

RESULTS OF THE PROJECT ATC-ICD

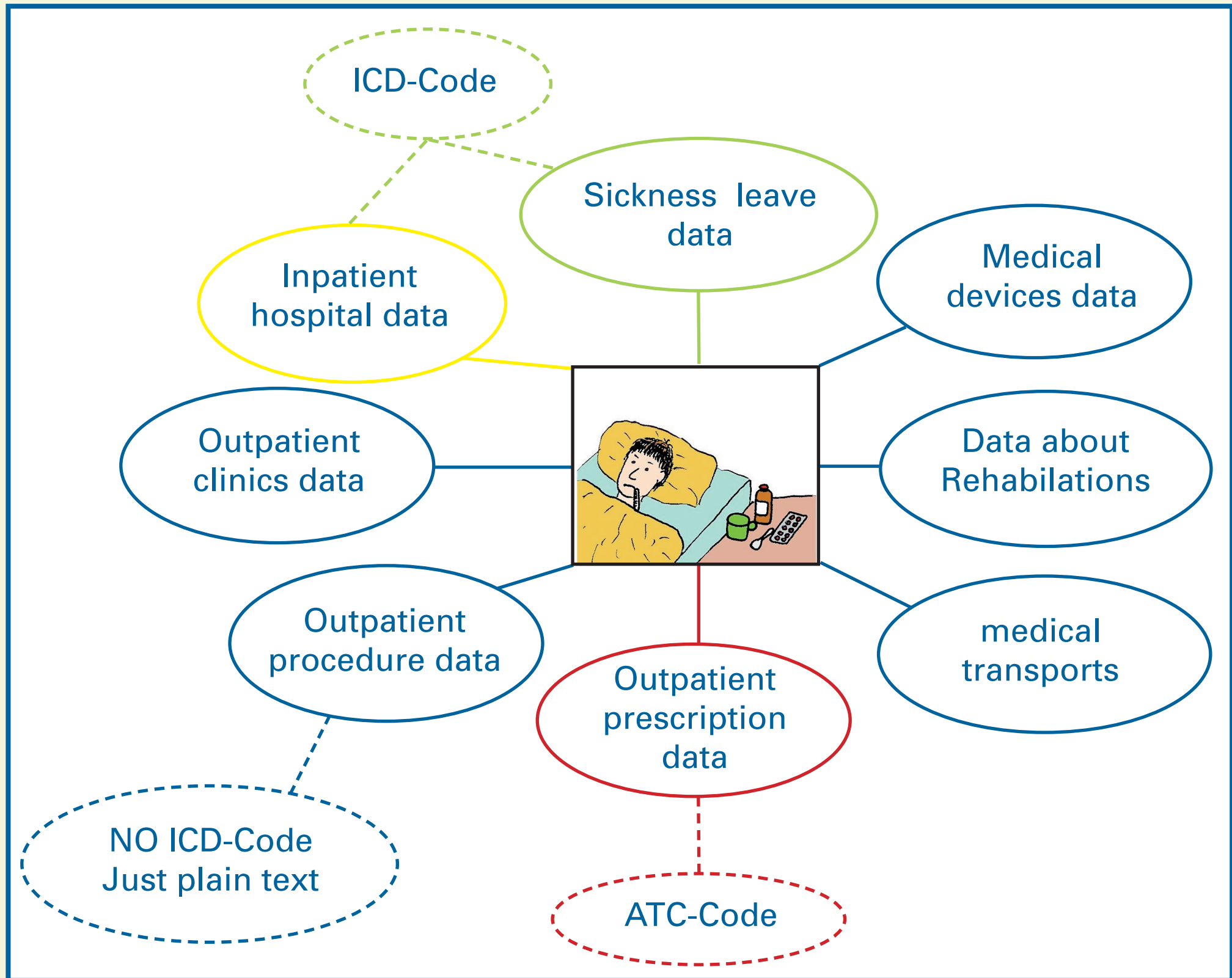
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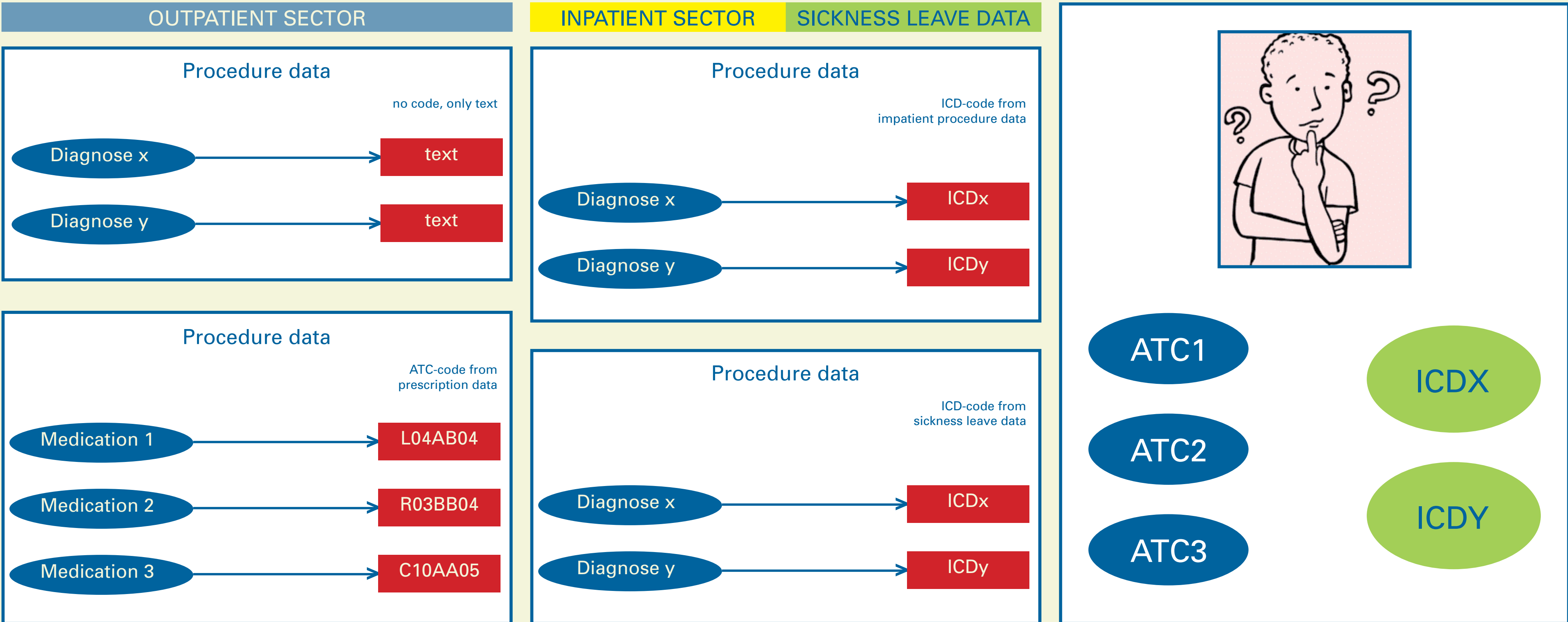
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BACKGROUND



