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Comparing Expected Lengths of Stay at Pediatric and General Hospitals by Treemaps

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Introduction

With regard to pediatric treatment, there is some concern whether the DRG system in use covers treatments adequately. A question referring to this is: do the expected lengths of stay calculated from data of pediatric hospitals correspond to the expected lengths of stay in general acute hospitals? An answer could be found trough a coloured treemap.

Data

15 322 case records of eight Swiss children's hospitals (including pediatric departments of big hospitals) from the year 2005 classified by APDRG-CH were available. The data fields used were: length of stay by case, and APDRG-CH expected length of stay by APDRG.

Methods

The expected length of stay for pediatric hospitals was calculated from the data using the same algorithms as were used for APDRG-CH. This value [called *Tie*] was compared to the expected length defined by APDRG-CH [*Te*]. – A treemap[1] was constructed with hierachical levels of (1) the type of age split, (2) the CC category, (3) the APDRG. The sizes of the resulting fields are proportionated according to the number of cases within each APDRG. They were coloured according to the relation: *Tie* divided by *Te*. Blue colours show that the expected length of stay in the pediatric hospitals [*Tie*] is shorter than expected for general acute hospitals [*Te*]. Red colours show the opposite. Colour intensity is used to show the extent of this deviation.

Results

At first glance, one sees that the lower and the upper parts of the treemap show different colours: most rectangles of the lower part are red (or yellow) and less intense, many rectangles of the upper part are blue and more intense. This means: the expected length of stay of APDRGs for patients below 18 years (lower part) is longer in pediatric hospitals than in general hospitals; the expected length of stay of APDRGs without age split (or with age split above 18 years: upper parts) is shorter in pediatric hospitals than in general hospitals.

Discussion

The differences could have been caused either by the specialisation of the pediatric hospitals. (Principally, DRG systems should cover such differences of casemix; if this were accepted for the APDRG system, then the question would arise about the efficency of the treatments in pediatric hospitals; if one does not accept it for the APDRG system then the expected length of stays should be calculated separately for pediatric hospitals.) Or it could also have been caused by insufficient coding.

Conclusions

There is a striking difference in the relation of expection length of stays in pediatric hospitals and general hospitals. The reasons could be: an inadequate DRG system, inefficient treatment, or insufficent coding.

References

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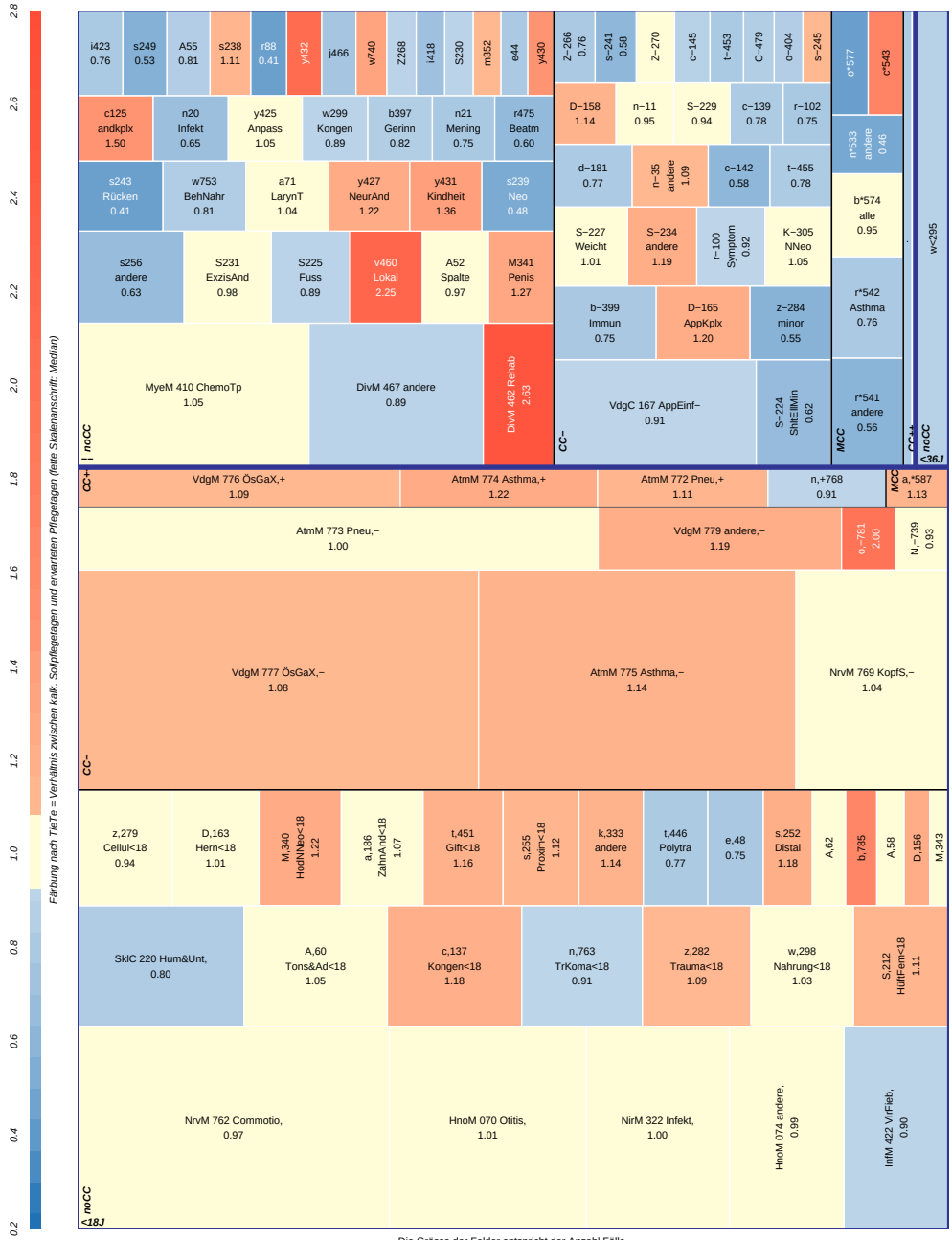
[1] Shneiderman [Treemaps, 1992].



Die Grösse der Felder entspricht der Anzahl Fälle.
Texte und Zahlen in der Mitte der Zellen: APDRG−Subkategorie, APDRG−Code, APDRG−Kurzbezeichnung; TieTe (= Kalk./erwartete Tage).
Weisse Beschriftung, falls TieTe unter 0.5 oder über 2 liegt. Texte links unten: Hauptkategorie, Subkategorientypen (C=chirurgisch, M=medizinisch).

Datenquelle:
SGP Daten 2005

n = 15322 Fälle (in 110 Gruppen)

Z I M − v1.0
[f.treemap:TieTe−082T]

Table 1:
SGP 2005: Portions of cases per APDRG

Source: Fischer [Grafiken zur PCS-Beurteilung, 2008]: 83.