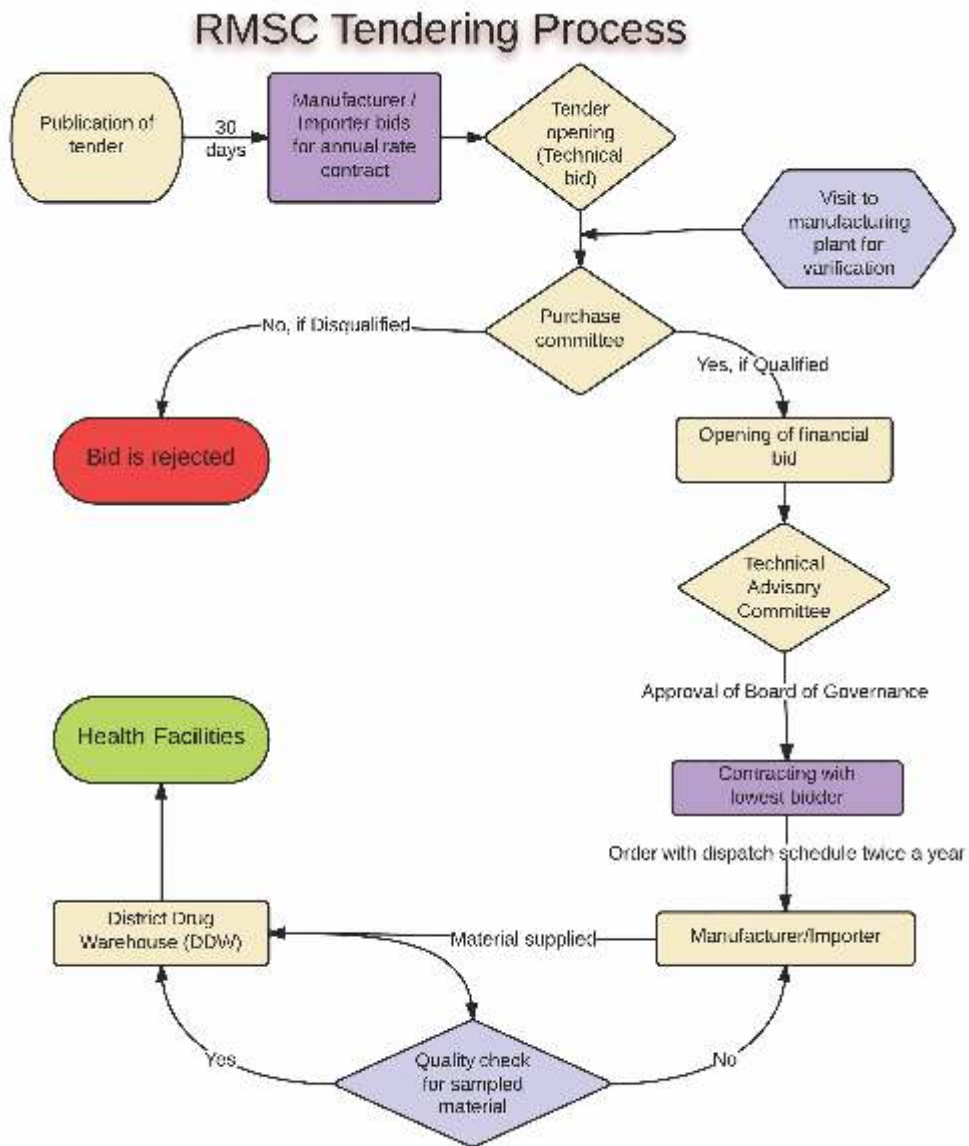
### **5.3 TENDERING OF MEDICINES**

The RMSC follows a two-bid tendering process, inviting suppliers to submit separate technical bids and financial bids. The tender announcement is made through state and national level newspapers and by displaying all notices inviting tender (NITs) on the official website of the medical department of the State. If required, the information regarding tenders is also circulated through state medicines controllers, pharmaceutical manufacturing associations and pharmaceutical publications to encourage better participation in the tender.

The basic eligibility criteria in technical bids remains the same as for many other states following similar procurement mechanisms such as Tamil Nadu, Kerala, Andhra Pradesh and Madhya Pradesh. This includes market standing, valid manufacturing license, good manufacturing practices (GMP) certificates, production capacity, technical competencies, financial capacity, non-conviction certificate, earnest money deposit (EMD) and tender fees. In addition, the annual turnover is required to be 20 million Indian rupees for a small scale unit and 200 million Indian rupees for a large scale unit, the logic being that this stipulation will attract only those bidders who have the ability to supply quality medicines. However, the turnover clause and the EMD deposit clause is relaxed for state-owned public sector undertakings.

