



# INTRODUCTION TO RISK-CONSULTING

RISK-CONSULTING offers actuarial competence in combination with expertise and many years of experience in data analytics. We develop solutions for risk selection, risk control and process control. Our data-based tools digitalize the insurance industry.

## FORWARD-THINKER

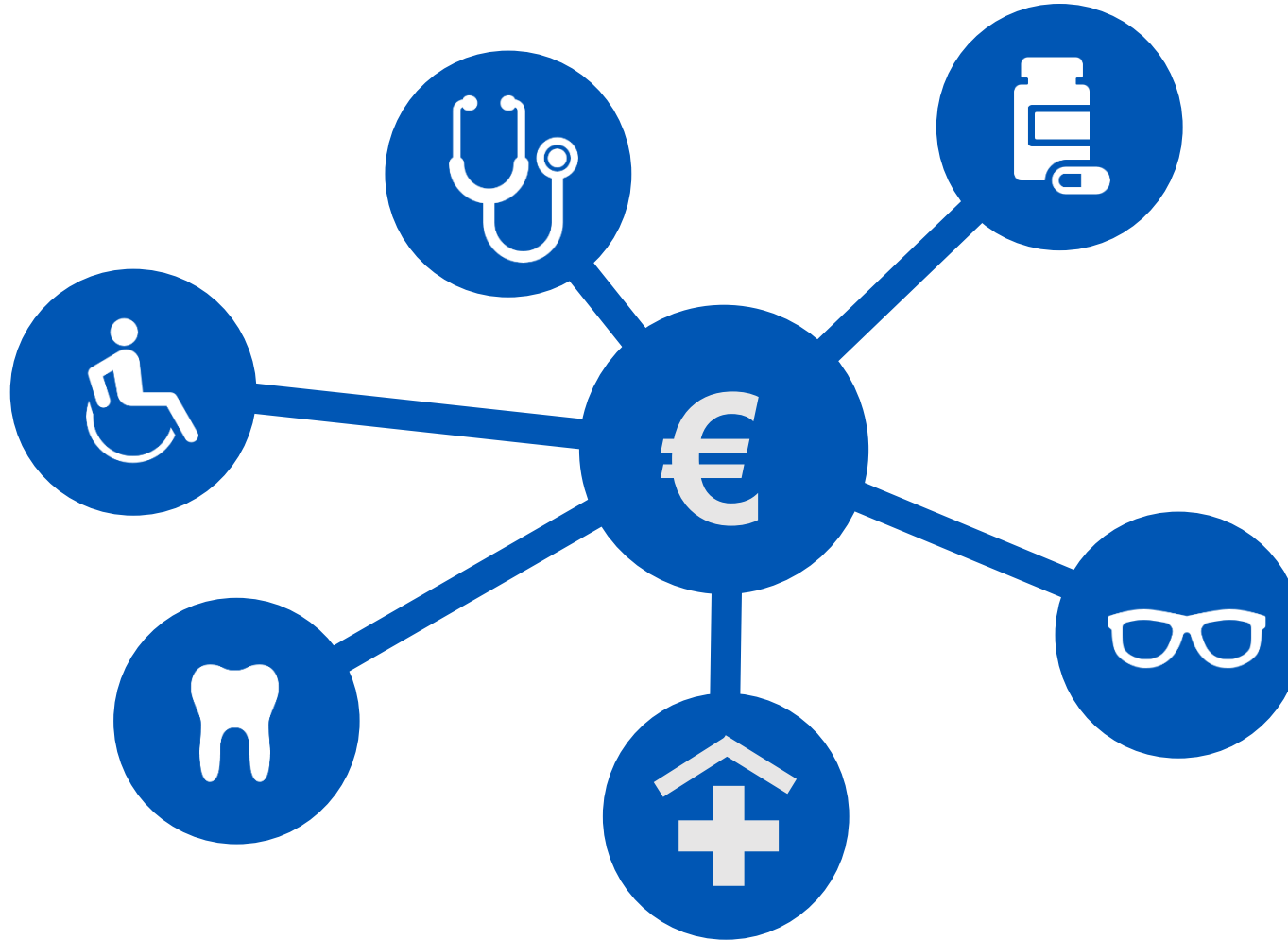


Already honoured twice by **Google** and the **Süddeutsche Zeitung** as Forward-Thinker!

## MARKET-LEADER



Our risk-assessment system **AktuarMed®** is market leader in **health insurance underwriting** in Germany, Austria and Luxembourg!





# NEW APPROACH – DIFFERENT CHALLENGES

## Needs of the Insureds

- **Stay healthy** → Suitable prevention offers, individualized health tips and services
- **Get healthy** → Help and support in the event of illness, avoidance of "chronification"
- **Disease management** → Optimal care and support during therapy

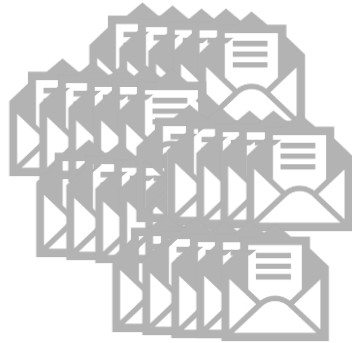
## Goals of the Insurer

- **More interaction und contact with the insureds** → Strengthening the relationship / ecosystem
- **Better assessment of customer needs:** which services and offers at which time
- **Influence the claims costs**  
→ Avoidance of over- or under- or wrong treatment

**The insurer as first contact for everything related to personal health:  
digital, online, by phone or chat**

# 360° VIEW OF THE CUSTOMER'S HEALTH SITUATION

**Information from the invoices**



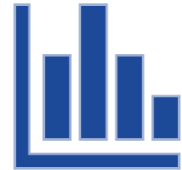
**Other relevant health information**



**Complete view of the individual health situation**

## Descriptive

**What happened when?**



- Individual health history (diseases, severity, duration...)
- Individual courses of treatment (duration, costs, therapies...)
- Lifestyle, fitness, nutrition...

## Diagnostic

**Why did it happen?**



- comparison with normal courses
- which events are correlated
- flagging incorrect care
- medical assessment

## Predictive

**What could happen?**

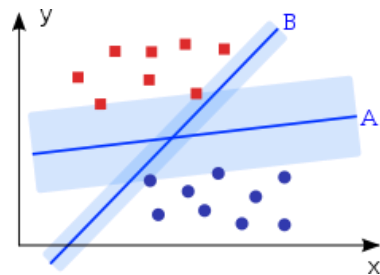


- future health risks
- indications of possible health risks (operations, hospitalisation, disability)

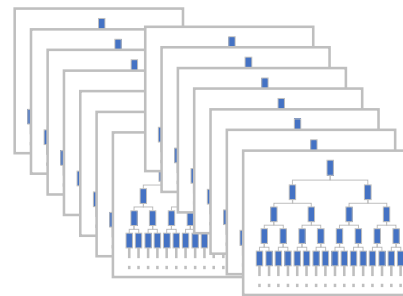
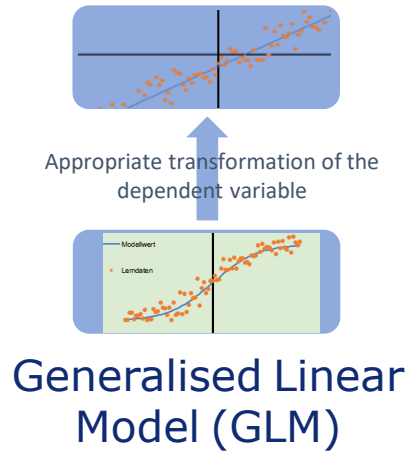
# A MULTITUDE OF ANALYTICAL TECHNIQUES