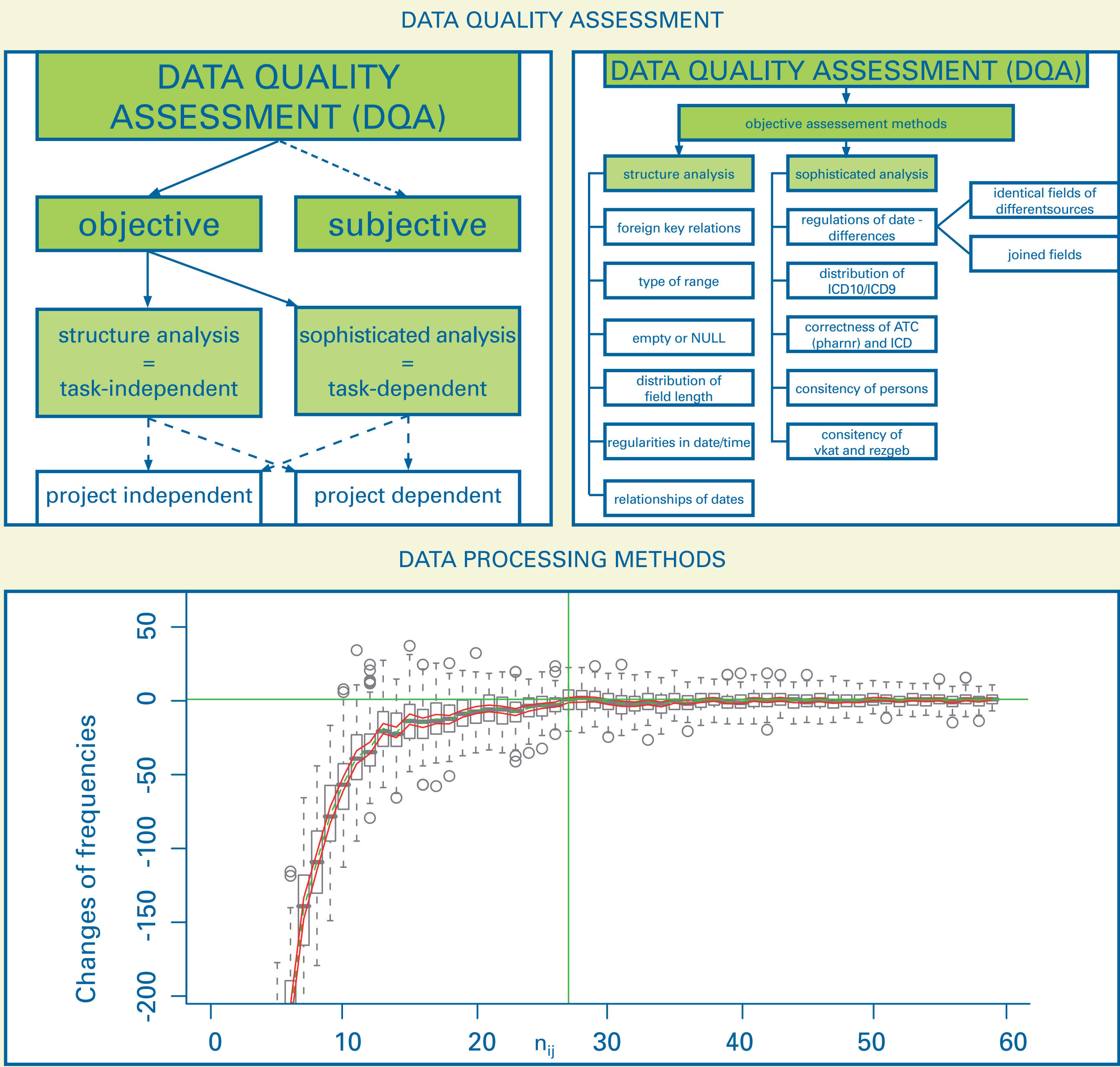
This overview resembles the data landscape in the Austrian Social Security System. As displayed, a lot of patient information is available, however, there are some challenges that have to be faced.

