

28 September 2021

Opinions from HKAN on Healthcare Manpower Planning Exercise in 2021

The Hong Kong Academy of Nursing (HKAN) was invited to attend a meeting for an update of the latest progress of the current healthcare manpower projection exercise consultation session by the Food and Health Bureau (FHB) held on 2 September 2021. As explained by the commissioned consultant of FHB in the meeting and in the last report, the demand and supply projection models were constructed based on the availability and quality of local data. In the process, healthcare manpower projections in other well developed countries, including Australia, Canada, Japan, Singapore, the Netherlands, UK and US were referenced. The HKAN would like to express our concerns about the reliability of the manpower projection on nurses as well as the possible missing gaps in the projection.

The model parameter estimations were based on the assumption that demand and supply data were historically at equilibrium. There is, however, lacking of justification for such strong assumption. In view of the persistently long waiting time for healthcare services, particularly for specialty care, it may not be reasonable to take it for granted for this assumption. If there were indeed some historical shortages in meeting the demand, would the projected manpower gap (demand – supply) further dampen the estimation? Taking into consideration about the expanding scope of practice due to public expectations, technology advancement, and complexity of care protocols, the assumption of keeping demand and supply data at equilibrium may be debatable.

The healthcare service utilization rate of each age- (in a 5-year interval) and sex-specific patient group was estimated with the use of support-vector machine in the demand side model. However, the data used for fitting the model is of sparseness with only limited yearly aggregated service utilization data (from 2005 to the base year 2017 for public sector, and from 2007 to the base year for private sector) being included. Since the support-vector machine is a kind of pattern recognition and machine learning algorithm, it is doubtful if only a few historical yearly aggregated service utilization data are adequate for recognizing the utilization patterns in the past and making generalization for future projections for the next twenty or even thirty years. We understand that FHB has a plan to review the manpower need regularly, but as observed in the last report, building a regression model based on a limited number of observations could make the projections largely outside the range of the observations.

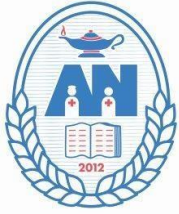
The model validation or performance evaluations of the projected results have yet to be done. It is of fundamental importance to have model outputs comparable to empirical/real-world observations, otherwise the projected results may be misleading. For example, as indicated in the last report, the projected gap for psychiatric nurses in 2020 was -487. It suggested that there would be a surplus of psychiatric nurses in 2020, which is, however, largely inconsistent with the actual demand and supply. As mentioned above, the estimation of manpower using historical data and assuming a static health and social environment can lead to projections



underestimating the genuine needs. A current paper presented at the Legislative Council, titled 'Measures to promote mental health during COVID-19', has outlined the increasing demand to promote, protect and care for mental health of Hong Kong people (<https://www.legco.gov.hk/research-publications/english/essentials-2021ise16-measures-to-promote-mental-health-during-covid-19.htm>). The manpower projection, in this case of psychiatric nurses, is not kept abreast of the current demand. Moreover, the extension of retirement age from 60 to 65 recently announced by the Hospital Authority is another example indicating the importance of accurate manpower projection, as a shortage of only 455 of general nurses in 2020 was projected in the last report.

In addition to the reliability of the projected results, the lack of consideration of the nursing staff mix in the projection models is also of concern. Although some considerations for the nursing profession, like differentiation of registered nurses, midwives and enrolled nurses, and further stratification by general nurses and psychiatric nurses have been made in the nursing supply projections, the demand and supply of different levels of proficiency and/or experience of nursing professionals, including Advance Practice Nurses and Nurse Consultants, have been omitted. It is recommended, again, to consider the nursing staff proficiency mix in the manpower planning models, including the newly established position of Associate Nurse Consultant. Nurses with competencies at different proficiency levels play key roles in the healthcare provision team. Sheerly equating a head count to a head count without considering the staff mix is a gross overlook. A current episode about the Hong Kong Children's Hospital has revealed that the acute call for manpower need is nurses with advanced nursing practice experience, particularly in Intensive Care Unit. These experienced nurses with specialty competencies cannot be easily replaced by fresh graduates, thus using the simple formula of one for one is not appropriate. On the other hand, the young nurses need a clear pathway for development. The current manpower projection adopting a one-size fits-all model without considering differentiated levels of practice of nurses is inadequate and can be misleading when using the estimated projection model to address the contemporary healthcare needs.

The government is driving primary healthcare in Hong Kong and has a definite plan to develop district health centres (DHCs) in all 18 districts. The need for nurses in these centres has been made very explicit, with clear differentiation in the roles of 'chief care coordinators', 'care coordinators' and 'nurses' (<https://www.info.gov.hk/gia/general/202103/24/P2021032400533.htm>). The HKAN strongly recommend the FHB to include the manpower projection for nurses in contributing to this newly developed primary healthcare service. In addition to DHCs, nurses play a key role in primary healthcare in different settings including NGOs, community centres for elderly and other target groups, and schools. Currently the projection model relies heavily on data provided by the Hospital Authority which reflects needs in the tertiary care setting (i.e. the public hospital system) only. There is a larger population in the community that requires nursing services and these manpower may need to be considered.



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The HKAN is supportive of the Hong Kong government in providing care for those who are in sickness, early detection of health problems, and promoting and maintaining health of all people. In doing so, we need a cadre of nurses equipped with the relevant experiences and specialty competencies. The accurate projection of nursing manpower in terms of quantity and quality is important to make sure that the goals can be accomplished.

We look forward to your feedback on our suggestions. Thank you!

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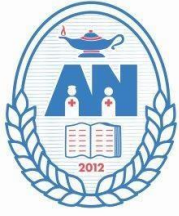
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