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Insights from network modelling of the spread of pathogens between hospitals

There is an increasing awareness that organizational structure of a health care system affects the spread of multiresistant pathogens. Since patients can become carriers of multiresistant pathogens they can harbor the pathogen between discharge from one hospital and admission to another. Thus, hospitals can be thought of as nodes of a network connected by patient streams between them. Consequently, organization of the health care system with free or less free choice of hospitals can result in different networks and therefore potentially different spread of pathogens. Various aspects of such networks were analyzed in the past for hospital networks in the Netherlands, UK, Sweden, and the USA. For the first time, we conducted such analyses for Germany, using hospital discharge data provided by the AOK Lower Saxony. The purpose of the presentation is to provide an overview of network modelling applied so far in international studies of multiresistant pathogens, present our analyses and preliminary findings for Lower Saxony, and discuss how we think to expand the project to model other regions in Germany.