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# Secondary use of administrative data to compare healthcare provider quality

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## About Slovenia and Compulsory Health Insurance

- Population: 2,1 million
- GDP €63 bn in 2023
- Healthcare expenditure total €5.46 bn in 2022
- More than 130 years of health insurance in Slovenia
- Compulsory health insurance formally covers entire population (100%)
- Health Insurance Institute of Slovenia (HIIS) is the sole compulsory HI provider
- HIIS has 3 main tasks:
  1. Collecting funds: Funds are collected as proportional contributions
  2. Manage the system of benefits
  3. Contracting with HC providers



# Secondary use of data

## Secondary data

- Information that has been collected, processed, and published by someone else, rather than the researcher gathering the data firsthand and in most cases for different purpose than the researcher needs it. It encompasses various types of data from existing sources.

## Usage

- Research, analysis, studies, decision-making.

„European Health Data Space (EHDS) will provide a consistent, trustworthy, and efficient system for reusing health data for research, innovation, policy-making, and regulatory activities“

Source: [European Health Data Space - European Commission \(europa.eu\)](https://european-health-data-space.eu/)

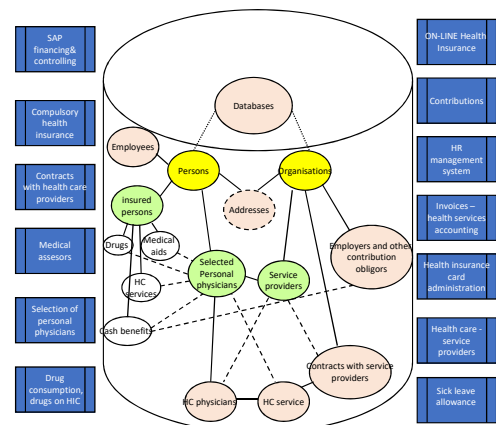


# Data at HIIS

- Basic purpose is collecting billing data for services
- Detailed, individual level data
- Since 2013 all collected data is in electronic form
- High quality data (800+ automated controls)
- Structured data
- Use of data warehouse and BI tool for analytics
- But this billing data also include:
  - demographic data
  - diagnoses
  - procedures
  - drug consumption
  - sick leave
  - date/time information of services



Good foundation for analyzing and researching within HIIS and other stakeholders.



# Task and objectives

## Task

- establish Quality Indicators (QIs) for comparing HC providers

## Primary Goals

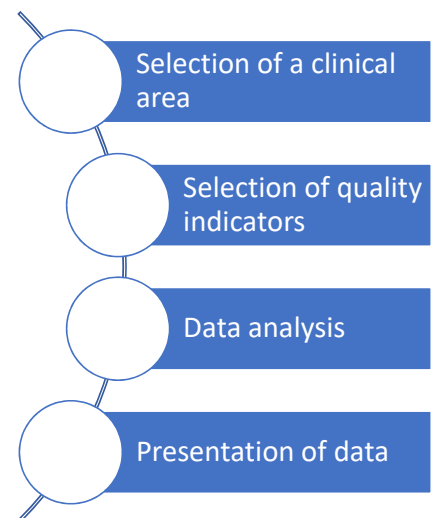
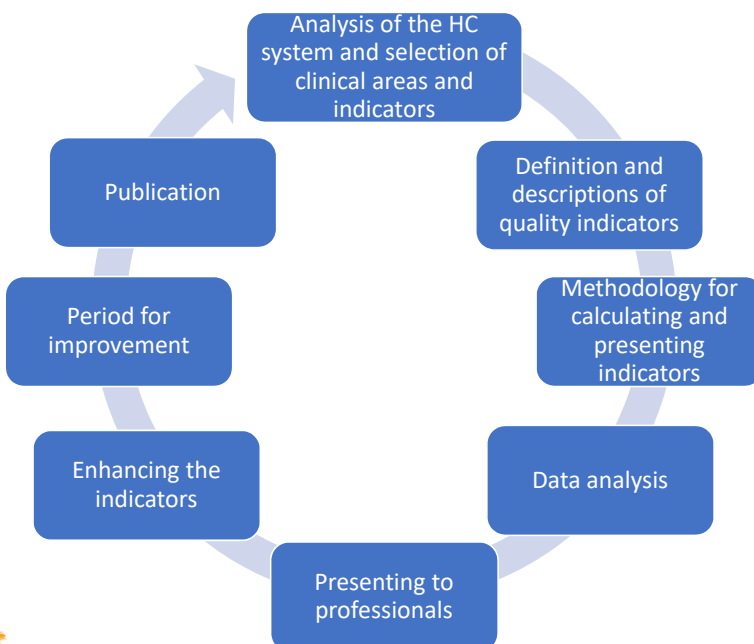
- Develop QIs for various medical treatments, providing healthcare providers with a benchmark for comparison.
- Present these indicators to insured individuals, facilitating their decision-making process when selecting a healthcare provider for their medical needs



