# Open Mind
## Für den Closed Loop

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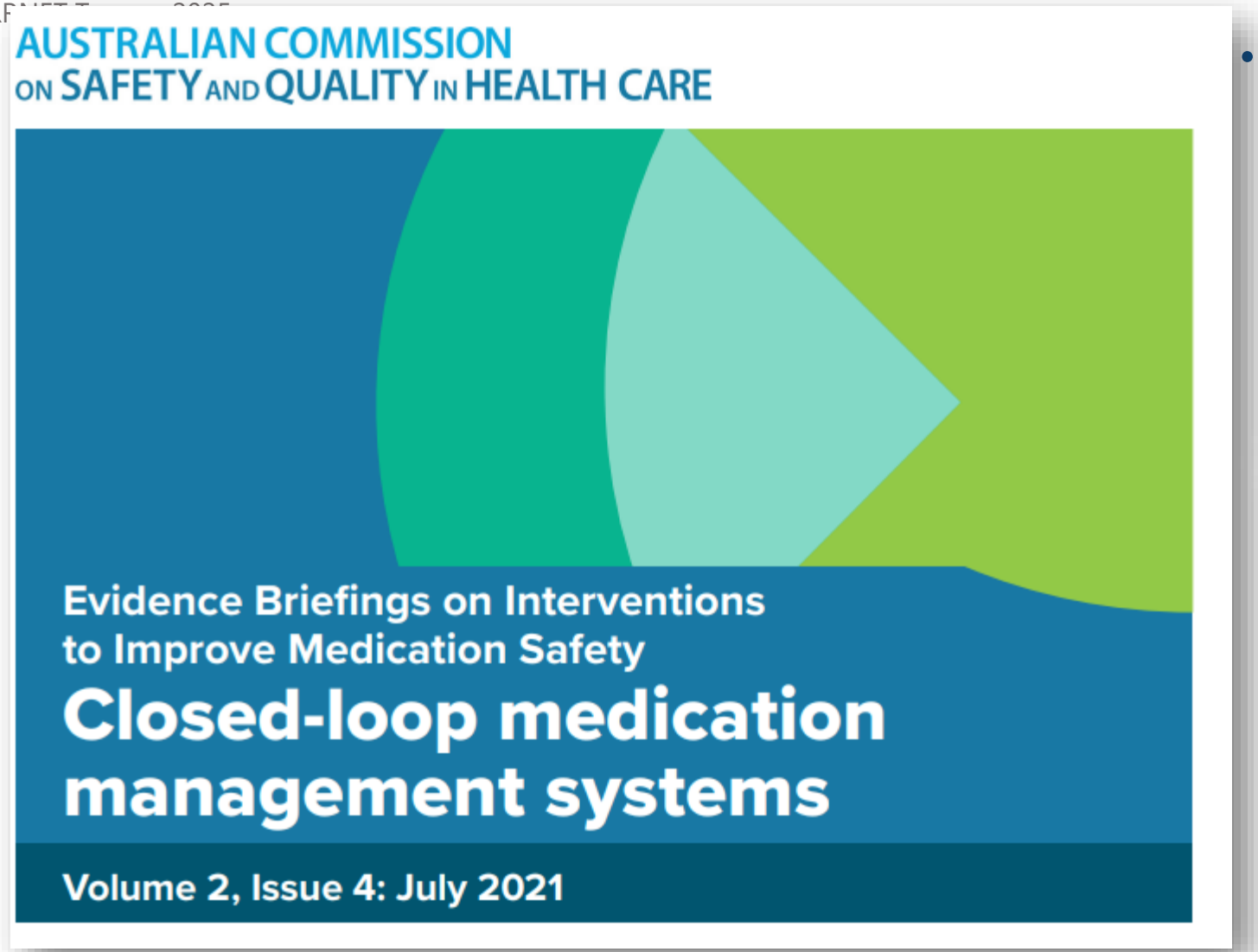
spitalSTSAG




## Current evidence shows

To date there have been relatively few comprehensive evaluations of closed-loop medication systems and their effects. Available study findings suggest closed-loop medication management systems have the potential to reduce dispensing and medication administration errors, though the impact across error types may not be uniform. There is also some evidence that closed-loop systems may facilitate reduced medication turnaround time and may facilitate a reduction in the time taken to administer a medication. However, existing studies are highly specific to individual systems evaluated.

## Lessons learned from implementation

- Implementing a CLMMS requires significant testing prior to going live, particularly to ensure seamless integration between the individual system components. Difficulties may occur in communication between information technology professionals with a technical approach and clinical staff with a medical approach to the system.[31]
- The Society of Hospital Pharmacists of Australia recently highlighted the need for consistent manufacturer barcoding on medications available in Australia, and the need for regulatory support from the Therapeutic Goods Administration in this regard. In the absence of these elements, closing the medication loop, particularly with unit dose barcoding systems, is not a feasible solution for most Australian hospitals.[15]

# Die Spital Simmental-Thun-Saanenland AG

- Betten 280
- Inpatients/a 17’800
- Outpatients/a 75’000
- Vollzeitstellen 1’590
- Pflegetage 80’000

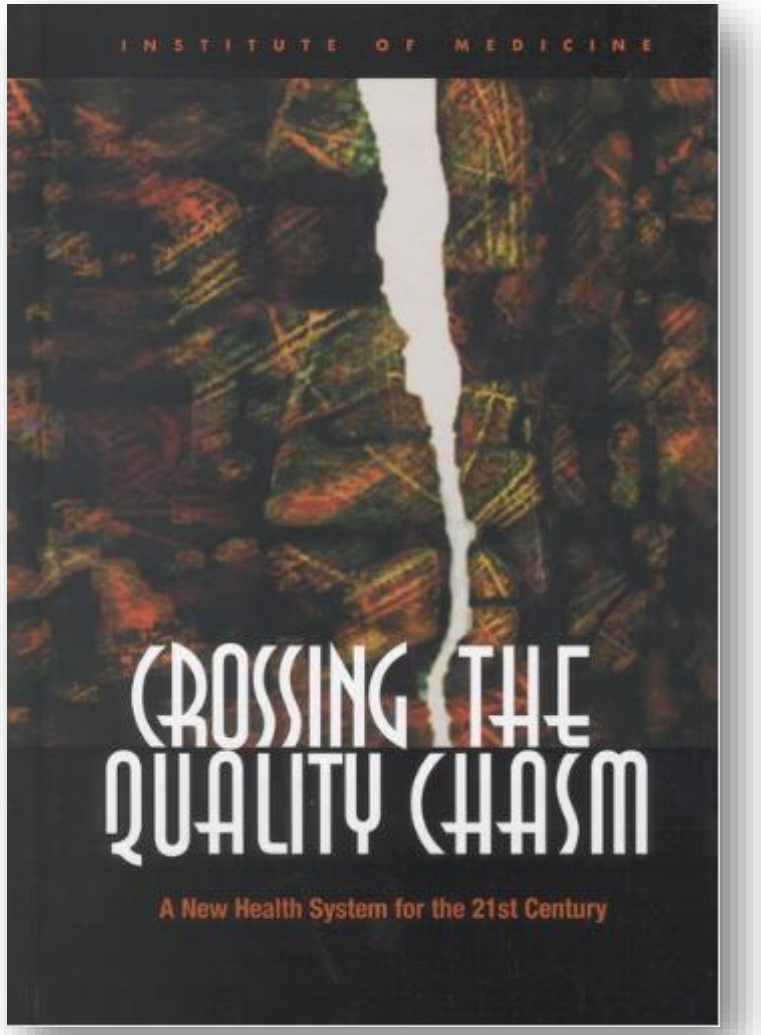
| STAGE | HIMSS Analytics EMRAM<br>EMR Adoption Model Cumulative Capabilities |
|---|---|
| 7 | Complete EMR: external HIE, data analytics, governance, disaster recovery, privacy and security |
| 6 | Technology enabled medication, blood products, and human milk administration; risk reporting |
| 5 | Physician documentation using structured templates; full CDS; intrusion/device protection |
| 4 | CPOE; CDS (clinical protocols); Nursing and allied health documentation; basic business continuity |
| 3 | Nursing and allied health documentation; eMAR; role-based security |
| 2 | CDR; Internal interoperability; basic security |
| 1 | Ancillaries - Lab, Rad, Pharmacy, PACS for DICOM & Non-DICOM - All Installed |
| 0 | All Three Ancillaries Not Installed |

