Shaping healthcare quality through data

The role of public health insurers in Germany

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Evolution...

Information, communication and knowledge...

Communicational shortcomings

20 - 40% of the services in the health care system: data recording, data processing, communication

Sectoral care as barrier

Duplication of the medical knowledge every 5 years

Globalisation and european integration

The diagnostic and therapeutic spectrum of care is getting more and more complex

Actual situation in the health care system
Contracts: Identity, fields of action, data and perspective

Establishment of innovative and insuree-friendly models

• Improvement of low-threshold access for vulnerable patient groups such as socially disadvantaged, migrants, people with disabilities, people with dementia (Billstedt/Horn)

• Structured treatment programs in DMP succession

• Further development of care in a meaningful way ("life air"), enable transitions (psychiatry)

• Shaping the transition from science to healthcare (gene sequencing)

• Interlinking new and proven interaction possibilities (apps and personal contact options)

• Developing alliances (self-help, interest groups, consumer protection)
The scope of routine claims data

Health services data

Outpatient sector

- ICD-10 diagnosis data (outpatient and inpatient)
- ATC Code for medication prescriptions
- Invoicing data from auxiliary service providers (wheelchairs, clutches, physiotherapy…)
- Emergency care transportation services
- Rehabilitation services

Inpatient sector

- DRG Codes
- Length of stay
- Admission diagnosis
- Discharge diagnosis

Patient demographics

- Age
- Gender
- Address
- Social security status
- Disability status
- Income

Provider information

- Lifelong physician/pharmacist number
- Lifelong practice number
- Hospital ID

Supplemented by

Patient satisfaction surveys
QoL surveys (SF 36 etc.)
Advantages and drawbacks of routine claims data

- **Advantages** of routine billing data:

1) **Full view** on patient „trajectory“ across providers and sectors
2) **No additional** data collection **effort**
3) High spatial granularity allowing for a „zoom“ on healthcare delivery at city level
4) **Highly regulated** area with decades of practice

- **Drawbacks** of routine data:

1) **Generally no clinical data** (exception: e.g. Disease Management Program Diabetes)
2) Availability **time-lag** of approximately 6 to 9 months in outpatient care
3) Difficult to operationalise for „outcome quality“, **limited number of „use cases“**
Results of a patient satisfaction survey: rates of recommendation

149 hospitals in Rhineland region with at least 75 responses

Each blue line represents one hospital

Source: results from 98,194 questionnaires collected in the framework of a joint survey by AOK Rheinland/Hamburg, Barmer GEK und hkk
Elective hip surgery: results from the QSR analysis

1.0 = risk adjusted event rate corresponds to federal average

Below 1.0 = risk adjusted event rate is better than federal average

Over 1.0 = risk adjusted event rate is worse than federal average

– each blue line represents one hospital
### Pflegeberaterinnen der AOK

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Examples of innovative projects that run on routine healthcare data
AOK participation in a select number of projects

INVEST Billstedt-Horn: **integrated care network** at city district level

ACD: holding physician networks accountable for quality

Arena: combating **antibiotic resistance** through data-based quality feedback in physician networks

TeLiPro: establishing a telemedical lifestyle intervention for **Diabetes Typ 2 patients**
Project INVEST: Establishing an integrated care system at city district level

A deprived neighbourhood in Hamburg: „Billstedt-Horn“
Project „INVEST“ background

- **A deprived city district:** Hamburg district „Billstedt-Horn“ characterised by
  - 106,000 inhabitants with mostly low socio-economic status
  - Above average per capita healthcare expenditure
  - Citizens with mixed ethnic origins
  - Poor access to healthcare services

Average age at time of death: 71
Actors and processes in project INVEST

Interventional objectives:
- Improve medication safety/prescription
- Reduce unnecessary hospital admissions
- Activate patients, improve access
  (→ „Gesundheitskiosk“)
INVEST Billstedt/Horn – project consortium
insurers – providers – research organisations

Gesundheit für Billstedt/Horn UG

Ärztenetz Billstedt-Horn e.V.
OptiMedis AG
Stadtteilklinik Hamburg
NAV-Virchow-Bund e.V.

Cooperating partners
Hausärzteverband Hamburg e.V.
The concept of „ambulatory care sensitive conditions“

- In 2012: 5,04 mio. inpatient cases classified as sensitive to ambulatory care
- Of which 3,52 mio. considered avoidable
- 7,2 bn EURO avoidable expenditure

Most likely causes:
- Insufficient outpatient coordination
- Insufficient cross-sectoral coordination

2015 report by WHO Regional Office for Europe
ACD – Methods 1

1. Step: Quantitative analysis of claims data by AOK RH, AOK NW and TK as well as routine data by regional physician associations.
**ACD – Methods 2**

2. **Step**: Identified networks are randomly assigned to an intervention and a control group; intervention group receives quality feedback based on data analysis; health-economic effects are analysed.

