Errors and Patient Safety in General Practice

- A Workshop on Basics -

WONCA Europe 2005, Kos, Greece, September 6th
A lot of names and expressions …

- Errors, failures, mistakes, adverse events, critical incidents / events, accidents near-misses, near-accidents, slips, lapses, patient safety, risk management …
An concern gains increasing publicity...
Our topics

- What is a medical error in general practice? Findings from the research
- Basics in the theory of risk management
- Small group work: own experience
- Improvement of patient safety in the own practice
  A six-step approach
- Small group discussion

- (optional, depending on time) Systematic analysis of adverse events: a proposal for root-cause analysis
What is an error? – A sophisticated definition

“The failure of a planned action to be completed as intended (i.e. error of execution) or the use of a wrong plan to achieve an aim (i.e. error of planning).”

(Reason 1990)
What is an error? – A working definition

“Errors are events in your practice that make you conclude:
‘that was a threat to patient well-being and should not happen. I don’t want it to happen again’.”

(Primary Care International Study of Medical Errors, PCISME)
What do we know from error research?
Background: errors in general practice

- IoM-report 1999: **high prevalence of errors** in clinical care was acknowledged (about 49,000 to 98,000 deaths caused by errors per year (33.6 mill. admissions)).

- Estimates of error prevalence and severity in GP **vary widely**

- Recently progress in research in GP, but a lack of internationally comparable methods and studies
Errors in primary care

- Review of studies in English language: Medical errors occur between 5 and 80 times per 100,000 consultations in general practice (Sanders and Esmail *Family Practice* 2003; 20:231-236)

- 10 general practices in the Northeast of England: 75.6 errors per 1,000 appointments (Rubin et al. *Qual Safe in Health Care* 2003; 12:443-447)
Errors in primary care

- German data: Error reports (n=164) show that 80.9% were process errors and only 19.1% were caused by a lack of knowledge and skills (Primary Care International Study of Medical Errors, PCISME)

- Australian data: GPs reported 805 errors and thought 76% of these to be preventable (Bhasale et al. MJA, 1998; 169:73-76)
Where do errors happen in primary care?

- Prescriptions: 42%
- Communication: 30%
- Equipment: 16%
- Appointments: 7%
- Clinical: 3%
- Other: 2%

Error types (PCISME Germany n=164 reports)

Knowledge and Skills errors = 19.0%

Process errors = 77.9%

Office administration 31%

Wrong treatment decision 7%

Wrong diagnosis 9%

Execution of a clinical task 4%

Payment 2%

Communication 8%

Treatments 22%

Investigations 16%
International comparison – results (%)

- **Office administration**
- **Investigations**
- **Treatments**
- **Communication**
- **Payment**
- **Workforce**
- **Execution of a clinical task**
- **Wrong diagnosis**
- **Wrong treatment decision**

- **Germany n=168**
- **USA (Dovey et al. 2002) n=330**
- **PCISME (ohne Dt.) (Makeham et al. 2002) n=429**
**Error contributing factors**  
(Germany, n = 164 errors)

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<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Description</th>
<th>Rank</th>
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<tbody>
<tr>
<td>Teamwork errors</td>
<td>46</td>
<td>Insufficient patient training, information</td>
<td>9</td>
</tr>
<tr>
<td>Hectic day</td>
<td>21</td>
<td>Distracted</td>
<td>9</td>
</tr>
<tr>
<td>Inexperience</td>
<td>19</td>
<td>Many different medications / complex treatment scheme</td>
<td>8</td>
</tr>
<tr>
<td>Computer permits errors / trust in computer / omission of checking printed prescription</td>
<td>17</td>
<td>Roles and responsibilities not clear</td>
<td>8</td>
</tr>
<tr>
<td>Insufficient arrangement of roles and responsibilities</td>
<td>14</td>
<td>Difficult patient</td>
<td>8</td>
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<tr>
<td>Insufficient training of practice personnel</td>
<td>10</td>
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Medication errors

- **Medication errors** are one of the most important areas of critical events
- **Making up 30 - 35%** of all errors. Adverse drug events seem to be preventable in about **50% of all cases**. They account for **7% to 10%** of all hospital admissions.

