Abstract of parallel session: **13**

Title: Regional variation in hip and knee replacements in Switzerland: a small area-variation analysis

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Introduction: Compared to other OECD countries, Switzerland has the highest hip replacement (HR) and one of the highest knee replacement (KR) rates. We assessed the regional variation in HR/KR use and potential determinants of variation in Switzerland.

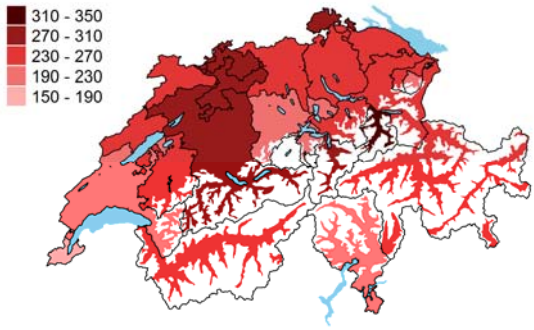
Methods: We conducted a population-based small area-variation analysis using discharge data for HR/KR from all Swiss acute care hospitals during 2013-2015. We derived hospital service areas (HSAs) by analyzing patient flows. We calculated age/sex-standardized HR/KR-rates/100,000 persons for each HSA. We determined 2 measures of regional variation, the extremal quotient (EQ, highest divided by lowest rate) and the systemic component of variation (SCV). We estimated the reduction in variance of crude HR/KR rates across HSAs in multilevel Poisson regression models, with incremental adjustment for age/sex, socioeconomic factors (language area, urbanization, socioeconomic position), burden of disease (age-/sex-adjusted cumulative rate for hip fracture, colon/lung cancer, acute myocardial infarction, and stroke), and the number of orthopedic surgeons.

Results: Overall, 54,229 HR and 49,962 KR were analyzed. The age/sex-standardized mean rate for HR was 266/100,000 persons (range 168-375/100,000, Figure) and for KR 254/100,000 (170-357/100,000). For HR, the EQ was 2.2 and the SCV 2.0. Age/sex-adjustment reduced the variance by 26%, further adjustment for socioeconomic factors by 42%. For KR, the EQ was 2.1 and the SCV 3.2. Age/sex-adjustment decreased the variance by 26.4%, further adjustment for socioeconomic factors by 37.1%. Adjustment for burden of disease and surgeon number resulted in a minimal reductions of the variance in HR and KR. The fully adjusted models explained 70% in HR and 66% in KR of the variance across Swiss HSAs.

Conclusion: The variation in HR and KR across Swiss HSAs was small. A substantial proportion of the variation in both procedures was explained by differences in age/sex and socioeconomic factors

Figure: age and sex standardized hip and knee replacement rates across Swiss HSAs

Hip replecament



Knee replacement