2012-

# Digitales Gesundheitswesen

| | |
|---|---|
| Geht das? | Machbarkeit |
| Sollten wir? | Ethik |
| Dürfen wir? | Compliance |
| Lohnt es sich? | Nutzen |

# Simple rules for complex adaptive systems




2.1
2.2
3

# Interface, Support, Stabilität

Key points

- Keine Insellösungen (KIS mit CPOE mit MDS mit HIS/PIS mit Lab)
- Reguläre Meetings! Support!
- Bindeglied zwischen Informatik und Klinik: Medizininformatiker
- Hohe Anforderungen an die Stabilität und Ausgestaltung der elektronischen Lösung („prescriptions should only live once...“)
- Finanzierung

# Zwischenbilanz

Key points

- Elegante Verknüpfung mit Prozessoptimierung bei der Medikation
- Hohe Akzeptanz bei der Pflege
- Steigende Akzeptanz bei der Ärzteschaft
- Problemloser Einsatz im klinischen Alltag eines lebhaften Akutspitals
- iterativer Prozess zur Weiterentwicklung des kombinierten Systems

# Zukünftige Ansichten aktueller Gewohnheiten

The End

„Prescribing medications on a blank piece of paper will soon seem as antiquated as ordering tinctures of botanicals in Latin“

G.Schiff

# Kehrseite der Medaille

Key points

- Hoher personeller Aufwand (Entwicklung, Kontrolle, Schulung)
- Degradierte Koordination zwischen Ärzteschaft und Pflege: privatisierte Information, die bislang „öffentlich" zugänglich war
- Erhöhte Priorisierung von monitorisierten Aktivität während Zielkonflikten
- Strom- und Netzwerkpannen, Backups? Schriftliche Sicherheiten ? Abhängigkeit vom Patientenadministrationssystem fast am höchsten
- Finanzierung?

# Evidence-based Medical Informatics

ELSEVIER

International Journal of Medical Informatics 55 (1999) 87–101

International Journal of Medical Informatics

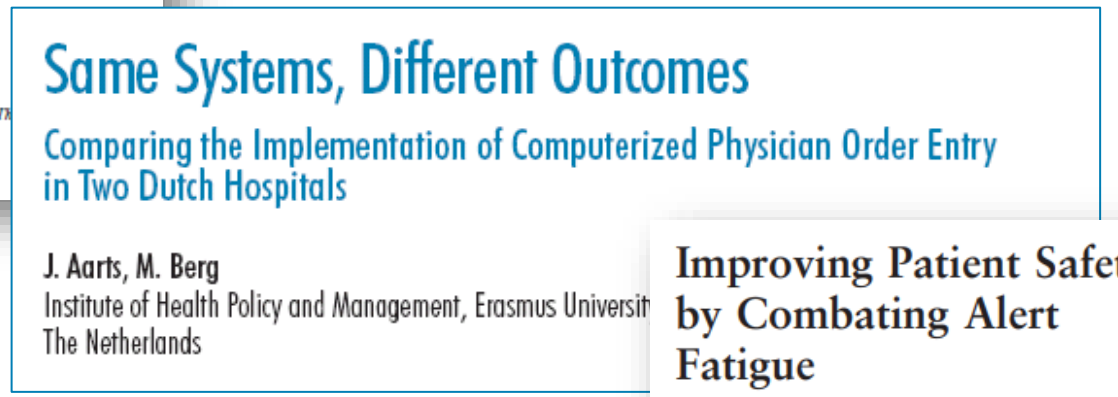
www.elsevier.com/locate/ijmedinf

Patient care information systems and health care work: a sociotechnical approach

Marc Berg *

*Institute of Health Policy and Management, Erasmus University Rotterdam, P.O. Box 1738, 3000 DR Rotterdam, Th*

Received 9 November 1998; received in revised form 20 January 1999; accepted 25 January 1999



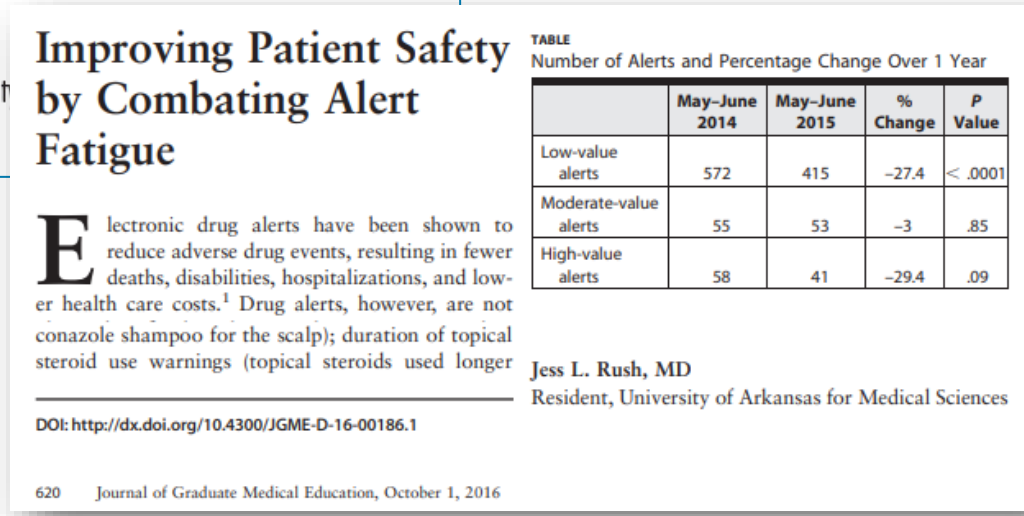
Same Systems, Different Outcomes

Comparing the Implementation of Computerized Physician Order Entry in Two Dutch Hospitals

