



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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Temporal Dynamics and Regional Disparities of Diabetic Kidney Disease Hospitalizations in Germany

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Objectives : Diabetic kidney disease (DKD) represents one of the most serious microvascular complications of diabetes mellitus and is a major contributor to chronic kidney disease, dialysis initiation, and premature mortality. Evaluating long-term hospitalization trends and geographic variation is essential for assessing disease burden, identifying structural differences in care delivery, and informing prevention and resource allocation strategies. This study examines nationwide temporal developments and inter-state variation in age-standardized hospitalization rates (ASHRs) for DKD in Germany between 2000 and 2023.

Methods : ASHRs per 100,000 inhabitants were obtained from the German Federal Statistical Office. Time trends were analyzed using joinpoint regression models to identify inflection points and to estimate Average Annual Percent Changes (AAPCs). Relative percentage changes between 2000 and 2023 were additionally computed to quantify long-term developments.

Results : At the national level, DKD hospitalization rates declined markedly over the observation period. The ASHR decreased from 5.1/100,000 inhabitants in 2000 to 3.0 in 2023, corresponding to a relative reduction of 41.2%. Joinpoint analysis indicated a significant overall downward trend, with a national AAPC of -2.37% (Fig. 1). Despite the general decline, substantial regional variation persisted. In 2023, the highest ASHRs were observed in Berlin (6.0/100,000), whereas the lowest rates were recorded in Lower Saxony (2.1). Long-term changes differed considerably across states. AAPCs ranged from -5.52% in Lower Saxony to $+0.68\%$ in Berlin, the only state with a positive average annual trend.

Conclusions : Between 2000 and 2023, hospitalizations due to DKD decreased substantially in Germany overall, yet the magnitude and direction of change varied between federal states. The persistence of marked regional differences suggests heterogeneity in diabetes prevalence, risk factor control, early detection of renal impairment, and ambulatory management structures. Further research integrating epidemiological, clinical, and health system indicators is warranted to disentangle the drivers of these disparities and to support targeted strategies for optimized chronic care delivery.

Fig1.jpg

