

STUDY OF CENTRAL STORE DEPARTMENT ACTIVITIES BY PROCESS FLOW MAPPING IN A TERTIARY CARE HOSPITAL

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Abstract:

Introduction: Healthcare industry is witnessing sharp rise in price in almost all its products and services. Hospital's inventory management has become increasingly important in the recent past. Organizations process mapping is composed of activities involved in defining what an organizational entity does, who is responsible, to what standard organization process should be completed, and how the success of an organizations process can be determined.

Aim and objectives: This study focuses on basic components of supply chain process in the central store to make it more efficient in sales, distribution and storage of drugs.

Materials and methods: Data was collected from central stores department for two months through process mapping; Quantitative and observational/ prospective design are used to identify the main supply issues and data analysis.

Results: The compliance was found to be 100 % in all the different processes like procurement process, internal quality checks, storage of drugs, ledger maintenance & documentation and maintenance of special drugs except GRN date which was 75.45%, storage of high risk medicine amounting to 81.82%.

Conclusion: Innovative design of supply chain has a significant impact on selection of and cooperation with excellent suppliers, improves supply chain efficiency, and encouragement of QM practices.

Keywords: Inventory management, Supply chain, Central stores department, Drugs

Introduction:

In the age of competition, no industry can survive without pondering much about reducing expenditures wherever possible. (1) The same is true for healthcare industry, which is witnessing sharp rise in price in almost all its products and services. Hospital's inventory management has become increasingly important in the recent past.

Organizations process mapping is composed of activities involved in defining what an organizational entity does, who is responsible, to what standard an organization process should be completed, and how the success of an organizations process can be determined. (2) A clear and detailed process map or diagram allows outside firms to come in and look at whether or not improvements can be made to the current process. (3) ISO 9001: 2015 encourages a process approach to quality management and their interaction's impact on Quality Management (QM).

(4)

Steps of Process Improvement using Process Mapping

1. Process identification
2. Information gathering
3. Process Mapping
4. Analysis
5. Develop/Install New Methods
6. Manage process

Importance of Process Mapping: (5)

- Process Improvement
- Training
- Process / Workflow Clarification
- Regulatory compliance

- Internal audit
- Role clarity

Supply chain process involves controlling the information, materials, services and money through any activity in a way that promotes the quality of an organization’s operations, it also has to do with introducing new methods and adjusting or enhancing the old ones, adhering to the fact that efficiency is doing things right, and productivity is doing the right things.(6) Supply Chain Management(SCM) in hospitals involves the internal chain, including patient care unit, hospital storage, patient etc. and the external chain, including vendors, manufacturers, distributors etc. Healthcare SCM processes have three types of flows: physical product flow, information flow, and financial flow. The physical product flow manages customized products and services for the treatment of patients and their needs. The inventory in a healthcare supply chain forms a major part of the cost. (7)

A research model described the impact of supply chain innovation, supplier cooperation, supply chain efficiency, and QM practices on organizational performance. Innovative design of supply chain has a significant impact on selection of and cooperation with excellent suppliers, improved supply chain efficiency, and encouragement of QM practices. (8)

This study focuses on basic components of supply chain process in the central store to make it more efficient in sales, distribution and storage of drugs.

MATERIALS AND METHODS:

The observational study was conducted in a NABH tertiary care hospital of Pune. Data was collected from Central Stores Department for two months through process mapping; Quantitative and observational/ prospective design are used to identify the main supply issues and data analysis.

Following Data flow diagrams were used:

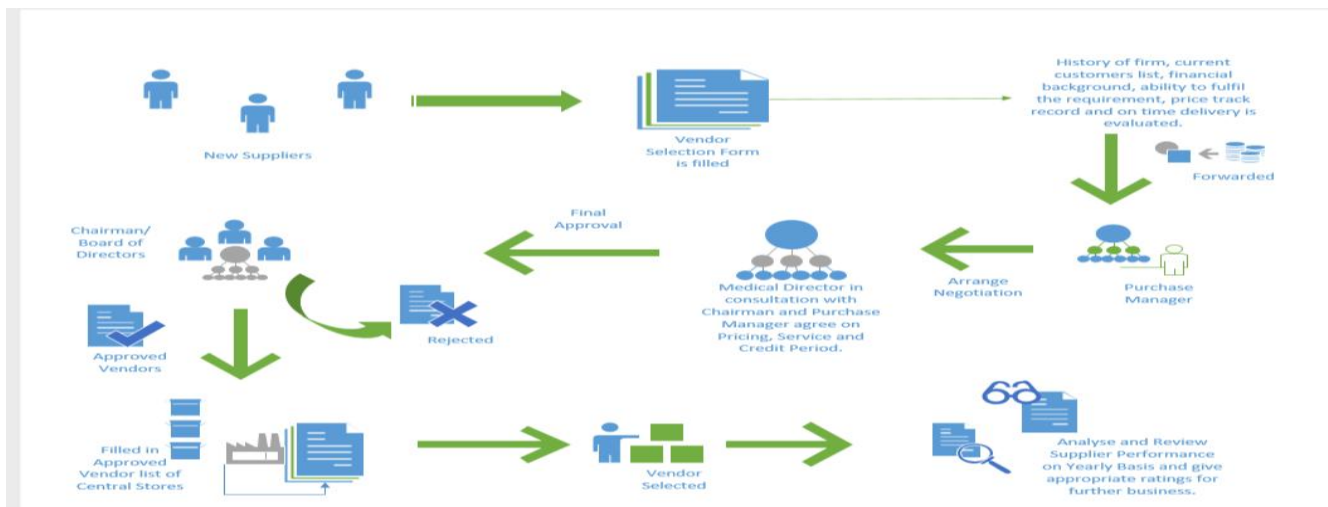


Figure 1: Vendor selection

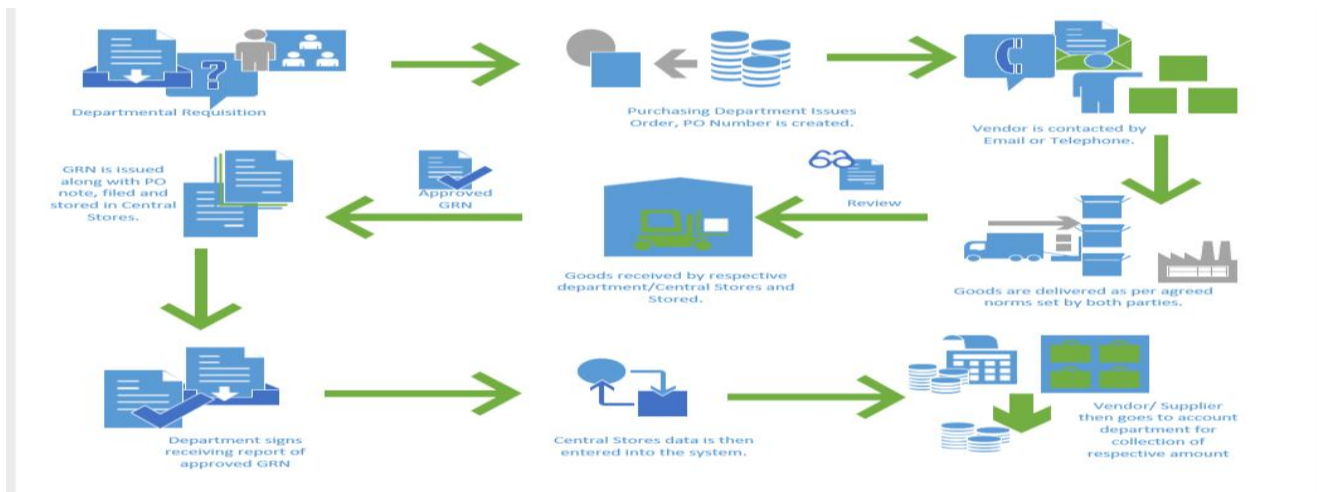


Figure 2: Departmental Requisition

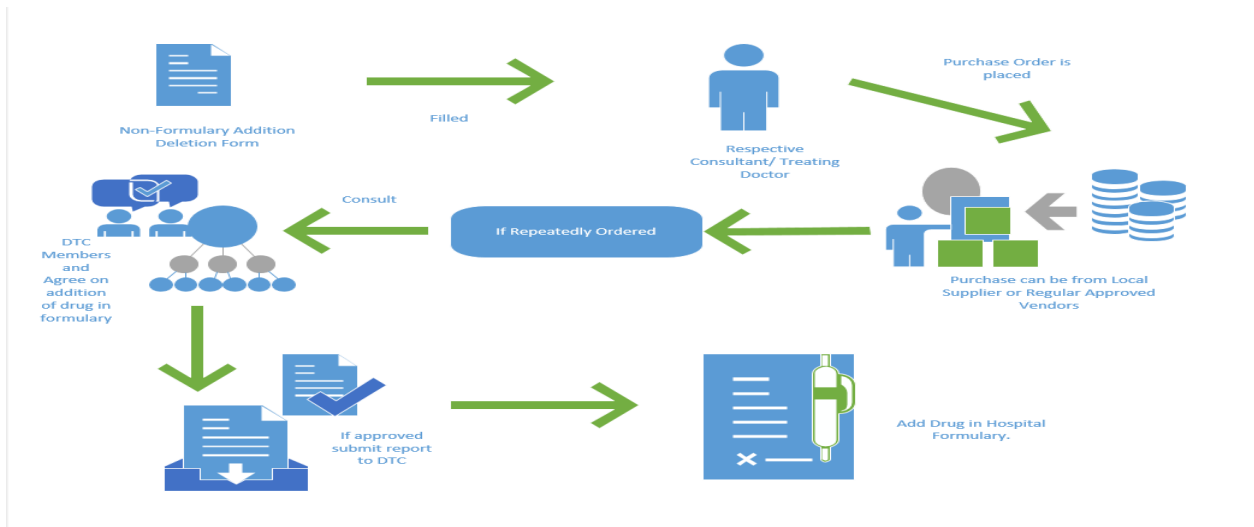


Figure 3: Non Formulary requisition of drugs

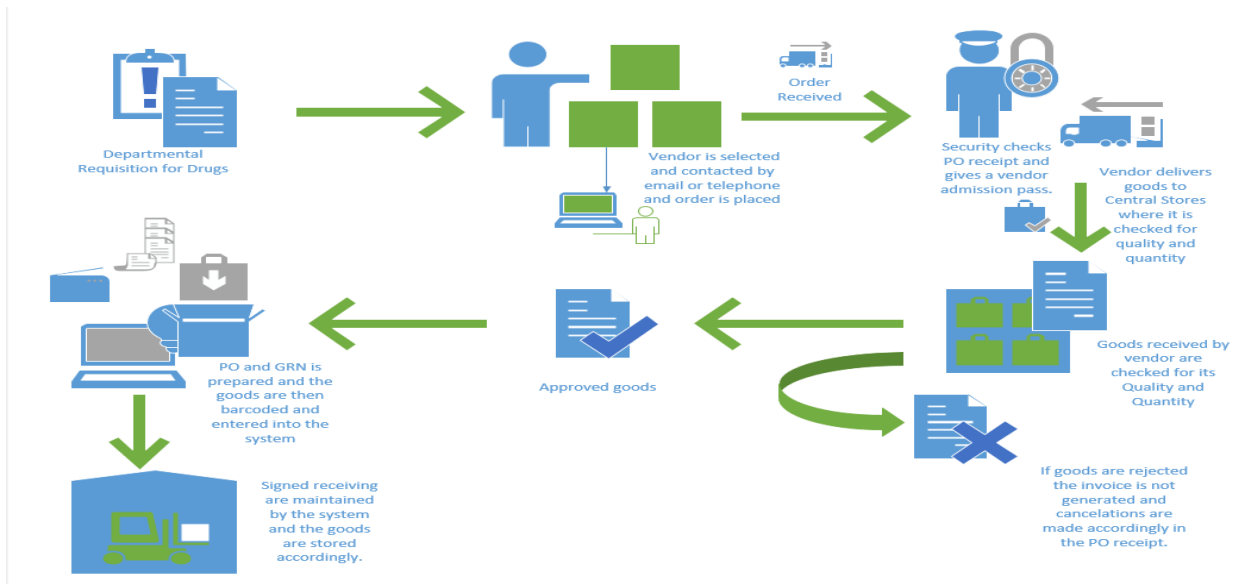


Figure 4: Goods delivery and quality check

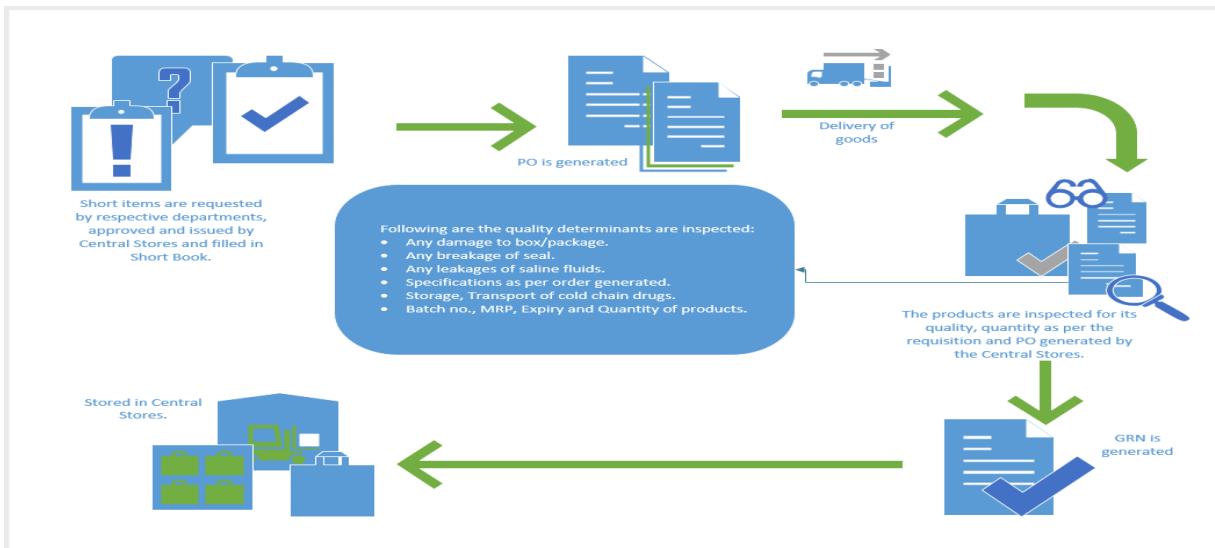


