

Has the DRG system impacted on inpatient allergy care in university dermatology departments in Germany?

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Keywords

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- provocation test
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Summary

Background: Diagnostic provocation tests (ICD Z01.5) have a low cost weight in the German DRG system. We aimed at investigating a possible economic impact on the number of provocation tests in German university medical centers (UMC) for dermatology.

Methods: We review quality records of 35 German UMC for 2008 and 2010 (ICD Z01.5, total number of patients as well as priority ranking).

Results: 33/35 hospitals gave full data for both years including the ten most frequent diagnoses. Between 2008 and 2010, total number of patients treated increased in 23/33 (70 %) UMC, those with ICD Z01.5 only in 11/24 (46 %) UMC with full data. In 2008, the ICD Z01.5 was in the top ten list of main diagnoses in 29/33 (88 %) hospitals, in 2010 in 25/33 (76 %); also, priority ranking tended to decrease. In contrast, total number of ICD Z01.5 in Germany tended to increase slightly.

Conclusions: We noticed a tendency for decreasing numbers of provocation tests being performed in dermatological UMC in Germany. As there is no evidence for a decreasing number of patients suffering from allergies, one may speculate about a shift to non-university departments due to an economic impact.

Introduction

Diagnostic skin and sensitization testing (ICD Z01.5) with drugs, food stuffs or insect venoms are usually performed on an inpatient basis in Germany due to special requirements (e.g. emergency care, follow-up observation) [1–3]. In the German system of Diagnosis Related Groups (DRG) [4, 5] ICD Z01.5 is assigned a low relative cost weight [6–8]. In this paper we examine if parallel to the devaluation in the DRG system between 2008 and 2010 (Figure 1) a reduced number of this allergological standard procedure resulted in German university medical centers (UMC).

Methods

Since 2005 hospitals are obliged (Book V of the German Social Code) to regularly

publish quality reports with structural and performance data. The following analysis takes the reports of the years 2008 and 2010 into consideration (www.deutsches-krankenhaus-verzeichnis.de). The following particulars were extracted: the complete inpatient case number, cases with the main diagnosis ICD Z01.5, rank of ICD Z01.5 among the ten most frequent main diagnoses (provided, it is reported). Usually the absolute case numbers of at least ten of the most common diagnoses and their rank were published. Further information is not obligatory, so that it might remain unclear, if and in what number of cases this diagnosis was treated. When details were lacking, the rank of ICD Z01.5 was assumed as > 10 in these cases. The two existing case numbers were put into rela-

tion in order to determine which share ICD Z01.5 had in each individual dermatology university medical center and thus which significance it possessed. Further, the case numbers of ICD Z01.5 were taken from the DRG browser, in order to gain an overview of how they had developed in all – even non-university – hospitals.

Results

Of 35 dermatological university medical centers (UMC), 33 reported their inpatient cases with the relevant DRG main diagnosis. Two clinics (No. 28 for both years, No. 32 for 2010) have not published such data. Of the clinics 23/33 (70 %) were able to increase their median case numbers from 2008 (2,117) to 2010 (2,169), with a large range being