J. Aarts, M. Berg

Institute of Health Policy and Management, Erasmus Universit

The Netherlands



Improving Patient Safety by Combating Alert Fatigue

Electronic drug alerts have been shown to reduce adverse drug events, resulting in fewer deaths, disabilities, hospitalizations, and lower health care costs.[1] Drug alerts, however, are not conazole shampoo for the scalp); duration of topical steroid use warnings (topical steroids used longer

TABLE

Number of Alerts and Percentage Change Over 1 Year

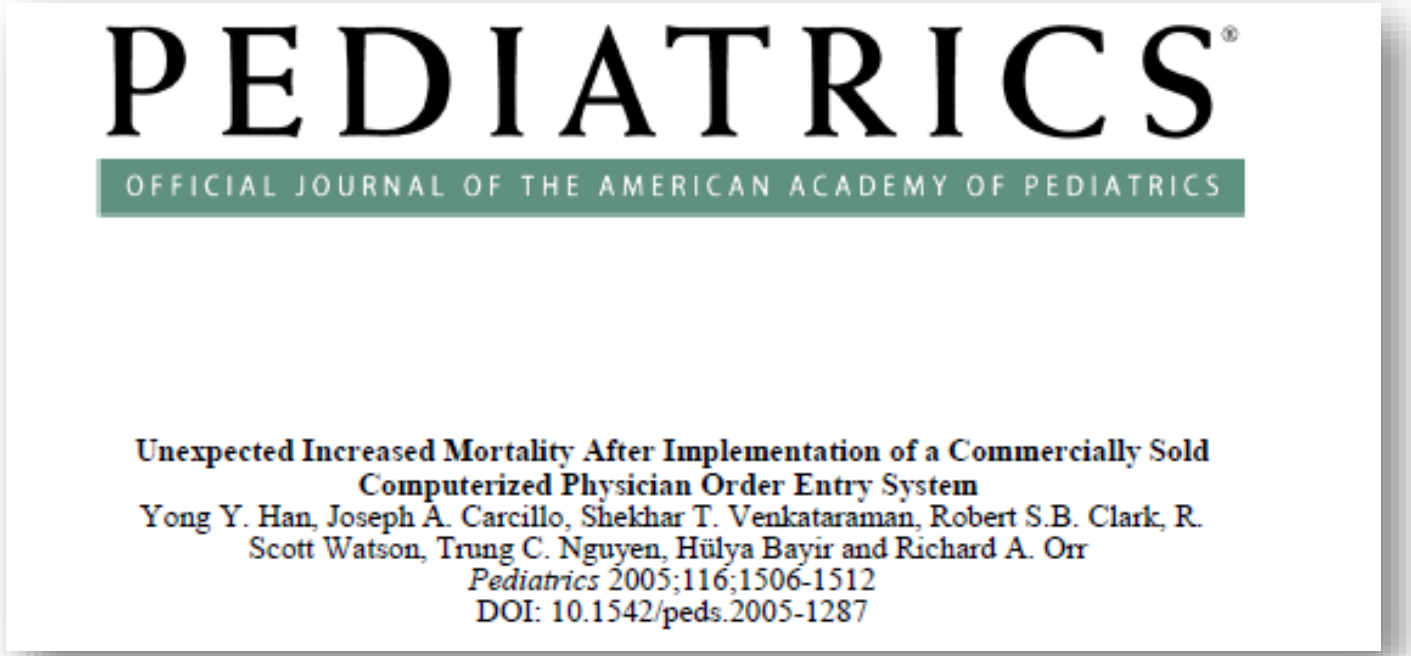
| | May–June 2014 | May–June 2015 | % Change | *P* Value |
|---|---|---|---|---|
| Low-value alerts | 572 | 415 | −27.4 | < .0001 |
| Moderate-value alerts | 55 | 53 | −3 | .85 |
| High-value alerts | 58 | 41 | −29.4 | .09 |

Jess L. Rush, MD

Resident, University of Arkansas for Medical Sciences

DOI: http://dx.doi.org/10.4300/JGME-D-16-00186.1

# Soziotechnische Aspekte



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

**Unexpected Increased Mortality After Implementation of a Commercially Sold Computerized Physician Order Entry System**

Yong Y. Han, Joseph A. Carcillo, Shekhar T. Venkataraman, Robert S.B. Clark, R. Scott Watson, Trung C. Nguyen, Hülya Bayir and Richard A. Orr

