



Dealing with sensitive data in healthcare

Human-Factor-based Risk Management to improve Patient Safety

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3. Interdisziplinäres OCG-Forum für Informatik und
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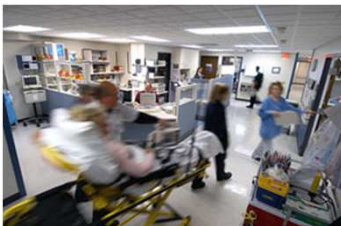


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**„We must avoid the uncontrollable
and control the unavoidable.“**

*Hans Joachim Schellnhuber (1950, Bayern/Germany),
climate scientist*



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OUTLINE



- ☐ Background and Motivation
- ☐ Human-Factor-based Risk Management – the proposed Model
- ☐ Evaluation Setting and Results
- ☐ Restrictions – Limitation – Implications
- ☐ Conclusion

Background and Motivation



***„You must learn from the mistakes of others.
You can't possibly live long enough
to make them all yourself.“***

Sam Levenson (1911-1980), American Author



Background and Motivation

PROBLEM in the calculation of risks and their extent of damage
the impact of human factors is not taken into account

TARGET Improving Patient Safety

HOW through Human Factor based Risk Management (RiDeM-H)
based on an enhanced FMEA that takes the impact and
consequent dependence of human factors into account (HFdFMEA)

WHY to control and manage risks actively and
subsequently to improve patient safety

Customer Usability higher/improved safety (= patient safety)
through proactive (risk) management

Background and Motivation



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Human-Factor-based Risk Management



□ What are the **challenges**?

- calculation of risks
- impact of human factors
- practice of RiDeM
- controlling & monitoring
- supervision of the system



□ What is the **target** and how can it be achieved?

- increasing patient safety
- active Risk Management
- classification of human factors (RiDeM-H)
- controlling & monitoring results
- supervising the system

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Human-Factor-based Risk Management



Purpose

- Improving Patient Safety
 - Risk Management
 - Failure Mode and Effect Analysis (FMEA)

Problem Statement

- calculation of risks and their extent of damage
- impact of human factors

Expected Result

- Human-Factor-based Risk Management in Healthcare (RiDeM-H)
- HFdFMEA as new risk assessment method

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Human-Factor-based Risk Management



How is it possible

- to **increase patient safety** through active Risk Management
- by **classifying Human Factors** and
- by taking into consideration those Human Factors for risk assessments using FMEA?

How to

- control
- monitor and
- supervise

RiDeM method as such?

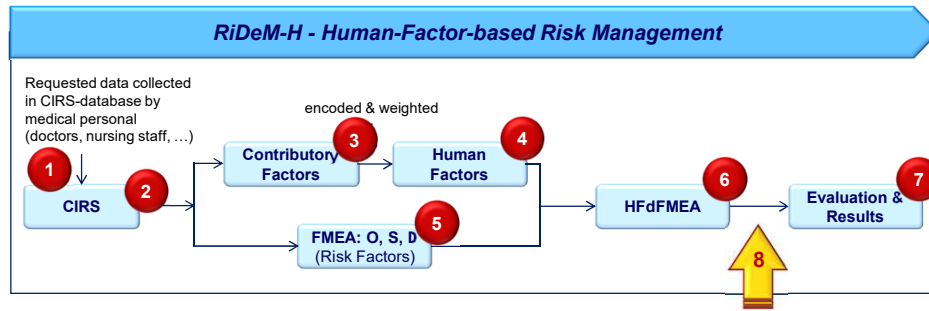


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Human-Factor-based Risk Management

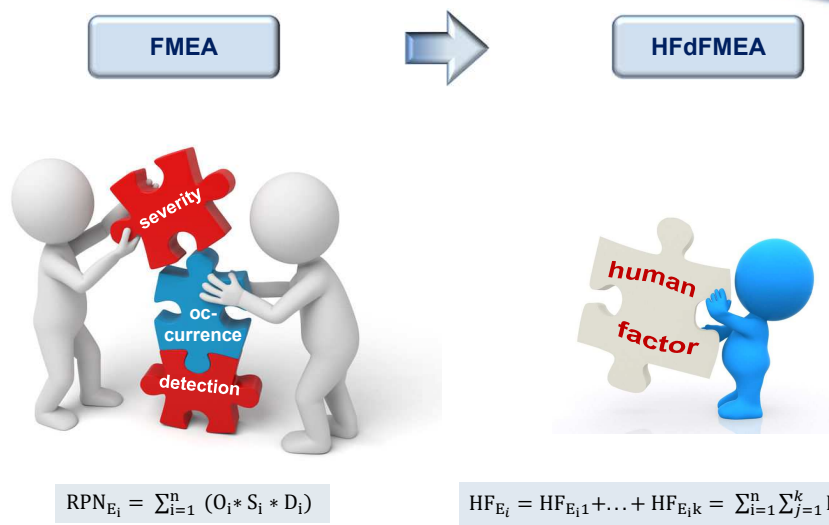


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Human-Factor-based Risk Management