As per the new procurement policy, the Rajasthan Government has reduced purchase preference from state pharmaceutical public sector undertakings (PSUs) from 100% to 10% and for small scale industries (SSIs) from 80% to 15% with a condition to match L1 price through competitive bidding. The overall tendering process is as shown in Fig. 5.2.

Fig. 5.2. Tendering process of RMSC



Source: RMSC Guidelines

The tender document of RMSC provides information on the penalty clause to be levied in event of failure of the sample of performance, along with information on the manner that the price needs to be quoted inclusive of packing cost, tax and transportation. The tender document requires the RMSC logo to be mandatorily labelled for the medicines that are supplied to RMSC, even for branded medicines.

The list of technically successful bidders is published on the website of the RMSC and the financial bids of such bidders are opened in the presence of all technically qualified bidders in order to maintain transparency. The policy initiative of announcing the successful bidder on the website reflects the good governance practices followed in Rajasthan. Publishing the list of blacklisted/debarred parties on the website also shows the high level of commitment towards transparency in governance. As in the case of TNMSC, the RMSC also provides leverage for local purchase up to 10% of the total medicines expenditure of the facilities for medicines which are not procured by RMSC. However, it was interesting to observe that RMSC floats multiple tenders each year for different sets of medicines. The comparison of tenders floated for annual rate contract since inception of RMSC is described in Table 5.1.

**Table 5.1. Key procurement outcomes**

Tender opening date	2011			2012			2013		
	Jul 2011	Aug 2011	Nov 2011	Feb 2012	Jul 2012	Dec 2012	Apr 2013	Jun 2013	Oct 2013
No. of medicines tendered	402	222	129	298	204	116	210	215	230*
No. of medicines added to original tender	Nil	47	20	32	Nil	Nil	Nil	Nil	NA
Medicines not finalized	202	129	NA	93	47	22	39	46	NA
% of medicines not finalized	50.25	47.96	NA	28.18	23.04	18.97	18.57	21.40	NA
No. of technically qualified bidders	38	NA	65	NA	107	80	93	78	NA
No. of rate contracts	NA	37	15						

\* Tender under process

Note: No. of medicines in Rajasthan EML was increased from 477 in 2011/2012 to 607 in 2013

Source: Extracted from tender documents and data provided by RMSC

We observed that RMSC floats three to four tenders annually for procurement of medicines. However, there were as many as 37 rate contracts during 2012–13 and 15 rate contracts in 2013–14 to date, with different dates of ending. This has an implication on management of the supply chain due to the frequent follow up required. It is also observed that the first tender was for 402 medicines, of which only

49% medicines were approved/finalized from among 38 technically qualified bidders, for which subsequent tenders were floated. Even then, finding suppliers for all the medicines has been difficult, as in many other procurement models.

In 2011, RMSC found it difficult to find bidders for many of the medicines on their essential drug list (EDL). However, over a period of three years, manufacturers and importers have shown increased interest in participating in competitive bidding, and as a result the number of technically qualified bidders increased significantly from only 38 bidders for the first tender to 107 in 2012. The impact of the same can be seen on the percentage of medicines procured from the tendered medicines list. Apart from these tenders, it was observed that RMSC also floats single medicine tenders for iron, folic acid and other medicines such as primaquine tablets, vitamin K injection, ofloxacin, calcium carbonate and albendazole oral suspension, based on the demand from various individual programmes.

On detailed analysis of two tender documents (December 2012 and April 2013), the bidding pattern indicates that 22% of medicines are procured from a single technically qualified bidder (Fig 5.3). More than 43% and 47% medicines received attention from less than three bidders in 2012 and 2013, respectively. This can be interpreted to mean that there is still scope for increasing competition in these medicines. The variance in prices quoted is also observed in more medicines in the April 2013 tender as compared to the December 2012 tender. The coefficient of variance is greater than 0.5 in 22 medicines as compared to only nine medicines with high variability in the December 2012 tender (Table 5.3, Fig 5.4).