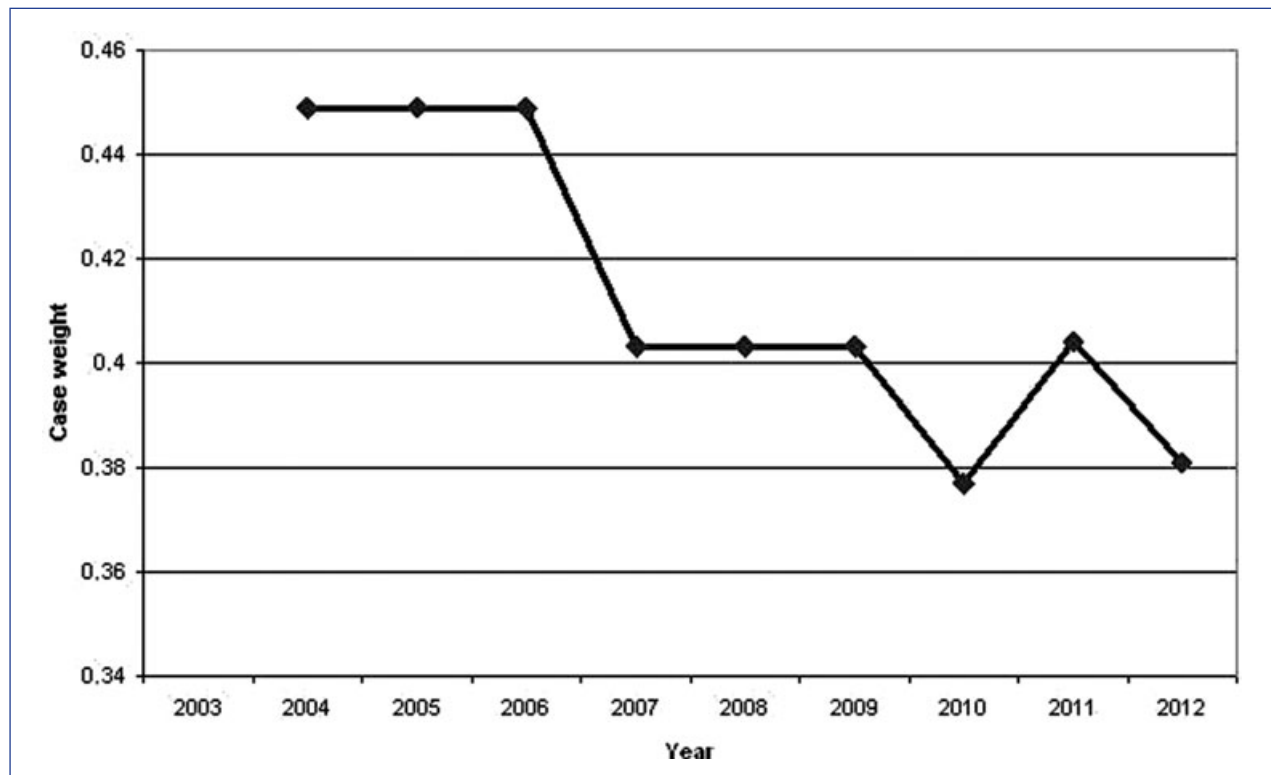


Figure 1: Case weight for diagnostic skin and sensitization testing (ICD Z01.5) over time (2004–2012).

evident. The total case number rose in the time period by 4,966 (+6.7 %) and in the median by 53 cases (+2.5 %) (Table 1).

In 2008 ICD Z01.5 was among the ten highest ranked diagnoses in 29/33 (88 %) of the clinics (Figure 2; case numbers between 26 and 559, median 100). In 2010 case numbers were available only for 25/33 (76 %) of the clinics (26–250; median 115). For 8/33 (24 %) of the clinics no information was available for the year 2010, for three of these eight clinics (No. 3, 8, 29) no data were available for both years. In five clinics (No. 3, 13, 23, 31, 33) ICD Z01.5 was displaced from the list of the ten most frequent diagnoses within the two years. Only in one clinic (No. 26) ICD Z01.5 appears newly in the list of the ten most frequent diagnoses in 2010.

Among the ten other most frequent diagnoses in both years in most UMC were melanoma (C43), other malignant tumors of the skin (C44), inflammatory (L40, psoriasis; L20, atopic dermatitis) or infectious (A46, erysipelas; B02 herpes zoster) diseases. The distinct differences in the frequency of ICD Z01.5 between the clinics (e.g. rank 1 in clinic No. 1 vs. rank > 10 in many others) are notable. Further striking is the severe de-

cline in cases of ICD Z01.5 in clinic No. 33, where the rank order changed from 3 in 2008 to > 10 in 2010.

When evaluating the development of case numbers, valid assessments could only be made for the UMC with published values for both years (24/33). Even in these clinics, where ICD Z01.5 belonged to the ten most frequent diagnoses in both years and that could be considered active in allergy care, the total case number of ICD Z01.5 changed from 2008 to 2010 from 2,682 to 2,623 and thus sank by 2.2 %. In contrast to the increased total case numbers (in 70 % of the dermatological UMC), the case number for ICD Z01.5 rose in only 11/24 (46 %) of the clinics within the two years. This represents a below-average growth of ICD Z01.5 in comparison to other indications.

Surprisingly, in contrast to this trend in the UMC, the total case numbers of ICD Z01.5 increased overall in Germany (Figure 3).

