



ABSTRACT

The multiplexity of hospital networks: Understanding the relation between shared physicians and shared patients

Healthcare is increasingly delivered through networks of providers. Well organized networks of shared (i.e. transferred) patients have the potential to improve the quality of health services delivery. However, these networks are typically studied in isolation, without considering their multiplex nature (i.e. the other network ties organizations are embedded in simultaneously).

We therefore test the relation between networks of shared patients, shared emergency contracts, and shared specialists amongst providers of dermatological care using Bayesian zero-dispersed Poisson regression models of all-payer claims data from 2017 in the Netherlands. Our results indicate that 2.2% of all dermatological patients are shared between one or more providers. Specialized organizations (i.e. academic hospitals and hospitals treating a greater volume of skin cancer patients) receive significantly more patients, albeit with a limited effect size. Multiplex network ties had the strongest association with shared patients. That is, organizations that have an emergency contract with one another share significantly

more patients and organizations that share medical specialists, share more than double the average amount of patients between them. These results highlight the magnitude of the social and relational component in healthcare delivery in general and patient networks in particular. However, they also raise questions about the potential anti-competitive nature of this specific type of cooperative behavior between competing organizations. Conceptualizing patient sharing as a relation influenced by various other relations can help future research to unpack this paradox in more detail.