Is the Unit Dose Process a tool for patient safety and for implementing “Lean Thinking” in the drug supply chain?

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Case study on Unit Dose Drug Dispensing Process (UDDDP) by an automated System for daily distribution of patient-specific therapies

This study assess:
- The UDDDP contribution to the Risk Management
- The impact of UDDDP on the Hospital Drug expenditure
- The Return on Investment for the acquired technologies

BEFORE: Ward stock system (WSS)
Prescriptions in paper record; medications prepared by nurses in the ward.

AFTER: Just in Time dispensing process (JIT)
Computerized physician order entry (CPOE); daily distribution of personalized and “ready-to-use” therapies to wards; electronic medication administration record by a barcode-assisted dispensing system.

Clinical Risk Monitoring
According to the statistics provided by the CPOE in terms of change of prescription because of a potential risk of drug interaction, 1,579 physician prescriptions (12,3% on the total amount) were modified in 6 months thanks to the pharmacist monitoring and CPOE support.

Drug expenditure
Calculated on 250 beds served by UDDDP in a 7 months timeframe (before and after implementation).
The reduction of drug expenditure in the analysis period amounts to about 30%.

Drug Expenditure

Before UDDDP

After UDDDP

Drug Expenditure after UDDDP

Managed in Unit Dose

Not Managed in Unit Dose

30%

70%

Return on Investment (ROI)
Calculated considering savings in drug expenditure and the costs of investment in technologies (automations, CPOE, IT hardware), full-risk maintenance fees, consumables and payroll for the external staff involved in Unit Dose production according to the number of beds served.
The cash flow analysis resulted in a break-even point equal to 498 beds.

The implementation of the “Lean thinking” through UDDDP on the Hospital supply-chain reduces the Hospital Drug expenditure and improves the safety.

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