Discussion

The present paper demonstrates that dermatological university medical centers in the vast majority (70 %) increased their total case numbers in the compari-

son of the years 2008 and 2010, but not to the same extent the number of allergological provocation tests (increase by 46 %). Provocation testing did in fact belong to the ten most frequently coded inpatient diagnoses in the majority of clinics. Overall, however, there were great differences between the individual clinics. No published data exist on the respective shares of provocation tests for drugs, food stuffs or insect venoms. In Leipzig testing of drugs constitutes the predominant share [9].

The numbers presented here must be interpreted cautiously, as not all clinics fully revealed the data for the years studied and distortions could result. Further, no estimations on the quality of data exist. The great dynamics in the case numbers in individual clinics is surprising. Overall, the data we present indicate a reduction of case numbers of diagnostic provocation testing in dermatological university medical centers. One can only speculate as to the reasons.

Provocation testing as the accepted gold standard is not drawn into question in principle [1, 2, 9, 10], even though exact evaluation studies are lacking. As intolerance reactions and allergies demonstrate an increasing incidence in recent years,

Table 1: Overview of 35 dermatological university medical centers (UMC) in Germany: Number of inpatients being treated under the main diagnosis of ICD Z01.5 in the years 2008 and 2010 (k. D.: no detailed data published; k. A.: no detailed number of cases given, as diagnosis did not belong to the top ten priority diagnoses; n. a.: not applicable). Highlighted in grey: increased values when comparing 2010 and 2008, bold: data available for both years investigated. Sum differences for ICD Z01.5 were not calculated because of non-identical number of UMC to be included. Data from UMC 28 and 32 were not included in further evaluation (crossed out).

Clinic	Relevant department			ICD Z01.5			Z01.5 % of department		
	2008	2010	Δ in %	2008	2010	Δ in %	2008	2010	Δ in %
1	1,234	1,058	-14.3	116	126	8.6	9.4	11.9	26.6
2	4,844	4,434	-8.5	293	250	-14.7	6.0	5.6	-6.7
3	3,901	4,211	7.9	k. A.	k. A.	n. a.	k. A.	k. A.	n. a.
4	2,037	2,091	2.7	103	112	8.7	5.1	5.4	5.9
5	2,099	2,092	-0.3	57	73	28.1	2.7	3.5	29.6
6	2,197	2,602	18.4	146	127	-13.0	6.7	4.9	-26.9
7	2,236	2,143	-4.2	147	145	-1.4	6.6	5.7	-13.6
8	2,761	3,029	9.7	k. A.	k. A.	n. a.	k. A.	k. A.	n. a.
9	2,093	2,169	3.6	82	87	6.1	3.9	4	2.6
10	1,983	2,095	5.6	169	119	-29.6	8.5	5.7	-32.9
11	1,017	1,170	15.0	95	40	-57.9	9.3	3.4	-63.4
12	2,133	2,298	7.7	84	k. A.	n. a.	3.9	k. A.	n. a.
13	1,157	1,301	12.4	39	k. A.	n. a.	3.4	k. A.	n. a.
14	1,753	1,545	-11.9	61	61	0.0	3.5	4	14.3
15	1,839	1,742	-5.3	92	59	-35.9	5	3.4	-32.0
16	2,462	2,434	-1.1	110	125	13.6	4.5	5.1	13.3
17	1,985	2,207	11.2	134	166	23.9	6.8	7.5	10.3
18	2,547	2,451	-3.8	71	47	-33.8	2.9	1.9	-34.5
19	1,941	1,816	-6.4	102	78	-23.5	5.3	4.3	-18.9
20	2,497	2,782	11.4	151	163	7.9	6.1	5.9	-3.3
21	1,773	2,027	14.3	160	151	-5.6	9	7.5	-16.7
Leipzig	2,201	2,314	5.1	104	123	18.3	4.7	5.3	12.8
23	1,522	2,041	34.1	66	k. A.	n. a.	4.3	k. A.	n. a.
24	2,440	3,516	44.1	75	89	18.7	3.1	2.5	-19.4
25	2,117	2,071	-2.2	26	26	0.0	1.2	1.3	8.3
26	2,506	2,793	11.5	k. A.	45	n. a.	k. A.	1.6	n. a.
27	1,570	1,753	11.7	57	99	73.7	3.6	5.7	58.3
28	~~k. D.~~	~~k. D.~~	n. a.	~~k. D.~~	~~k. D.~~	n. a.	~~k. D.~~	~~k. D.~~	n. a.
29	2,674	3,164	18.3	k. A.	k. A.	n. a.	k. A.	k. A.	n. a.
30	2,709	3,489	28.8	126	179	42.1	4.7	5.1	8.5
31	2,058	2,064	0.3	72	k. A.	n. a.	3.5	k. A.	n. a.
32	~~1,096~~	~~k. D.~~	n. a.	59	~~k. D.~~	n. a.	~~5.4~~	~~k. D.~~	n. a.
33	4,021	4,232	5.2	559	k. A.	n. a.	13.9	k. A.	n. a.
34	1,591	1,648	3.6	129	115	-10.9	8.1	7	-13.6
35	2,283	2,365	3.6	76	63	-17.1	3.3	2.7	-18.2
Sum	74,181	79,147	6.7	3,561	2,668		164.4	120.9	
Min	1,017	1,058	1	26	26		1.2	1.3	
Max	4,844	4,434	-8.5	559	250		13.9	11.9	
Median	2,117	2,169	2.5	100	115		4.7	5.1	
Mean	2,248	2,398	1.1	121	107		5.5	4.8	
Data from n clinics	33	33	33	30	25	24	30	25	24
Increased in n clinics			23/33			11/24			11/24