**Fig. 5.3. Market response to RMSC tenders**



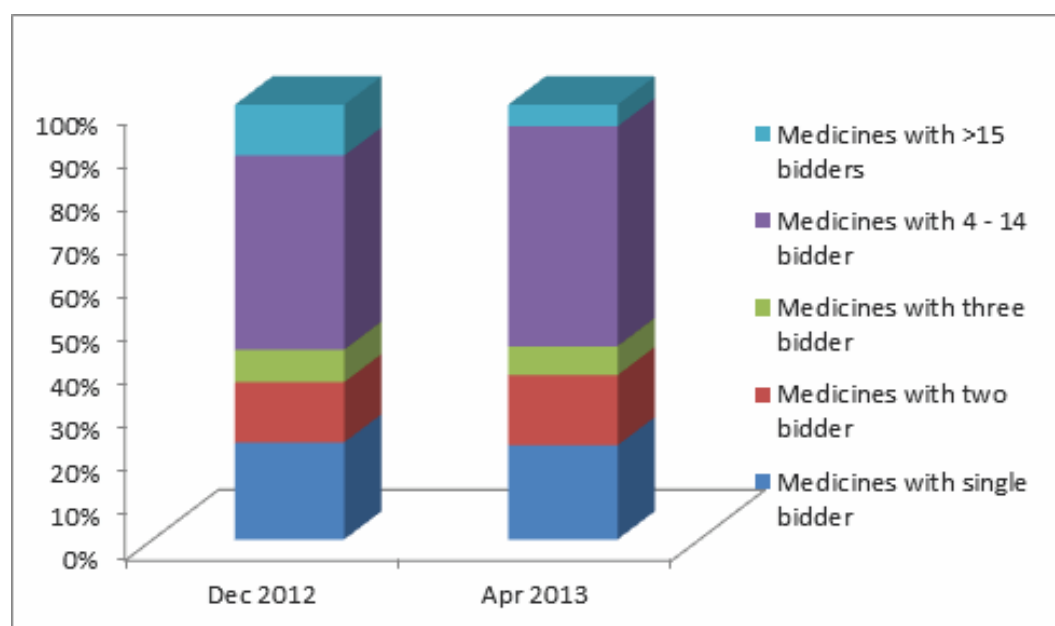
Source: Author's calculation based on tender data provided by RMSC and information published in archive section of RMSC website

**Table 5.3. Analysis of competitiveness**

	Tender date Dec 2012	Apr 2013
Total No. of medicines tendered	116	210
Total No. of medicines finalized	94	171
Total No. of qualified bidderst	80	93
% of medicines not finalized	18.97	18.57
Average No. of bidders per drug	6.67	5.32
SD in No. of bidders per drug	7.52	5.31
Median bidders per drug	4	4
No. of medicines with single bidder	21	39
No. of medicines with two bidders	13	29
No. of medicines with three bidders	7	12
No. of medicines with 4 –14 bidders	42	91
No. of medicines with >15 bidders	11	9
No. of medicines with higher variability in price (coefficient of variance >0.5)	9	22

Source: Author's calculation based on tender data provided by RMSC and information published in the archive section of RMSC website

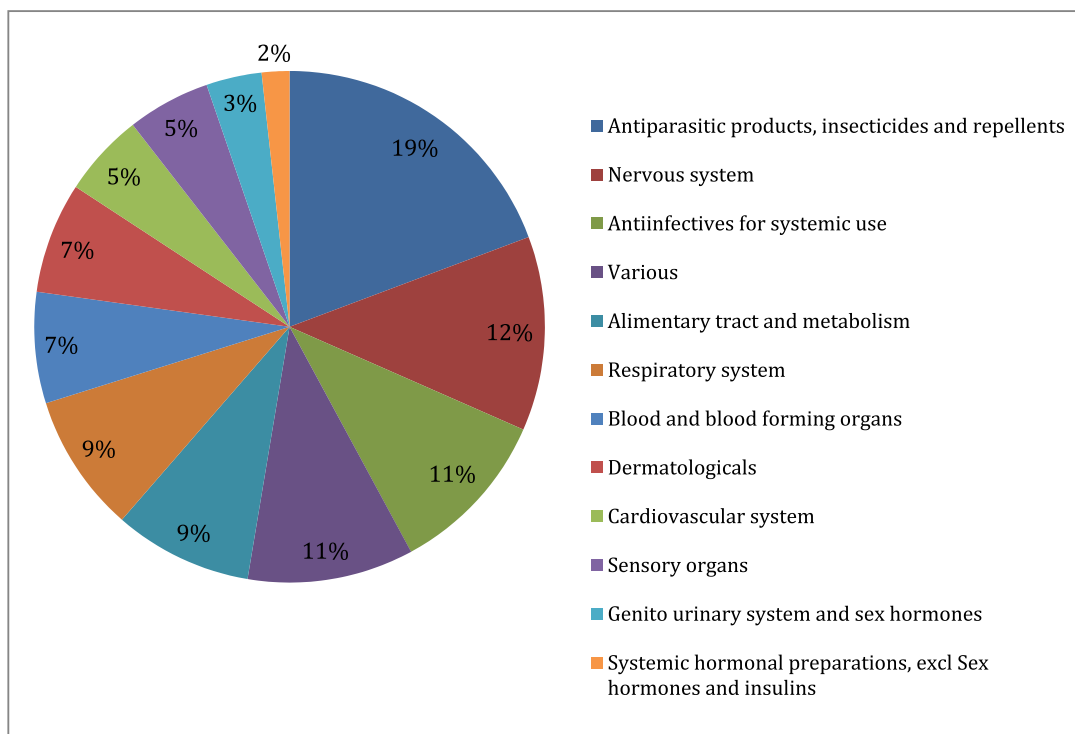
**Fig. 5.4. Competitiveness in bidding for RMSC**



