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Background

Medication errors may result in patient harm. Especially in intensive care patients, adverse drug events caused by medication errors are common. Interventions by hospital pharmacists have been shown to reduce adverse drug events and costs in intensive care units (ICUs).

During a three-month pilot-study, we evaluated the effect of active participation of a hospital pharmacist in the ICU on medication errors and hospital costs.

Methods

Setting

- adult 32-bed ICU at academic hospital Erasmus MC
- team of 4 (resident) hospital pharmacists, trained at specific aspects of intensive care
- study period: July – September 2011

Medication review

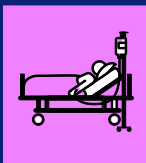
- weekly review of each patient's medication profile
- standardized written form ("checklist")
- potential medication errors discussed during ICU round

Medication Reviews



267

medication reviews (MR)



169

patients,
28% > 1 MR



51

ICU rounds
5 pt/round

Business case

- time spent 7.3 hour per week
- 18 hr / week needed for MR 2x / week, plus education
- potential savings: € 70,500 – 190,000 / year

References

- Rivkin et al. J Crit Care 2011
- Kłopotowska et al. Crit Care 2010
- Nuckols et al. Med Care 2008
- Leape et al. JAMA 1999

Conclusions

Participation of a hospital pharmacist in ICU rounds

- improves medication safety;
- can be cost-effective;
- educates doctors on medicines use;
- improves clinical pharmacy skills on intensive care.

The pilot-study and business case have resulted in the involvement of a dedicated hospital pharmacist on the ICU on a long term basis, paid for half time by the ICU.

Interventions

- 60% of medication reviews resulted in at least one intervention
- 90% of the interventions were potential medication errors, 10% questions to the physician
- acceptance rate was 56%, for 14% it is unknown if the intervention was accepted

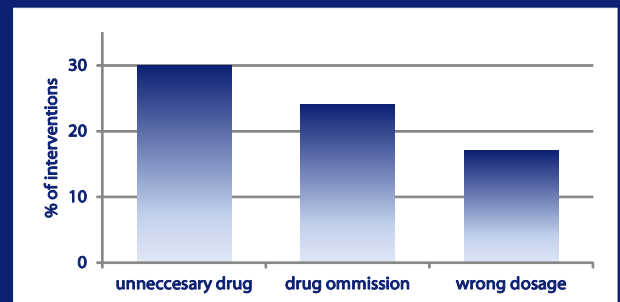


Figure 1. Top 3 intervention categories

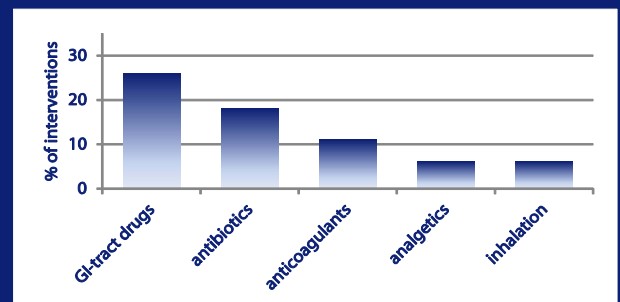


Figure 2. Top 5 drug classes for which interventions were made

- Top 5 drugs for which interventions were made: laxatives, nadroparin, erythromycin, bisacodyl and propofol.