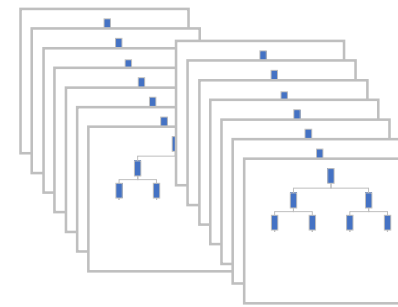
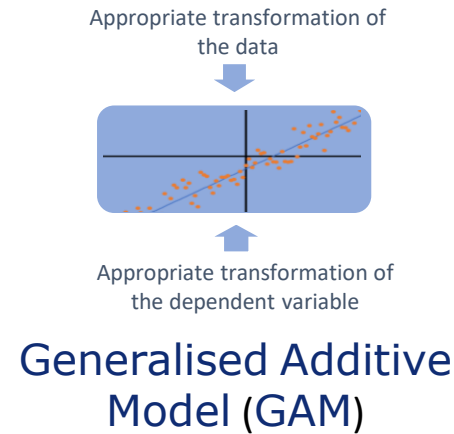
Linear Regression



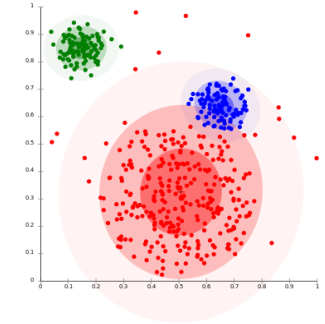
Support Vector  
Machine



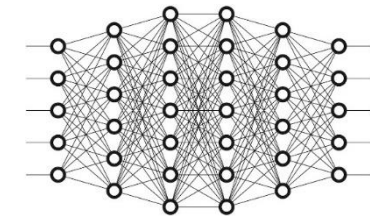
Random Forest



Gradient Boosting

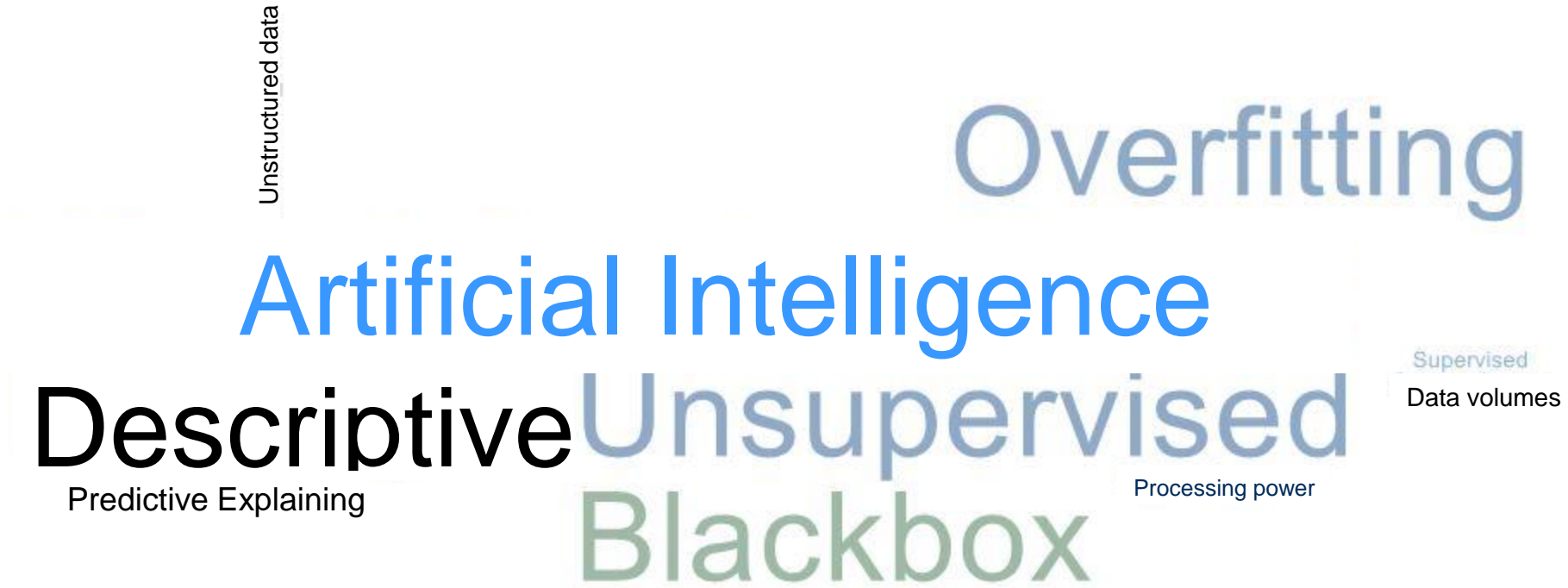


Cluster-Analysis



Neural Networks

**WITH A WIDE RANGE OF PROPERTIES ...**

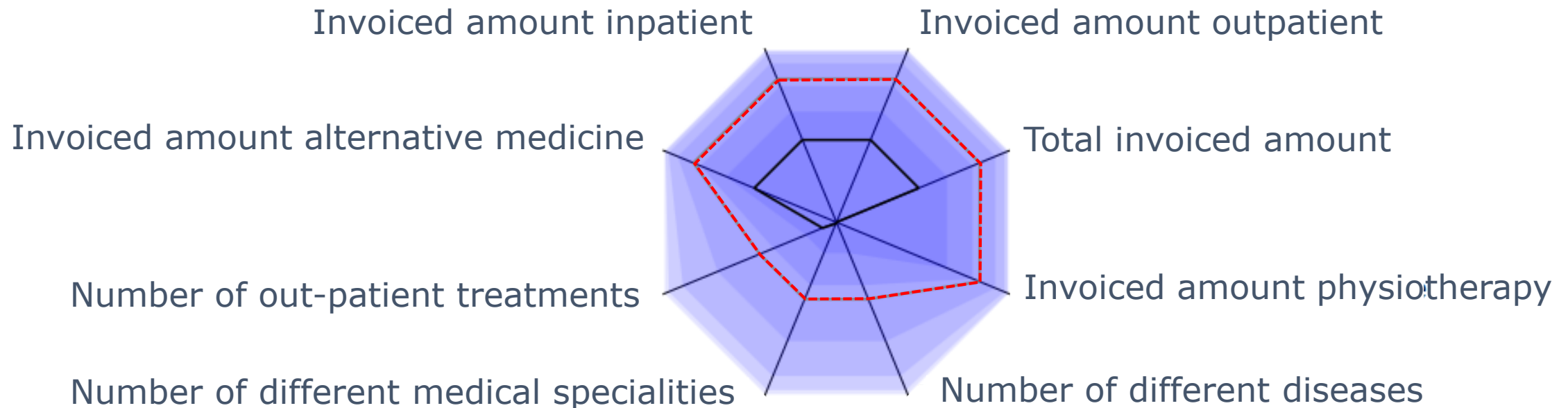


**The foundation** for guidance in Health management is usually a **holistic view of the individual health situation:**

- For **all relevant** diseases
- **Multidimensional**
- Over **Time**

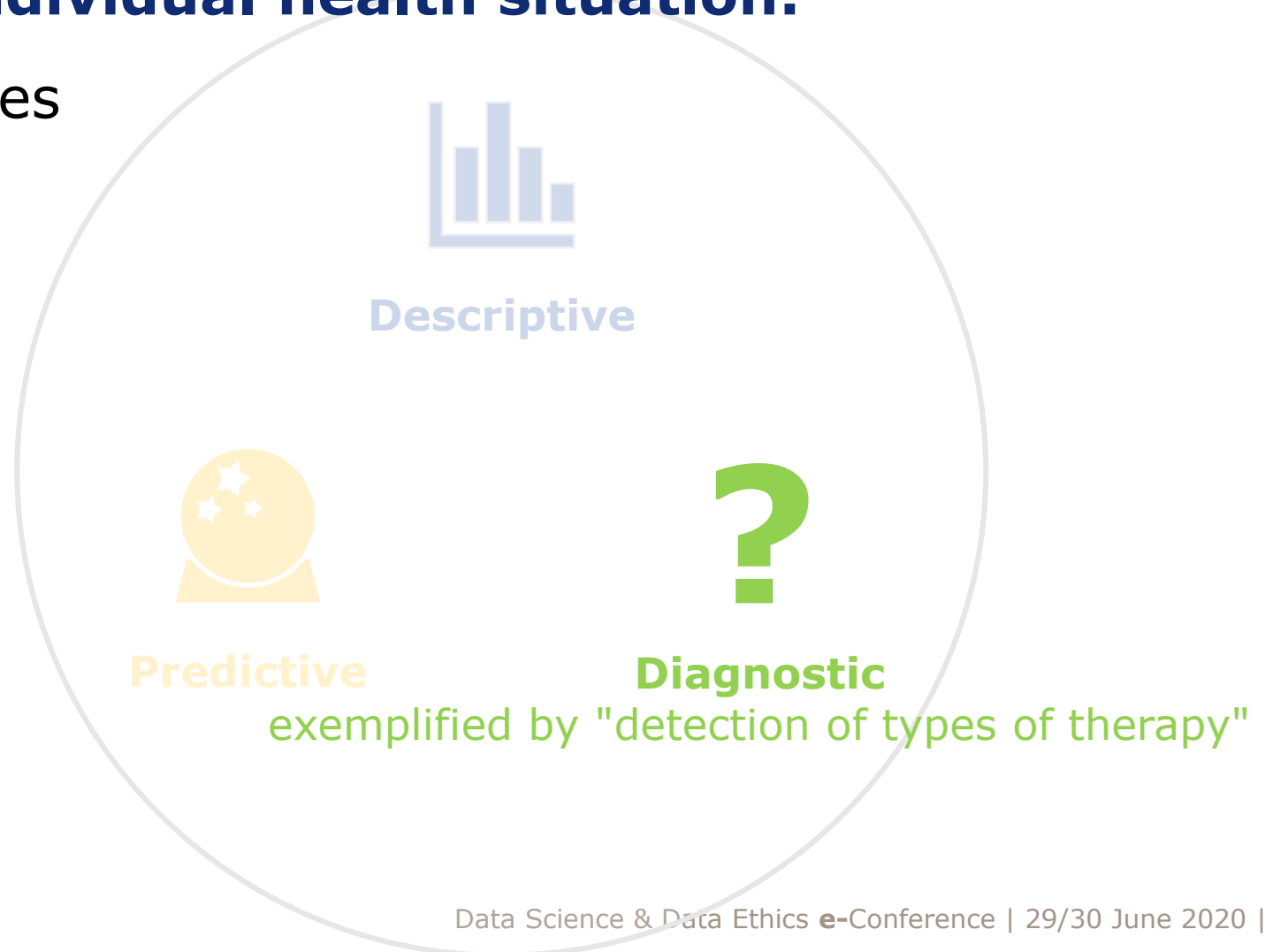


## Comparison of an **individual course of treatment** with statistically **benchmarks of treatment** using various criteria