Use available data



# Process of developing QIs

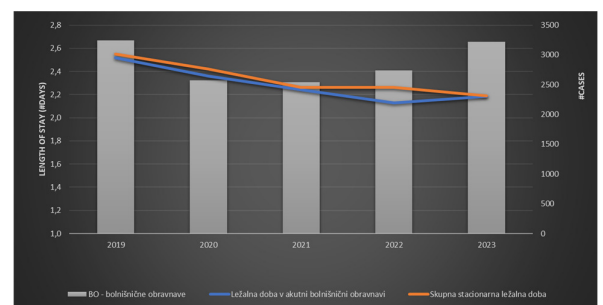
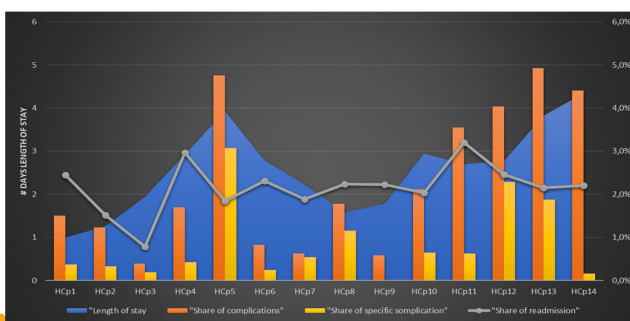
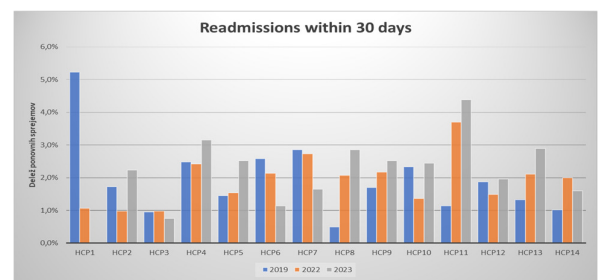
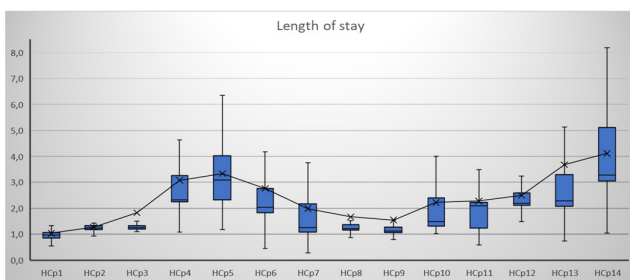