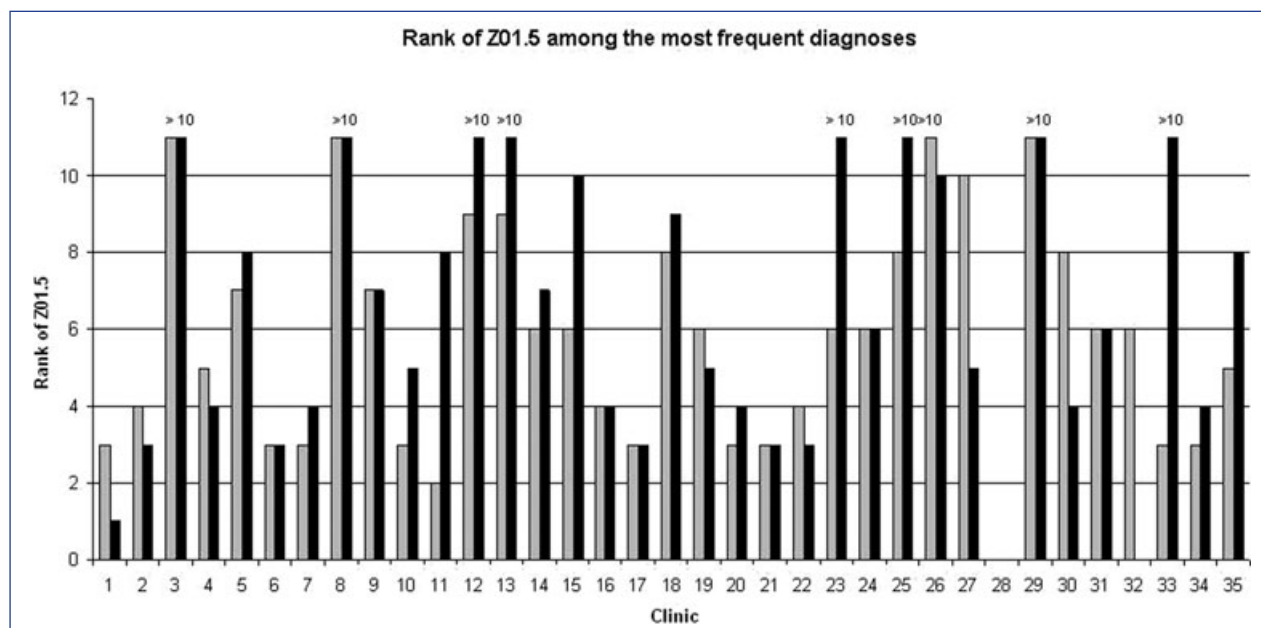


Figure 2: Rank of ICD Z01.5 in the years 2008 (grey) and 2010 (black). Some clinics did not publish detailed data (missing data for No. 28 for both years, for No. 32 for the year 2010).

