DSL-002 A PHARMACOECONOMIC COMPARISON BETWEEN A COUNTY HOSPITAL IN CHANIA AND A CENTRAL HOSPITAL IN ATHENS, GREECE

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Background 'Agios Georgios' Chania General Hospital (CGH) on the island of Crete has 460 beds and Sismanoglio General Hospital (SGH), in the capital of Greece, Athens, has 439 beds. In the Greek National Health System the uninsured poor patients receive their dugs free of charge from the hospital pharmacies.

Purpose To compare the pharmacoeconomic profiles of the two hospitals.

Materials and Methods We examined the pharmacoeconomic data for the first half of 2011. Data were extracted from the Hospital Information Systems.

Results 14,998 patients were hospitalised in CGH and 15,520 patients in SGH with a mean number of nursing days 3.99 vs. 3.55.

The total cost of drugs was €6,705,297 vs. €4,933,028 (P < 0.05) respectively.

The drugs cost for the inpatients was €5,034,701 vs. €3,965,127 and the mean cost per impatient per nursing day was €77.67 vs. €67.23.

The drugs cost for the insured outpatients was €1,452,668 vs. €713,203 (1,595 prescriptions vs. 1,152, P < 0.05), and the mean cost per prescription was €909.42 vs. €619.10 (P < 0.05).

For the uninsured outpatients the drugs bill was €217,928 vs. €254,694 (3,506 prescriptions vs. 2,016 P < 0.05) and the mean prescription cost was €62.16 vs. €126.34 (P < 0.05).

The percentage cost for the main categories of drugs were: cytostatics 16.50% vs. 10.65%, antibiotics 21.65% vs. 24.51%, antirheumatics 7.54% vs. 4.55%, cardiovascular 5.57% vs. 3.98% and erythropoietins 11.45% vs. 3.11% (P < 0.05).

The ratio of generics to patented medicines was 40.32%:59.68% and 39.14%:60.86%.

Conclusions We found statistical differences among the pharmacoeconomic data of the two hospitals. In SGH, HIV+ patients are served (27.47% of uninsured and 47.35% of insured outpatients) and this is reflected in the increased cost of the outpatients while erythropoietins and cytostatics cost differences are related to the hospital departments (Oncology, Haematology, Pulmonary clinics), the different DRGs and treatment protocols followed in each hospital.

No conflict of interest.

DSL-003 AUTOMATION OF DRUG DISTRIBUTION: IMPACT ON ERROR RATE AND DISTRIBUTION SPEED

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Background Human reliability is limited and information technology has the potential to improve the safety of the medication process. In July 2011, a robot (ROWA/ARX) was implemented in our hospital pharmacy to reduce error rates and improve the efficiency of our global drug distribution.

Purpose To evaluate the impact of this automation on distribution errors and workload efficiency.

Materials and Methods Approximately 52% of the dispensary stock (1126 articles, 50,000 boxes) is managed by the robot.

1. Distribution errors: content accuracy of random orders was verified before and after the implementation of the robot. Errors were classified in three categories: wrong drug, missing drug/quantity or additional quantity.
2. Workload efficiency: time to prepare a sequence of orders manually or with the robot was measured.

Results

1. Manual dispensing error rate was 0.93% (n = 5805 ordered lines; wrong drug: 0.36%, missing drug/quantity: 0.31%, additional quantity: 0.26%). By decreasing this error rate to 0.27% (n = 5840; only conveyor errors leading to missing drug/quantity and additional quantity), the automation avoided more than 4500 errors each year.
2. With the distribution of 880 boxes of drugs/hour (reduced to 630 when the automated 'Pro-log' filling system was working simultaneously), the robot significantly increased the distribution speed in comparison with the manual picking (303 boxes/hour).

Conclusions This reorganisation contributed to safer and more efficient distribution of drugs. No more incorrect picking of medicines occurred thanks to the high reliability of the robot. Remaining errors could still be reduced by improving the conveyor software. With one single person operating the robot, 2 full-time equivalents were saved, leading to an estimated return on investment in 4.5 years. For medicines remaining outside the robot (i.e. controlled drugs, cold chain drugs or those with an unusual size, shape or weight), a scanning system will be introduced and evaluated by the same protocol.

No conflict of interest.

DSL-004 AUTOMATION OF STORAGE AND DISPENSING: WHAT SYSTEM SHOULD WE IMPLEMENT?

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Background Innovation and new technologies help reduce the rate of medication errors and maximise efficiency in the drug administration system thus improving the safety and quality of patient care. In the market there are various automation systems, all of which are costly.

Purpose To analyse two storage and dispensing automation systems in order to make a decision to improve the safety, efficiency and quality of medicines use in our hospital.

Materials and Methods Review of two systems: A) fully integrated robotic automation (fully enclosed storage modules that automatically generate individual dosage units (DUs) grouped into rings per patient), and B) system with different components (semiautomatic storage and cart-filling system, plus storage tanks filling, automatic dispensing systems (DAS) in inpatient units, plus outpatient medicines automation and repackaging). We analysed the resources currently available and the benefits of the two systems. DUs consumed in 2011 were examined and classified by pharmaceutical form, volume, storage conditions and whether they can be dispensed to outpatients or not. High volume solutions and enteral nutrition were excluded. The costs used in the analysis are the sum of the quotes received from suppliers, excluding maintenance costs. The same level of human resources was assumed. Costs were expressed as additional costs per number of DUs dispensed under each system.

Results 16.213.352 DUs were dispensed in 2011 in connexion with 2971 drugs (40% could be dispensed to outpatients). Advantages and disadvantages of the two systems are listed in the Table.

Conclusions The integrated robotics system (system A) appears to be a safer, more versatile and more efficient system providing more information than system B, which provides greater accessibility for nursing. The cost analysis is slightly favours system A. One