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PRACTICAL ASPECTS OF THE CONTROL OF THE DELIVERIES FOR THE PHARMACIES

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SUMMARY

The main purpose of the study is to define the optimum number of times ordered by the different chemists, shops from a central pharmaceutical storage.

A Wilson`s mathematic formulae has been used to determine that optimum both for order amounts and number of times ordered. Such optimum model has been made to 31 pharmacies accommodated by one pharmaceutical storage in one region in Bulgaria. Basic criteria for the optimum are order costs and costs related to storage of medicines. As a result of this decreasing of inventar, ordercosts and costs related to storage of medicines has been observed

KEY WORDS

ordercosts, stockcost, orderamounts, number of times ordered, optimal

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Introduction

One of the basic problems of the pharmaceutical storages that take part in the retail and wholesale trade with medicines and other medical goods in the time of new market conditions of the increasing of the effectivity of the process of

formation. Those processes are related to the storage of medicines and their market realization. Optimum for the frequency and the amount of the deliveries is one of the basic ways for the increasing of the economic and social effectivity in the management of medical goods in pharmaceutical storages.

The purpose of the study is by the usage of the developed mathematical models to be optimized the intervals and the frequency of the deliveries for the pharmacies supplied from one pharmaceutical storage. The study was done for the optimum and the frequency of the deliveries for 8 pharmacies in Montana city supplied by one pharmaceutical storage belonging to " Pharma M " company in the same town.

Methodology

It was done the determination of the optimal frequencies of the deliveries by the usage of the mathematical models for estimation of the optimal interval between the orders by the Wilson`s formulae (1,2,3) - $t = T.\sqrt{2I/c.p.f}$ (1),

where:

t - the optimal intervalbetween two orders

T - the period of time for which is defined the optimal interval (usually it is estimated for 360 days)

L- essences for the preparation of the order and its deliverance (order costs)

C.P - annual amount of expenses (consumption) as a result of multiplication between the sales (C) in quantity and the price (P) for each stock

F - costs related to the storage of medicines (unit average stock reserve)

Results and discussion

On the base of the facts from the pharmaceutical storage during 1993 year for:

- the amount of the consumption estimated by the realized quantity of medical supply for the different pharmacies

- expenses for the preparation of one order and its deliverance to the different pharmacies

- on the average expenses for the storage (table 1) of unit stock in the pharmaceutical company, we define the optimal intervals of the deliveries for he pharmacies in the town supplied by one pharmaceutical storage of the company (table 2)

The data from the table 2 show that the received optimal frequency of the deliveries by the chosen with the model criterion for optimality - the expenditures for the deliveries to each pharmacy and on average expenses for the storage of unit reserve in the company as follows:

Table 1 Expenses and losses connected with the storage of stock reserves

N:	Indexes.Values in thousand levas	
1	Expenses as a whole from the reserve keeping	7354
2	Middle stock reserve kept in the pharmaceutical company	10500
3	Average expenses for keeping unit stock reserve	0.70

- for the pharmacy in Montana the intervals between the deliveries are from 3 to 8 days whence the optimal frequency of supplement is from 4 up to 10 times a month.

So the established optimal intervals and frequencies of the deliveries for the pharmacies in the town are greater than the real frequencies of the deliveries for the pharmacies.(table 3)

Conclusion

The optimal frequency of the deliveries for the pharmacies from one pharmaceutical storage can lead not only to decreasing of transport expenses for the deliveries but to optimum of average stocks amount reserve kept in the different pharmacies and thus prevents extra expenses for the storage of those stocks. That leads to a great and whence social effectivity that is of great importance both for the different pharmaceutical companies and public health services in the country.

The usage of the shown model in the practice is a necessary condition in order great effectivity to be reached in the time of the new market conditions in the country.

Table 2 Optimal frequencies of the deliveries defined according to the criterion - expenses for the deliveries and the storage of one order for unit stock reserve (0,7 leva on 1 lev) for the different pharmacies.

N:	pharmacy location	sailings in thousand levas	expenses for one order	optimal interval between the orders (in days)	middie frequen-cy of the orders for a month
1	2	3	4	5	6
1	N:1 Montana	4621	200	4	7-8
2	N:2 Montana	7270	300	4	7-8
3	N:3 Montana	2257	100	4	7-8
4	N:4 Montana	11141	350	3	10
5	N:5 Montana	413	70	8	4
6	N:6 Montana	576	75	7	4
7	N:7 Montana	641	80	7	4
8	N:8 Montana	746	85	6	5

Table3 Comperable table of the real and optimal frequencies of the deliveries for the pharmacies in Montana city.

N:	pharmacies (N:)	real frequency of the deliveries	optimal frequency of the deliveries
1	2	3	4
1.	N:1	6	7-8
2.	N:2	6	7-8
3.	N:3	5	7-8
4.	N:4	8	10
5.	N:5	3	4
6.	N:6	3	4
7.	N:7	3	4
8.	N:8	4	5

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