Figure 5: Receipt and inspection

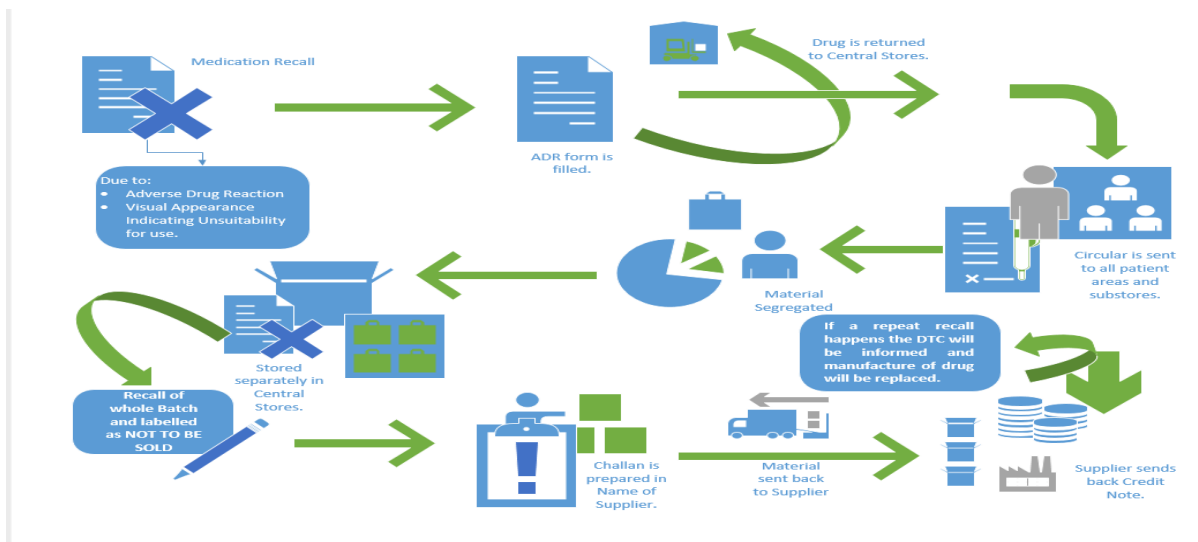


Figure 6: Recall of Medicine

RESULTS:

The compliance was found to be 100 % in all the different processes like procurement process, internal quality checks, storage of drugs, ledger maintenance & documentation and maintenance of special drugs except GRN date which was 75.45%, storage of high risk medicine amounting to 81.82%. 18.18% of drugs were not following the compliance for look-alike drugs & the yellow coloured sticker was missing as per the NABH protocols. 30 % of the sound-alike drugs were not as per NABH guidelines & were missing the pink coloured sticker. Detail of results are shown in table 1 & 2 and also depicted in bar diagram from figure 7 to 11.

