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Panel on Health Services

Subcommittee on Health Protection Scheme

Background brief prepared by the Legislative Council Secretariat for the meeting on 19 April 2016

Strategic review on healthcare manpower planning and professional development

Purpose

This paper summarizes the concerns of members of the Subcommittee on Health Protection Scheme ("the Subcommittee") on the Administration's strategic review on healthcare manpower planning and professional development ("the strategic review").

Background

2. The issue of healthcare manpower planning was featured in the two-stage public consultation conducted by the Government in 2008 and 2010 respectively to take forward the healthcare reform.[1] The outcome of the two public consultation exercises revealed that the community considered that there was a need to formulate a healthcare manpower plan to support the sustainable development of the healthcare system. Many respondents indicated that the

[1] On 13 March 2008, the Government put forth a package of healthcare service reforms and six possible supplementary healthcare financing options in the First Stage Healthcare Reform Consultation Document entitled "Your Health Your Life" ("the First Stage Public Consultation"). Based on the outcome of the First Stage Public Consultation, the Government published the Healthcare Reform Second Stage Public Consultation Document entitled "My Health My Choice" on 6 October 2010, in which a voluntary and government-regulated private health insurance scheme, Health Protection Scheme, was proposed for public consultation. Members of the public have expressed support for the introduction of the Scheme.

success of the proposed Health Protection Scheme ("HPS")[2] hinged on having an adequate supply of healthcare manpower. As part of its efforts to take forward HPS, the Administration established the Steering Committee on Strategic Review on Healthcare Manpower Planning and Professional Development ("the Steering Committee")[3] in January 2012. The Steering Committee, which is chaired by the Secretary for Food and Health, is tasked to formulate recommendations on how to cope with anticipated demand for healthcare manpower, strengthen professional training and facilitate professional development, with a view to ensuring the healthy and sustainable development of the healthcare system. The review covers the 13 healthcare disciplines that are subject to statutory regulation, viz. medical practitioners, dentists, dental hygienists, nurses, midwives, Chinese medicine practitioners, pharmacists, chiropractors, medical laboratory technologists, occupational therapists, optometrists, radiographers and physiotherapists.

3. To assist the Steering Committee in making informed recommendations, the University of Hong Kong ("HKU") has been commissioned to conduct a comprehensive manpower projection for the healthcare professions under study. The Chinese University of Hong Kong ("CUHK") has been commissioned to conduct a comprehensive review of the regulatory frameworks in local and overseas contexts of the healthcare professions concerned, as well as mechanisms for setting standards and maintaining competence.

Deliberations of the Subcommittee

4. Issues relating to the strategic review were discussed at six Subcommittee meetings since March 2013. The deliberations and concerns of members are summarized in the following paragraphs.

<u>The study on healthcare manpower planning and projection</u>

The medical manpower projection model

5. Members noted that HKU had developed a generic forecasting model, which comprised a demand model and a supply model, for projecting the

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[2] As HPS is intended as a supplementary financing arrangement, the Administration renames the scheme as Voluntary Health Insurance Scheme in the consultation document published on 15 December 2014 to better reflect its objectives and nature.

[3] The Steering Committee is supported by a Coordinating Committee, which is chaired by the Permanent Secretary for Food and Health (Health) and comprises six Steering Committee representatives from non-healthcare background as non-official members (who in turn convene six consultative sub-groups, viz. Medical Sub-group, Dental Sub-group, Nursing and Midwifery Sub-group, Traditional Chinese Medicine Practitioners Sub-group, Pharmacists Sub-group and Other Healthcare Professionals Sub-group), in carrying out its work.

medical manpower up to 2041 ("the generic model"). Concern was raised as to whether the generic model would take into account local circumstances such as the challenges arising from an ageing population, and could be adopted to adjust for the impact of externalities such as an increase in inpatient beds arising from known and planned private hospital developments in the next few years.

