



predictive medicine

Dr. Antje Lechner | Thomas Krone

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I. About us

HERR DER LAGE

Dr. Antje Lechner | Thomas Krone

Team



Dr. Antje Lechner
Management



PD. Dr. Wolfram Jabs
Medical Consultant



Prof. K.-U. Kühnberger
Data Science



Dr. Klaus Holthausen
Data Science



Marion Härtel
Risk Management



Thomas Krone
Management



Robert Heuer
Programming



Holger Middelberg
Usability&Design

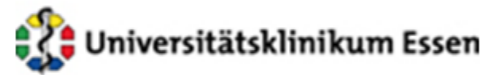


Lars Frohn
Hospitals



Lina Michelis
Office / Network

References & Network



Universitätsklinikum Essen, Klinik für Nephrologie
Prof. Dr. med. A. Kribben



Vivantes Netzwerk für Gesundheit GmbH
Dipl. Informatiker Gunther Nolte (Ressortleiter IT / TK)



Universität Osnabrück | Institute of Cognitive Science
Prof. Dr. K.-U. Kühnberger (Cognitive Science /Artificial Intelligence)



Fraunhofer-Institut für Software- und Systemtechnik ISST
Dr. Sven Meister (stv. Abteilungsleiter eHealth)



WIG2 GmbH | Institut für Gesundheitsökonomie und -systemforschung
Dr. Dennis Häckl (Geschäftsführung)



HERR DER LAGE Consulting GmbH | Digitale Transformation im Gesundheitswesen
Thomas Krone, Dr. Antje Lechner (Geschäftsführung)



...and more than 200 other
hospitals in Germany

What we do

Business consulting for hospitals / German healthcare system

- Quality Management
- Process Management
- Digital Transformation

What we do now

- Building a Risk-/Coding-Assistant

2. Data

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Data – 1 patient

The digital patient is defined by...
(average values)



▶ 1 DRG

▶ 6 ICDs

▶ 3 OPS

▶ 130 Laboratory values

▶ Personal data

▶ etc.

Diagnosis Related Groups

International Classification of Diseases and
Related Health Problems

Operations and Procedures Codes

Blood tests, Electrolytes, Liver, Kidney...

Age, Sex, Hospital stays...

Data

Representative patient:

Urology, f – 65 years (stay: 11 d)



- ▶ DRG: L13B Renal disease (date of discharge)
- ▶ ICD: **C64** Malignant neoplasm of kidney (MD) (date of discharge)
I10 Essential hypertension (date of discharge)
D47 Histiocytic and mast cell tumours (date of discharge)
R11 Nausea and vomiting (date of discharge)
- ▶ OPS 5-554 Nephrectomy (15.07.2015 11:39)
- ▶ Lab Creatinine1: 0,97 mg/dl (14.07.2015 11:31)
Creatinine2: 1,72 mg/dl (16.07.2015 08:06)
Bloodsugar1: 198 mg/dl (16.07.2015 09:13)
etc. (dd.mm.yyyy h:min)

HERR DER LAGE Data

... 11 hospitals



	different (max.)	av. per ID
▶ 331,000 hospital stays (ID)	▶ 1,152 DRGs	1.6 per patient
▶ 1.9 million ICDs	▶ 1,342 ICDs	5.8 per ID
▶ 1 million OPS	▶ 950 OPS	2.7 per ID
▶ 16 million laboratory values	▶ 990 lab.val.	130 per ID

3.Tasks

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Sets of tasks

3 (or 4) main challenges



1. Prediction of risks and diseases
 - ▶ Risk Assistant
 2. Optimisation of risk scores
 - ▶ Automated Scores
 3. Digitalisation of manual processes
 - ▶ Inverse Medical Pathways
-
4. Include unstructured data (text, pictures, scans) into the analysis

Task 1: Risk prediction



22,000 patients are treated yearly in our sample hospital.

3,6% of these will suffer from acute kidney failure (AKI, N17).

25% of those can be avoided with the correct prediction parameters.*)

- A similar number of cases can be found in the data which conforms to the pattern of AKI, but is not coded as such.
- Further risks are stroke (163), cardiac insufficiency (150), cardiac arrest (121), Diabetes (E11) etc.

We are looking for a prediction model which predicts medical risks.

2

Task 2: Improve existing risk scores

Existing medical risk scores (e.g. for stroke) are usually calculated by answering a set of questions and summing specific points for each answer. We would like to enhance this method, by finding and adding factors and by calculating in more detail (e.g. age categories, diabetes not only from case history, but from data).

We are looking for more accurate medical scores.