Table 1: Percentage compliance of central store process

Sr. No.	Particulars	% Compliance
I Procurement Process		
01	Requisition Received	100
02	PO Date	100
03	Goods receipt note(GRN) Date (On the same date)	75.45
04	Received	100
II Internal Quality Checks		
05.	Counting of the material (Box Packing)	100
06.	Quantity Check (Individual Package)	100
07	Expiry date	100
08	Batch No.	100
09	Recording and Barcoding	100
10	Daily Stock verification	100
III Storage of Drugs		
11	Storage Of High Risk Medications	81.82
12	Storage Of Emergency medications	100
13	Storage Of Narcotics Drugs	100
14	Storage Of Temperature Controlled Drugs	100
IV Ledger Maintenance and Documentation		

15	Reporting of the drugs that being received:	100
16	Daily Updating Of Store Ledger	100
17	Check Stores Ledger For:	100
18	Issues	100
19	Recording/ Filing of Bills or Receipts	100
20	Recording/Filing of GRN Receipts	100
21	Recording/Filing of Return Drug Expiry Note (Monthly)	100
V Maintenance of Special Drugs		
18.	Recording/Filing of H1 Schedule Drugs	100
19.	Recording/Filing Of Narcotics Drugs	100

Table 2: Results for look-alike & sound-alike drugs

Particulars	Total	No. Of Drugs not Complying with Storage Policy
Look-alike	11	2 (18.18%)
Sound-alike	10	3 (30%)

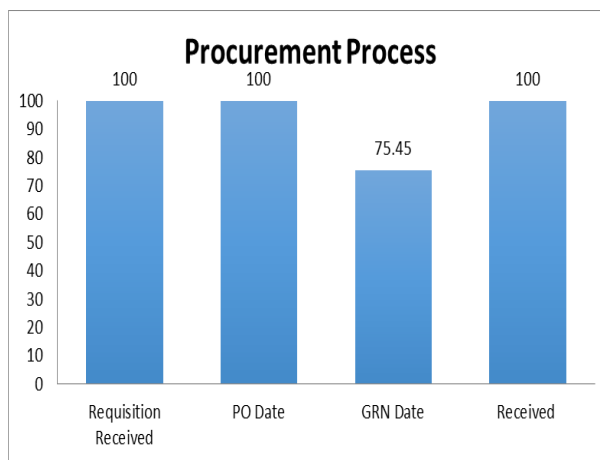


Figure 7: Percentage compliance of procurement process where the compliance of GRN generated on the specific date was 75.45% due to Vendor Delay in delivery

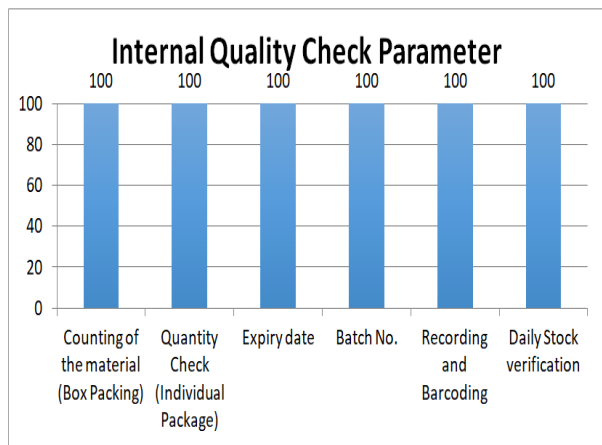


Figure 8: Percentage compliance of the Internal Quality Check where the compliance of the various steps in Quality Control was found to be 100%