6. According to the Administration and HKU, there was no universal model for estimating healthcare manpower whether in the literature or among the jurisdictions surveyed. The more common approaches adopted included workforce-population ratios,[4] demand/utilization-based or need-based models[5] and supply models. Developed to suit the local circumstances and adopting the methodology of curve-fitting of historical sample, the generic model would use historical inpatient and outpatient utilization data from the public and private healthcare sectors and the population projections of the Census and Statistics Department to project the healthcare service utilization of age-, sex-specific population groups. Support vector machine[6] would then be used to project the required number of doctors, which would be sector-specific (i.e. for the public and private sectors) and separated by clinical settings (i.e. inpatient and outpatient services). The projected demand would be compared with the projected supply and the difference so derived would be quantified in the gap analysis to see if any surplus or shortage of medical manpower existed. The generic model was so designed such that it could be adopted to adjust for the impact of externalities, such as an increase in public and/or private inpatient beds over and above endogenous historical growth and an increase in demand for private services in view of the impending implementation of HPS.

7. Given that a key assumption of the generic model was that the manpower projection followed the historical trend in the data, question was raised as to the reason why historical utilization volume of a relatively short span of time (i.e. from 2005 to 2011) was used for projecting service utilization in the public

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[4] According to the Administration, by way of benchmarking, manpower requirements were estimated on the basis of healthcare worker-to-population ratios and current healthcare services.

[5] According to the Administration, demand/utilization-based models projected healthcare service need based on service utilization data, under the assumption that healthcare workload remained constant over time, and that population growth directly led to increased workload. The need-based models allowed for estimates of a population's healthcare need by considering changes in population health status and efficacy of healthcare services while adjusting for population size and characteristics including age, sex, household income, risk behavior, and self-perceived health.

[6] According to HKU, support vector machine (i.e. neural network analysis) was a supervised learning method that analyzed data and recognized data patterns in the historical data. As such, this artificial intelligence predicted for each given variable the corresponding outcome. As compared with linear and exponential regression models, it had the flexibility to evolve an optimal structure according to historical data.

healthcare sector. Concern was also raised as to whether the generic model would take into account the fluctuation in healthcare service utilization.

8. The Administration advised that using more recent service utilization data in the modeling would help to project more accurately the demand for doctors in the coming years brought about by an increase in public healthcare service utilization due to an ageing population. In addition, data of earlier years could not reflect changes in the service delivery models of the Hospital Authority ("HA") (e.g. the introduction of the grade of Health Care Assistant to relieve nurses of simple care duties). The reason why data from 2005 but not 2004 onwards was used for the projection was that the data of 2004 might be unduly influenced by the outbreak of Severe Acute Respiratory Syndrome in 2003. Given that the commissioned study commenced in 2012, data up to 2011 was used for making the initial projections. The projections could be updated when more up-to-date data became available. According to HKU, sensitivity analysis was used to compute the projection by omitting a portion of historical data where the omitted data was regarded as unreliable. All projection trials converged to a locus when historical data was reliable.

9. Question was raised as to whether using historical service utilization data of HA with adjustments for population growth and demographic changes as the parameter to forecast HA's healthcare manpower demand would fail to take into account the problem of HA of having inadequate healthcare manpower to support its services in the past years. According to HA, when translating the time requirement (man-hours) of the healthcare professionals of HA in carrying out each unit of the projected service workloads, there would be a +5% to +10% adjustment with a view to improving the services provided. There was a view that given the rising public expectations for longer consultation time for public outpatient services, the factor of consultation time per patient should be included as a parameter for the medical manpower demand model for converting the healthcare demand/utilization to public sector doctor full time equivalent. HKU advised that under the generic model, an increase in outpatient consultation time per patient would represent a decrease in manpower supply of doctors in the planning horizon.

10. Members were concerned that the impact brought about by the retirement of an experienced doctor could not be offset by the addition of a fresh medical graduate to the total doctor pool under the medical manpower supply model. According to the Administration, the estimated number of local medical graduates in each of the coming academic years up to 2018 would be based on the actual number of students currently in different years of study in University Grants Committee ("UGC") funded medical undergraduate programmes. The supply model assumed that there would be an addition of 420 local medical graduates per year from 2019 to 2041, and a constant annual inflow of 60 non-local graduates to the registration pool.

