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Maps to Show Similar Hospitals Based on DRGs

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Introduction

"Are hospitals similar?" This is the first question when we compare hospitals with each other, since only hospitals which are really comparable should be compared.

Data

To draw a map which shows the similarity between hospitals, data with APDRG codes of 1.3 mio. inpatient cases from all over Switzerland from one year (2002) was used.

Methods

The similarity of pairs of hospitals was measured by calculating Manhattan distances based on the portions of cases grouped by APDRG. These distances were processed by a multi-dimensional scaling (MDS).¹ On the MDS graphic, hospitals are shown by coloured letters (colour for hospital type, letter for type and subtype). The graphic was coloured with different intensities of green and yellow according to hospital density. Thus hills show clusters of hospitals. Regions without hospitals are coloured in blue.

Results

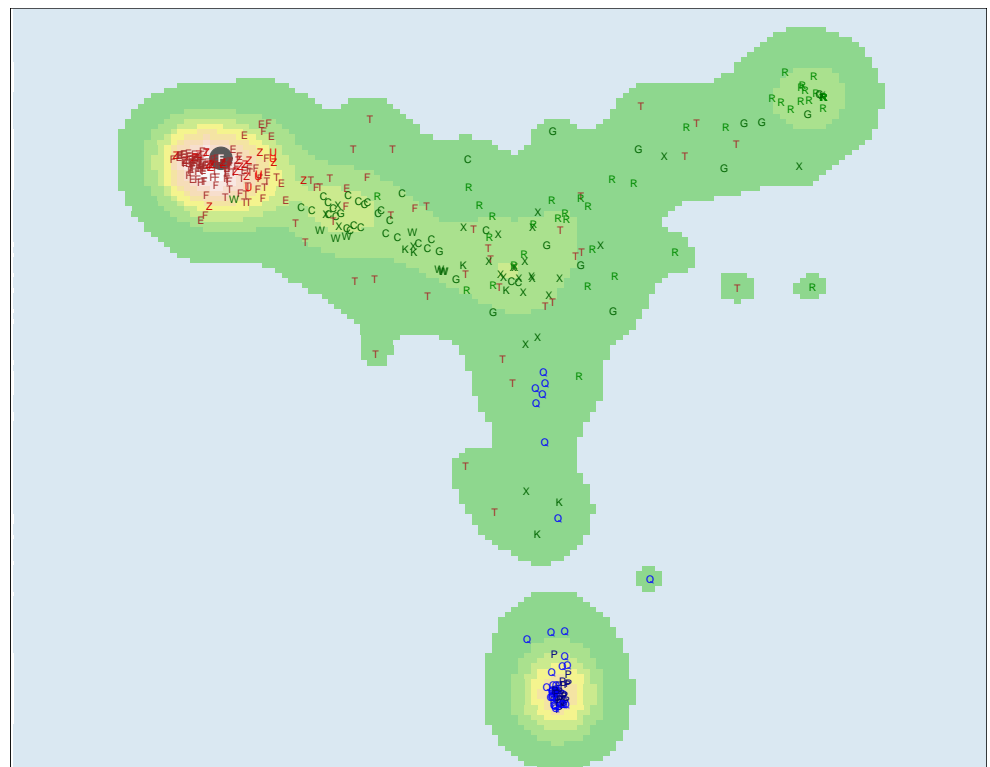
On the resulting "map" we can essentially see a big and a little island. We can interpret the points of the compass as follows: to the left there are acute hospitals, and to the right there are long-term hospitals; to the top there are somatic hospitals, and to the bottom there are psychiatric hospitals. On the little island at the bottom only psychiatric hospitals are found.

Discussion

It is now possible to judge the position of a selected hospital and its neighbourhood: either it is surrounded by the same type of hospitals or it got lost among unsimilar hospitals.

¹ Cf. Venables/Ripley [MASS, 1999]: 333 ff.

Table 1:
Hospital H098
positioned on the Swiss
hospital map (based on
APDRGs, all hospitals)



Datenquelle: Bundesamt für Statistik
Medizinische und adm. Statistik der Krankenhäuser

363 Spitäler

ZIM - Test . 38
[BFSMS.03Y.HG.xymap-2002-0548]

Source: Fischer [Krankenhaus-Betriebsvergleiche, 2005]: 128.

This kind of hospital map shows the overall situation of the distribution of hospitals according to casemix and type. It enables us to have a quick judgement of the position of a selected hospital, and it shows which hospitals are neighbours and therefore similar to each other.

Conclusions

References

Fischer (2005) Krankenhaus-Betriebsvergleiche

Fischer W. *Neue Methoden für Krankenhaus-Betriebsvergleiche*. Ein Werkstattbuch zur Visualisierung DRG-basierter Daten. Wolfertswil (ZIM) 2005: 160 pp. Auszüge: [http:// www.fischer-zim.ch / studien / KBV-0506-Info.htm](http://www.fischer-zim.ch/studien/KBV-0506-Info.htm).

Venables/Ripley (1999) MASS

Venables WN, Ripley BD. *Modern Applied Statistics with S-Plus*. 3. Auflage, New York (Springer) 1999: 501 pp. Info: [http:// www.stats.ox.ac.uk / pub / MASS3 /](http://www.stats.ox.ac.uk/pub/MASS3/).