



## Abstract Nr. T1-24

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Titel: **Coordination in physician patient-sharing networks and the continuity and quality of care for type 2 diabetes patients: a social network approach**

### *Hintergrund*

To provide the best care for type 2 diabetes patients coordinated care between multiple healthcare providers is required. In Germany, different programs like the HZV and DMPs were established to improve the coordination of healthcare. Social network analysis provides a method to study networks among healthcare providers which for example can reflect collaboration, coordination, or exchange of information (1). An increasingly used method to study these networks is by the use of healthcare claims from healthcare insurance companies to map network of physicians based on shared patients (2). A better approximation of coordination, however, would be to study referral behavior as referring indicates coordination better than just sharing patients (3).

### *Ziele*

In this study we explore how physicians form networks with each other and how coordination of care in the form of referrals takes place within those networks. Additionally, we test how network and referral characteristics have an influence on the continuity and quality of healthcare for type 2 diabetes patients.

### *Methoden (Studiendesign, Datenerhebung und -auswertung)*

Based on healthcare claims from the AOK in BW, we created a physician network consisting of GPs, internists, and ophthalmologists with ties based on having at least 5 shared patients. Referrals were identified when a patient was not a self-referral, a previous physician contact within three months, and this physician was a GP, as referrals by primary care physicians enhance the coordination of activities in diabetes. An advanced algorithm for finding community structures was used to identify subnetworks with clusters of physicians.

### *Ergebnisse*

Outcomes include the proportion of ties involving referrals and continuity of care measures, and, at patient level, diabetes related complications and hospitalization. Independent measures include phy-

sician characteristics, number of ties, proportion referrals among connected physicians, ego constraint and density, and density and centrality at network level.

We present descriptive analyses for network characteristics per physician specialization and between subnetworks. Using multilevel regression modelling, we tested the association between network characteristics, continuity and quality of healthcare, and the role referral behavior in this process.

We included 9260 physicians and identified 237162 ties based on 1874333 shared patients. GP was the most common specialization with 78.9%, followed by internists (13.3%) and ophthalmologists (7.8%). The number of ties varied from 36.6 ties for GPs to 96.1 for internists and 123.2 for ophthalmologists while the proportion of referrals was 0.76, 0.57, and 0.60 respectively. Preliminary results indicate that there is variation between subnetworks and that a higher proportion of referrals is related to more continuity and better health outcomes.

### *Diskussion / Schlussfolgerungen / Handlungsperspektiven*

This study illustrates how administrative data combined with advanced analysis methods can improve our understanding of physicians' networks and coordination through referrals.

### *Literatur*

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### *Herausgeber*

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