

Medication reconciliation in emergency department - development of a prioritizing model

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Background:

Due to the acute, hectic environment in a fast-paced work-flow emergency department (ED) it is a challenge to verify the correct and updated medication list for the admitted patients. When performing medication reconciliation (MR) in this environment, these challenge has to be taken into account and prioritizing patients for MR could be necessary.

Objective:

Identify risk factors correlated to clinical relevant medication discrepancies (crMDs) among patients admitted to ED, and based on these revealed risk factors, develop a model for prioritizing patients for MR in the fast-paced work-flow at the ED.

Design:

276 patients included at the ED, Diakonhjemmet Hospital (DH), Oslo, Norway. Trained pharmacists and one emergency nurse conducted MR.

Patient specific factors and revealed crMDs, between hospital admission records and information about prehospital medication use, were recorded.

Binary linear regression was used to identify risk factors correlated to crMDs. The fitness of the model was tested using a ROC curve analysis. When building the prioritizing model clinical utilization was emphasized in addition to statistics.

Results:

1) Identifying risk patients

- 62 % of the patients had ≥ 1 crMD
- The following were identified as risk factors correlated to crMD and were suitable for inclusion in the prioritizing model;
 - gender (woman)
 - age (≥ 60)
 - ≥ 1 admission to hospital last 12 months
 - admission causes; surgical, malfunction, cancer

2) Building the prioritizing model

- The ROC analysis revealed which combinations of the four risk factors results in patients being classified as a high-risk patient (a probability for having a crMD higher than the cut-off value of 0.57)
- Figure 1 summarizes the high-risk patients classified by the ROC-analysis. The area under curve (AUC) value of the ROC curve is 0.7 (P = 0.00)
- The model correctly classified 76.1 % of the patients with crMDs as high risk
- Further, 23.9 % of the patients with crMDs were classified by the model as low-risk patients (false negatives)
- The model classified 27.1 % of the patients who did not have a crMD as high-risk patients (false positives)

Read more: Damlien L., Davidsen N., Nilsen M., Godø A., Moger T.A., Viktil K.K. Drug Safety at admission to Emergency Department - an innovative model for PRIOritizing patients for MEdication Reconciliation (PRIOMER). *Eur J Emerg Med.* 2015 Dec 11. [Epub ahead of print]

Conclusion:

The prioritizing model developed can be helpful in identifying which patients are at increased risk of having crMDs in the fast-paced work-flow at the ED. Identifying these patients will result in using the resources available in the ED in the most efficient manner and utilizing the full potential of the MR method. As a consequence of this, patient safety will be increased.



Photo: Diakonhjemmet Hospital

Figure 1. Summarizes which patients who are at high risk of clinical relevant medication discrepancies at admission to the emergency department. These patients should be prioritized for medication reconciliation.