- Examples for **prioritizing a problem**
ATC-Classification: Results from PCISME (7 countries, 202 reports)

28% in *only three classes*

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<thead>
<tr>
<th>Class</th>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>J01 Antibiotics, systemic</td>
<td></td>
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<td>14%</td>
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<tr>
<td>J01C Penicillines, spec. Amoxicillin</td>
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<td></td>
<td>(29) not classifiable</td>
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<tr>
<td>B01 Antithrombotic agents</td>
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<td>B01A Vitamin-K-Antagonists (e.g. warfarin)</td>
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<td>16</td>
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<tr>
<td>M01 Antiphlogistics und Antirheumatics</td>
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- Known allergies ommitted, wrong *dosing* (elderly patients)
- *INR* not controlled, *INR-results* not announced to patients
- Allergies, adverse events, (possible negative effect on CHF)
Steps ('nodes') in the process of prescribing

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<thead>
<tr>
<th>Step</th>
<th>n</th>
<th>percent</th>
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<tbody>
<tr>
<td>3% (6) not classifiable</td>
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<tr>
<td>Therapeutic decision making (history, options etc.)</td>
<td>29</td>
<td>14%</td>
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<tr>
<td>Formal checks (contraindications, dosing)</td>
<td>33</td>
<td>16%</td>
</tr>
<tr>
<td>Ordering / documentation of a prescription</td>
<td>18</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Printing out the prescription</strong></td>
<td>30</td>
<td>15%</td>
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<tr>
<td>Dispensing / administering (within surgery)</td>
<td>7</td>
<td>3%</td>
</tr>
<tr>
<td>Patient related (Information / Compliance)</td>
<td>19</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Monitoring and controlling a long-lasting drug therapy</strong></td>
<td>20</td>
<td>10%</td>
</tr>
<tr>
<td>Co-ordination with other therapists / hospital</td>
<td>14</td>
<td>7%</td>
</tr>
<tr>
<td>External mistakes (e.g. pharmacy)</td>
<td>32</td>
<td>16%</td>
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Steps of prescription: examples for tools for error prevention

- **Therapeutic decision making**
  exploration of the problem, history taking, choice of a drug;

- **formal checks**
  indication, contraindication, dosing, off-label use

- **Printing out the prescription**
  (transcription, printing out, check with patient)

- **Monitoring / evaluation of a longer lasting therapy**

  - Clear documentation available, availability of reports from other physicians, reminders
  - Computer aids, e.g. dosing in renal insufficiency? age?
  - Clear documentation in the computer, formularies
  - Reminding functions, alerts for e.g. patients on warfarin
Active failures are unsafe acts committed by those at the „sharp end“ of the system (nurses, physicians). They can have immediate adverse consequences.

(Reason Quality in Health Care 1995; 4:80-89)
Active and latent failures (II.)

Latent failures are created as the result of decisions, taken at the higher levels of an organisation. Their consequences may lie dormant for a while until they combine with local triggering factors to cause an incident.

(Reason Quality in Health Care 1995; 4:80-89)
Reason’s Swiss Cheese Model of Defences

Latent failures at the managerial levels

Psychological precursors

Unsafe acts (active failures)

Defences-in-depth

Local triggers
Intrinsic defects
Atypical conditions

Critical event / accident
An exemplary case report:

- A patient is on warfarin for atrial fibrillation, and presents for routine control of INR in the morning; blood sample was taken and sent to the lab - she's said, 'we phone, if something is wrong'
- due to a computer error, the (abnormal) result is not reported to the practice
- only after two days, when the paper copy of the lab findings was considered by (one of) the physicians, it was found that INR was =5
Reason’s Swiss Cheese Model of Defences (Example)

- **No policy for INR blood tests**
- Latent failures at the managerial levels
- Local triggers: Intrinsic defects, Atypical conditions
- **Flu season** Computer breakdown
- **High INR not noticed**
- Lab
- Patient
- Nurse
- **Unsafe acts (active failures)**
- **Defences-in-depth**
- Physician stressed: daughter’s birthday
- **INR = 5 noticed only 2 days later**

- Psychological precursors
Traditional approach to errors: person centred

- error prone people – individuals are ‘careless, at fault, reckless’
- Find someone to blame – punish, shame and train
- ‘Fix the individual’ was supposed to improve safety

This approach ignored error research and did not work too well …

(Sources: M. Fletcher, NPSA 11/2003 and J. Reason 1994)
Modern approach to errors: system centred

- **Error prone situations** and poor organisational design set people up to fail
- The focus lies on **multiple contributing factors**, not just actions of individuals
- **Redesign processes** to improve safety

(Sources: M. Fletcher, NPSA 11/2003 and J. Reason 1994)
Important!

