



# Future relative utilization of SHI-physicians – a projection by specialty for the 2020 to 2035 period

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## Abstract

### Background:

Demographic change presents special challenges for the future of medical care. Due to the shift of populous cohorts into the second half of life and increasing life expectancy, utilization of doctors under contract to the health service, so called SHI- (statutory health insurance) physicians, is anticipated to rise. In the absence of consensus on a unit of measure to represent the utilization of SHI-physicians in light of demographic change, this paper proposes the computation of the relative utilization index.

### Method:

An estimate is made of the future relative utilization of SHI-physicians using a model calculation, incorporating various bodies of data (nationwide random samples of insured persons based on selected birthdays, Zi Practice Panel and Regional Planning Forecast 2035). Therefore, the calculated average working time in minutes for a doctor per statutory health insurance case, broken down by specialty, is qualified based on actual figures for age- and gender-specific capacity utilization and updated on a regional basis, taking account of age- and gender-specific population figures. The ratio of utilization at the projected time to that in the base year reflects the relative change in utilization (relative utilization index, rBIX). The distribution of rBIX by specialty is presented both descriptively and cartographically. A separation of components is presented in the sense of the anticipated percentage change in utilization based on population size and structure.

### Results:

The model calculation for the projection of the future utilization of SHI-physicians showed that, in the year 2035, increased utilization relative to the base year 2012 is to be anticipated in seven out of ten of the considered specialties as a national average. The greatest increases in utilization are seen in the specialties of urology (+23%), ophthalmology (+20%) and internal medicine (+15%). For the specialty of general practice, a 9% increase in utilization is expected on average. It is estimated that the utilization of paediatricians and gynaecologists will be some 10% lower on average in 2035 than in the base year. From a spatial perspective, regions such as the Berlin/Brandenburg Metropolitan Region, Hamburg and Munich, but also a multitude of districts in Baden-Württemberg and Lower Saxony, as well as regional districts of northern and southern North Rhine-Westphalia, show increases in the utilization of SHI-physicians relative to the other regions of Germany. Most of the districts in the new federal states (excluding the Berlin/Brandenburg Metropolitan Region), as well as in the Saarland and the Ruhr area, typically come within the lower section of the distribution of projected utilization. The component breakdown of the rBIX into anticipated changes in utilization based on population size and structure illustrates that, especially for specialties involved in the treatment of older patients, greater future utilization will be moderated only by the trend in population size, especially in the new federal states.

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### **Discussion and Conclusion:**

The presented model calculation represents one possible approach to the operational estimation of future relative utilization of SHI-physicians' time as is to be expected due to demographic change. According to the projection, demographic change will lead to the increased utilization of specialties primarily involved in the treatment of older people (general practitioners, specialists in internal medicine, ophthalmologists, urologists) and to the decreased utilization of paediatricians and gynaecologists. The regional differences revealed in future utilization result from regional population development with respect to Germany's average utilization by age and gender group in the base year. This does not take account of specific regional features in the sense of differences in care structures and in the level of utilization due to variations in morbidity patterns – going beyond those resulting from demographic structure. The region-specific consideration and interpretation of the projection should therefore take account of further regional features relating to health care.

### **Keywords:**

Utilization index, population forecast, model calculation, demographic change, utilization, projection, ambulatory health care, SHI-physicians, general practitioners, specialists

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