Dr. Torsten Hoppe-Tichy
Chief Pharmacist
Immediate Past President of ADKA
(German Association of
Hospital Pharmacists)

University Hospital of Heidelberg

Medication Safety in Hospital Pharmacy

FIP 2015, Düsseldorf, Germany

Conflict of Interest Declaration

- In 2014/2015 THT received honorarium for presentations and advisory board meetings from
  - Basilea, Roche, Cogora, SANA, Limbach, ICON, Otsuka, Novartis, Sanofi, B.Braun, BioQuiddity

Agenda

- Structure and Organisation
  - –Supply of drugs into German hospitals
- Safety issues
  - –Purchase for safety, supply for safety
    - Drug shortages
  - –Hospital pharmacy: Measurements and actions to provide drug safety in hospital patients
  - –Current actions in the field of drug safety

Agenda

- Structure and Organisation
  - –Supply of drugs into German hospitals
- Safety issues
  - –Purchase for safety, supply for safety
    - Drug shortages
  - –Hospital pharmacy: Measurements and actions to provide drug safety in hospital patients
  - –Current actions in the field of drug safety
  - –One open question („➜ *health economics*“)

Structure of Pharmaceutical Services in German Acute Hospitals

1.721 acute hospitals
477.736 beds

387 Hospitals (22%) **with** own Hospital Pharmacy

1.334 Hospitals (78%) **without** own Hospital Pharmacy

407.374 beds (85%) in 1.257 Hospitals (73%) are pharmaceutically served **out of Hospital Pharmacies**

125 Hospital Pharmacies only internal services
262 Hospital Pharmacies with internal and extern services

Supplied from 184 retail pharmacies [1]

without **rehabilitation clinics**
03/2015; Data source: internal benchmark, IMS

[1] **74.493 beds (14%) in 464 hospitals (25%)**
396 small hospitals with less than 300 beds

Germany: Who brings the Drugs to the Hospital?

- Summary
  - –A hospital can run an own hospital pharmacy
  - • A hospital can be supplied by another hospital pharmacy by contract
  - –A hospital can be supplied by a retail pharmacy by contract
- Ward stock system in most hospitals
  - –Unit-dose-system only in few hospital pharmacies

Drug Safety Issues

- Formulary decisions
  - –efficacy
    - • in clinical studies, literature
  - –safety
    - • adverse events rate, interaction profile, safety issues regarding drug preparation, staff safety, risk for mix-ups, … …
  - –pharmacoeconomics

New safety issues:
drug shortages, counterfeit drugs, pricing of drugs (?)

The Problem of Drug Shortages

2015 examples: ampicillin/sulbactam, flucloxacillin, melphalan, … … …

- Pharmaceutical industry is not legally forced to announce drug shortages
- The legal basic for stockpiling by pharmaceutical industry does not respect hospital pharmacy consumption numbers
  - –i.v.-drugs (!)
- There is not even an announcement process for hospital pharmacies in place

29.09.15

Purchase for Safety

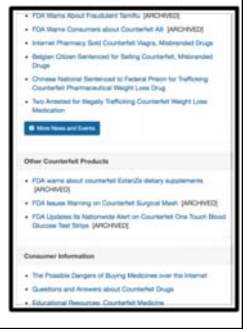
- Avoid drug shortages
  - –BUT HOW?
    - Price negotiations vs. budgetary constraints
    - Contracting with fees, penalties if no supply: But will this help the patient?
    - Choosing the right supplier: But do we know who will have no shortage?
- Avoid mix-ups of drugs
  - –look-alike, sound-alike
- Avoid errors in usage
  - –iv, ith, sc, dosages, calculations (concentration) …
  - …

Purchase for Safety

- The problem of look-alike drug packages

Purchase for Safety: Counterfeit Drugs

- Problem used to be a problem of third-world countries
- But higher ROI than dealing in illicit drugs
- Buying drugs or raw substances for drug production in certain countries may be risky



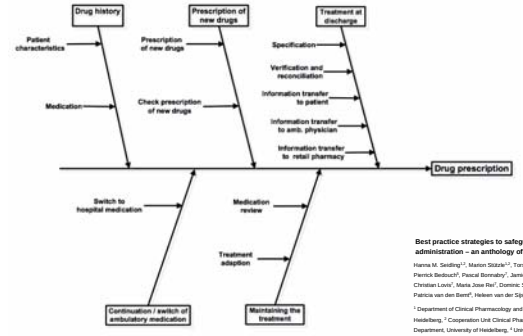
look-alike problems in pharmacy shelf and on the ward level

29.09.15

look-alike problems in pharmacy shelf and on the ward level

... but there is a solution ...