11. As regards whether the generic model would take into consideration the distribution of medical manpower resource between the public and private healthcare sector, as well as the elasticity of medical manpower supply in the private market, HKU advised that these factors would be taken into account in the medical manpower projection if needed be.

The manpower projection model for other healthcare professions

12. Members noted that the generic model would be suitably adapted to cater for utilization parameters peculiar to individual professions in forecasting the manpower demand and supply situation of the other healthcare disciplines under study. There was a suggestion that the parameters for projecting the demand for nurses and allied healthcare professionals should include the utilization of care services provided in the welfare setting, such as those provided at the residential care homes for the elderly and people with disabilities and day care centres for the elderly, and those under the home care services schemes for frail elders and programmes for autistic persons. According to the Administration, the Social Welfare Department would be invited to provide profession-specific service utilization data in the welfare setting for the purpose of making projections for nurses, occupational therapists and physiotherapists.

13. On the question of whether the common international standard on nursing manpower ratio (i.e. one nurse to six patients) would be adopted for projecting the manpower requirements for nurses, the Administration advised that there was no universally applicable set of international standard on nurse to patient ratios. Given that healthcare systems of different countries varied, adjustments for differences in care setting were important for such models to be relevant. According to HA, a higher nurse-to-patient ratio could only be introduced after the current manpower shortage problem had been resolved.

Healthcare manpower planning

14. Members noted that the initial and rough indications under the manpower projection models for doctors, dentists and nurses were that there would likely be a general shortage of healthcare manpower in the run-up to 2041. Given that healthcare manpower supply could not be increased overnight, members were concerned about the interim measures to increase the supply of healthcare manpower pending the outcome of the commissioned study being conducted by HKU.

15. The Administration advised that it had, based on the current forecast of healthcare manpower shortage of HA that there would be a shortfall of 330 doctors in 2020, discussed with the Education Bureau and UGC an interim arrangement to increase the number of intake of doctors, dentists and other healthcare professionals starting from the 2016-2017 academic year in order to

meet the triennial planning cycle for the UGC-funded institutions. It was noted that there was a substantial increase in the training capacity for nurses in the self-financing sector. To complement local supply, the Medical Council of Hong Kong ("the Medical Council") had increased the frequency of the licensing examination from once to twice a year starting from 2014 and would introduce more flexibility into the internship arrangement with a view to facilitating more overseas-trained doctors to register for practice in Hong Kong. The Dental Council of Hong Kong and the Nursing Council of Hong Kong also planned to respectively increase the frequency of the licensing examinations for overseas-trained dentists and nurses from once to twice a year.

16. Noting that the manpower projections for the healthcare professions under the study would be up to 2041, there was a suggestion that the projection period should be extended for 25 more years to take into account the likely factor that the proportion of elderly people in the population and their healthcare demands might decline after the peak period. An adjustment mechanism should also be put in place to address the deviation between the projected and the actual demand for individual healthcare professionals, if any, in the planning horizon.

17. The Administration advised that while the commissioned study sought to estimate the demand and supply of healthcare professionals for the disciplines under study with an initial planning horizon of up to 2041, it would assess the accuracy of the projected healthcare manpower demand from time to time, say, every one to two year(s). Where necessary, adjustments would be made to address the differences between the projected and the actual demand.

18. Question was raised as to how the manpower projection for doctors could help to avoid the situation which occurred in early 2000s whereby medical graduates could not undergo training in HA due to a downward adjustment in the Government subvention to HA during economic downturn, and hence, a decrease in HA's budget for the recruitment of new resident trainees. The Administration advised that while an economic downturn might affect healthcare demand and manpower needs during a certain period of time, the medium to long-term manpower requirements brought about by factors such as an ageing population and changes in the delivery models of healthcare would remain unchanged. Hence, the generic model would shed light on the need to maintain a stable supply of medical graduates to HA notwithstanding economic cycles. This would avoid over-reaction during economic downturn which might prove short-sighted at a later day.

