

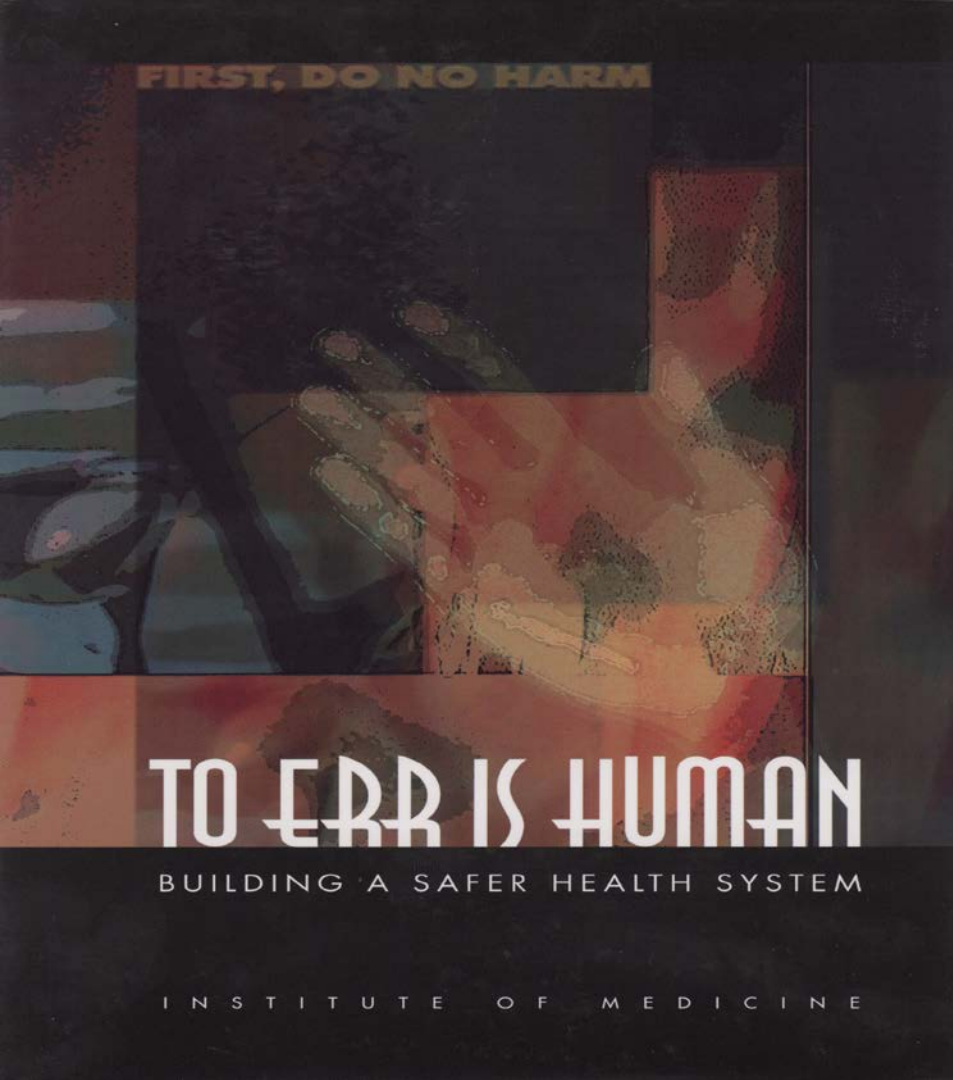
Monitoring von unerwünschten Arzneimittelereignissen – für Klinik, Qualitätsmanagement und Pharmakovigilanz

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- studies in Colorado and Utah and in New York (1997)
 - errors in the delivery of health care leading to the death of as many as 98,000 US citizens annually
- causes of errors
 - error or delay in diagnosis
 - failure to order indicated tests
 - use of outdated tests or therapy
 - failure to act on results of testing or monitoring
 - error in the performance of a test, procedure, or operation
 - error in administering the treatment
 - error in the dose or method of using a drug
 - avoidable delay in treatment or in responding to an abnormal test
 - failure to provide (indicated) care
 - failure in communication
 - equipment failure
- prevention of errors
 - we must systematically design safety into processes of care

