

Health Care Utilization Research in Germany: Characterization of the Nordbaden Database

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Background

The Nordbaden Project was initially established in 2003 as a cross-sectional analysis of the administrative prevalence, resource use, and direct medical costs associated with attention-deficit/hyperactivity disorder (ADHD). Since its inception, the project has evolved into an integrated longitudinal patient-centered database, allowing to follow-up identified patients over prolonged periods of time and to study the impact of moderators (e.g., coexisting conditions) and mediators (e.g., specialist involvement) on the quality and cost of health care services provided. The database enables a broad range of retrospective health care utilization studies based upon claims data of the *Kassenärztliche Vereinigung* (KV) in Nordbaden ("Regierungsbezirk Karlsruhe"), an above average affluent region in South-Western Germany.

Objectives

The Nordbaden database comprises the complete regional population enrolled in statutory health insurance (SHI; >2.2 million lives). Based upon prospective data analysis plans, the vdek group of sick funds within SHI (850,000 covered lives in year 2009) offers prescription data for the subsample of patients insured by its member companies.

The objective of the present report is to offer information about key sociodemographic characteristics of the study sample, including a comparison to national averages (for year 2009) in order to illuminate its representativeness as well as important limitations of generalizability of findings.

The data hopefully will assist users and recipients in making their own judgments of the usefulness of analyses based on the Nordbaden Project.

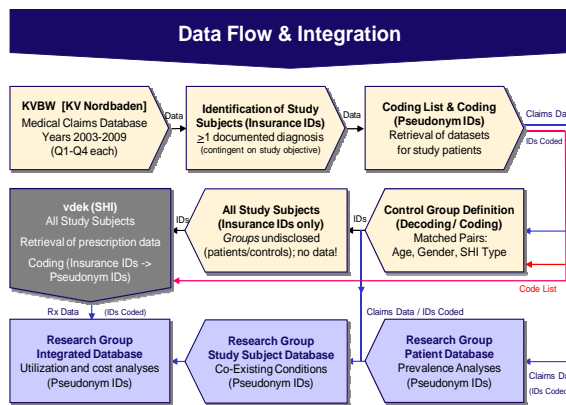


Figure 1: Illustration of data flow and protection of individual patient data (Nordbaden Project, 2003-2009), enabling health care utilization studies comparing patient group of interest with matched controls. Note that there is no direct exchange of identifiable patient-related data between KV and vdek. The research database consists of pseudonymized data only.



Figure 2: Nordbaden, the administrative district of Karlsruhe ("Regierungsbezirk Karlsruhe") in the German state of Baden-Württemberg, comprises major parts of the Metropolitan Area Rhine-Neckar (Metropolregion Rhein-Neckar) with its major cities of Mannheim and Heidelberg (the third major city, Ludwigshafen, is a part of the state of Rhineland-Pfalz) as well as the urban areas (Stadtkreise) of Baden-Baden, Karlsruhe and Pforzheim, and seven rural areas (Neckar-Odenwald-Kreis, Rhein-Neckar-Kreis, Landkreis Karlsruhe, Landkreis Rastatt, Landkreis Calw, Enzkreis, and Landkreis Freudenstadt). The district is structured in three regions (Rhein-Neckar, Mittlerer Oberrhein, Nordschwarzwald).

Documentation

Table 1: The Sample: Nordbaden Study Population

As at December 31, 2008. Source: Bundesministerium für Gesundheit, KM6 Statistik, and regional data

	Nordbaden	Germany
Population		
Total number	2.739 m	82.218 m
Insured by SHI	2.24 m (81.8%)	70.244 m (85.4%)
of those		
male/female ratio	0.88 / 1	0.86 / 1
0 - 5 years	113.175 (5.1%)	3.504 m (5%)
6 - 12 years	152.026 (6.8%)	4.578 m (6.5%)
13 - 17 years	123.303 (5.5%)	3.644 m (5.2%)
18 +	1.851.871 (82.7%)	58.518 m (83.3%)

