Reviewer’s report

Title: Towards a better approach for physician and nurse requirements planning in Serbia: learning from the past

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Reviewer: Basu Ghosh

Reviewer’s report:

Review of the Article entitled
“Towards a better approach for physician and nurse requirement planning – learning from the past”

Title of the Article

This article may be categorized as a Case Study since it refers to an application of a statistical model only in the Serbian context and the discussion relates mainly to Serbia. I am of the view that the title of the article itself needs to be revised if it is to be published. A reader cannot infer that it presents ‘a better approach’ since he or she has not been briefed by the authors about the HRH planning approach normally used in Serbia. Further, perusal of the article also does not indicate that it has really led to ‘learning from the past’ except to a very limited extent.

The authors may revise the title as: “Physician and nurse requirement forecasting in Serbia using time-series data: A Case Study.”

Background

The question posed by the authors is not new since it is well-known that physician and nurse requirement is related to income, population size and case loads. The authors seem to suggest that the erstwhile approach of HRH planning in Serbia is deficient and it would change for the better if the methods propounded by the authors are adopted. However, in the absence of an exposition of the previous approach, it is difficult to appreciate how the authors’ approach helps in improving physician and nurse requirement planning. Hence, in my view, the issues are not sufficiently well defined, at least so it will appear to readers uninitiated to the Serbian healthcare system.

The authors may add a paragraph explaining the HRH planning approach used in Serbia prior to 1961, during 1961-1982 and 1983-2008.

Methods

The methods used by the authors are appropriate to the authors’ purpose and well described, and fairly adequate details have been provided for others to replicate the work if they so desire However, I personally have the following
reservations about the soundness of the methodology.

The time periods 1961-2008 and 2009-2015 are too long for one to assume, as the authors have assumed “that there will be no significant changes in the planning approach of physician and nurses’ requirements, population size and macroeconomic growth rate, production of physicians and healthcare service utilization in Serbia by 2015”. (The authors themselves have referred in the Background chapter to certain “fundamental political changes, the shift from socialist and centrally planned economy system toward liberal market-oriented economy.”) Forecasting based on such unrealistic assumptions cannot be expected to be helpful in pragmatic physician and nurse requirement planning.

Having been personally involved in country-level HRH planning in a country for about two decades, I must state that national HRH planning involves much more detailed and elaborate exercises (both short-term and long-term) as well as pro-active involvement of multiple stakeholders, which include the top echelon of policy-makers, planners, administrators and health professional leaders. The data requirement for such pragmatic HRH requirement planning at multiple levels is of an enormous variety / complexity and goes much beyond just the historical data used by the authors of the study under review. Hence, I am of the view that while the data used by the authors were sound and well controlled from the perspective of the methodology used by them, it is not adequate for meaningful inferences to be drawn about a country’s HRH requirement planning strategy.

The authors have concentrated mostly on the demand side of HRH requirement planning almost totally neglecting the supply side of the equation and the productivity of HRH utilization. The study has also totally ignored HRH requirement in the non-Government sector forgetting that the national government (Ministry of Health) is the steward of the healthcare system. The study considered only two crude HR categories, namely physicians and nurses. Understandably due to data limitations, they have not segregated physicians into GPs and physician specialists; and nurses into general nurses and specialized nurses. It should be appreciated that in an economy such as that of Serbia, the increasing sophistication of the healthcare system involves increased requirement of physician specialists, specialized nurses and technologists / technicians. Such requirements are totally hidden in the study conducted by the authors of this paper. They have also not recognized the presence and importance of other allied health professions such as laboratory technicians, radiographers, physiotherapists, pharmacists etc.

On the supply side, the authors have given no consideration to the production of physician specialists (ostensibly due to data limitations), which (as stated before) assumes increasing significance in a country desirous of extending the benefits of advances in medicine and technology to its countrymen.

As regards utilization of the healthcare system or productivity of physicians and nurses, the authors considered only curative services (as evident from the healthcare utilization indices used by them), while in the government-run / public
health care system such personnel are also involved in providing a host of preventive, promotive and rehabilitative healthcare services.

Results

1961-82: From the first paragraph it is apparent that the Serbian healthcare scene has witnessed major changes, as while the population grew by 15%, the number of employed physicians rose by 174% (nurses by 28%), thus signaling improved population coverage either in terms of expanded infrastructure or improved quality of care consequent to increased physician-population ratio. Such a finding challenges the basic assumptions (mentioned earlier) of the forecasting exercise.

1983-2008: During this period, the number of employed physicians and nurses rose by 43% while the population reduced by 6% and GDP grew by 100%. Strangely, OPD visits reduced by 11% but inpatient discharges increased by 28%. Such findings reflect that physician and nurse employment decisions were based on factors not covered in the study e.g. new projects, filling of existing vacancies and/or upgradation of services etc.

The most significant finding of the study is the large gap between availability of jobs for physicians and the number of physicians available for employment as it states that 63% of physicians would not find a job in the public sector in 2015. The study should have investigated how many of the physicians would get employed in the private sector, which assumes increasing significance in the emerging economic scenario. If the study actually covered this aspect, then its finding would have been more crucial in influencing decision-making on the intake sizes in medical schools in Serbia thus preventing future mismatches between demand and supply of physicians.

Reporting and data deposition

Considering the limited scope of the study as explored by the authors, the manuscript does adhere to the relevant standards for reporting and data deposition.

The discussion and conclusions, however, do not appear to be well balanced and adequately supported by the data or its analysis.

In my personal view, the title and the abstract do not accurately convey what has been found. It draws more upon the authors’ personal familiarity with the Serbian healthcare scene rather than the findings of the study.

The writing is fairly acceptable, and the quality of language is satisfactory; only minor editorial corrections are needed in some parts of the manuscript.

Suggestions to the Authors

The authors may accept the fact that the study, though it involves highly analytical and time-consuming exercises, can only draw limited conclusions about the soundness of the HRH planning approach in use by the Serbian health
authorities. The authors must make major compulsory revisions to confine themselves to the findings directly derived from the study (e.g. mismatch between forecasted requirement of physicians and jobs available). If they do so, then the re-written paper with a revised title and abstract has the potential to be published as a case study of time series modeling and as a pointer to decision-making on intake planning for the medical schools in Serbia.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests and that I am open for peer review.