Projecting healthcare workforce in the context of EU's ageing population: challenges and opportunities

This paper explores the healthcare workforce challenges faced on both the demand and supply sides in the context of the ageing of the EU population.

Shortages for the healthcare workforce are particularly impacting certain Member States (MS) where significant cohorts of elderly doctors and nurses are on the verge of retirement. Imbalances in the age structure of the workforce are often exacerbated by a lack of specialisation opportunities, limited remuneration and challenging working conditions, which are prompting many healthcare professionals to either emigrate or seek opportunities in other sectors.

The resulting competition for medical talent is evident in instances of chain migration, where countries simultaneously lose their internally trained workforce to emigration and strive to fill shortages through recruitment efforts in Third Countries.

At the subnational level, the challenges are aggravated by the fact that with a declining population, it is increasingly costly to maintain adequate local healthcare services coverage in many rural and remote areas.

In this paper, we introduce the SANDEM model, a novel approach that projects both the supply and demand of the healthcare workforce across the EU27 until 2070. The model combines a demographic analysis of the healthcare workforce with demand estimates.

On the supply side, we consider cohort dynamics of doctors and nurses and include flows linked to international immigration, emigration, graduation from medical schools, abandonment of the professions and retirement. On the demand side, we integrate demographic projections of the EU population from Eurostat with health utilisation-based weighting functions by age and sex, calculated from the European Health Interview Survey (EHIS).

The model encompasses five scenarios:

- Baseline scenario: based on historical data for healthcare workforce inflows and outflows.
- Scenario 1: projections that adjust entries from graduation to maintain a stable EU healthcare workforce size.

- Scenario 2: projections that adjust entries from graduation to maintain a stable ratio of the EU's healthcare workforce to the total population in each Member State.
- Scenario 3: projections that adjust entries from graduation to maintain a stable ratio of the EU's healthcare workforce to the total population in each Member State considering the specific needs for health services by age and sex.
- Scenario 4: zero net migration, where the stable workforce is maintained only through domestically trained personnel and without considering immigration and emigration.

In terms of complexity and level of detail, our model falls between the global-level projections conducted by the World Health Organization (WHO) and the healthcare workforce and education planning systems adopted by most Member States.

To the best of our knowledge, our model is the first to attempt an EU-wide projection for healthcare workforce that encompasses both supply and demand, while considering labour market and demographic trends.

This exercise addresses a series of issues in the availability of data for the entire EU particularly related to the inflows and outflows by age for two sub-populations of doctors and nurses. We draw upon time-series of health statistics from the Coordinated System National Health Workforce Accounts (NHWA) maintained by Eurostat, the Organisation for Economic Co-operation and Development (OECD) and WHO. Complementary data, such as transitions from and to the active workforce and age structures, are derived from EU labour force survey (LFS) microdata, with validation conducted through national and administrative data from medical associations in a selected number of Member States.

Our utilisation function is constructed by combining EHIS data for each age group and sex on hospital visits, day hospital admissions, and visits to general practitioners.

Preliminary findings from our research reveal that the drive to increase the number of medical school graduates, partly in response to the COVID-19 pandemic and partly in response to immediate shortages may create future long-term imbalances in the age structure and size of the healthcare workforce. We will further explore whether shortages are not solely a result of insufficient enrolment in medical schools but are also influenced by deteriorating working conditions. This exercise underscores the necessity of implementing forward-looking adaptation policies and integrating

demographic considerations and labour market analyses into a wide array of policy domains.