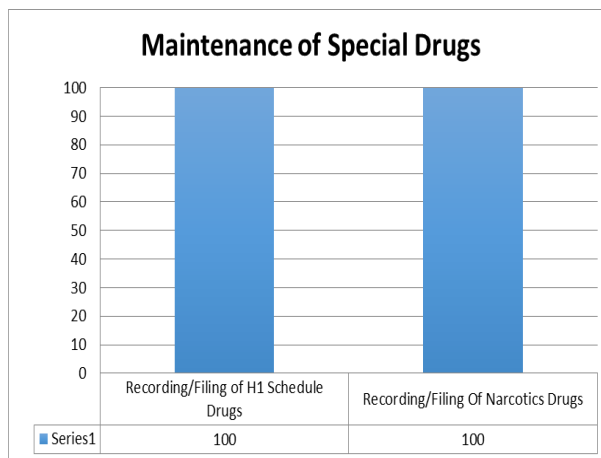


Figure 11: Percentage compliance of the Maintenance of Special Drugs where the compliance of Maintenance of Records was found to be 100%

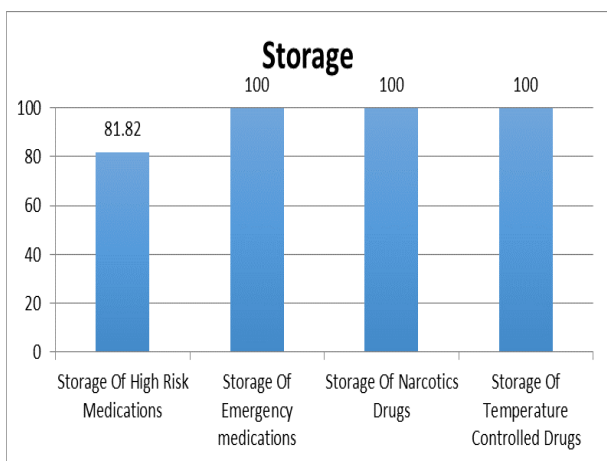


Figure 9: Percentage compliance of the Storage of Drugs where the compliance of the High Risk Medications was found to be 81.82%, while that of other drugs the storage compliance was 100%.

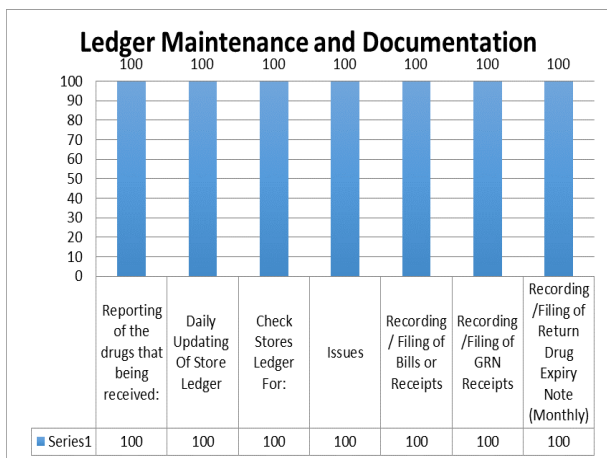


Figure10: Percentage compliance of the Ledger Maintenance and Documentation where the compliance of the various steps in Maintenance of Records was found to be 100%.

Vendor delay was also observed in one of the months from the standard time line for the delivery of goods of one day from the generation of purchase order. Number of vendor delayed in that month was 8% i.e. 42 delays were observed from the given 524 orders.

DISCUSSION:

SCM has become an important phenomenon by healthcare organizations in order to achieve the organization’s set goals. The system is highly complex. There are hundreds of steps involved in moving pharmaceutical products and other surgical and medical products across the supply chains. Being a NABH hospital most of the systems were in place and compliance touched to 100% in our study.

The analysis of the vendor delay which was 8% in one of the months in shipment were due to the following reasons:

1. Product Unavailability
2. Product Shortage
3. Insufficient Staff for Delivery
4. Financial Problem of Supplier
5. Technical difficulties like in receiving emails or telephone.

Conclusion:

Inventory represents a large portion of costs in the in the hospital due to significant costs of these products and their storage and control requirements. In this work we discussed the central store inventory supply chain process and the processing time from generation of purchase order till supply from vendor. Innovative design of supply chain has a significant impact on selection of and cooperation with excellent

suppliers, improved supply chain efficiency, and encouragement of QM practices.

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