Source: RMSC tender documents

Further analysis of medicines with single bidders from these two tenders covering more than 400 medicines reveals that medicines in the ATC group “anti-parasitic, nervous system and anti-infective” forms 42% of the total medicines that were bid for by a single bidder, i.e. these medicines are attracting poor competition. Other related medicines forming part of ATC group “alimentary tract and metabolism; antineoplastic and immunomodulation agents” and other medicines for obstructive airway disease and inhalants are also attracting comparatively lesser bidders, pointing to scope for improvement. The majority of medicines are from other sections which may be specialized in nature and patented products being procured from a single bidder (Fig. 5.5).

**Fig.5.5. Distribution of single bidder medicines ATC-wise (%)**



Source: Author's calculations based on tender data supplied by RMSC for two major tenders for medicines

## 5.4 QUALITY ASSURANCE MECHANISM OF RMSC

Several layers of quality checking mechanisms are in place under RMSC. The first procedure is detailed in the tender document, wherein the technical bid conditions ensure that the medicines supplied by the manufacturer are of good quality and supplied on time. The penalty clauses are clearly defined by the tender document; this acts as a guiding principle for the manufacturer. It also clearly lays conditions for shelf life of the medicines purchased.

In compliance with the quality policy, RMSC has blacklisted 12 companies for all procurements and 17 other companies for specific products, mainly because of substandard quality (Table 5.4). Publishing the list of blacklisted parties on the website of the organization indicates the level of transparency in the procurement process and concerns of RMSC for getting quality medicines. Such practices also keep suppliers alert about maintaining quality and timely supply of medicines to maintain their market standing.

**Table 5.4. Reasons for blacklisting at RMSC**

Reason	No. of bidders
<b>Company blacklisting</b>	
Non-execution of agreement and failure to deposit security deposit amount	7
Submission of forged documents (GMP, GPL, market standing certificate)	3
Quality failure	1
<b>Product blacklisting</b>	
Not of standard quality	14
Non-submission of agreement	1
Modified order <sup>2</sup>	

Source: RMSC website <http://rmsc.nic.in> accessed on 07 October 2013

The second and most important process of quality assurance is undertaken once the medicines are received at the warehouse. Samples from supplies are drawn randomly from each batch and sent to the head office in Jaipur. The quality control department then mixes the entire sample and undertakes the process of removing/hiding the identity of the manufacturer and encoding the formulations by assigning secret codes. These are then sent to empanelled laboratories for analysis. The empanelled laboratories analyse the medicines using pharmacopeia specifications and suitable test protocols. Upon receipt of reports, generally via

electronic media, the medicines are released into the health system. Failure of a sample is tested by another empanelled laboratory or government laboratory before a final decision is taken. Actions that can be taken include return of stock, penalty of 2% per week levied on the supplier in case of non-uptake of failed stock after 30 days and its destruction after 90 days.

For each batch, samples for testing are drawn three times, so that in case of failure the sample can be sent to another laboratory for re-confirmation. Stipulated time periods within which each sample is to be sent to empanelled laboratories are:

- within 10 days of receipt of the sample for tablets, capsules, ointments, powder and liquid oral preparations
- within 21 days of receipt of the sample for IV fluids and injections.