# Selection of QIs

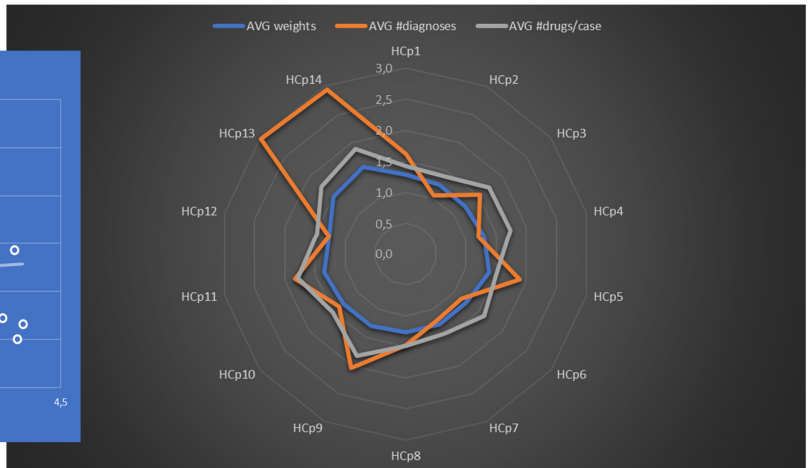
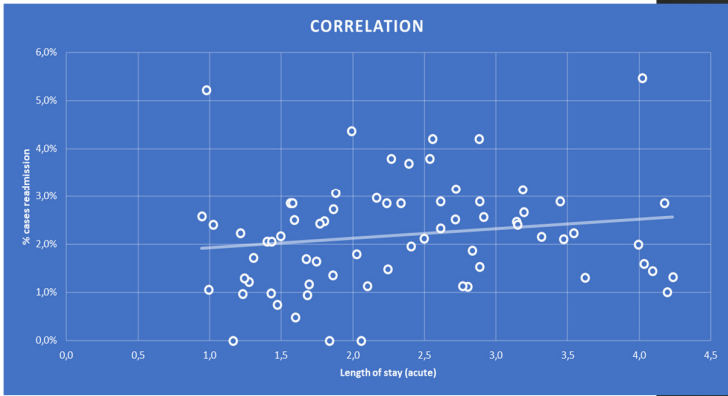
QIs	Data available
Length of stay	✓
Complications after surgery	✓
Readmissions within 30 days after discharge	✓
Mortality rate	✓