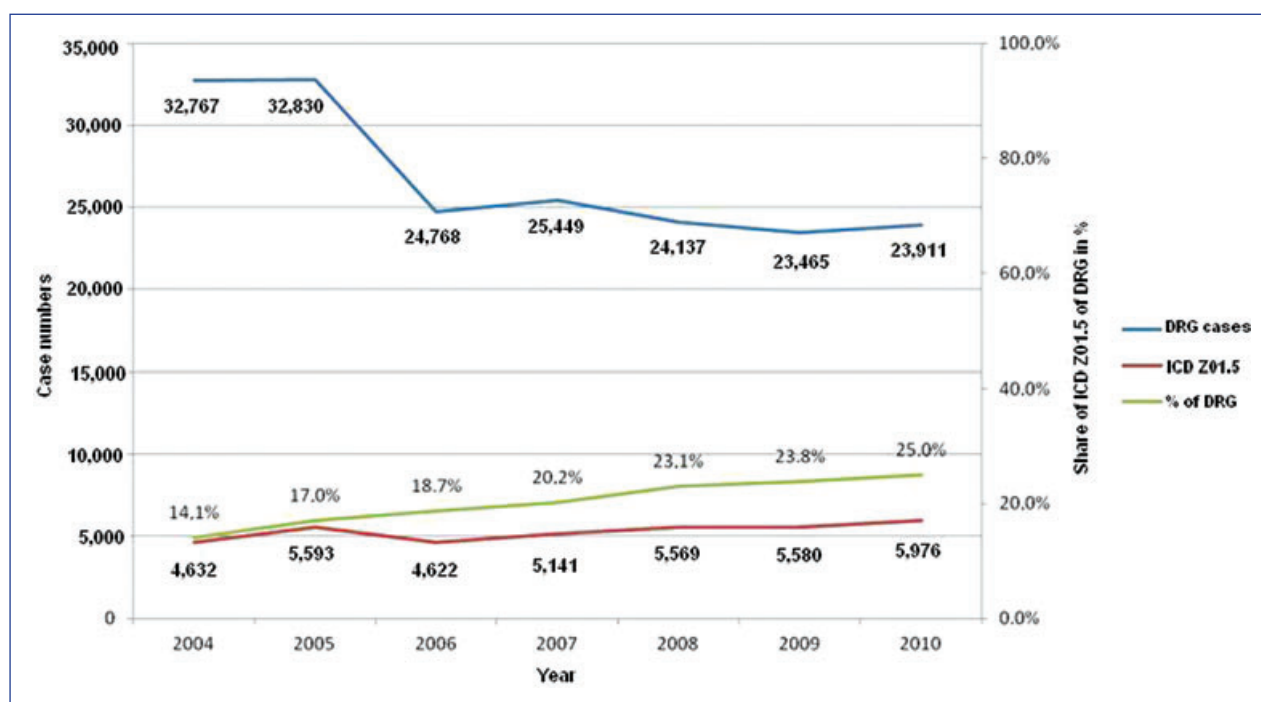


Figure 3: Patient numbers for diagnostic skin and sensitization testing (ICD Z01.5) and for respective DRG cases in Germany (2004–2010).

decreasing demands appear not to be a prime cause [11, 12]. This is confirmed by the overall slight increase in case numbers of ICD Z01.5 Germany-wide. It must therefore be suspected that care has shifted more to non-university centers or to other medical specialties. Dermatological university medical centers appear to adapt their inpatient service offer by less prioritization of provocation testing. Should this trend continue, it

could impact allergological research and training, in as far as it does not merely represent a displacement into the outpatient or day clinic sector of the clinics. Other causes could be that the data presented do not correctly depict the performed testing (e.g. testing of food additives in urticaria with coding as ICD L50 instead of ICD Z01.5). In dermatological clinics, on the other hand, there has been an increase in onco-

logical cases in recent years [13], resulting in an disproportional increase of case numbers and a partial displacement of allergological cases. Here, it must be questioned, if economic aspects have also played a role. One such ground may be, that the individual cost structure at university hospitals are often higher than at non-university institutions and that profits are particularly low in the case of low relative weights.

Further evaluation research in the allergological sector [14–16], that has only rarely been devoted to diagnostic aspects [17, 18], is desirable, e.g. on the internal clinical causes of the described often considerable case number changes in the observation period.

In summary, the case numbers of diagnostic skin and sensitivity tests in German dermatological university medical centers declined absolutely from 2008 to 2010 on the one hand, while on the other they were also receding relative to other indications. One can speculate as to the at least partial significance of economic grounds.

Note

Portions of this manuscript are taken from a free scientific paper to achieve the academic grade of Master of Health Business Administration (MHBA). Friedrich Alexander University of Erlangen-Nuremberg (Treudler R [2011]: Economic aspects of allergological care in the inpatient sector).

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Conflicts of interest

None.

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