PREVENTING MEDICATION ERRORS



QUALITY CHASM SERIES

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

Improving Medication Use and Outcomes with Clinical Decision Support: A Step-by-Step Guide

EDITED BY Jerome A. Osherooff, MD, FACP, FACMI



HIMSS

Institute for Safe Medication Practices
a nonprofit organization

SCOTTSCALE INSTITUTE
The Institute for Innovation & Evidence in Software Management

ASHP
American Society of Health-System Pharmacists

AMA American Medical Association
The professional home for biomedical and health informatics

AMDIS

iMedication—the project

- An intelligent cockpit to identify and monitor adverse drug events (ADEs)
 - continuous monitoring of medication risks
 - + for the ward
 - support of the review process of possible ADEs
 - + for the medication safety commission
 - + for pharmacovigilance reporting
 - FIT-IT Semantic Systems (October 2010 – November 2012)
 - Project partners
 - Salzburg Research Forschungsgesellschaft (coordinator)
 - Salzburger Landeskliniken (SALK)
 - Paracelsus Medizinische Privatuniversität – Institut für Allgemein-, Familien- und Präventivmedizin
 - Medexter Healthcare GmbH
 - Landesapotheke am St. Johannis Spital (LAPO)
-

ADE triggers

- triggers are—in certain combinations—indicators for possible ADEs (after [1])
- triggers are
 - laboratory test results
 - symptoms
 - diagnoses
 - medications
 - hospital events

[1] Morimoto, T., Gandhi, T.K., Seger, A.C., Hsieh, T.C., Bates, D.W. (2004) Adverse drug events and medication errors: detection and classification methods. *Quality & Safety in Health Care* 13(4), 306–314.



Application areas, knowledge bases, and risk score calculation

hyponatremia, hyperkalemia, overanticoagulation, renal insufficiency

trigger

risk score calculation

possible ADE

messages





Example hyperkalemia (excerpt)

category	trigger	risk score
laboratory test result	serum potassium > 5 mmol/l	3
symptom	amyosthenia	1
medication	trimethoprim (ATC: J01EA01)	1
diagnosis	kidney insufficiency (ICD: N17-N19)	2
...

Reporting—Excerpt for hyperkalemia with an ADE risk score 4

Empfänger	Meldung
SALK	<p>iMedication-UAW-Hinweis: Bei Patient <i>NAME (BIRTHDATE)</i> besteht ein erhöhtes Risiko für eine medikamentenbedingte Hyperkaliämie. ADE-Risk-Score: <i>ADE SCORE</i>.</p> <p>Folgende Medikamente können potentiell zu erhöhtem Kaliumspiegel führen: <i>TRIGGERMEDICATION</i>.</p> <p>Empfehlung: Serumkaliumkontrolle, Medikamentencheck, Kontaktaufnahme mit (<i>CONTACT DATA LAPO</i>).</p>
LAPO	<p>iMedication-UAW-Hinweis: Bei Patient <i>NAME (BIRTHDATE)</i> besteht ein erhöhtes Risiko für eine medikamentenbedingte Hyperkaliämie. ADE-Risk-Score: <i>ADE SCORE</i>.</p> <p>Folgende Triggerfaktoren wurden ermittelt: <i>TRIGGERLIST</i></p>

Made-Worklist

vom  bis 

Stat. 123

Stat. 456

Pat. 111

Pat. 222

2014-04-28 16:15: Überantikoagulation: 5,5 Score

Pat. 333

Pat. 444

Made-Cockpit

vom bis anzeigen

Station / Patient	Pat. 222	Überantikoagulation								
Stat. 123	<ul style="list-style-type: none"> ▶ 2014-04-29 (Stat. 456) ▶ <input checked="" type="checkbox"/> 2014-04-28 (Stat. 456) 	2014-04-28 16:15: Überantikoagulation: Dosierung anpassen bzw. Vitamin-K-Gabe, Begleitmedikation überprüfen.								
<input checked="" type="checkbox"/> Stat. 456	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Überantikoagulation 5,5 Score ▶ INR > 5 ja ▶ Vorhofflimmern ja ▶ tiefe Beinvenenthrombose ja ▶ Lungenembolie ja ▶ INR 5,2 ▶ (gastrointestinale) Blutungen 100 %DoC ▶ Coumarin ja ▶ ▶ 2014-04-27 (Stat. 456) 									
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