The „Way“ of Patients Drug Therapy through the Hospital



Note: drug preparation/reconstitution was discussed separately

Best practice strategies to safeguard drug prescription and drug administration – an anthology of expert views and opinions

Hanna M. Seidling[1,2], Marion Stützle[1,2], Torsten Hoppe-Tichy[2,3], Benoît Allenet[4], Pierrick Bedouch[5], Pascal Bonnabry[6], Jamie J. Coleman[7], Fernando Fernandez-Llimos[8], Christian Lovis[9], Maria Jose Re[6], Dominic Stirzinger[2,3], Lenka Taylor[2,3], Sarah Thomas[7], Patricia van den Bemt[8], Heleen van der Sijs[8], AMTS-Consortium, Walter E. Haefeli[1,2]

[1] Department of Clinical Pharmacology and Pharmacoepidemiology, University of Heidelberg, [2] Cooperation Unit Clinical Pharmacy, University of Heidelberg, [3] Pharmacy Department, University of Heidelberg, [4] University Hospitals Birmingham NHS Foundation Trust, Birmingham, [5] Centre Hospitalier Universitaire (CHU) de Grenoble, Grenoble, [6] Faculty of Pharmacy, University of Lisboa, [7] Hospital de Luz, Lisboa, [7] Geneva University Hospitals (HUG), Geneva, [8] Erasmus University Medical Center Rotterdam, Rotterdam

Single Dose Package

Example: Industrial produced package with single units. Note: The size of those units does still not fit with the requirements of a hospital pharmacy.

ADKA requirements for single dose packages

Size and form

Information on the primary packs

Information on secondary packaging

Most frequently mentioned Errors

occurring in at least 6 out of 12 institutions during drug prescription highlighted in black

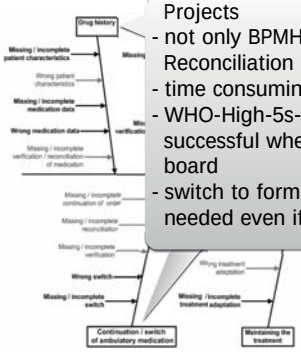
Best practice strategies to safeguard drug prescription and drug administration – an anthology of expert views and opinions

Hanna M. Seidling[1,2], Marion Stützle[1,2], Torsten Hoppe-Tichy[2,3], Benoît Allenet[4], Pierrick Bedouch[5], Pascal Bonnabry[6], Jamie J. Coleman[7], Fernando Fernandez-Llimos[8], Christian Lovis[9], Maria Jose Re[6], Dominic Stirzinger[2,3], Lenka Taylor[2,3], Sarah Thomas[7], Patricia van den Bemt[8], Heleen van der Sijs[8], AMTS-Consortium, Walter E. Haefeli[1,2]

[1] Department of Clinical Pharmacology and Pharmacoepidemiology, University of Heidelberg, [2] Cooperation Unit Clinical Pharmacy, University of Heidelberg, [3] Pharmacy Department, University of Heidelberg, [4] University Hospitals Birmingham NHS Foundation Trust, Birmingham, [5] Centre Hospitalier Universitaire (CHU) de Grenoble, Grenoble, [6] Faculty of Pharmacy, University of Lisboa, [7] Hospital de Luz, Lisboa, [7] Geneva University Hospitals (HUG), Geneva, [8] Erasmus University Medical Center Rotterdam, Rotterdam

29.09.15

Error-Prevention Approaches



Projects
- not only BPMH but also Medication Reconciliation in the same step
- time consuming
- WHO-High-5s-study in GER: MedRec only successful when hospital pharmacy on board
- switch to formulary drugs: qualification needed even if IT in background

Best practice strategies to safeguard drug prescription and drug administration – an anthology of expert views and opinions

Hanna M. Seidling[1,2], Marion Stützle[1,2], Torsten Hoppe-Tichy[2,3], Benoît Allenet[4], Pierrick Bedouch[5], Pascal Bonnabry[7], Jamie J. Coleman[8], Fernando Fernandez-Llimos[9], Christian Lovis[7], Maria Jose Rei[7], Dominic Stirzinger[2,3], Lenka Taylor[2,3], Sarah Thomas[8], Patricia van den Bemt[6], Heleen van der Sijs[6], AMTS-Consortium, Walter E. Haefeli[1,2]

[1] Department of Clinical Pharmacology and Pharmacoepidemiology, University of Heidelberg, [2] Cooperation Unit Clinical Pharmacy, University of Heidelberg, [3] Pharmacy Department, University of Heidelberg, [4] University Hospitals Birmingham NHS Foundation Trust, Birmingham, [5] Centre Hospitalier Universitaire (CHU) de Grenoble, Grenoble, [6] Faculty of Pharmacy, University of Lisboa, [7] Hospital de Luz, Lisboa, [7] Geneva University Hospitals (HUG), Geneva, [6] Erasmus University Medical Center Rotterdam, Rotterdam