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Cluster randomisation of physician networks

- **Intervention group**: Quality feedback
  - Endpoint: hospital admissions

- **Control group**: Hospital admissions
  - Endpoint: hospital admissions

*Quelle: Projektposter ACD, 2017*
TeliPro: a life-style intervention for diabetic patients
Diabetes mellitus
share of patients, 2015

ICD10-Code: E10-E14

Source: AOK Rheinland/Hamburg, standardised according to federal census

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Prevalence of select chronic conditions
comparison of insureers with and without diabetes, 2015

Source: AOK Rheinland/Hamburg, comparison based on matching process
Inpatient admissions as a consequence of

**Diabetes mellitus**
Soc. Security recipients vs. regular employed, 2015

**Heart attack cases (diabetics)**
Social security recipients vs. regular

Quelle: AOK Rheinland/Hamburg, indirekt standardisiert

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TeLiPro Intervention

- Individual coaching based on bloodsugardata, body weight and physical activity as input factors
Telemedical life-style intervention for Diabetes patients (TeLiPro)

- **Background**: insulin dependence can be reduced, if diet is changed

- **Objective**: improve health and quality of life of Typ 2 diabetics through a long-term and sustainable change of life-style using telephone coaching in addition to routine care

- Avoid permanent dependence on insulin-medication

- **Provide 1:1 data-driven telephone coaching**
Relevance of TeliPro

- Achieving an insulin-free, high quality of life for diabetic patients

- Address individual needs of patients, especially for people with low health literacy

- Identify and address patient groups with specific needs

- Scaleability of telemedical solution
Improving care for patients with diabetic foot syndrome

- **Background:** Diabetic Foot Syndrome (DFS) is a severe complication of Diabetes; in coordinated care networks, it is largely preventable

- **Objective:** reduce major amputation rates

- **AOK’s DFS care contract:**
  - Establishment of a formal network of physicians responsible for DFS patients with clear structural requirements on the kind of expertise that needs to be available
  - Definition of „wound assistant“ qualifications
  - Appointment within 24 hrs
  - Hospital referral only to specialised units
  - Quality management system
  - Clear financial incentives for surgeons to treat DFS conservatively
Improvement of major amputation rate, DMP vs. non-DMP participation

Anteil an Versicherten mit Diabetischem Fußsyndrom

DMP-Teilnahme

keine DMP-Teilnahme
Conclusion

- Routine claims data is one vital tool to drive innovation in health service delivery

- Insurers can use their data to:
  - Control quality of care
  - Analyse weaknesses in the care delivery system (over- and undersupply)
  - Identify patient groups with particular needs (low health literacy, access problems)
  - Build new care contracts based on insights gained from data analysis

- AOK Rheinland/Hamburg is actively engaged in a high number of projects that make use of routine data to improve healthcare
Innovative Treatment

Molecular diagnostics and personalized therapy for lung cancer (University of Cologne):

An integrated care contract as a motor for innovation

Patient from Cologne with ROS1 translocation under therapy with ROS inhibitor

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Multitude of potential starting points target orientated therapy in oncology

- EGFR-Inhibitors
  - Preservation of proliferative signal cascade
- Cyclin dependent Kinaseinhibitors
  - Circumvention of growth inhibition
  - Prevention of destruction by the immune system
- Immune-activating Anti-CTLA4 mAb
  - Unlimited Replication
  - Tumor stimulating inflammation
- Telomerase-inhibitors
  - Unlimited Replication

- Inhibitors of the aerobic glycolysis
  - Deregulation of cellular energy balance
  - Apoptosis-resistance
- proapoptotic BH3-Mimetika
  - Instability of the genome and mutation
- PARP-Inhibitors
  - Stimulation of the angiogenesis
- Inhibitors of the VEGF-Signalling
  - Activation of invasive growth and metastasis
- Inhibitors HGF/c-Met
  - Selective anti-inflammatory agents

- Lung-Ca e.g. EGFR, ALK, MET, ROS-1, KRAS, RET...

Source: Adapted from Steward J, Naeymi-Rad N, et al.
Implementation of molecular diagnostics and personalized therapy in lung cancer

- Network Genomic Medicine (NGM) lung cancer of the University of Cologne
- Many years of experience with mutation analysis and high method competence (high number of NGS-based diagnostics per year)
  - High level of consulting competence
  - Continuous accompanying evaluation
  - Participation in relevant clinical studies
  - Knowledge and guarantees of the latest therapeutic approaches
  - Second opinion for patients
  - Patient-oriented study participation
- Contract on the basis of integrated health care (§§ 140a-d SGB V [old]).
- Start with the AOK Rheinland/Hamburg in April 2014
- Accession of other German health insurance companies: KKH, BKK Novitas, BKK VBU, BIG direkt gesund, BKK Viactiv, Barmer, SBK, and TK.
- Genome profiling

Source: aacc.org