Samples drawn from the health facilities are also tested. Failure to do so results in the same procedure as above and can result in blacklisting based on provision of substandard medicines or order failure. The stability of medicines is checked through periodic sample analysis within warehouses as well.

From the above discussion and observations at the field level we conclude that the quality check process is well developed and there is hardly any delay in the supply chain/logistics.

## **5.5 SUPPLY CHAIN MANAGEMENT AT RMSC**

The supply chain management or inventory management at RMSC is managed by a web based application of *e-Aushadhi*. Each and every warehouse and public health facility to which RMSC provides medicines is connected through this interface. This interface can

- store, maintain, update, search and display information related to medicines
- define the items into groups, sub groups, categories, codification of medicines
- maintain expiry date/shelf life for an item wherever applicable
- generate alerts with different colour codes for items due to reach date of expiry/expired items
- generate indents automatically, based on re-orders and stock balance
- transfer medicines through identification of surpluses and stock-outs
- generate alerts on the number of medicines not dispensed at facility level

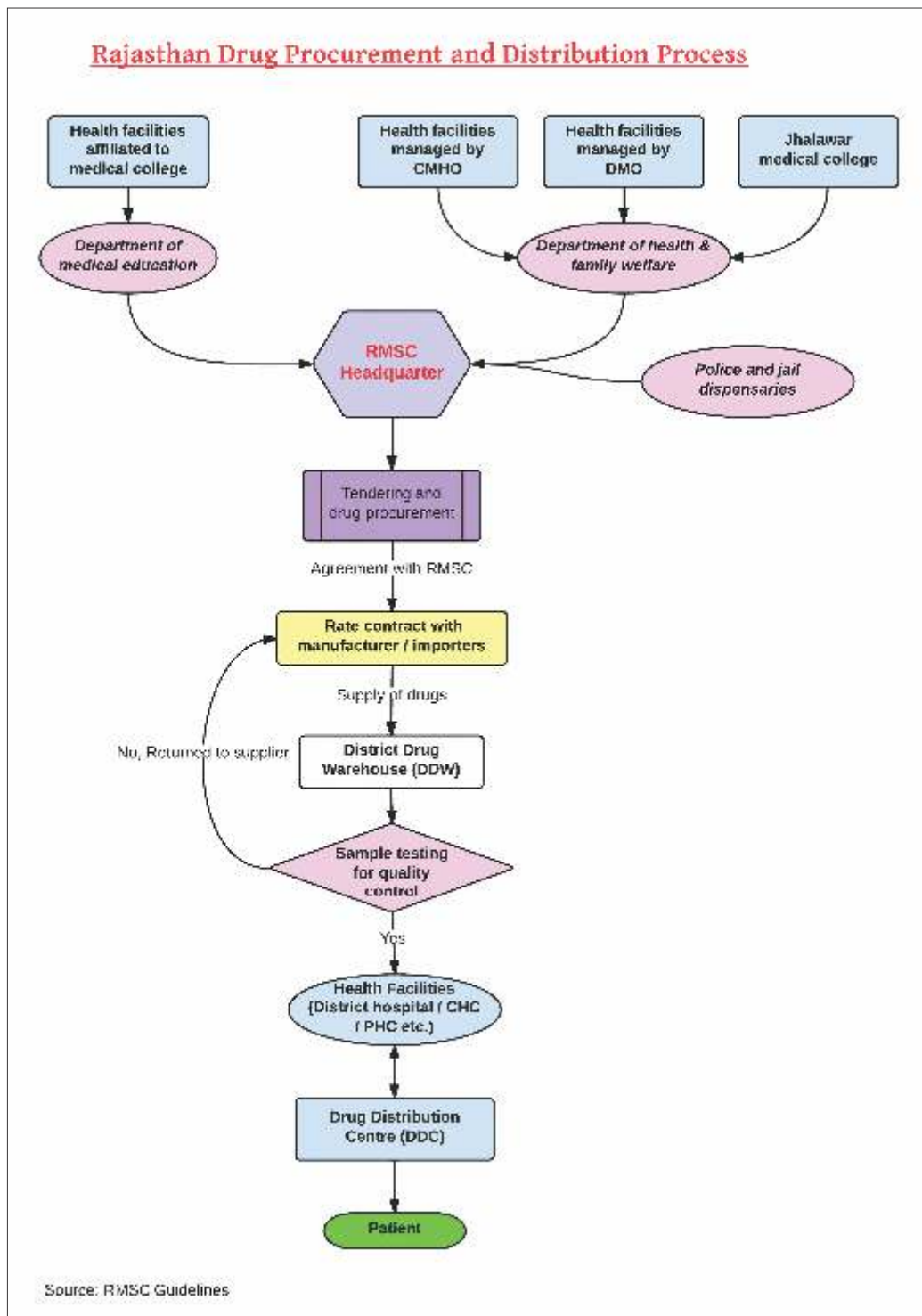
- collect information on the value and volume of medicines dispensed at each health facility in Rajasthan.

