The Sector Index (SIX)

A performance indicator for the interrelations between outpatient and inpatient health care services in Germany by district

Benjamin Goffrier • Thomas Czihal • Jakob Holstiege • Annika Steffen• Mandy Schulz • Ramona Hering • Michael Erhart • Dominik von Stillfried • Jörg Bätzing

Abstract

Background

To date, the interrelations between outpatient and inpatient health care services in Germany to date has received little research attention. The goal of this study was to develop and validate a new sector index (SIX) to descriptively represent the relationships between outpatient and inpatient health care services by district. Further, explanatory models were developed to map the relationship of utilization of outpatient versus inpatient health care services with structural factors.

Method

The SIX-index is composed of three elements and has been generated at the level of the district. It provides information on three aspects: first, the number of outpatient admissions using realised service requirements in euros; second, the amount of inpatient admissions using the average number of hospital bed occupancy days; and third, the quotient of the two parameters, for which value of one represents one hospital bed occupancy day per district per year for the average requirement for outpatient services in euros per admission. Spatial regression models, also known as spatial error models were calculated for all three parameters; this involved the independent variables morbidity, densities for general practitioners, medical specialists and hospital beds, availability of a university hospital in the district, the ratio of the proportions of outpatient and inpatient nursing care per district, the unemployment rate and the utilization indicator for the other sector, respectively. The models were controlled for age and sex. All data were collected as averages for the period from 2010 to 2014.

In the outpatient care sector in Germany, specific services offered through what are known as selective contracts are not calculated using the Kassenärztliche Vereinigungen (KVen; regional Associations of Statutory Health Insurance Physicians, ASHIP-areas). This applies in particular to general practitioner contracts pursuant to § 73 b SGB V (Sozialgesetzbuch V; Fifth Book of the German Social Code), which have gained some quantitative significance since their introduction in 2008. This primarily affects southern Germany with the Baden-Württemberg and Bavaria regional Associations of Statutory Health Insurance Physicians. However, direct data sources on the actual amounts of utilization and service provisions in the context of GP-centred health care services contracts are not currently available. Thus, for these two regions, indirect correction factors were estimated at the district level to evaluate the effect on the SIX-index.

Corresponding author: Dr. med. Jörg Bätzing
Central Research Institute of Ambulatory Health Care in Germany (Zi)
Salzufer 8 - 10587 Berlin - Tel. +49-30-4005-2419 - E-Mail: jbaetzing@zi.de

zi

Results/Conclusion

The comparison of outpatient and inpatient utilization at the level of the district showed clear spatial clustering. Hence, the Ruhr district and the northern part of Brandenburg were characterised by low outpatient and high inpatient utilization, whereas large parts of Lower Saxony and the greater metropolitan areas of Rostock and Munich showed the reverse pattern. The calculations from the spatial models revealed that the amount of utilization in the two sectors is negatively related, although the characteristics with each of the care structures showed positive associations. Morbidity and the unemployment rate were positively associated with both outpatient and inpatient health care services utilization. The presence of a university hospital in the district was positively related to outpatient health care services and negatively related to inpatient health care services although a greater proportion of outpatient nursing care was associated with greater inpatient health care services utilization.

These results provide initial insights into the structure of health care utilization at the level of the district and indicate enormous heterogeneity that is associated with a number of different structural factors. Thus, the SIX-index can contribute to understanding the interrelations between the two health care services sectors and offers initial pointers for further more in-depth analyses. However, because there may be complementarities or substitution effects depending on the health care services sector, a more detailed analysis of the interactions between sectors is indispensable for understanding.

The results of the corrected SIX index indicate that a potential future use of the SIX in real health care services planning points out that the first component of the SIX, the outpatient health care services utilization has to be collected and calculated using real data based on the claims settled by the regional ASHIPs as well from claims of GP-centred health care services contracts which are not settled via the regional ASHIPs.

Keywords

Citation