

Tracking Regional Variation in Healthcare

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Abstract

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Nature of the paper:

Scientific research c) presenting results

Title:

The causes of the regional variation in artificial knee joint replacements

Background:

In Germany, the regional differences in the number of surgical interventions performed are for some indications considerable. One operation which is carried out significantly more frequently in Germany than in many other countries is the implantation of a knee joint endoprosthesis. In this study an attempt is made to establish the reasons for the regional variation in the number of such operations performed.

Objectives:

Regional variation in the occurrence of knee joint replacements on an in-patient basis is analysed at the county and county borough level on the basis of DRG accounting data. The possible influence of various medical and socio-economic factors is examined.

Methods:

The degree of influence of the different variables on the age- and gender-adjusted total knee-joint replacement rate per 100,000 inhabitants is measured by estimating multiple linear regression analyses and spatial lag and spatial error models.

Results:

The fact that Moran's I test yielded a significantly positive value shows that the spatial distribution of total knee-joint implantations is subject to spatial clustering. The broader

test results indicate that the spatial lag model best reflects regional activity. This means that the operations performed in neighbouring counties exert a considerable influence on the county in question. Altogether, about 53% of the variation in the number of interventions performed can be explained by the influence of the following significant factors: office-based orthopaedist density, life expectancy, gonarthrosis and obesity diagnoses, unemployment rate, per-capita GDP, and the proportions of immigrants and highly skilled workers.

Conclusion/Discussion/Policy Outlook:

The fact that, as evidenced by the results, an increase in the density of office-based orthopaedists lowers the number of the total knee-joint replacement operations in a county suggests that statutory health insurance orthopaedists perform an important gate-keeper function with regard to the provision of artificial knee joints. This, together with the conclusion that the relevant hospital bed density has an inductive effect on total knee-joint replacements, leads us to recommend that the role of statutory health insurance orthopaedists be enhanced. This may have the effect of reducing the number of hospital-induced or otherwise medically unjustified surgical interventions.