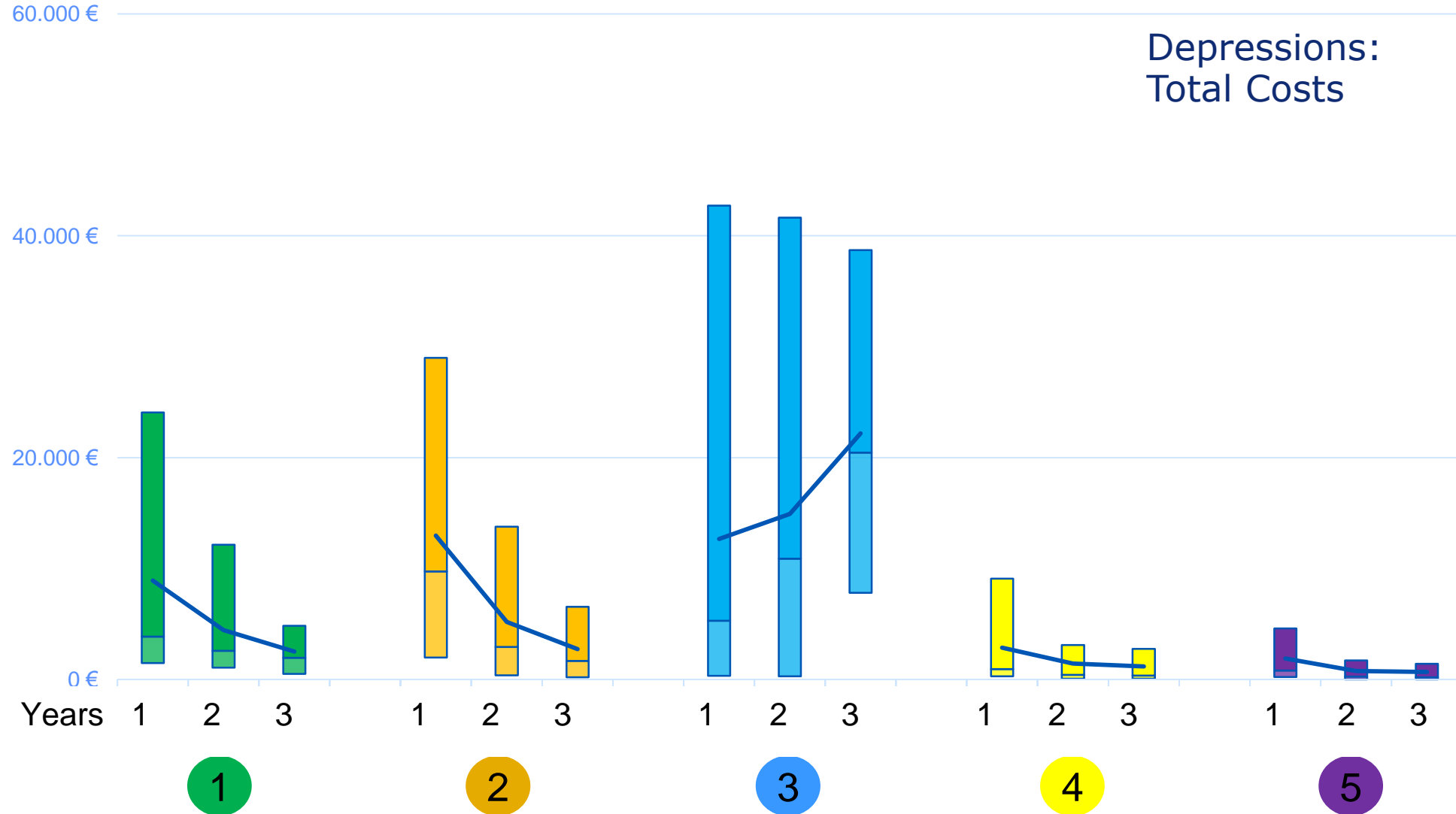


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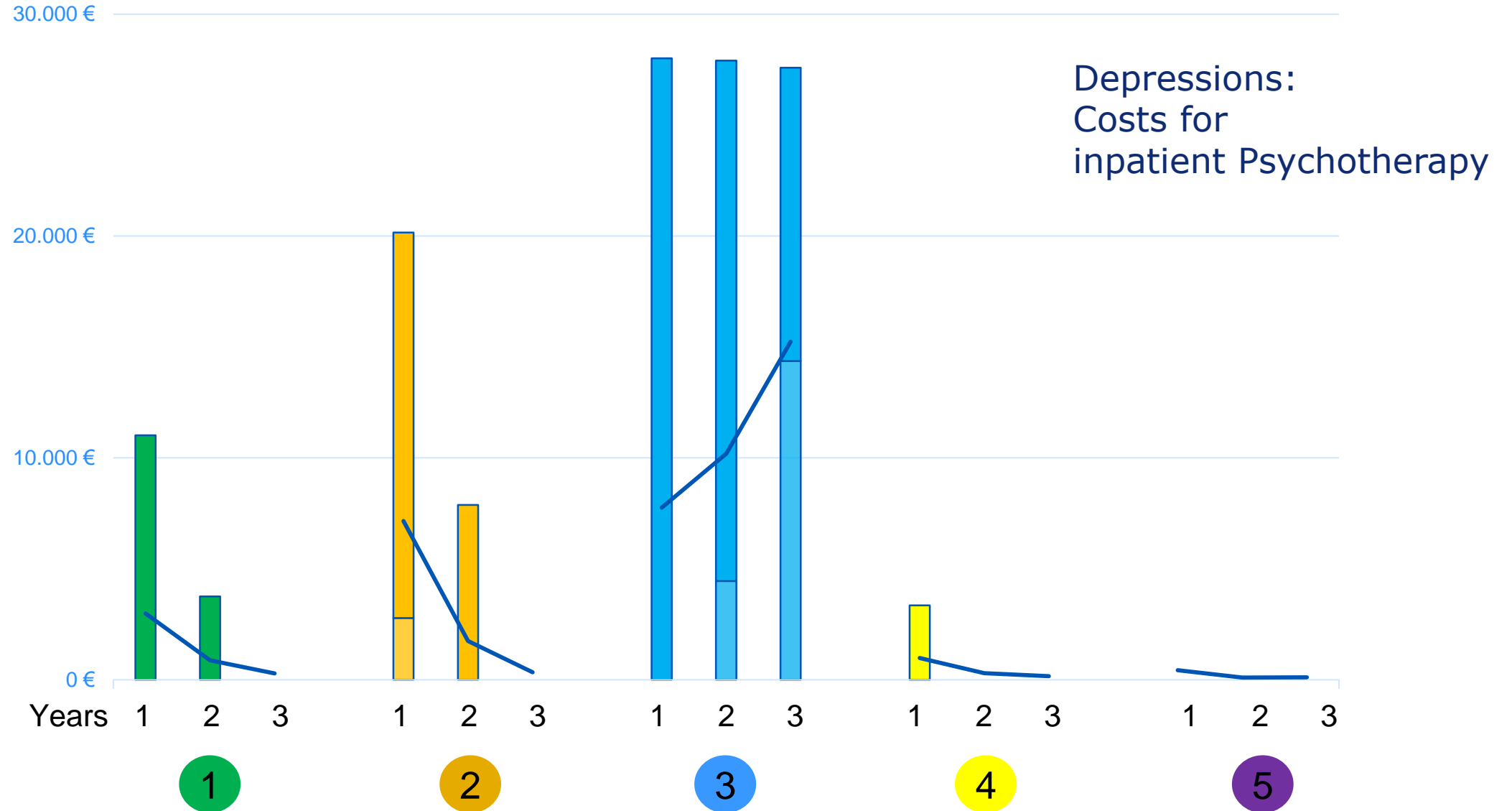