- Even a single-handed is an organization with
  - patients (and their understanding!)
  - one or more physicians (locums!)
  - one or more staff (responsible for the fulfillment of orders, contact to the patients etc.)
  - co-operating with specialists, hospitals, and other health care professions
  - ....
Types of 'unsafe acts' (J.Reason)

- **Errors**
  - errors in execution
    - slips (concentration) and lapses (memory)
  - mistakes (wrong plan)
    - rule-based mistakes
    - knowledge-based mistakes

- **Violations** (e.g. bypassing a rule)

- Other unsafe acts (disturbances etc.) ...
Small group work

- Groups of 6 persons
- 15 min.
- **Report an error from your own experience**
  - What has happened?
  - How did you feel?
  - Related experiences from other group members?
  - What has been done (could be done) to prevent that adverse event?
II. Developing risk management and patient safety in the own practice
How to prevent errors in primary care?

There are two main directions of action:

- To enable the practice team to learn from previous errors and to develop patient safety
- and to use *specific tools* to improve the safety in specific points, e.g.
  - checklists
  - reminders and plans
  - the use of computer facilities (when available)
  - commitments in the practice
  - combination with quality improvement
Enabling the practice team

- We propose a **six-step-model**
- A team-approach is essential *(even if some 'physician-alone' errors occur, which are difficult to communicate)*
- **Facilitation of error-cause-analysis** is necessary
1st Step - Involving the practice team

- Most of the procedures in GP involve more than one employee in the practice
- Each member of the staff has another perspective on the things
- Staff often has another 'contact' to patients ('another ear')
- Problem solutions, which are commonly developed, are more prone to be set into practice
2nd Step: Sensitizing for errors

- Errors or 'uneasy situations' are **easily forgotten**
- Take care that they are **documented** (notice book, computer file)
- Important is an **easily accessible file** (at every workplace!)
- **One person** is **responsible** for **regular reviewing** of all perceptions of 'errors' and **produces** them to team meetings
- Else, one person is **responsible to pursue decisions/solutions** to report, whether they are working:

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<thead>
<tr>
<th>Tab. 1</th>
<th>Beispiel einer Verbesserungsliste</th>
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<tbody>
<tr>
<td>Fehler</td>
<td>Ursache</td>
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<tr>
<td>Quickwert</td>
<td>unsicher, Fax defekt?</td>
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3rd Step: Need of motivation

- At the beginning: inevitably **higher workload**
- Staff often complains **time afford, frustration**; **conflicts** will emerge
- Recommended:
  - **clear-cut problems** at first
  - **increase motivation**
  - Considering and **resolving of conflicts** (these are many!)
  - Going forward **in small steps**
4th Step: Inquiry of processes

- It is essential to understand the **basic processes** of the surgery
- Neither a prescription, nor the order for a lab test, or s.th. else are for themselves, they are **components of processes of care**:
  - Which are **core processes** of the practice?
  - Which processes are easily disturbed?
  - Is the responsibility clear?
  - Reliance on the 'computer'?
  - Where is a need to consent in/outside the practice?
5th Step: Priority setting

- To **identify priority problems** (e.g. by significant event analysis)
- Listing problems by their importance
- **feasible challenges** for a practice
- Where to **start in improving patient safety**?
6th Step: Exchange experience

- Within the team
- With colleagues
- Within a quality circle / peer-review group
- Is an Error-reporting system accessible?