*Pediatrics* 2005;116;1506-1512

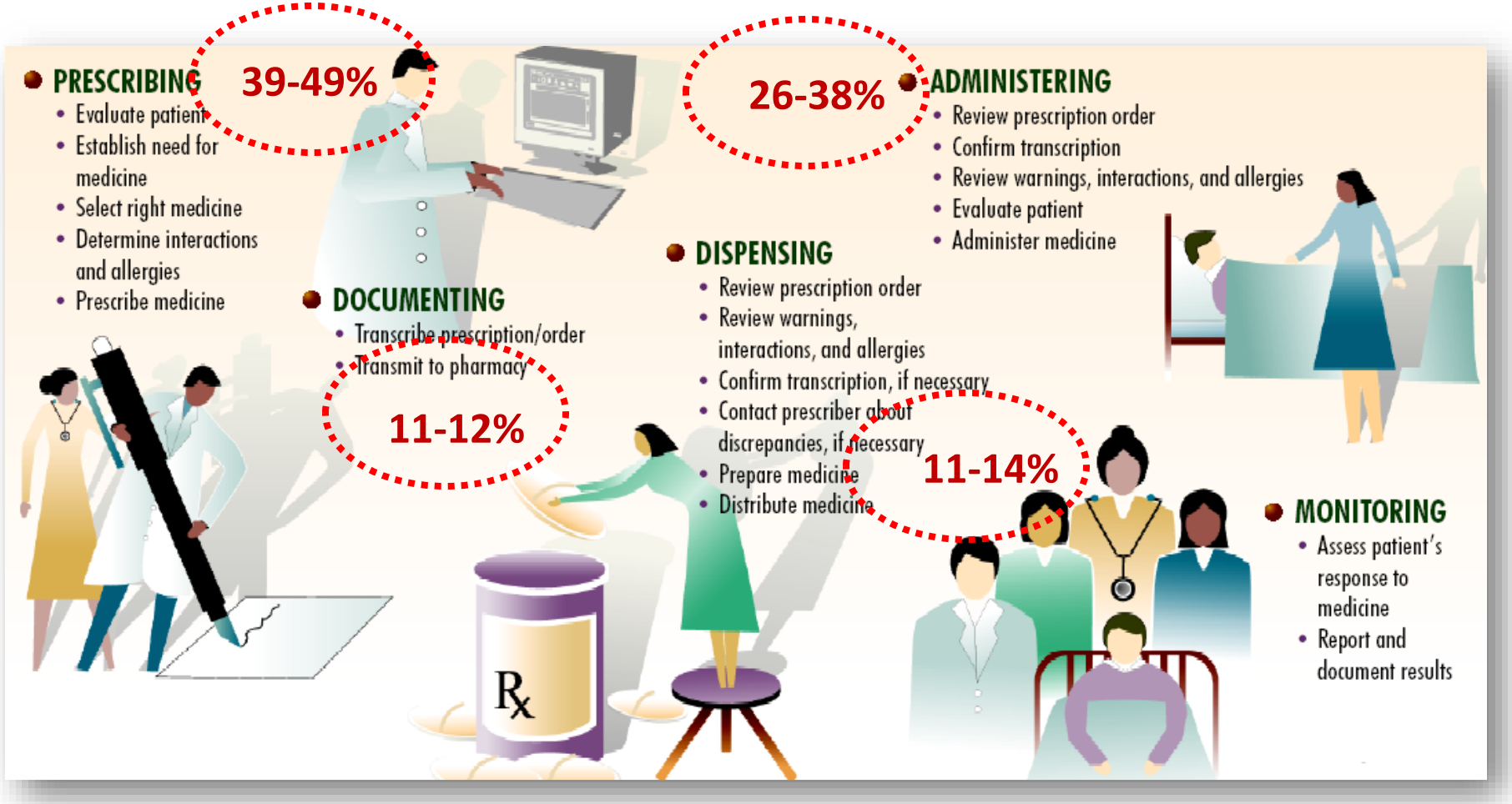
DOI: 10.1542/peds.2005-1287

«Health informatics is as much about computers as cardiology is about stethoscopes."

Enrico Coiera, MD PhD

# EBMI- Lessons learned

- Literatur zur eMedikation seit 20 Jahren erschöpfend
- IT-Mittel reduzieren UND produzieren/provozieren Fehler
- «Passform» der Implementation im Hinblick auf Workflows und Prozesse ist entscheidend
- Effizienz- vs. Transformationstechnologie: cave!
- Standardisierungen, Interoperabilität und Automatisation sind wichtig, aber bitte ‘flexibel’
- «Key people»/Mediatoren sind entscheidend
- Tests, Anpassungen, Schulungen: sind nie erledigt


PRESCRIBING
39-49%
Evaluate patient
Establish need for medicine
Select right medicine
Determine interactions and allergies
Prescribe medicine
DOCUMENTING
Transcribe prescription/order
Transmit to pharmacy
11-12%
DISPENSING
Review prescription order
Review warnings, interactions, and allergies
Confirm transcription, if necessary
Contact prescriber about discrepancies, if necessary
Prepare medicine
Distribute medicine
26-38%
ADMINISTERING
Review prescription order
Confirm transcription
Review warnings, interactions, and allergies
Evaluate patient
Administer medicine
11-14%
MONITORING
Assess patient's response to medicine
Report and document results
Rx

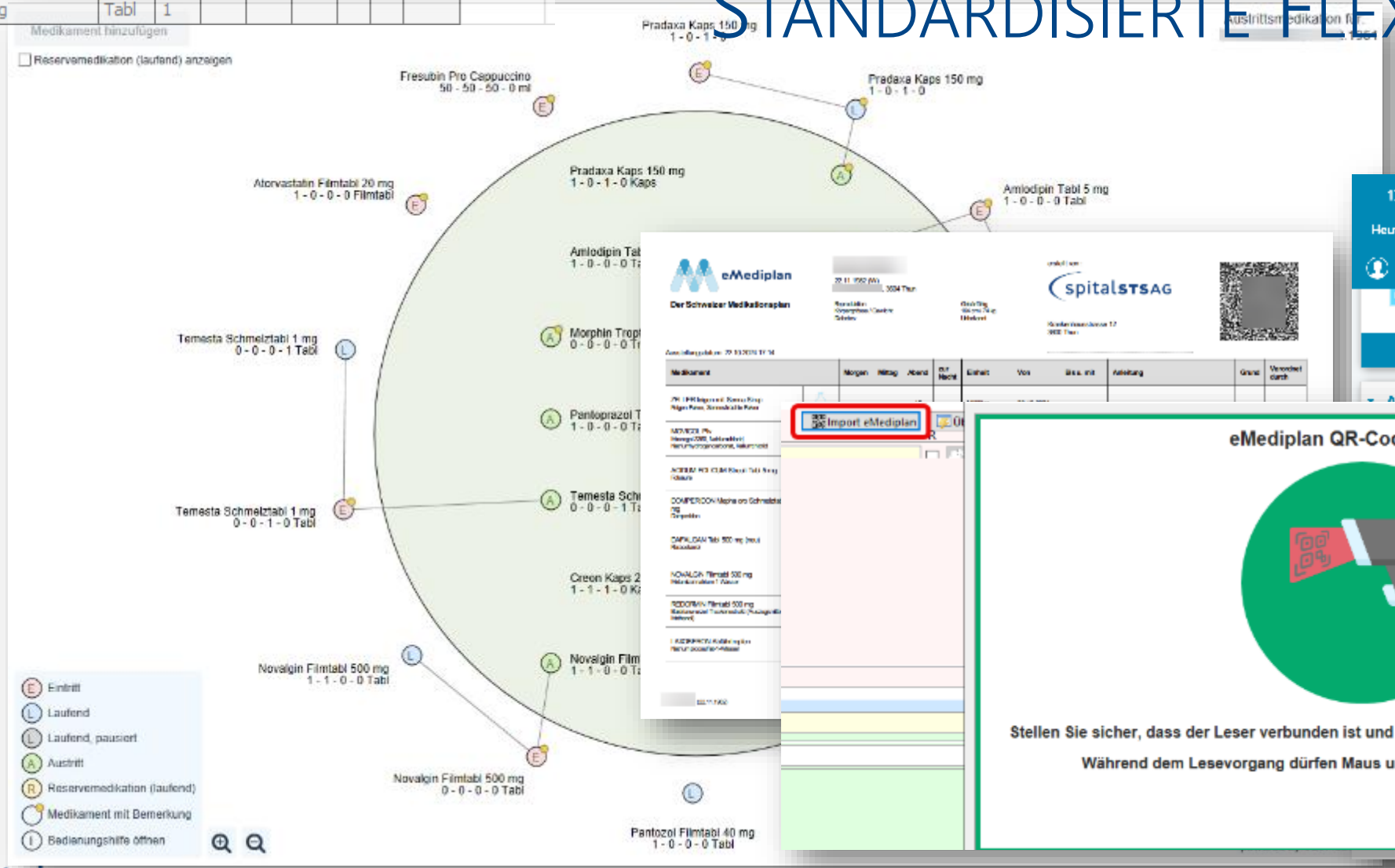
# Standardisierte Flexibilität

Standard

| Start | Medikamente | AF | Mo | Mi | Ab | Na | DS | | Stop | 31.08 |
|---|---|---|---|---|---|---|---|---|---|---|
| 31.08 | Creon Kaps 25000 | Kaps | 1 | 1 | 1 | | | | | 3 |
| 31.08 | Pradaxa Kaps 150 mg | Kaps | 1 | | 1 | | | | | 2 |
| 02.09 | Novalgin Filmtabl 500 mg | Tabl | 1 | 1 | | | | | | |
| 04.09 | Amlodipin Tabl 5 mg | Tabl | 1 | | | | | | | |