# Presenting QIs in charts



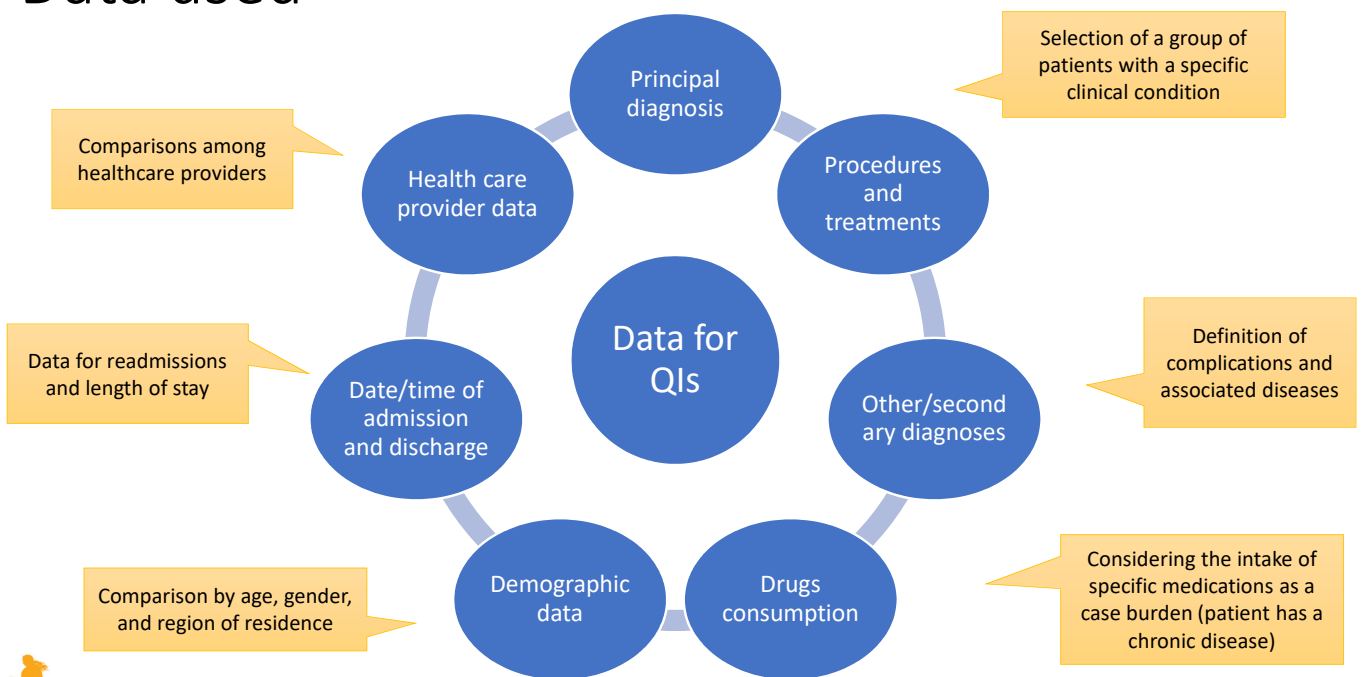
# Data enrichment



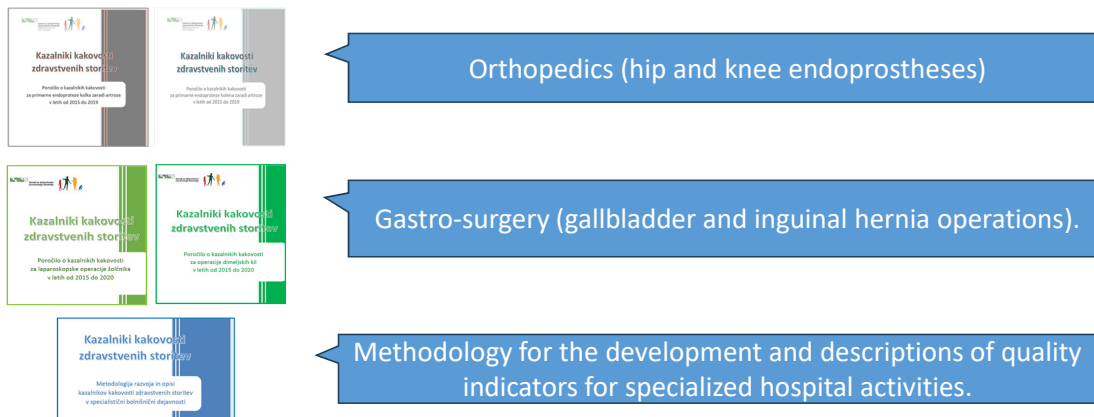
ENDOPROTEZA KOLENA 2018	IZV 1	IZV 2	IZV 3	IZV 4	IZV 5	IZV 6	IZV 7	IZV 8	IZV 9	IZV 10	IZV 11	IZV 12
Ležalna doba v akutni bolnišnični obravnavi (ABO) (dnevi)	●	●	●	●	●	●	●	●	●	●	●	●
Skupna stacionarna ležalna doba (ABO+NBO+PREM+NZZ+R)	●	●	●	●	●	●	●	●	●	●	●	●
Delež oseb z zapleti med bivanjem v bolnišnici	●	●	●	●	●	●	●	●	●	●	●	●
Delež ponovnih sprejemov v 30 dneh skupaj	●	●	●	●	●	●	●	●	●	●	●	●



# Data used



# Data presented in a report



## Lessons learned

### Advantages

- Data for entire population
- High accuracy and quality data (controlled)
- Data warehouse and BI tool
- Historical data (since 2013)
- Used only data available at HIIS, no additional burden on healthcare providers
- Automate data wrangling and analysis as much as possible



# Lessons learned

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## Limitations

- Gaps in clinical information
- Differences (and errors) in the coding of diagnoses and procedures
- Knowledge in statistics
- Integrating external data sources
- Data privacy protection



# Conclusion

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The administrative health database represents an important source of information for comparing quality between providers, thus giving the information to providers for quality improvement and to patients for easier choice of the appropriate provider.

However, to achieve improvement of QIs and gain wider recognition, collaboration from professionals and other stakeholders in the system is required, as well as additional data that is not currently available.



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