

Patricia Weber^{1,2}, Carla Meyer-Masseti^{1,2}, Susanna Kussmann³, Christoph R. Meier^{2,4}

1 Center for Hospital Pharmacy, Cantonal Hospital of Lucerne, Lucerne, Switzerland

2 Clinical Pharmacy & Epidemiology, Department of Pharmaceutical Sciences, University of Basel, Basel, Switzerland

3 Swiss Association of Public Health Administration and Hospital Pharmacists, GSASA, Berne, Switzerland

4 Hospital Pharmacy, University Hospital of Basel, Basel, Switzerland

Handling of parenteral drugs in Swiss hospitals – a systematic analysis and potential improvement strategies

Background:

Medication errors with parenteral drugs can seriously harm patients. To identify problems within the medication process with parenteral drugs the society of Swiss Hospital Pharmacists GSASA has developed the “Parenteralia Self Assessment Tool (PSAT)” project. The most fatal medication errors are those concerning high-alert medications, nevertheless the Swiss practice is still lacking a consistent definition of these potent and risky medications.

Objectives:

In the scope of a master’s thesis the PSAT completed by Swiss hospitals was analysed in order to identify national parenteral drug-related safety hotspots.

Evidence-based interventions addressing these hotspots were identified through a systematic literature review, complemented by practice-based approaches gathered through structured interviews in Swiss hospitals. Furthermore the lacking consistent definition of high-alert medications was addressed.

Results:

The analysis of 18 completed tools revealed eight national hotspots. These concern (1,2) medication preparation areas; (3) lacking definitions of minimum/maximum dosages; (4) the implementation of double checks to verify pump-programming; (5) regular clinical pharmacy services including (6) documentation and (7) the education program of institutions (e.g., (8) medication safety orientation of new employees).

The systematic literature review provided 40 studies with potentially helpful interventions to rectify the hotspots. Additionally several guidelines and recommendations concerning patient or medication safety from different national and international organisations could be found. Through structured interviews in six hospitals, useful practice-based approaches were identified. A list of parenteral high-alert medications was created to be used in Swiss hospitals as well as a matrix to estimate the potential risk of additional potentially risky medications.

An educational PowerPoint® presentation was compiled to provide information about the PSAT-project, its results and the problems with high-alert medications to any interested hospitals.

Conclusion:

The PSAT-project proved to be a useful tool to identify hotspots in the parenteral medication process in Switzerland. Limited literature made it difficult to find evidence-based interventions. Due to the poor overall evidence no particular intervention could unequivocally be recommended for the hotspots. Nevertheless several interesting approaches were identified and two auxiliaries addressing the identification of high-alert medications were created.