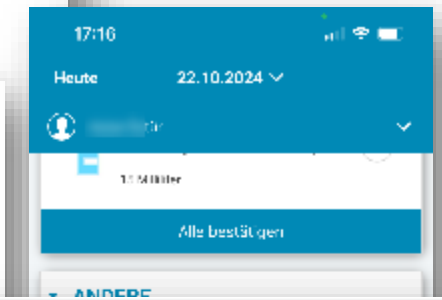
Medikament hinzufügen

Reservemedikation (laufend) anzeigen

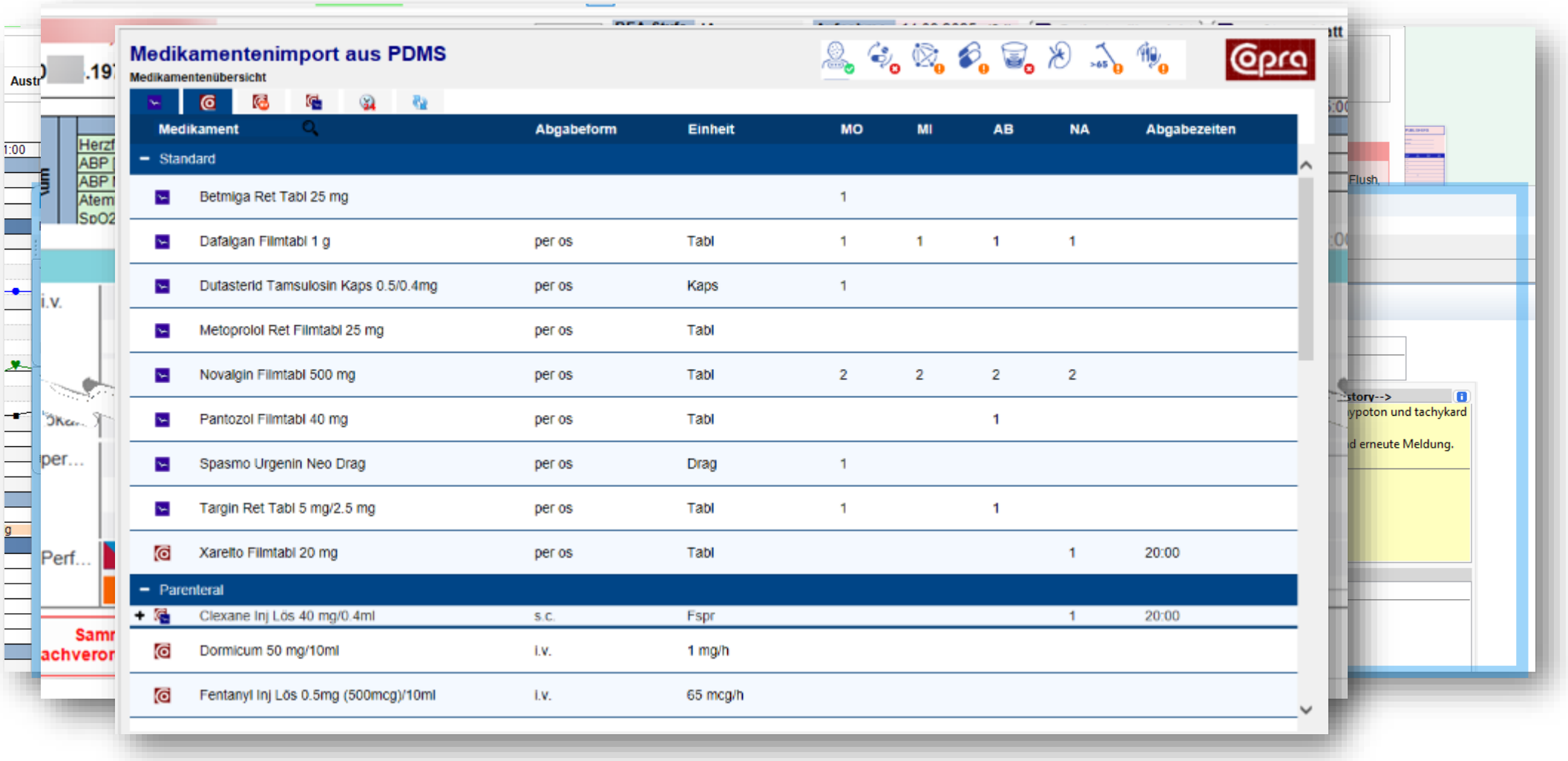


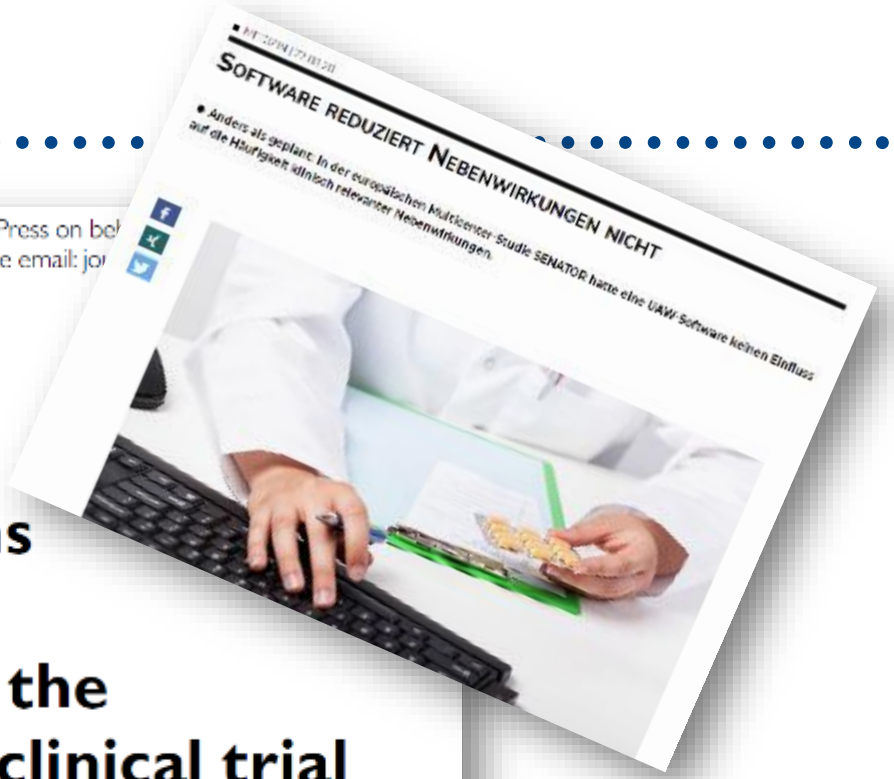






# Monolith or Best-of-Breed: Deal with it !






*Age and Ageing* 2020; **49:** 605–614
doi: 10.1093/ageing/afaa072
Published electronically 2 June 2020



