



## APPLICATION OF THE ABC ANALYSIS METHOD FOR OPTIMIZING THE STOCK MANAGEMENT OF MEDICAL DEVICES OF COMMON USE

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### Background and importance

One of the hospital pharmacist's main tasks is to optimize the inventory management of pharmaceutical products to keep costs under control in the supply chain and guarantee a minimal storage cost with an absence of shortages and a satisfaction of needs. A number of tools exists to allow the categorization of the products to be managed in order to focus on those considered most strategic.

### Aim and objectives

To use the ABC analysis method in order to optimize the economic management of common medical device stocks at the pharmacy level of our hospital and the importance criterion set is the value of annual consumption.

### Material and methods

The method of analysis used is ABC method which comes from the law of PARETO also called rule of 20/80. Therefore we have decided to focus on a precise pharmaceutical product: the common medical devices stored at the central pharmacy of our hospital. The importance criterion chooses the total economic value of the each product selected.

On an EXCEL board we will calculate the accumulated stock value, the accumulated value rate, rank and rank percentage of each medical device intended for common use. This will make possible to draw the cumulative value percentage curve according to the percentage of rank and the "Pareto histogram".

### Results

Product	Product designation	Annual stock cumulative value (€)
1	Latex chirurgical gloves. Size: 6,5/ box of 50 units	587,5
2	Latex chirurgical gloves. Size: 7 / box of 50 units	14687,5
3	Latex chirurgical gloves. Size: 7,5/ box of 50 units	35837,5
233	No adhesive hydrocolloid dressing with silver 10x12cm	188162,62
234	No adhesive hydrocolloid dressing with silver 13x20cm	188397,62

Reference	Designation	Annual consumed value	Cumulative value	% Cumulative value	Rank	% Rank
32	Universal kit	105750	105750	1,2798889815	1	0,30864198
6	Latex medical gloves/ box of 100	73320	179070	2,167280083	2	0,61728395
30	Sterile surgeon gown. Size L	37600	216670	2,622352019	3	0,92592593
31	Sterile surgeon gown. Size XL	37600	254270	3,077423954	4	1,2345679
261	Anesthesia balloon 1L	18,8	776654,32	9,399829352	233	71,91135802
206	Guedel oropharyngeal cannula size 0	14,1	776668,42	9,4	234	72,22222222

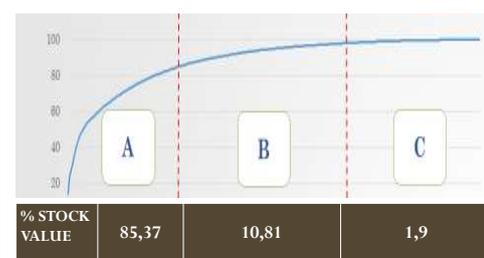


Figure N°1: the annual stock cumulative value board

Figure N°2: the ABC analysis board

Figure N°3: Pareto diagram % of rank= f (% cumulative value)

234 references were analyzed, the total amount is approximately 775 000 euros (figure1 and figure 2). We could distinguish 3 categories of products (figure 3):

- "Category A": representing 85% of the total value of the stock and 20% of the total number of items. It includes articles such as: universal kits, sterile gloves or infusers, according to our criterion of importance this group of articles is considered the most important.
- "Category B": the items represent about 12% of the total value of stock and 30% of the total number of items, including products such as penis cases or plaster strips.
- "Category C": the items represent in our case 2% of the total value of stock and more than 50% of the total number of items such as the case of Guedel cannulas or Y-fittings.

### Conclusion and relevance

The data collected confirms Pareto's law, according to which 20% of the products stored represent 80% of the value of the stock. According to the results obtained, it seems that acting on the zone A items will have much more effects on the cost and stock monitoring. These acts consist of:

**1- adapting the way of ordering supplies and the quantities stocked:** The order "point method supply" or supply on demand appear to be the most suitable way for the items such as universal kits or surgical gloves from zone A, whose reduction of the stored quantity will imply a big decrease of the storage cost.

In the case of zone B items, replenishment or calendar mode supplying is more suitable if we plan deliveries every 3 or 6 months.

The zone C medical devices represent 20 % of the total stock value. To store small quantities of these items won't have an impact on the benefit as we gain space in the storage, so we can afford to order them once or twice a year.

**2-Follow up and inventory:** the zone A items must be under taken strictly and some samples must be counted weekly.

As for the zone B items a monitoring can be done once a month.

Thus we have been able to show the usefulness of the ABC method in the strategic management of stocks as it has been reported by many authors before:

"Logistics cost management requires a breakdown of the activity and an appropriate ABC-type approach"<sup>1</sup>

"analysis would help effectively control 70% of the total budget allocated to the pharmacy through 13.78% of the number of items making up this stock"<sup>2</sup>

"it is a cost-effective method, with rapid results and conclusions, the use of which can be extended to all military hospitals"<sup>3</sup>

To conclude, this study helps us to better efficiency in decision-making and the implementation of actions adapted for each category such as reducing the value of stocks and the cost of storage, to adapt the ordering method and fix the number permanent inventories to be made.

### References

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