Table 2: Sociodemographic overview, Nordbaden, Baden-Württemberg, and Germany

As at December 31, 2009. Source: Statistische Ämter des Bundes und der Länder

	Nordbaden	Baden-Württemberg	Germany
Population	2.74 million	10.745 million	81.802 million
Area	6.919 km ²	35.752 km ²	357.123 km ²
Population density	396 / km ²	301 / km ²	229 / km ²
GDP	90.658 billion €	341 billion €	2,397 billion €
GDP/capita	33,087 €	31,752 €	29,278 €

Table 3: Population, physicians, and physician density in the district of Nordbaden

Abbreviations: NoBa, "Nordbaden" (Regierungsbezirk Karlsruhe); APs, general practitioners and (g.p.'s) and specialists in internal medicine working as g.p.'s; Peds, pediatricians; MA, City of (Stadtkreis) Mannheim; HD-S, City of (Stadtkreis) Heidelberg; MOS, Neckar-Odenwald-Kreis; HD-L, Rhein-Neckar-Kreis, all in the Region Rhein-Neckar; BAD, City of (Stadtkreis) Baden-Baden; KA-S, City of (Stadtkreis) Karlsruhe; KA-L, Landkreis Karlsruhe; RA, Landkreis Rastatt, all in the Region Mittlerer Oberrhein; PF-S, City of (Stadtkreis) Pforzheim; CW, Landkreis Calw; PF-L, Enzkreis; FDS, Landkreis Freudenstadt, all in the Region Nordschwarzwald; Pop., population (as at December 31, 2009); data source: Regierungspräsidium Karlsruhe (2012); data sources on health care providers: KV BaWue Anhang zum Versorgungsbericht (2010); KBV Grunddaten (2010)

Local Area (Kreis)	Population (Dec. 31, 2009)	APs	Population (persons) per APs	Peds	Population (persons) per Ped	Mental Health (MH) Specialists	Population (persons) per MH Specialist	Psycho therapists	Population (persons) per Psycho
KA-S	291,959	200	1,460	28	10,427	43	6,790	131	2,229
BAD	54,494	52	1,048	5	10,899	5	10,899	19	2,868
PF-S	119,788	83	1,443	11	10,890	15	7,086	51	2,349
MA	311,969	222	1,405	34	9,176	39	7,999	159	1,962
HD-S	146,466	111	1,320	17	8,616	39	3,756	193	759
KA-L	431,606	255	1,693	29	14,883	22	19,618	58	7,441
RA	226,912	132	1,719	17	13,348	8	28,364	23	9,866
MOS	147,782	93	1,589	8	18,473	8	18,473	13	11,368
HD-L	536,281	374	1,434	49	10,945	37	14,494	120	4,469
CW	158,085	105	1,505	9	17,562	10	15,806	30	5,269
FDS	120,677	79	1,527	6	20,106	5	24,127	22	5,484
PF-L	194,554	128	1,520	12	16,213	9	21,617	25	7,782
NoBa (total)	2,740,503	1,834	1,494	225	12,180	240	11,419	844	3,247
Urban Areas	924,676	668	1,384	95	9,731	141	6,558	353	1,672
Rural Areas	1,815,827	1,166	1,557	130	13,966	99	18,342	291	6,240
For comparison, Germany		1,363			13,966		17,200		3,864

Summary and Suggested Conclusions

The demographic structure (by age and gender) of the Nordbaden sample (including its vdek subgroup, available for prescription analyses) compares well to the national population. However, regional population density is much higher (396/sqkm versus 229/sqkm in 2009), and GDP per capita (34,800€ versus 29,300€) as well as the rate of persons insured by private sick funds (instead of SHI: 18.2% versus 14.6%) exceed the national average. There are also relatively more health care specialists in Nordbaden (for example, 11,400 persons per mental health care specialist and 3,200 per psychotherapist) compared to Germany (17,200 and 3,900, respectively), whereas the relative number of general practitioners in the region is somewhat lower (with 1,500 persons per g.p. versus 1,400).

The Nordbaden sample constitutes a well-characterized study population. However, interpretation of observations should take into account the well-documented differences between region and nation. – On request, further data are available from the project initiators.

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