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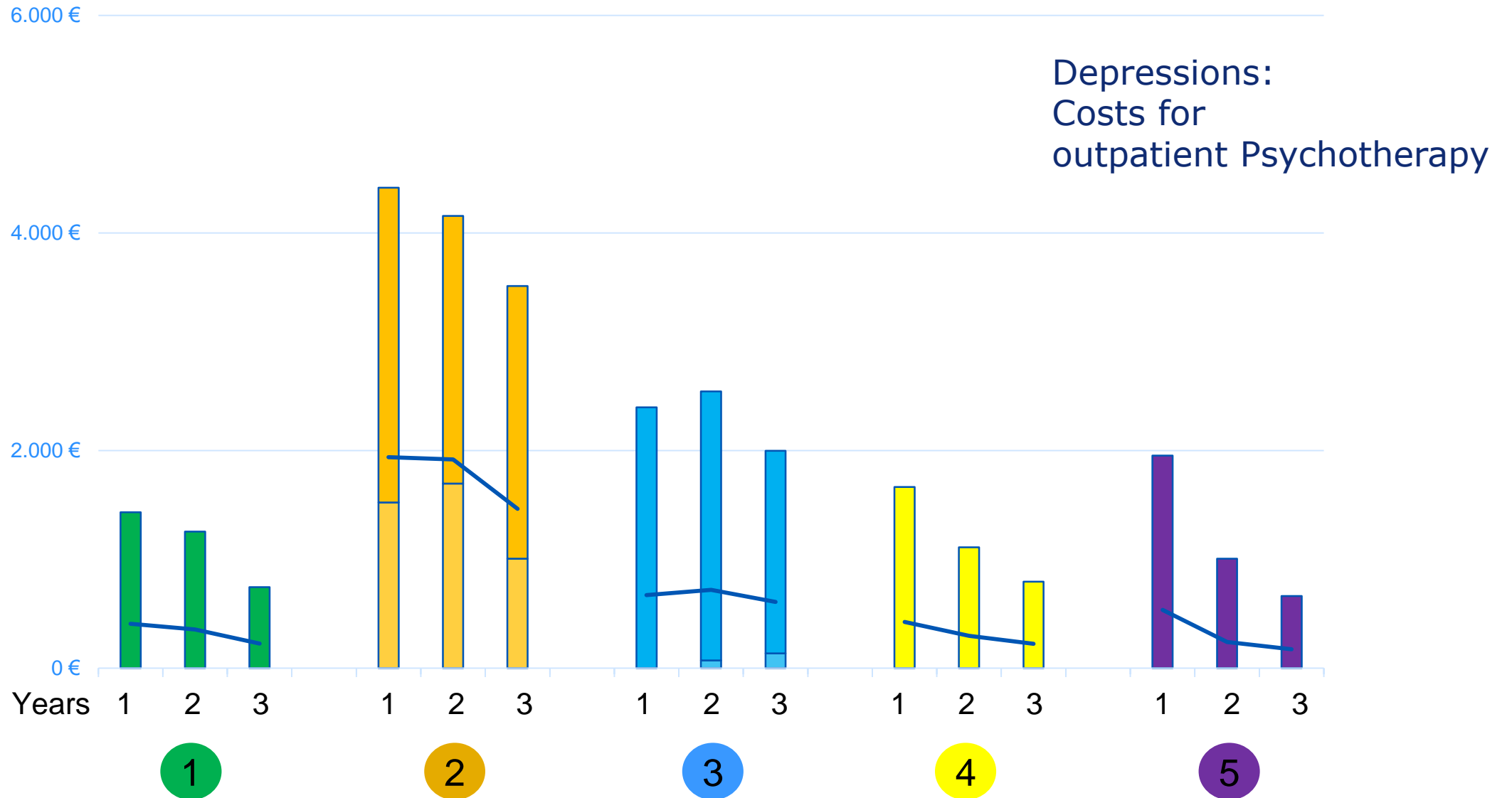
# USING CLUSTER-ANALYSIS TO DETECT DIFFERENT TYPES OF THERAPY