Most frequently mentioned Errors

occurring in at least 6 out of 12 institutions during drug prescription highlighted in black

Best practice strategies to safeguard drug prescription and drug administration – an anthology of expert views and opinions

Hanna M. Seidling[1,2], Marion Stützle[1,2], Torsten Hoppe-Tichy[2,3], Benoît Allenet[4], Pierrick Bedouch[5], Pascal Bonnabry[7], Jamie J. Coleman[8], Fernando Fernandez-Llimos[9], Christian Lovis[7], Maria Jose Rei[7], Dominic Stirzinger[2,3], Lenka Taylor[2,3], Sarah Thomas[8], Patricia van den Bemt[6], Heleen van der Sijs[6], AMTS-Consortium, Walter E. Haefeli[1,2]

[1] Department of Clinical Pharmacology and Pharmacoepidemiology, University of Heidelberg, [2] Cooperation Unit Clinical Pharmacy, University of Heidelberg, [3] Pharmacy Department, University of Heidelberg, [4] University Hospitals Birmingham NHS Foundation Trust, Birmingham, [5] Centre Hospitalier Universitaire (CHU) de Grenoble, Grenoble, [6] Faculty of Pharmacy, University of Lisboa, [7] Hospital de Luz, Lisboa, [7] Geneva University Hospitals (HUG), Geneva, [6] Erasmus University Medical Center Rotterdam, Rotterdam

Errors in Switching Patients Drug Therapy

data from ADKAs anonymous medication error reporting system (DokuCIRS)

- Background: electronic drug information system in place but wrong use
  - switch of budesonid for inhalation (COPD) to budesonid tablets/capsules (M. Crohn)
  - prescription of cyclokaprone per os instead of cyclosporine (Sandimmun° intolerance, kidney transplantation)
  - switch of an unknown product of a generic company to candesartan in the highest dosage of same company (no indication)
- ward pharmacists corrected errors
- electronic ordering software called attention to wrong prescription
- reasons for errors: lack of knowledge

Error-Prevention Approaches

New legislation in 2016
- patients rights
- information on medication at discharge is mandatory
- medication plan has to be given to the patients at discharge
- IT, barcode

Best practice strategies to safeguard drug prescription and drug administration – an anthology of expert views and opinions

Hanna M. Seidling[1,2], Marion Stützle[1,2], Torsten Hoppe-Tichy[2,3], Benoît Allenet[4], Pierrick Bedouch[5], Pascal Bonnabry[7], Jamie J. Coleman[8], Fernando Fernandez-Llimos[9], Christian Lovis[7], Maria Jose Rei[7], Dominic Stirzinger[2,3], Lenka Taylor[2,3], Sarah Thomas[8], Patricia van den Bemt[6], Heleen van der Sijs[6], AMTS-Consortium, Walter E. Haefeli[1,2]

[1] Department of Clinical Pharmacology and Pharmacoepidemiology, University of Heidelberg, [2] Cooperation Unit Clinical Pharmacy, University of Heidelberg, [3] Pharmacy Department, University of Heidelberg, [4] University Hospitals Birmingham NHS Foundation Trust, Birmingham, [5] Centre Hospitalier Universitaire (CHU) de Grenoble, Grenoble, [6] Faculty of Pharmacy, University of Lisboa, [7] Hospital de Luz, Lisboa, [7] Geneva University Hospitals (HUG), Geneva, [6] Erasmus University Medical Center Rotterdam, Rotterdam

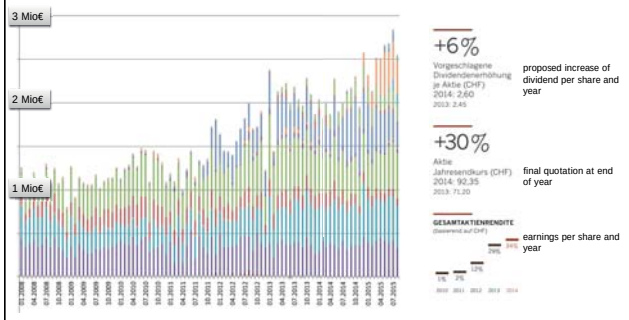
The Issue of Health Economics

- or:

Will we be able to pay drug therapies even if we live in a rich country?

–cancer therapy, HepC therapy, … … …

–or just „new“ drugs



proposed increase of dividend per share and year

final quotation at end of year

earnings per share and year

22

Summary

- There are numerous approaches to improve patient safety through drug safety in hospitals with positive results but mostly only on a local level and in certain local projects
- Projects suffer from differences in
  - –local situations like supply chain, staffing or IT environment
  - –monetary constraints
  - –recognizing the positive role of a hospital pharmacy or of hospital pharmacists
  - –and from missing legal regulations

23