

Optimizing Drug Dispensaries in a University Hospital: Pilot Study of Methods and Efficiency in Resource and Finance Allocation

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Background:

In hospitals drugs are being stocked on wards in designated satellite areas - so called dispensaries. There is no standardized procedure how to define the drug-assortment and the number of packages stored. Based on an extended analysis of the drug inventory on a ward we hypothesized that the introduction of a ward-individualized formulary (WIF) can reduce the number of different drugs and drug packages in a dispensary on a rational basis without interfering patient care. Simultaneously we assumed that drug logistics can be improved and drug returns as well as money loss due to expired drugs and bound capital can be reduced. The interdisciplinary intervention took place in our 700-bed university hospital on a 42-bed ward focusing on patients in general internal medicine, haematology, nephrology and oncology.

Methods:

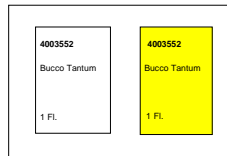
Intervention: Original drug stocks were defined as follows:

- All drugs from the hospital formulary ordered at least three times in the past six months were evaluated to include in a pre-WIF.
- Included and excluded drugs were reviewed by an interdisciplinary team of a hospital pharmacist, a nurse and a medical doctor and a final WIF was defined (see picture 1).
- All doctors and nurses of the ward under investigation were instructed to use drugs from the WIF and doctors were encouraged to prescribe the listed drugs at first choice.
- Storage place on ward was defined and logistic processes improved (see picture 2).

Drug inventories were monitored on December 7th 2004 and January 10th 2005 and finally compared to initial stock.

Art.-Nr.	Product	Agent	ATC	Price
902735	Asalol	Nifedipin	C08C	60.30
908753	Asalol retard	Nifedipin	C08C	55.90
908154	Adrenalal Amp. 1mg/ml	Epinephrin	C01C	66.10
903726	Alonaton Amp. 5mg/ml	Biperiden	N04A	5.80
907649	Alidacortone Comp. 25mg	Spirolacton	C03D	60.05
906832	Amibon Amp. 500mg/2ml	Amikacin	J01G	200.10
906287	Artra Amp. 40mg	Omeprazol	A02B	45.90
905743	Apravel Comp. 150mg	Ibuprofen	C09C	57.30
903876	Aspirin cardio Tabl 100mg ASS	ASA	B01A	7.30

Picture 1: Detail of the ward-individualized formulary



Picture 2: Labelling of stocking place

Results:

The initial drug stock consisted of 2031 packages with 943 different drugs valued Euro 83'931.- Immediately post interventional the drug stock was composed of 808 packages (-60%) with 415 different drugs (-56%) valued Euro 28'012.- (-67%).

After ten weeks the drug stock was composed of 922 packages (-55%) with 422 different drugs (-55%) valued Euro 29'948.- (-64%) (see tables 3-5).

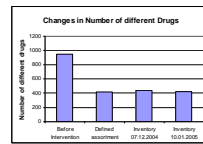


Table 3: Changes in number of drugs

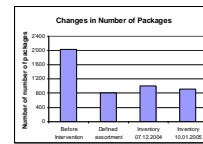


Table 4: Changes in number of packages

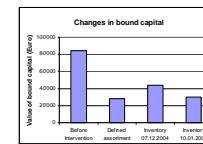


Table 5: Changes in bound capital

In the period of six weeks before intervention compared with six weeks after intervention, out-of-list drug orders could be reduced from 28 packages to 21 (-25%) packages and the number of orders after order-dead-line could be reduced from 12 to 9 (-25%) orders (see tables 6-7).

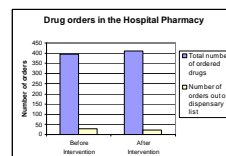


Table 6: Orders out of the defined assortment

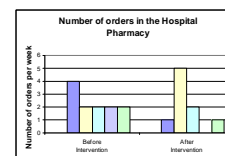


Table 7: Number of orders in the pharmacy

Conclusions:

With our approach it was possible to reduce:

- the number of drug packages (-60%)
- the number of different drugs stocked (-56%)
- the capital bound in drugs (-67%)

These changes were consistent over the time period observed (10 weeks).

Further we could reduce:

- out-of-list orders (-25%)
- orders after order-deadline (-25%)

Other results:

- Reduction of drug-returns in pharmacy
- Reduction of capital-loss due to expired drugs
- Reduction of time-loss due to drug-management
- Improvement of customer satisfaction

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