It is no wonder that this application has increased the efficiency of the RMSC supply chain system by decreasing the wastage of medicines and decreasing the time taken for indenting and tracking the availability of medicines in the State.

*e-Aushadhi* provides connectivity between the 34 warehouses in the states and real time information on the availability of medicines. The medicines are ordered by RMSC twice a year. At any given point of time, RMSC has four months of physical stocks in the warehouse and two months in the pipeline. *e-Aushadhi* also supports placing orders online, which need to be acknowledged by the supplier within three days and the supply schedule provided in seven days online.

Once the medicines arrive at the warehouse with expiry date, the warehouse in charge records these in a register in accordance with the Drugs and Cosmetics Act. Later on, these records are computerized to make them available online. The new medicines are kept in a quarantine area till the time the testing report arrives, which is also done through this platform. The overall supply chain management system of RMSC is as shown in Fig. 5.6.

Fig. 5.6. Drug procurement and distribution process for Rajasthan



The platform also provides an opportunity to undertake prescription audits. All the prescriptions at each facility can be extracted and uploaded for undertaking the analysis.

At facility level, there is provision of a computer operator to maintain the online inventory management interface of RMSC right up to the PHC level. The Rajasthan government has outsourced IT services by contracting for computer operators with computers so that the Government does not need to invest on computers in the initial phase. The pharmacist at the sub-store of the health facility is responsible for maintaining the stocks at the drug dispensing centre (DDC) with the help of the computer operator who also helps in placing orders online, monitoring stocks and updating the pharmacist store in-charge about availability of medicines in any warehouse across the State. The drug distribution system from the warehouse to health facilities varies from district to district depending on availability of resources and distance from the warehouse. Many districts contract with local transporters to operate on a monthly basis using small goods carriers to supply medicines to health facilities as per a pre-defined schedule based on orders received from the facility.

## **5.6 DISCUSSION ON RMSC PROCUREMENT PROCESSES**

The RMSC has put in place elaborate processes for identification, quantification, procurement and quality assurance of medicines that are supplied to the public health system in Rajasthan. The core component of the entire process has been the electronic platform *e-Aushadhi*, which is crucial and the key success factor in enhancing the efficiency of the public procurement system. It is also worth noting here that online ordering has penetrated deep into the system and is being followed down to the PHC level. The governance structure seems to be well defined and transparent in proactive disclosure on the website of RMSC about the rate contracts, tenders and list of blacklisted parties, showing their commitment to quality. Of the 607 medicines under the 2013 medicines list, 299 medicines (~50%) overlap with the NLEM. There are 233 medicines for the primary level and 82 medicines for medical colleges. Many of these medicines are combinations; for instance, there are at least five instances of oral diabetics and anti-hypertensives. There are no combinations of oral diabetics and anti-hypertensives in the EML. This shows that the Rajasthan EML is driven by pragmatic concerns of availability, prescription practices and trends in the private sector. It is expected that over time, RMSC would overcome the irrational elements and pave the way for rational use.

The philosophy of the Corporation has been to be user-sensitive and stock a large number of medicines. Brands and need for imports are being reviewed periodically, to minimise expenditure. At the same time, the system also floats multiple tenders every year. To increase the efficiency of the system, the possibility of having a single annual tender or a maximum of two (one for fast-moving medicines and the other for expensive, slow-moving medicines) can be looked into. Also, there is a need to be rational in addition and deletion of medicines, prioritizing choices of consumers and prescribers versus the financing implications it has on the health system as a whole. Currently, even with the limited number of tenders, the rate contract numbers are high, resulting in different contractual periods and supply schedules. This needs to be consolidated, as it can create issues related to availability and stock-outs. Lowering annual tender rates, with strict quality parameters, can also be explored to further increase the competition.