current stock of neurosurgeons and flow variables such as: attrition, migration and retirement rate. Data were obtained from various governmental databases were analysed by Vensim PLE Version 3.0 to address the flow of health professionals, clinical infrastructure, population demographics and disease prevalence during the time.

Results: It was forecasted that shortage in number of neurosurgeons would disappear at 2020. The most dominant determinants on predicted number of neurosurgeons were the prevalence of neurosurgical diseases, the rate for service utilization and medical capacity of the region.

Conclusion: Results of the study suggests that shortage of neurosurgeons in some areas of the country relates to maldistribution of the specialists. Accordingly there is a need to reconsider the allocation system for health professionals within the country instead of increasing the overall number of acceptance quota in training positions.

178 FORECASTING THE SHORTAGE OF NEUROSURGEONS IN IRAN USING A SYSTEM DYNAMICS MODEL APPROACH

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Background and aims: Shortage of physicians particularly in specialty levels is considered as an important issue in Iran health system. Thus in an uncertain environment, long term planning is required for health professionals as a basic priority on a national scale.

The study aimed to estimate the number of required neurosurgeons using system dynamic modelling.

Methods: System dynamic modelling was applied to predict the gap between stock and number of required neurosurgeons in Iran up to 2020. A supply and demand simulation model was constructed for neurosurgeons using system dynamic approach. The demand model included epidemiological, demographic and utilization variables. Along with, supply model incorporated