THE CHALLENGE



In the Austrian outpatient sector there is no standardized coding of diagnoses, ICD-Codes exist only for sickness leave data and inpatient hospital data. The only coded information available in the outpatient sector is ATC codes from prescription data. Therefore, a matching between ATC-codes and ICD-9-codes was conducted in order to obtain valid diagnoses for each patient.

METHODS



In order to obtain the specific assignment of the codes data about prescriptions, inpatient care and data about sickness leave was available per person. There were two approaches to assess the data quality: First, a structural analysis checking the specific fields in the database for characters and missing data was conducted. This objective approach is project-independent.

Next, a sophisticated, project-dependent analysis was necessary to identify possible improvements of the data quality.

Once the data was prepared for the statistical analyses to identify the respective assignments of ATC-codes to ICD-codes the data processing and clustering was initiated. Different methods like chi-square test and bootstrapping helped identify these assignments of ATC-codes to ICD-codes.

CONCLUSIONS

Using the combination of the statistical methods and the experts' opinion for assigning ICD-codes to ATC-codes with a certain probability seems to be a good method to establish the feasibility of such an approach.

After having obtained this list of assignments, they have to be implemented using a special algorithm that includes either the probability of the respective assignments and the frequency of the occurrence of the ATC-codes.

Once this algorithm is implemented, every patient in the outpatient sector can be assigned one or more diagnoses - at a certain time or for a time period - based on prescription data only.

RESULTS

Since the assignments using ATC-code level 5 and ICD-Code level 4 were non-significant, ATC-code levels 1-3 and ICD-code levels 1-2 were used for this evaluation. Moreover, the results were compared to the assignments made by experts.

In the end, there were approximately 320 assignments with their respective probabilities that were in line with the experts' opinion. About 751 assignments varied from those of the experts. However, those assignments could be improved by distinguishing among sex and age classes instead of treating all persons equally.

ATC-Code	ATC-Text	ICD-9-Code	ICD-9-Text	Probability	Experts' Opinion
A07C	Electrolytes with carbohydrates	9	III-defined intestinal infections	100	TRUE
A07D	Antipropulsives	9	III-defined intestinal infections	69,85	TRUE
A07D	Antipropulsives	465	Acute upper respiratory infections of multiple or unspecified sites	30,15	FALSE
A07E	Intestinal anti-inflammatory agents	556	Intestinal obstruction without mention of hernia	52,02	TRUE
A07E	Intestinal anti-inflammatory agents	569	Other disorders of intestine	7,52	FALSE

REFERENCES

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