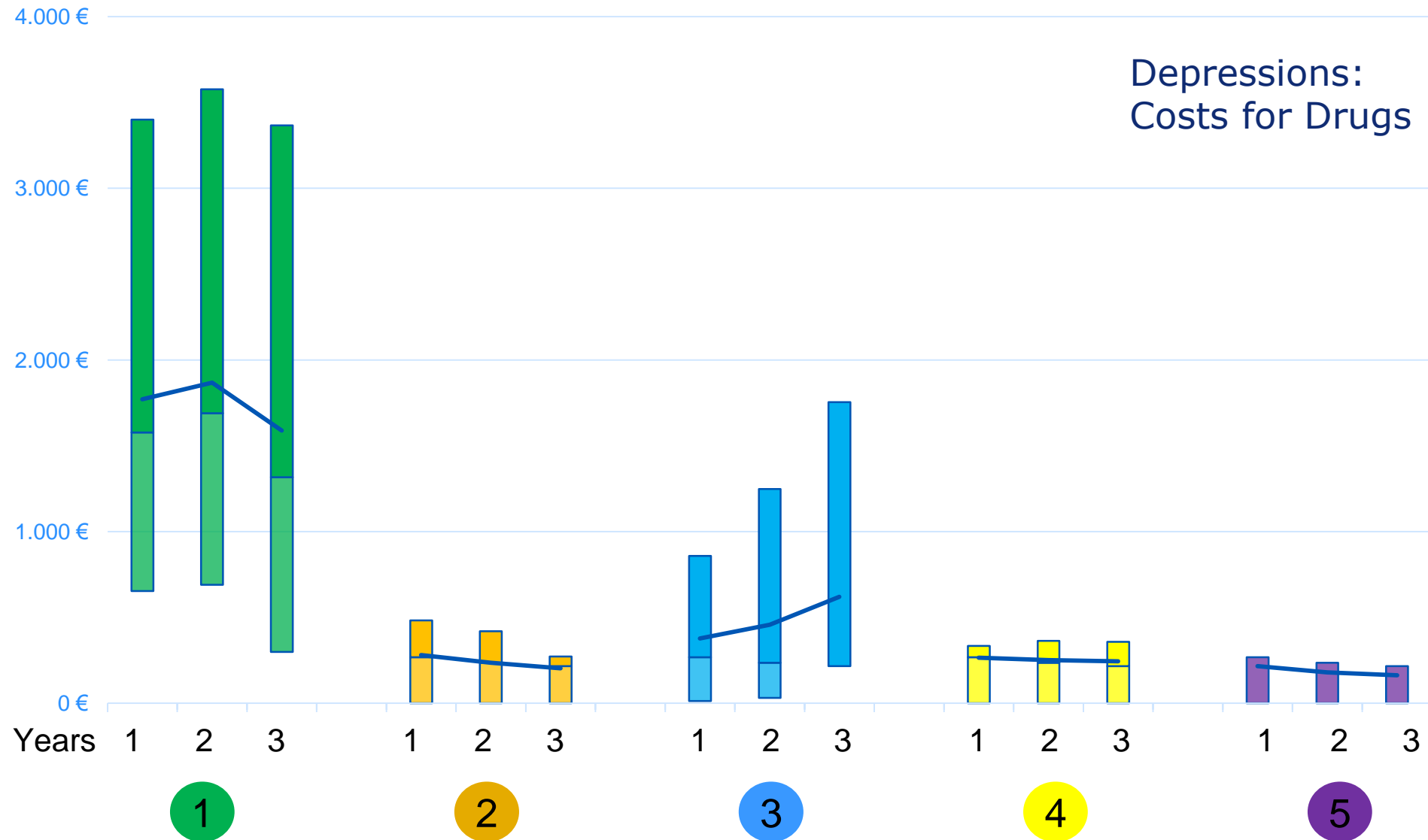
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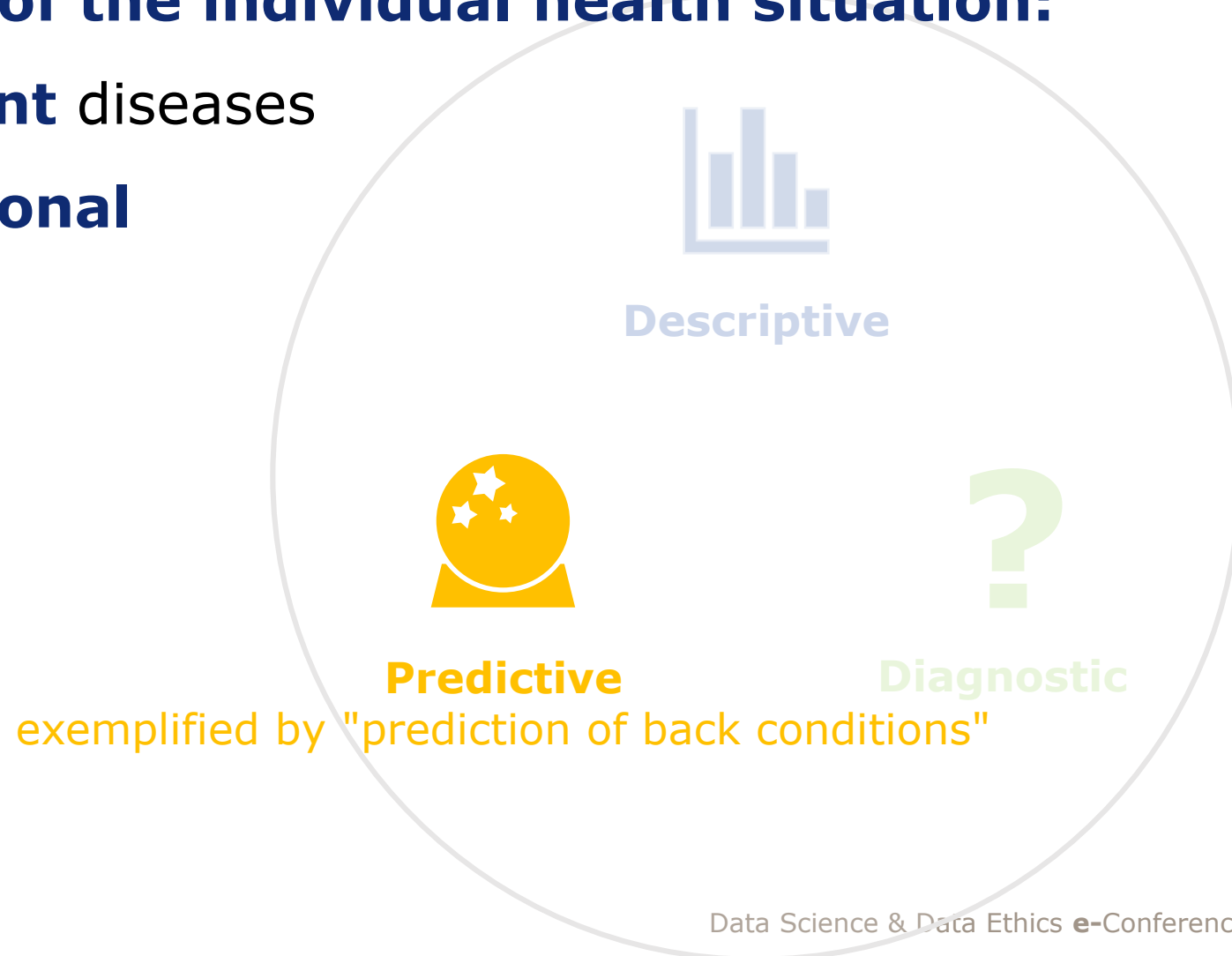