- Examples: UK (www.npsa.nhs.uk), Switzerland (www.cirsmedical.ch)
- Our recommendation in Germany - www.jeder-fehler-zaehlt.de
Herzlich willkommen beim Fehlerberichts- und Lernsystem für Hausarztpraxen

Reporting form

Exemplary reports (weekly, monthly)

Online discussion

Dieses System fördert gemeinsames Lernen aus Fehlern und lebt von Ihrer Mitarbeit.
Man muss nicht jeden Fehler selber machen, um ihm zu lernen.
"Jeder Fehler zählt"

Empfohlen von der Österreichischen Gesellschaft für Allgemeinmedizin, OGAM
und der Deutschen Gesellschaft für Allgemeinmedizin und Familienmedizin, DEGAM
"Vom 108. Deutschen Ärztetag 2005 ausdrücklich unterstützt"

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Small group discussion II

An exemplary report:

- **What has happened?** A patient complains with the nurse (German style!) about hay fever, and asks for the prescription of LISINO (an anti-histamine; brand name). The nurse looks into the drug list (computer), finds LISINOPRIL (an ACE-inhibitor) and prints out the prescription. The GP signs it (passing by) without further check.

- The patients goes to the pharmacist. The question by her about his 'new hypertension' makes him suspicious and the error is resolved.

- **What was the consequence?** No harm, the error was detected timely.
III. Systematic analysis of error events
Systematic analysis of adverse events was developed in some safety-related industries just more than thirty years ago.

In (general) medicine, two models became prominent:
- **Root-cause analysis** (RCA), and
- **Significant-event analysis** (SEA)

We would like to promote a facilitated model for general practice:
- SEA sets out to investigate in a team approach meaningful events (esp. in UK)
- RCA is a rather ambitious analysis to take into account the *latent* causes of an event.
Significant event audit

**Significant event:**

„Any event thought by anyone in the team to be significant in the care of patients or the conduct of the practice.“

(Pringle, Bradley et al. 1995)
Significant event audit – possible strategy –

- **Interdisciplinary** group discussion (e.g. nurses, physicians, pharmacists)
- **Summary** of the event prepared in advance
- Facilitated **discussion** for 40-60 min:
  - **What** has happened?
  - **Why** did it happen?
  - **What** has been learned?
  - **What** can be changed to prevent the event in the future?
Significant event audit – principles –

- voluntary and blame-free
- interdisciplinary
- reflective and educational
- internal to the practice and confidential
- highlighting areas for attention
- minimizing risk within the practice
- encouraging excellence in health care
Root-cause analysis (RCA)

- Aims to investigate comprehensively the fundamental ('root') preventable or inevitable reasons of a severe adverse event
- should follow the same team approach as SEA, but is performed in the industries by an independent investigator and with extensive investigative work (separate interviews)
- questions from specific to more general, latent causes
- is more applicable to complex causation than to individual mistakes
- but: systematic questioning can be useful for GP
What makes critical events to occur? Again J. Reason

Diagram showing the relationship between hazards, defenses, losses, latent condition pathways, unsafe acts, local workplace factors, organizational factors, causes, and investigation.
Root-cause analysis (II)

Questioning backwards in an adverse event:

- What were exactly the unsafe acts?
- Were there specific patient-related factors?
- Were there contributing factors (local workplace factors)
  - working conditions? (enough staff, environment?)
  - team related factors? (communication, supervision, responsibility)
  - individual factors? (competence, knowledge, motivation)
  - design of the working process? (incl. defences?)

- Organization and management? (economic, rules, safety culture, constraints ['context', liability rules])
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<thead>
<tr>
<th><strong>Unsafe acts:</strong></th>
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<tr>
<th><strong>Clinical context, patient related factors:</strong></th>
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<tr>
<th><strong>Contributing factors:</strong></th>
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<th>Working conditions:</th>
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<tr>
<td>specifically relevant</td>
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<table>
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<th>Team related factors:</th>
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<th>Individual factors:</th>
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<th>Task related factors:</th>
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<th>Organisation and management factors: context of the institution:</th>
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<th>Safety defences (working / not working):</th>
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<th>Proposals for prevention / improvement:</th>
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Take home messages

- To accept the problem of errors in GP
- To analyse adverse events systematically
- To deal *constructively* with mistakes ('culture of safety')
- Patient safety as a constant challenge in the own practice

*Safety looks at quality*  
*from the other end of the telescope*  

Thank you for your participation!

The presentation will be available (since 15.09.05) at www.allgemeinmedizin.uni-frankfurt.de/wonca_error_workshop.html