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Effects of electronic prescription on pharmacy productivity

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Abstract

Electronic prescriptions affect pharmacy workflows. In this study, we measure the workflow efficiency in pharmacies in 2006 and 2012: both, in traditional workflow when electronic prescription was not in use, and in new direct delivery workflow, which is the mandated workflow model in the case of electronic prescriptions.

Keywords:

Electronic prescription, pharmacy productivity, retail pharmacy, community pharmacy, outpatient pharmacy, pharmacy workflow

Introduction

Electronic prescriptions have been widely used in Finland during 2012 – 2014. A switch to electronic prescription changes the counter delivery in the pharmacies from a workflow that we call "traditional model" to a new one that we call "direct delivery model". In this research we study what this change means to the productivity of the Finnish pharmacies.

Methods

In the research, we measured the interaction time needed to take care of one prescription at the counter of retail pharmacies. The process started from the customer entering at the counter, and ended with the handout of the medicine. Payment time for the medicine was not included.

Measurements were taken at two timepoints: in years 2006 and 2012.The year 2006 results have been reported elsewhere [1], and are not a topic of this presentation. The detailed results of the 2012 study are reported in [2]. Methodologically our research is quite close to traditional Taylorism.

Results

Detailed data on the delivery processes is in Table 1.

Table 1. *Number of prescription delivery processes analyzed in 2006 and 2012*

	Paper prescription 2006	**Paper prescription 2012**	**Electronic prescription 2012**
Customer sessions	123	347	162
Number of prescriptions handled	190	573	275
Number of packets delivered	234	704	322

Table 2 contains the needed times for medicine delivery.

Table 2. *Total times of delivery for different prescriptions in 2006 and 2012*

	Paper prescription 2006	**Paper prescription 2012**	**Electronic prescription 2012**
median time	2 min 38 s	1 min 43 s	2 min 4 s
average time	2 min 48 s	1 min 58 s	2 min 26 s
standard deviation	1 min 34 s	57 s	1 min 17 s
minimum time	34 s	32 s	36 s
maximum time	12 min 40 s	6 min 22 s	9 min 15 s

In general, medicine delivery process in pharmacies has improved during the timespan of 2006 – 2012, making the prescription handling times faster.

Discussion

E-prescriptions have not increased pharmacy productivity. Time needed to handle an electronic prescription is down by 13% from year 2006 figures. However, the improvement in handling time is even better (30%) for the paper prescriptions.

Conclusion

In the Finnish environment, the results show that with the electronic prescription, the delivery time for a single medication over the counter was cut by 13%. In other words, the pharmacists are able to deliver 10 prescriptions in the same time that previously allowed nine prescriptions to be handled. This Indicates that productivity in pharmacies has grown a lot during the studied time period in Finnish pharmacies.

References

[1] M. Koiranen, and J. Sinnemäki, "Reseptitoimitukseen kuluneet ajat suoratoimitus- ja perinteisellä mallilla (Times needed for prescription delivery with the traditional and direct delivery workflow models) Unpublished manuscript.," Turku School of Economics, 2006.

[2] M. Lähteenoja, "E-reseptin ja paperireseptin toimitusajat suoratoimitusapteekeissa (Delivery times for paper and electronic prescriptions in pharmacies using direct delivery model). Unpublished Master's Thesis.," University of Turku, 2014.

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