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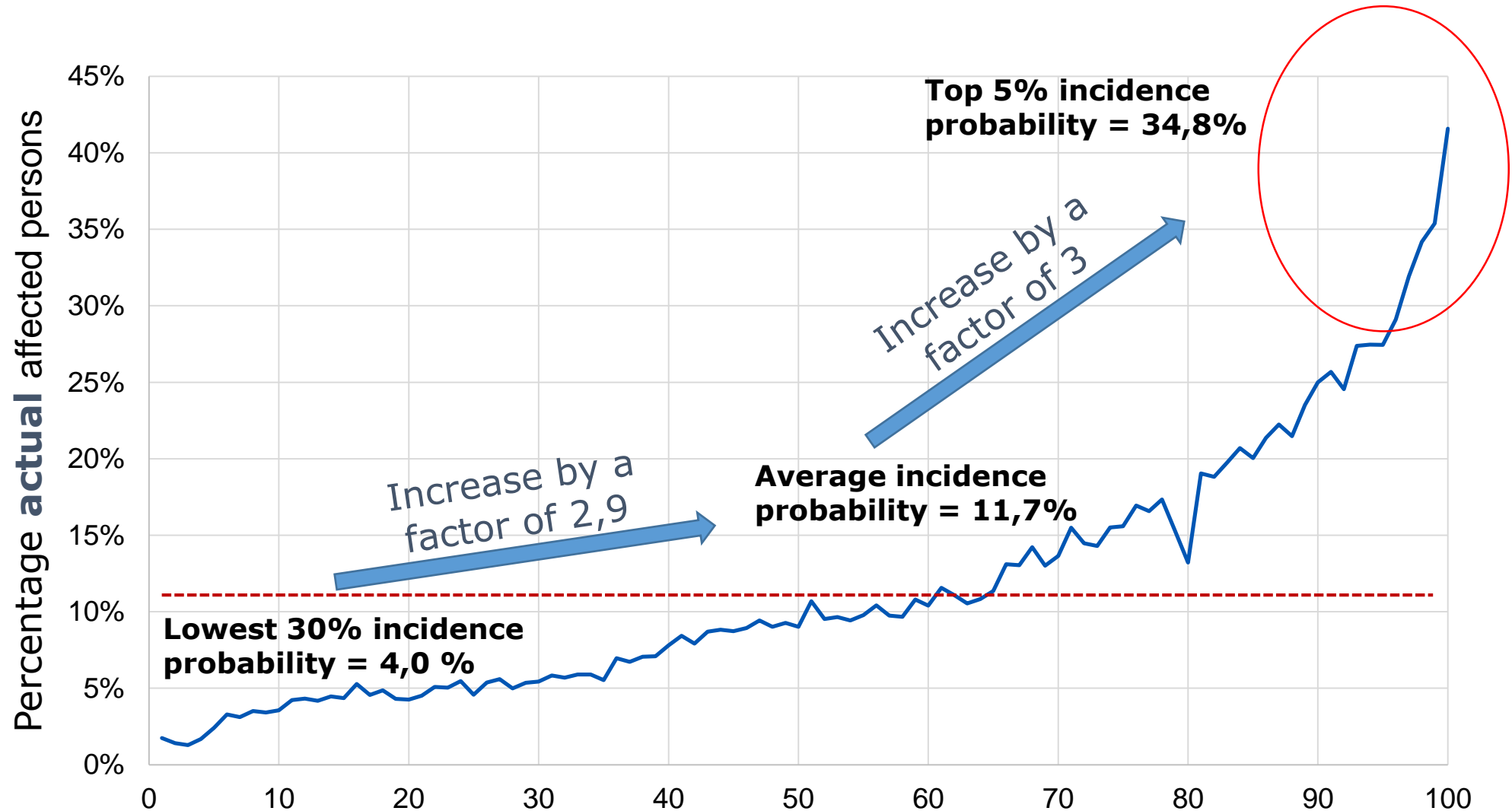


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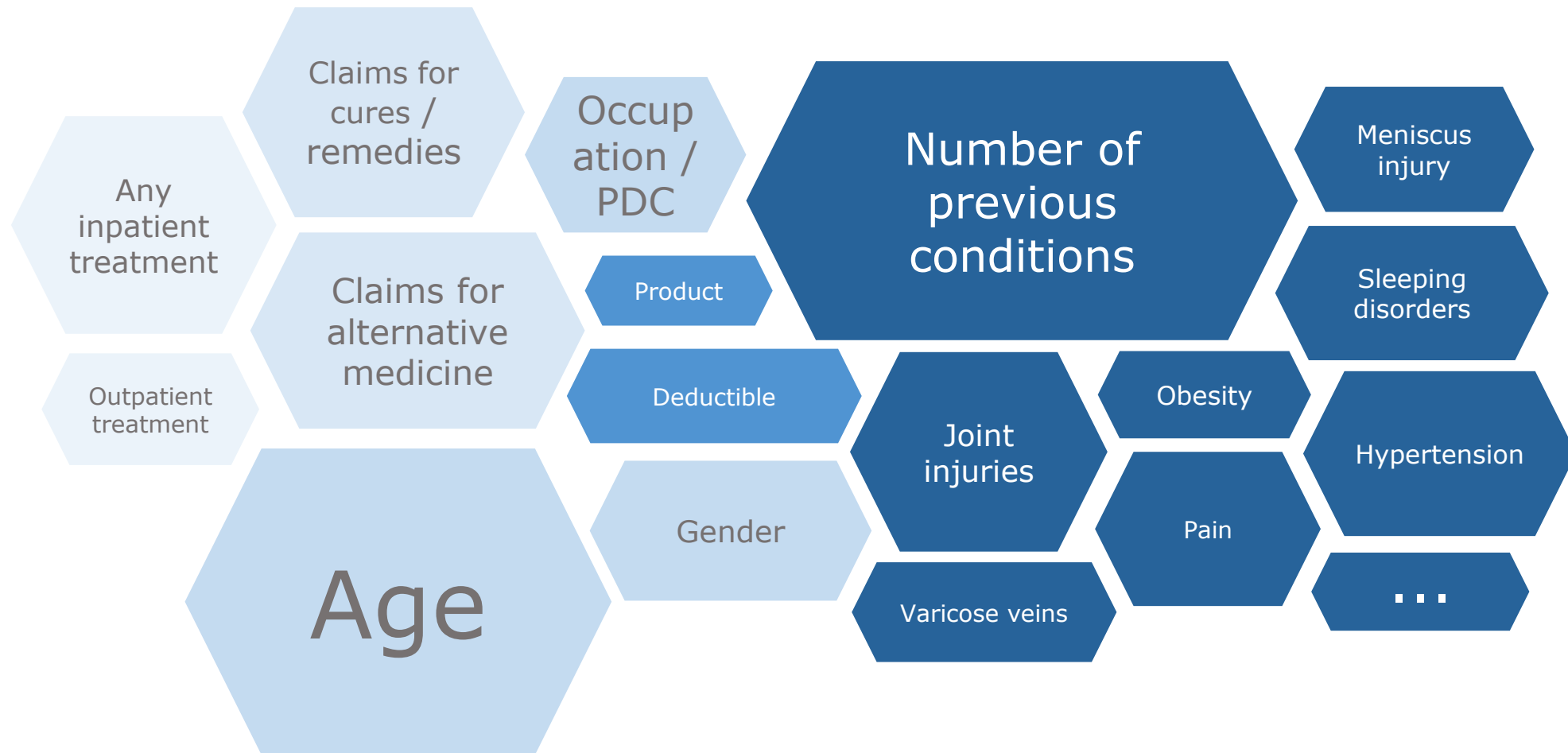