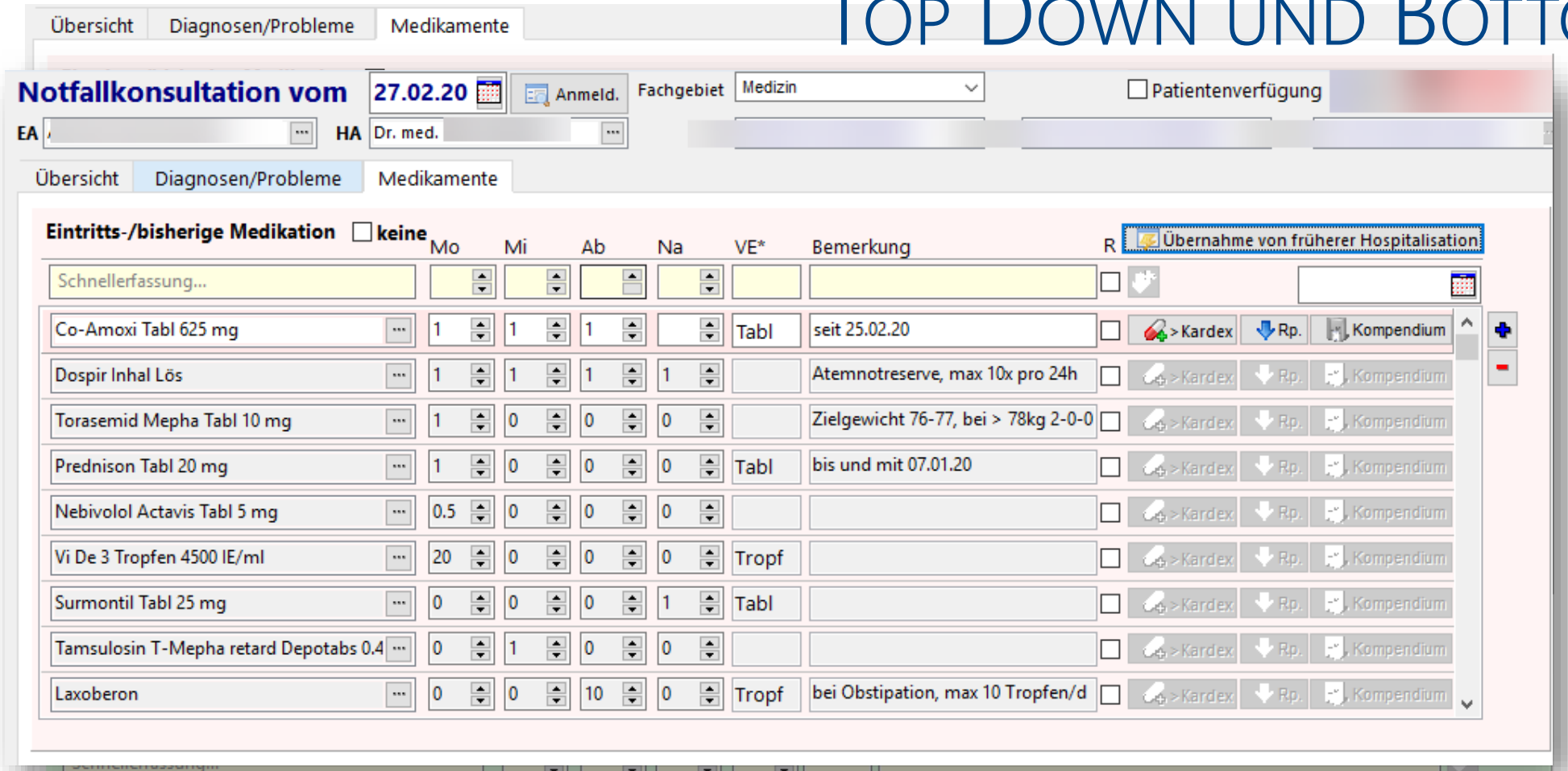
**RESEARCH PAPER**

# Prevention of adverse drug reactions in hospitalized older patients with multi-morbidity and polypharmacy: the SENATOR* randomized controlled clinical trial

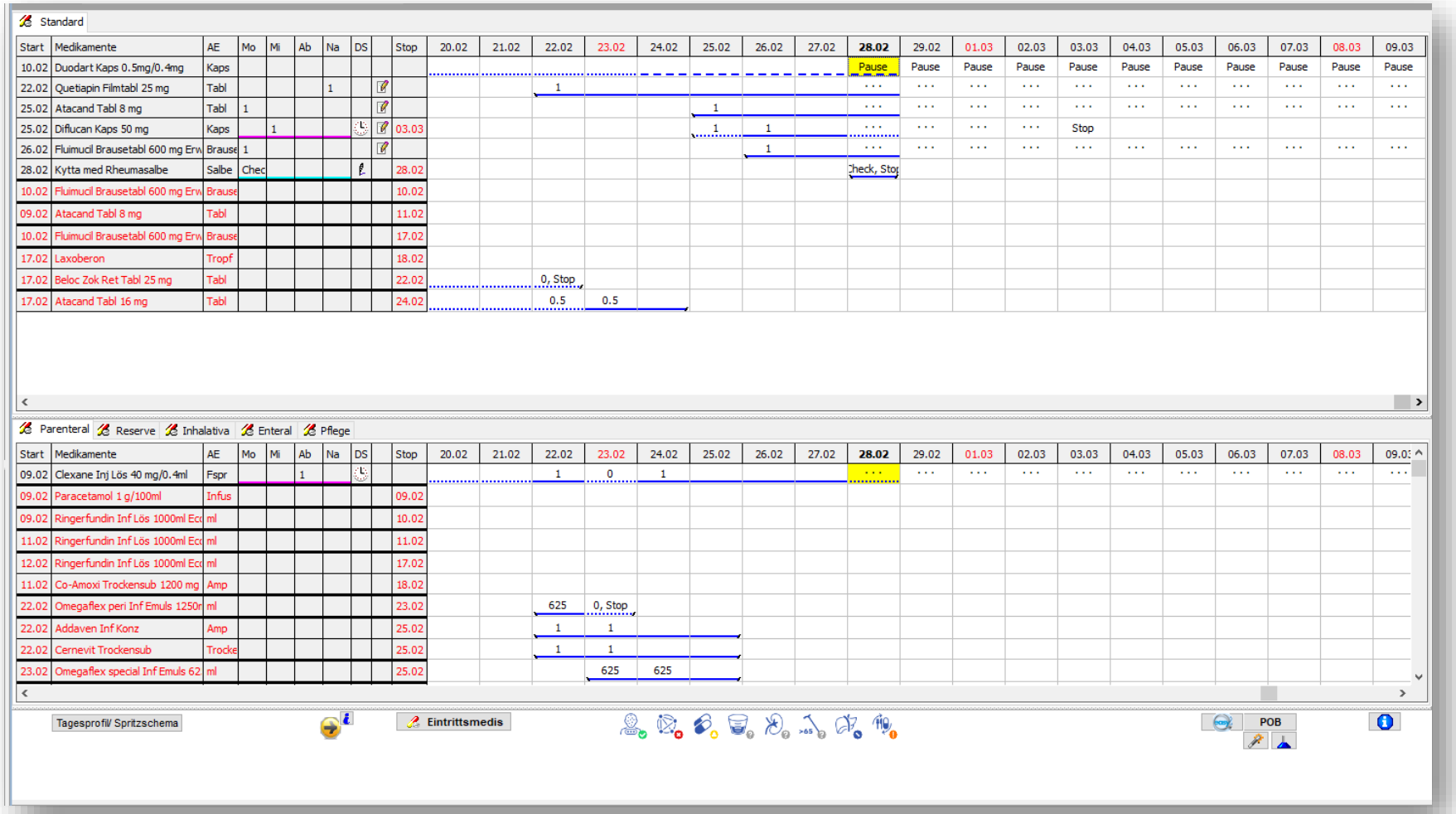
Denis O'Mahony[1], Adalsteinn Gudmundsson[2], Roy L. Soiza[3], Mirko Petrovic[4],