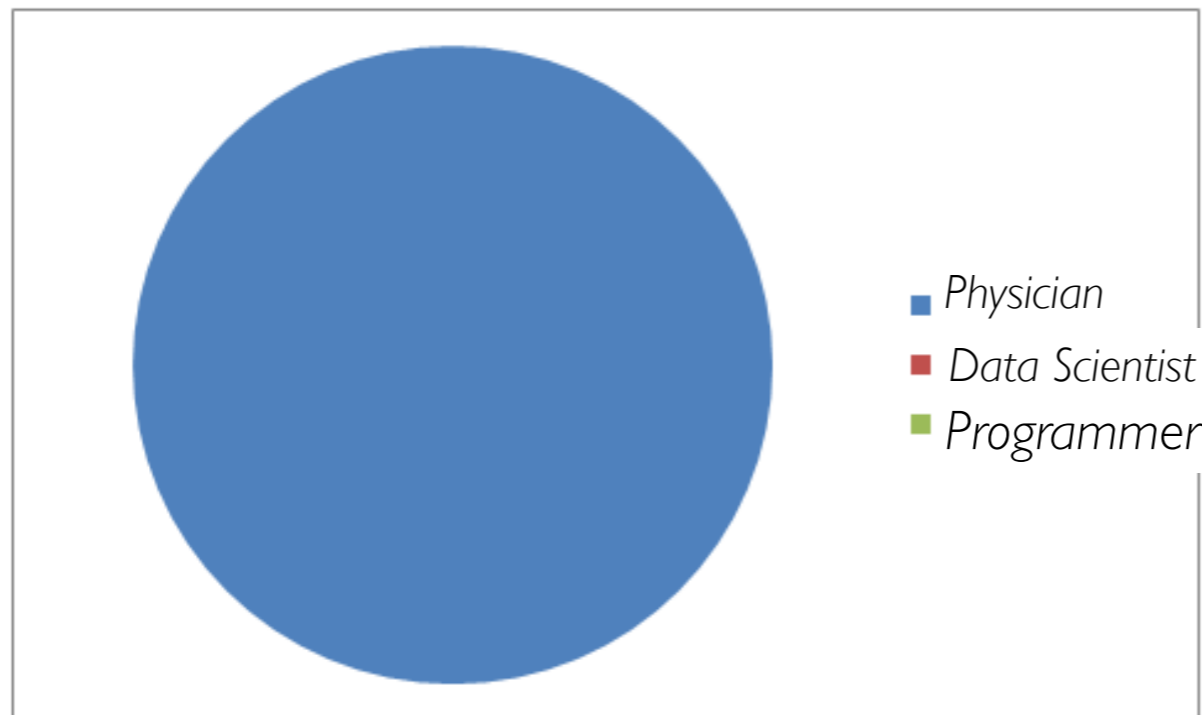
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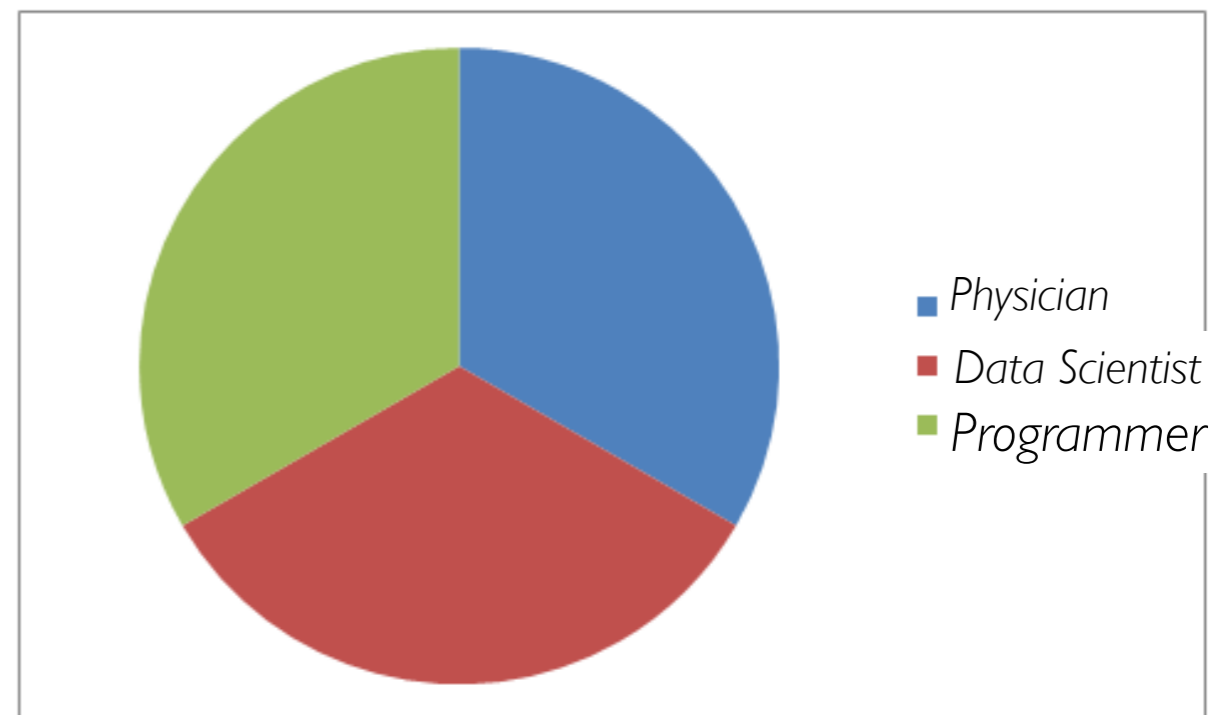
The future

„In the future patients will also be treated by a doctor – whether this is a medical practitioner, we don't know yet.“

2010



2020



To proceed:

- We are looking for tried and tested methods, not for explorative studies.
- We would like evidence from you that you are equal to the task.
- Candidates will be invited to a workshop – there is lots to know about the data.
- We offer a fixed sum or a share in the „Digital Health Assistant“ depending on the quality and marketability of the results.

Data sample (task I):

Download: test dataset

ftp-Server:

Password:

(please get in contact ...)

Meet to discuss:

Tuesday, 22nd November 2016 - 19 h

Contact us



Dr. Antje Lechner
al@herrderlage.com



Thomas Krone
tk@herrderlage.com

HERR DER LAGE Consulting GmbH

Reichenberger Straße 28
10999 Berlin

www.herrderlage.com
+ 49 (0)30 - 53 000 466