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Evaluation Setting and Results



□ Data Source

- Critical-Incident-Reporting-Systems (**CIRS**)
- The **GOAL** ... data about incidents/events
- The **USE** ... voluntary national CIRS (e.g. DE, CH, GB, NL, ...) vs compulsory use (e.g. USA, SE)
- The **PROBLEMS** ... access to sensitive data
... accuracy and trustworthiness
... human factors

□ Defined data in CIRS

Each listed event is assigned to ...

- an expertise area
- a place
- others
- a professional category
- **contributory factors**

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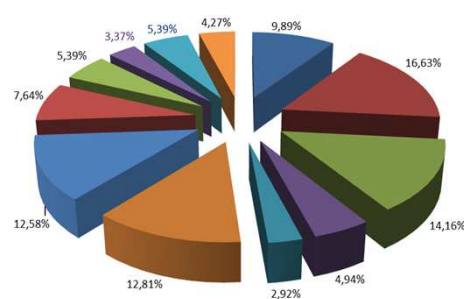
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Evaluation Setting and Results

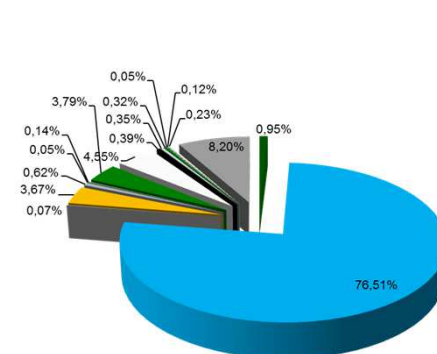


Events according to affected area of expertise

cirs-health-care.de



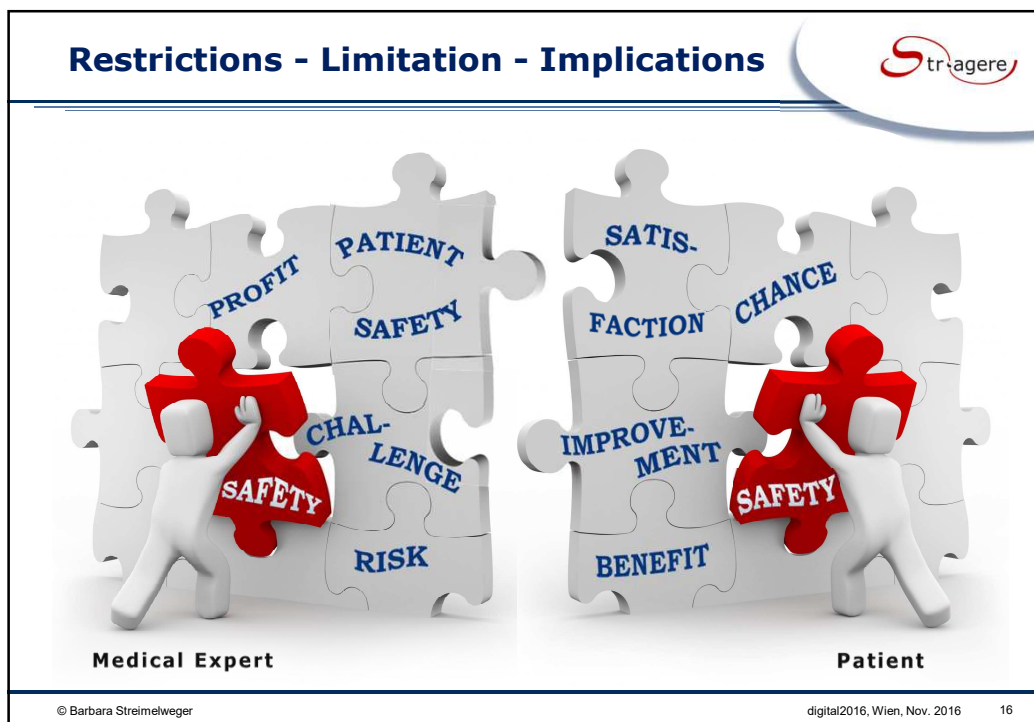
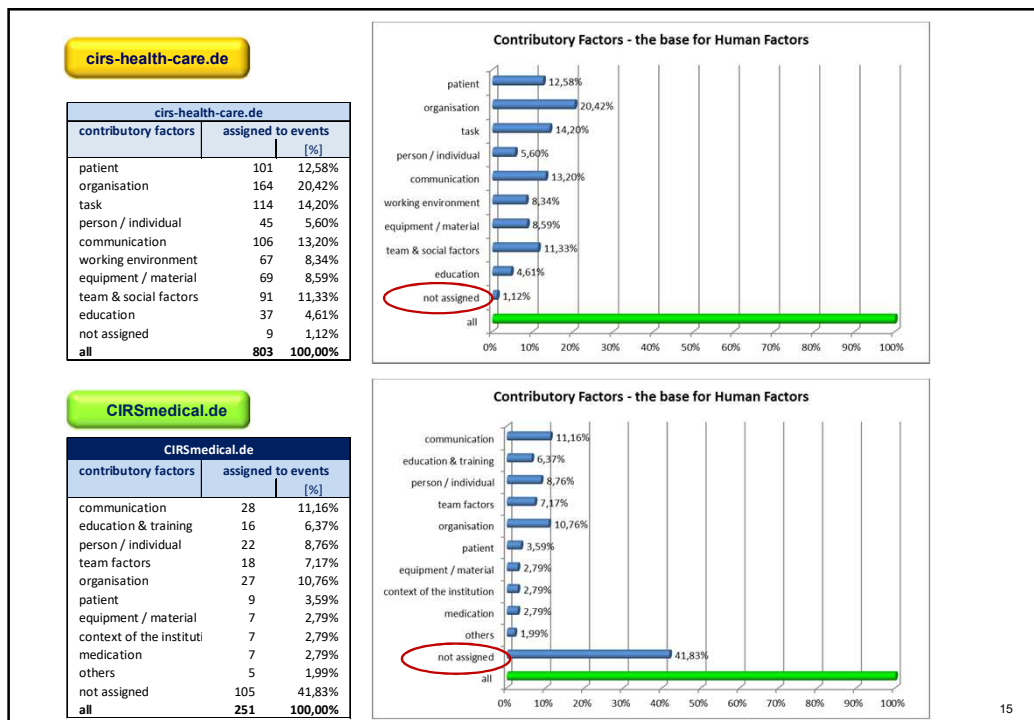
CIRSmedical.de



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Restrictions - Limitation - Implications



- ☐ To which **restrictions** and **limitation** lead the **CIRS** databases?
- ☐ How **generalised** are the results?