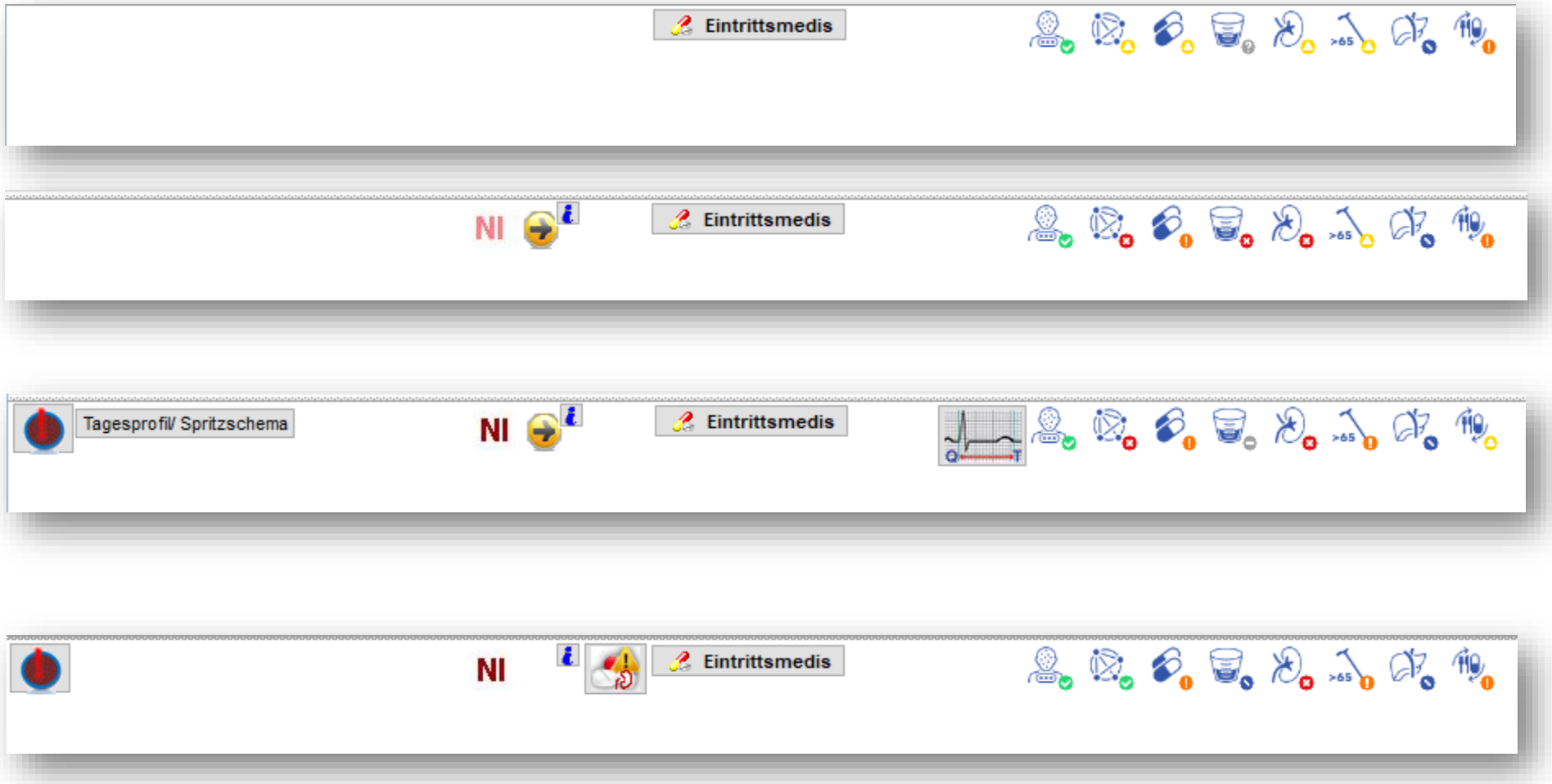
**Results:** For the primary endpoint, there was no difference between the intervention and control groups (24.5 vs. 24.8%; OR 0.98; 95% CI 0.77–1.24; $P = 0.88$). Similarly, with secondary and tertiary endpoints, there were no significant differences. Among attending clinicians in the intervention group, implementation of SENATOR software-generated medication advice points was poor (~15%).
**Conclusions:** In this trial, uptake of software-generated medication advice to minimize ADRs was poor and did not reduce ADR incidence during index hospitalization.