# PREDICTION OF SEVERE BACK CONDITIONS

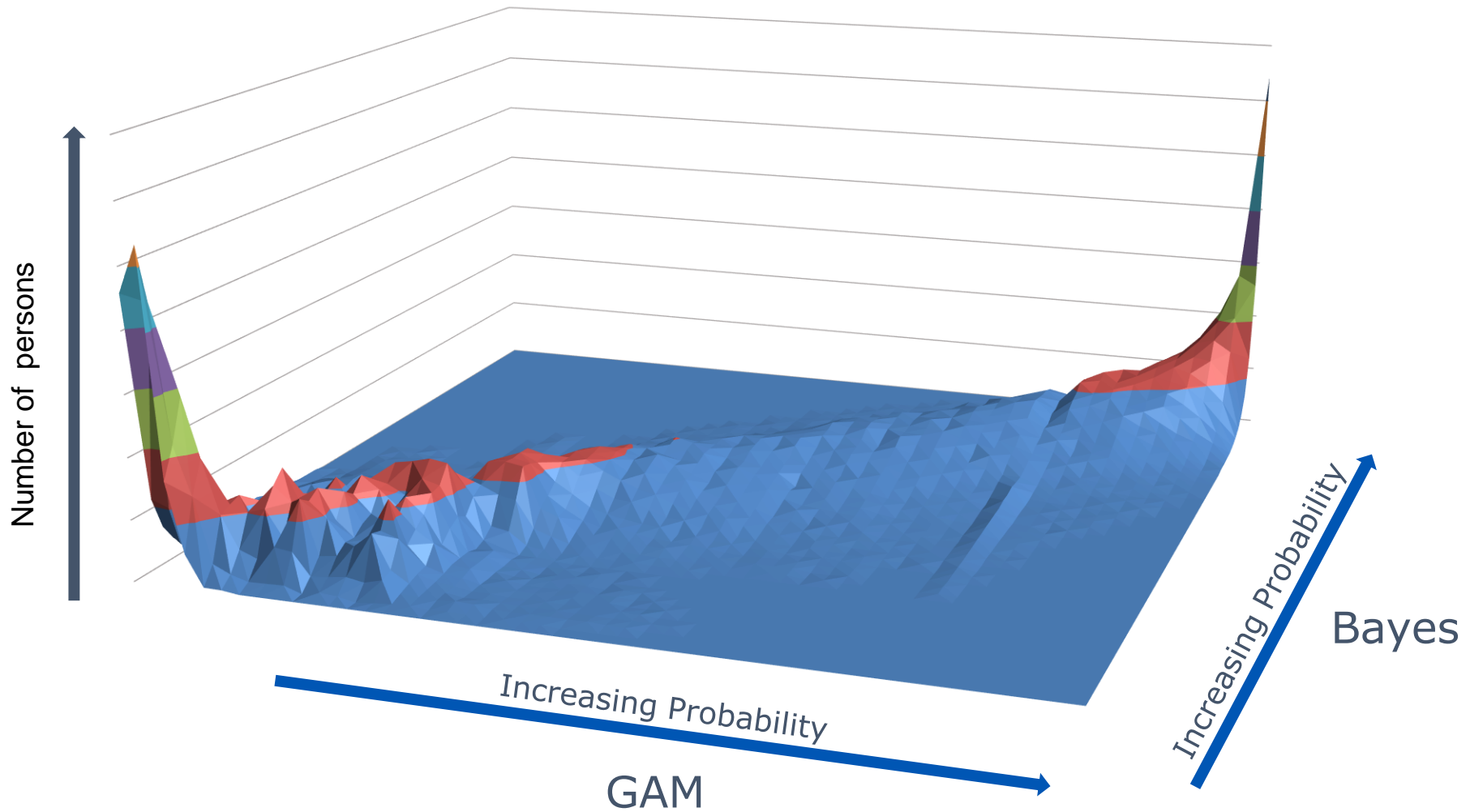


Groups defined by predicted incidence of – **Back Condition**

# CHARACTERISTICS WITH THE HIGHEST INFLUENCE

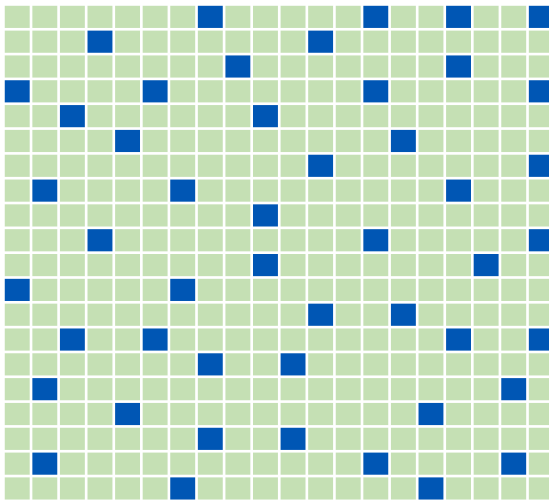


# METHODS DELIVER SIMILAR RESULT



# USE IN HEALTH MANAGEMENT

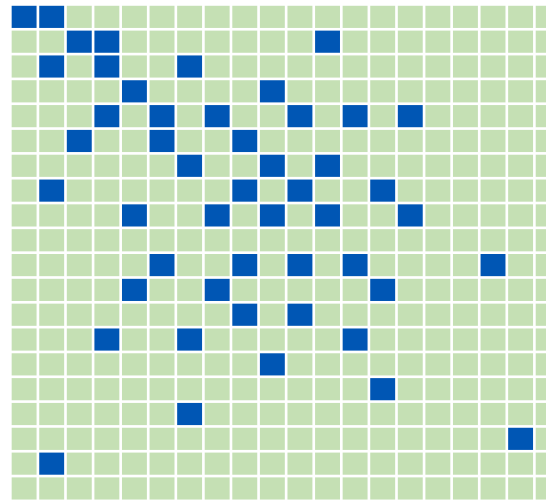
Insured persons  
with severe back  
conditions in the next  
3 years



Incidence 12 %

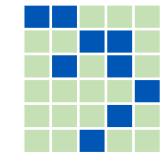
Percentage of all severe  
back conditions 100 %

Models sort by  
probability – create order



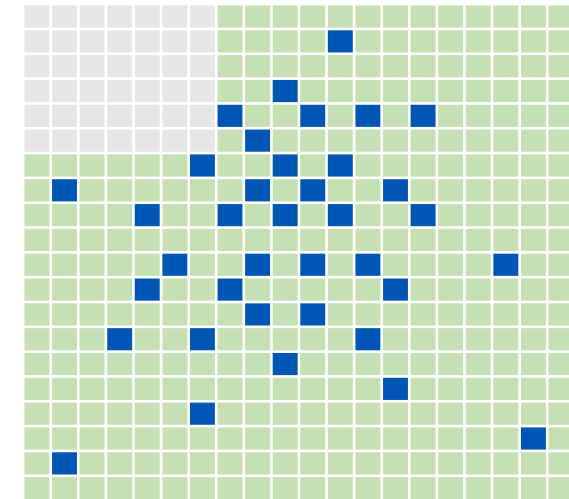
With severe back  
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**Top 10%** RC-Model

