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P106 IMPACT OF A COMPUTERISED PHYSICIAN ORDER ENTRY SYSTEM ON MEDICATION SAFETY IN PAEDIATRICS

S Wimmer*, I Toni, R Trollmann, W Rascher, A Neubert. *Department of Peadiatrics and Adolescent Medicine, Universitätsklinikum Erlangen, Erlangen, Germany*

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Background One of the most critical steps in the medication process on paediatric wards is the drug prescription.[1] Studies have shown that the use of electronic systems may improve the quality of prescribing and reduces medication errors in paediatric inpatients.[2]

This study aims to investigate the impact of a computerised physician order entry (CPOE) system (incl. decision support for dosing) on adverse drug reactions (ADR) and medication errors (ME) in comparison to paper-based prescribing and documentation.

Methods A prospective pre-post study was conducted at a general paediatric ward. All patients aged 17 years or younger that were treated for at least 24 hours during the study periods (5 months pre and post implementation) were observed. Adverse events were identified by intensive chart review.

The primary outcome measure was the incidence of clinically relevant ADRs and MEs. Events were assessed regarding causality (WHO), severity (WHO and additionally Dean & Barber for MEs) and preventability (Shumock).[3]

Results 338 patients with medication were included in the paper-based prescribing cohort (phase I) and 320 patients with medication in the electronic prescribing cohort (phase II). Median age was 7 (IQR 2 - 14) and 6 (IQR 1 - 13), respectively. In each cohort patients received a median number of 4 different drugs.

Potentially harmful MEs were less often observed in the cohort with electronic prescribing (n=231 vs. n=549). The mean number per patient significantly decreased from 1.62 to 0.72 ($p< 0.05$).

During the hospitalisation 2.1% (n=7) patients in phase I and 2.8% (n=9) in phase II experienced clinically relevant ADRs whereof two (0.6%) in each cohort originated from MEs.

Conclusion The implementation of a CPOE system significantly reduces medication errors, particularly those potentially harming patients but has less impact on ADRs.

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P107 HOW SIGNIFICANT IS THE LACK OF FORMULATIONS FOR PAEDIATRIC INPATIENTS?

J Zahn*, W Rascher, A Neubert. *Department of Paediatrics and Adolescent Medicine, Universitätsklinikum Erlangen, Erlangen, Germany*

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Background Pharmacotherapy in children is complex requiring individual dosages of an active substance which are often not compatible with commercially available medicinal products.[1–2] Manipulations of medicinal products, e.g. splitting or mortaring of tablets are common practice and often unavoidable although they entail risks for the patient as they can affect dosing accuracy, bioavailability and integrity of the dosage form.[3–4]

In this study we aim to determine how many medicines have to be manipulated before administration in a hospital setting in Germany.

Methods A prospective observational approach was used to determine all manipulations of drugs orally administered on two wards of a German children´s hospital. A pharmacist systematically observed the nurses and documented all steps of the medication preparation processes for 7 days. Data was analysed using descriptive analysis. Types of manipulations were evaluated on the basis of the relevant summary of product characteristics (SmPC).

Results During the pilot phase 170 medication preparation processes were monitored. In 36,5% (n=62) of the observed processes medicines had to be manipulated. 54,3% (n=19) of the patients were affected by at least one manipulation. 48,4% (n=30) of all manipulations were unauthorized by the relevant SmPC affecting 37,1% of the patients. In 60,0% the reason for unauthorized manipulation was unsuitable strength of the available formulation. Dosage forms affected by unauthorized manipulations were tablets (n=28) and granules (n=2). Active substances most frequently involved in unauthorized manipulations were Omeprazole (n=11), Phenobarbital (n=7) and Topiramat (n=3).

Conclusion Overall, these results reveal that manipulations to medicines prior to administration are frequent on paediatric wards in Germany. About half of the manipulations are unauthorized indicating that no suitable paediatric formulation is available. Further investigation is needed to determine the preventability and the risks associated with the overall aim of improving safety of drug therapy in children.

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