

## Financial Sustainability of the Czech Healthcare System until 2050

The document offers detailed information about the possibilities and limits of forecasting and predicting revenues and expenditures of the public healthcare sector. It was prepared by the Working Team of the Roundtable project. The document discusses approaches to modelling public expenditure and revenue in the health sector, provides demographic and economic forecasts relevant to the Czech Republic, and illustrates the impact of selected hypotheses for future expenditures. At the same time, this analysis presents existing models of projecting healthcare in the world (models of the European Commission, World Bank, etc.). This document, as well as the electronic application allowing a choice of different scenarios and relevant parameters, [can be downloaded here](#). This material should promote a professional and public debate on the future of the Czech healthcare and its financing.

Existing models, which are used for projecting future developments, are based on the projections of population and its age structure. These projections use calculations of costs based on the contemporary or modified age-specific expenditure profiles and also on projections of the GDP in relation to labour productivity, level of participation, and the like. The main weakness of existing models is their linearity. Extending the life expectancy is associated with improving health and this improvement has a direct relation to healthcare costs. Models do not capture the relationship between various sectors, which are involved in the care and do not define the units of care, which would allow us to see the deficit of services, which can be caused by the limits of projected revenues.

Modelling clarifies the effect of individual factors and helps us to understand relations between them and thus forces us to figure out new concepts which would describe the situation more in detail. The problem might be securing the necessary data. The result of the efforts of the Working Team of the Roundtable project is a new concept of a model – a socio-economic model.

The document contains results of the financial model developed on the basis of the methodology of the “EU-ageing model”. This model is based on population projections by Eurostat (Europop 2008), and also on national projections by Burcin and Kucera from the Department of Demographics at the Faculty of Science, Charles University in Prague. Projections of the GDP were provided by the Czech Ministry of Finance.

The financial model, based on the methodology of the EU ageing, uses scenarios of ageing that affect changes in health status in terms of cost changes as a result of changes in health, which correspond with the expected increase in life expectancy. This method leads to a gradual shift of the age-specific costs profile. The methodology was further refined to include other scenarios like death related costs. One of the innovations is the scenario which is based on the assumption that the extension of life expectancy and associated decrease in mortality is associated with increased costs, which are the costs of healthcare. Due to large differences in the age-specific costs profile of senior population in the Czech Republic, the reader can see the results of the model if the cost profile was as in the EU15 countries.

Complementary scenarios take into account changes in the price of the product of healthcare which are caused by changes in the wage of health workers and results of swifter introduction of technological advances compared with the rest of the economy.

The projected expenditures on health as to 2050, depending on the scenario, vary from a decline from today's approximately 5.75 % to 4.69 % to an increase to the value of 12.96 %. And, in case of convergence of salaries of health workers, even to 14.10 % of the GDP. The baseline scenario which was chosen by the Working Team projects the expenditures of 7.1 % of the GDP in 2025 rising to 7.7 % of the GDP in 2050.

The shortcomings of the financial model led the Working Team of the Roundtable project to establishing a new concept model – a socio-economic model. This model directly detects the current level of health of each population segment and volumes of care which are used in relation to health problems. The aim of different scenarios is to determine the different levels of disability, number of persons to be treated, volume of coverage of care in care units as well as in financial terms. It also uses results of clinical trials to assess the impact of care on mortality and health of living persons. Then, from the level of health the economic potential is computed, which can be used either for an economic activity (and thus generating the GDP) or for provision of informal care within a household (and thus bringing savings for formal care paid both by the private and the public sector).

The financial model captures factors that are involved in determining healthcare expenditures and helps us to answer fundamental questions of how these factors are connected with the ageing of population. If we base the changes only on the change of the age structure, the effect on expenditures is rather small compared to other factors. However, if we take into account that the rising life expectancy is a result of healthcare services and that expansion of population in older age categories creates new space for the application of new technologies and expansion of indications for treatment, the ageing of the population will have a major impact on healthcare expenditures in future.

The report can be downloaded here - <http://www.kulatystul.cz/cs/node/281> (only in Czech)