- ☐ Who are the **stakeholders** of the proposed HFdFMEA technique and RiDeM-H model?
- ☐ What are **implications** for the health system, practitioners and patients?
- ☐ What are implications for the HFdFMEA and RiDeM-H?
- ☐ **Validation of human factors** – why I used multiple linear regression analysis and is there another model that could be recommended for validation of the model?



*What has all this to do with
data protection & data security?*

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Conclusion



The proposed method ...

- ☐ **Human-factor-based Risk Dependent Management** (RiDeM-H) method
 - to control and manage risks actively and subsequently
 - will facilitate to improve patient safety
 - by using HFdFMEA
- ☐ **mandatory required ...**
 - access to sensitive data, so that HFdFMEA could work



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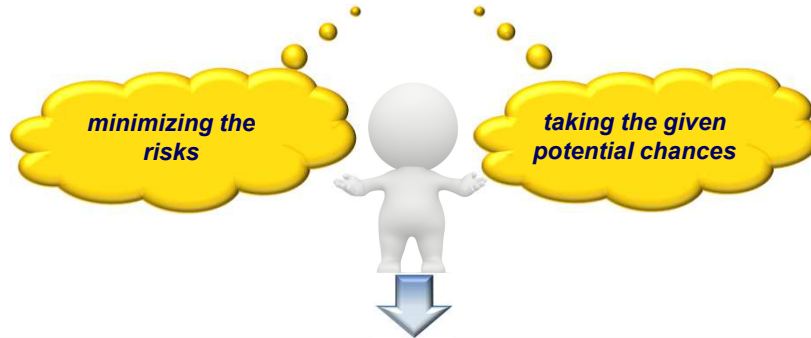
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Conclusion



There is still room for improving patient safety



We just need to take the opportunities to act!



***Thank you
for your attention!***



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