# Top Down und Bottom Up



# IT'S THE FIT THAT MATTERS, NOT THE OUTFIT




Eintrittsmedis
NI
Eintrittsmedis
Tagesprofil/ Spritzschema
NI
Eintrittsmedis
NI
Eintrittsmedis

# Pedantischer Pragmatismus

Standard

| Start | Medikamente | AE | Mo | Mi | Ab | Na | DS | | Stop | 12.09 | 13.09 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.09 | Acidum folicum Tabl 5 mg | Tabl | 1 | | | | | | | 1 | |
| 12.09 | Aldactone Filmtabl 25 mg | Tabl | | | | | | | | 1 | |
| 12.09 | Candesartan Tabl 16 mg | Tabl | | | | | | | | 1 | 0, Pause |
| 12.09 | Metoprolol Ret Filmtabl 100 mg | Tabl | 1 | | | | | | | 1 | |
| 12.09 | Metoprolol Ret Filmtabl 50 mg | Tabl | 1 | | | | | | | 1 | |
| 12.09 | Saroten Filmtabl 25 mg | Tabl | 2 | | | | | | | 4 | |
| 12.09 | Torasemid Tabl 10 mg | Tabl | | 1 | | | | | | 1 | |

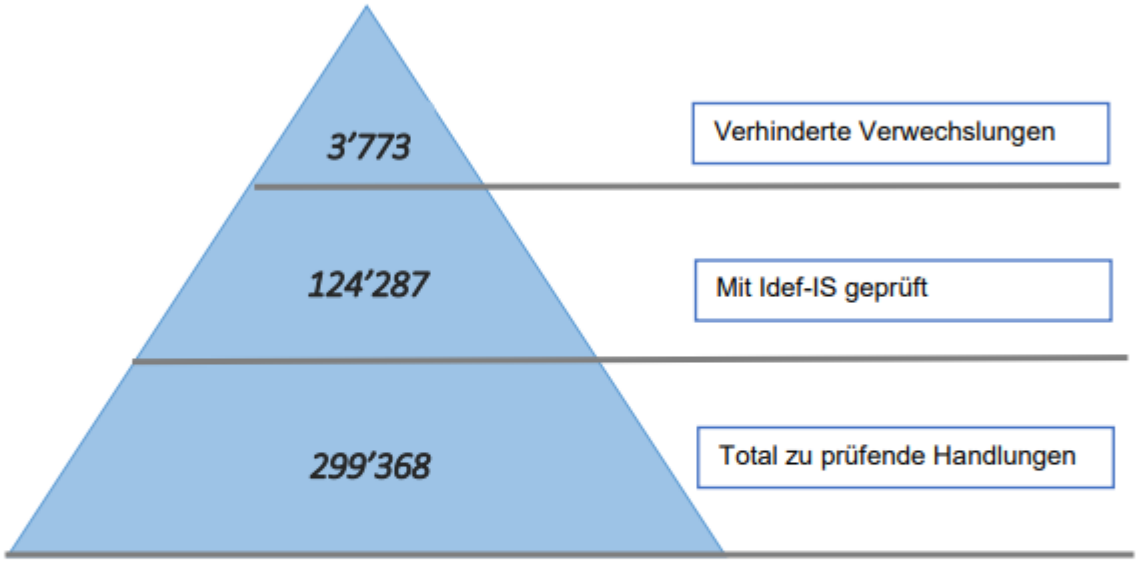

13:06
Marc OERTLE
OBJEKT 1
OBJEKT 2
LÖSCHEN
CODE
054584
RFID
spitalSTSAG
swiss mobile

# LESS IS MORE


Leistungserfassung
Quellen
HOSPIS
Verrechnungskatalog
Objekte
Tabletten
43394 Augmentin; Tabl 1 g Ad; 5 x 20Stk; Stk
43420 Augmentin; Tabl 625 mg Ad; 5 x 20Stk; Stk
41185 Bactrim Forte; Lacktabl; 1 x 20Stk; Stk
41333 Beloc Zok 50; Ret Tabl 50 mg; 1 x 30Stk; Stk
40583 Brufen; Filmtabl 400 mg; 1 x 20Stk; Stk
40283 Brufen; Filmtabl 600 mg; 1 x 20Stk; Stk
40094 Buscopan; Drag 10 mg; 1 x 50Stk; Stk
CHECK!
Bemerkung der Apotheke
14.08 Acidum folicum Tabl 5 mg Tabl 1
14.08 Creon 25'000 Tabl 1
14.08 Eltroxin Tabl 0.05 mg Tabl 1
14.08 Eltroxin Tabl 0.1 mg Tabl 1
14.08 Famvir Tabl 500 mg Tabl 1
14.08 Paspertin Tropfen Tropf 20 20 20 60
14.08 Prednison Tabl 50 mg Tabl 1 24.08
14.08 Ranitidin Mepha Lactabs 150 m Tabl 1 1
14.08 Remeron Tabl 30 mg Tabl 1
Identifikations-Informations-System Idef-IS
RESULTAT
4 011200 298905

# Jahres-Statistik Idef-IS 2024

Spital Thun gesamt




| 2024 | # BE | # BE mit Idef-IS | % | Verhinderte BE-Verwechslungen |
|---|---|---|---|---|
| Total | 30181 | 21053 | 70% | 747 |

| # Transfusionen | # Transfusionen mit Idef-IS | % | Verhinderte Transfusionsverwechslungen |
|---|---|---|---|
| 1455 | 503 | 35% | 4 |

| # Medikationsportionen | # Medi-Portionen mit Idef-IS | % | Verhinderte Medi-Verwechslungen |
|---|---|---|---|
| 267732 | 102731 | 38% | 3022 |

2017-

spitalSTSAG

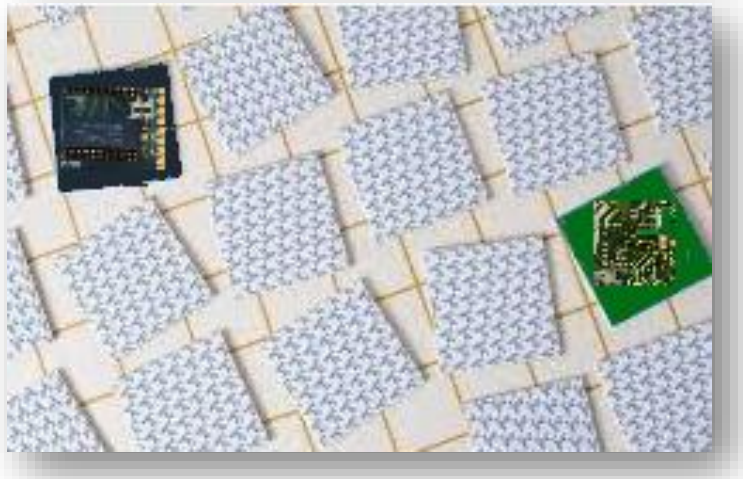
# AUGENMASS

## HIMSS Vorgaben im Bereich klinische Pharmazie

Personell, v.a. aber zeitliche Probleme (7/24, Prozessabläufe)

## Unit Dose Systeme

## Single Dose Prüfung



# «Memories»

## Pedantischer Pragmatismus
## Top Down und Bottom up
## Standardisierte Flexibilität
## Be aware and do not care
## Stabiler change
## Einfache regeln für Komplexe Systeme

# No clicks – just flow

Hintergrundbild: srf.ch/images

SGMI SSIM SSMI
Schweizerische Gesellschaft für Medizinische Informatik
Société Suisse d'Informatique Médicale
Società Svizzera d'Informatica Medica
Swiss Society for Medical Informatics

spitalSTSAG