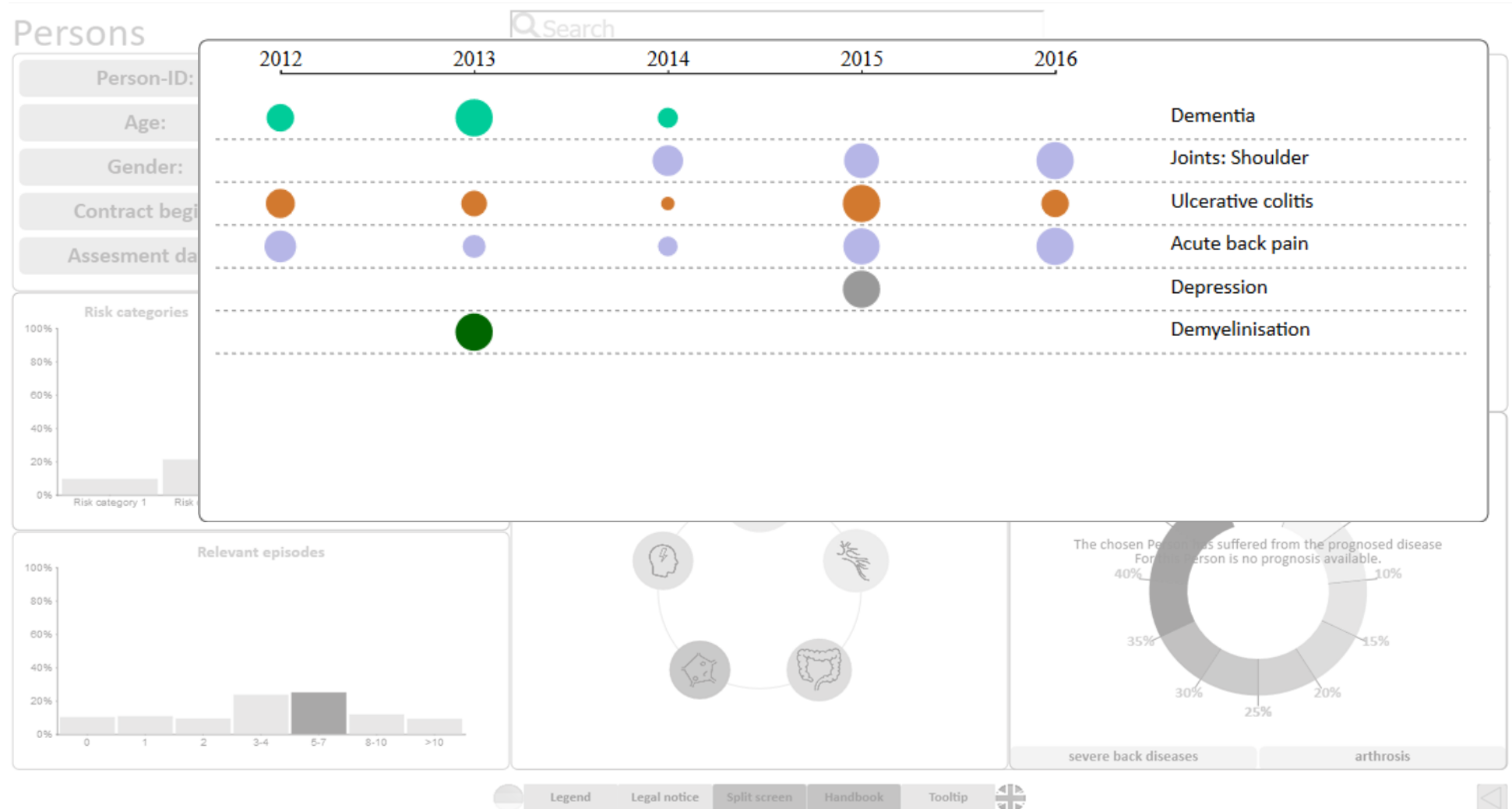


Incidence 31 %

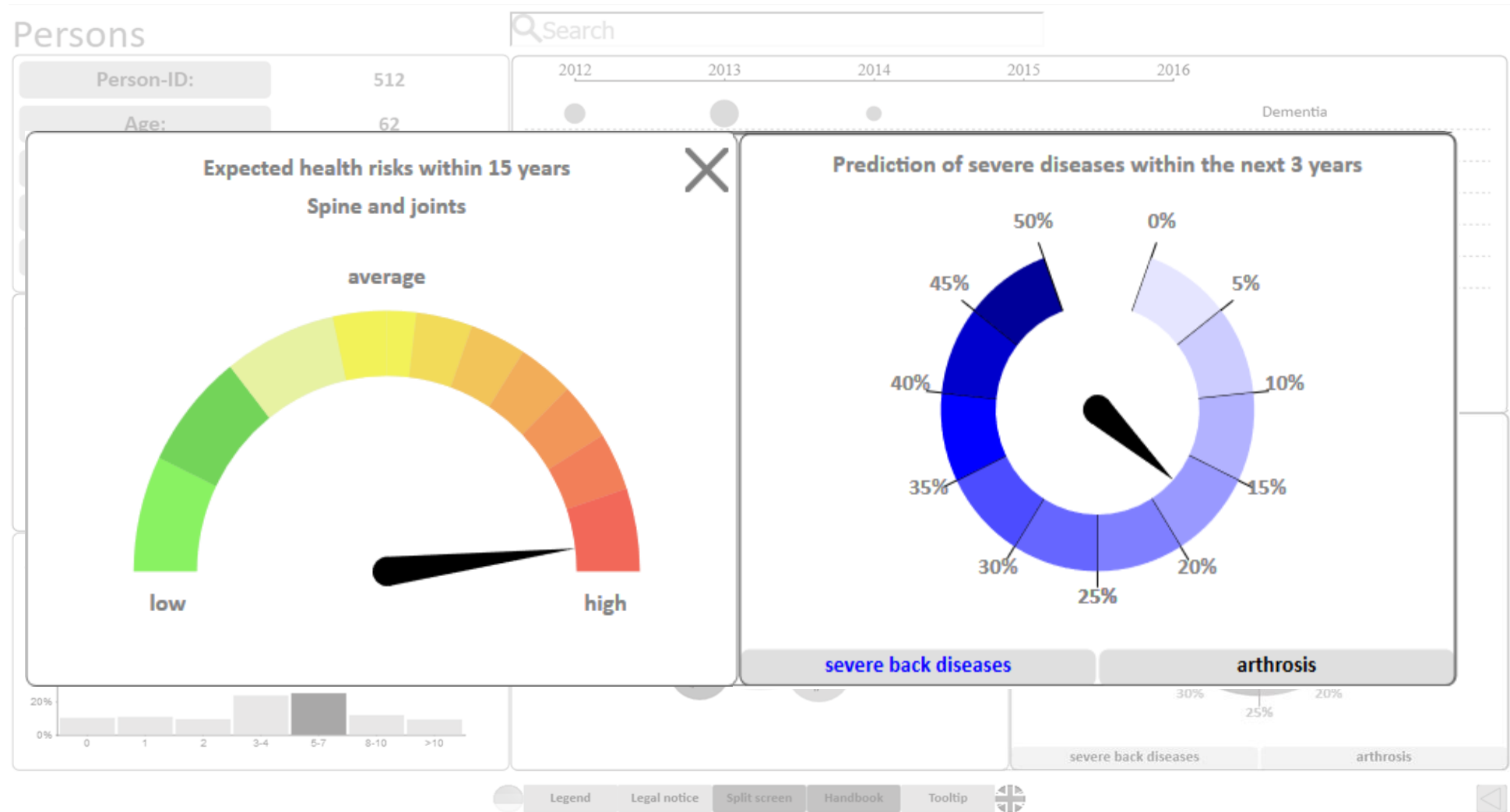
Percentage  
of all severe  
back conditions 26 %



# INDIVIDUAL MEDICAL HISTORY



# LONG- AND SHORT-TERM HEALTH RISKS



- Identification of the **individual health risks**
- **Support driven by need** → Information, tips and suggestions individually designed for the insured based on his real situation
- **Low-threshold digital offers** also for the large group of "still" healthy and not just focussed on the group with severe conditions
- Optimized **selection of potential candidates** for prevention programs and health management measures
- **Coaching** in the event of illness **and Network** with health providers
- **Services and additional offers** through insurer / partner companies  
→ prevention, fitness, wellness, nutrition...



# Health partner — During the whole live

Data Science & Data Ethics  
e-Conference by EAA

29/30 June 2020



## Contact

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