<u>The study on regulatory framework for healthcare professionals</u>

19. Members noted that an initial finding of the study conducted by CUHK was that healthcare professional regulation was increasingly moving from the premise of self-regulation of the profession to protect its own interests to one of

co-regulation in partnership with the public to better protect the public's health. There was a global trend for more openness and accountability, including greater involvement of lay persons in regulatory bodies and relevant panels for review and inquiries. In comparison with overseas jurisdictions, healthcare regulation in Hong Kong was characterized by a high degree of professional autonomy. There was a concern about the room for changing the existing regulatory frameworks for healthcare professionals under Article 142 of the Basic Law. The Administration assured members that any legislative proposals seeking to change the local regulatory framework for healthcare professionals would be in conformity with the Basic Law.

20. Question was raised as to whether the initial findings of the study had pointed to the need to subject the 15 healthcare professions not statutorily regulated at the moment under some form of regulatory control, say, be regulated under the Supplementary Medical Professions Ordinance (Cap. 359). There was a view that allied healthcare professionals, in particular clinical psychologists and dietitians, should be subject to statutory control at a level comparable to the control over medical practitioners to ensure patient safety.

21. The Administration advised that given that excessive regulation might pose unnecessary barriers to market entry, discourage competition and cause resource implications to the society, statutory regulation of healthcare professions should be called for only when the practice of a profession involved considerable health risks to the public. In the meantime, DH was studying the recommendations of The Ombudsman's direct investigation report on "Control of Healthcare Professions Not Subject to Statutory Regulation", which was published in October 2013. Follow-up actions would be taken as appropriate having regard to, among others, overseas experiences in this regard. It should also be noted that there was at present no local training on some of these 15 healthcare disciplines.

Timetable for the strategic review

22. Members noted that the initial plan of the Administration was to conclude the strategic review in 2013. Given the complexity of the task and the longer than expected time required for data collection, members were advised in November 2013 that HKU anticipated that the manpower demand and supply projections for doctors, nurses (including midwives) and dentists, and that for the other healthcare professions under study were expected to be available in early 2014 and towards the latter half of 2014 respectively. In May 2015, the Administration further revised the timing for concluding the strategic review to end of 2015.

Recent developments

23. The Chief Executive announced in his 2016 Policy Address that based on the preliminary results of the strategic review, the Government would increase the number of publicly-funded degree places in medicine, dentistry and other healthcare disciplines by 50, 20 and 68 respectively in the 2016-2017 to 2018-2019 triennium. In addition, the Government would launch a voluntary accredited registers scheme for healthcare personnel who were currently not subject to statutory regulation.

24. At the meeting of the Panel on Health Services on 18 January 2016 to receive a briefing from the Secretary for Food and Health on the 2016 Policy Address in relation to health matters, members noted that the latest plan of the Administration was to complete the strategic review in the first half of 2016.

25. In response to public concerns over the efficiency of the Medical Council in complaint investigation and disciplinary inquiries as well as its lack of flexibility for the admission of non-locally trained doctors, pending the completion of the strategic review and in advance of the implementation of the full recommendations of the strategic review, the Government introduced the Medical Registration (Amendment) Bill 2016, which seeks to amend the Medical Registration Ordinance (Cap. 161) and its two subsidiary legislation in order to address the above issues, into the Legislative Council on 2 March 2016. A Bills Committee has been formed by the House Committee on 11 March 2016 to study the Bill.

Relevant papers

26. A list of the relevant papers on the Legislative Council website is in the **Appendix**.

Council Business Division 2
Legislative Council Secretariat
18 April 2016

Appendix

Relevant papers on strategic review on healthcare manpower planning and professional development

Committee	Date of meeting	Paper
Subcommittee on Health Protection Scheme	4.3.2013 (Items I and II)	Agenda Minutes
	11.11.2013 (Item III)	Agenda Minutes
	15.4.2014 (Item II)	Agenda Minutes CB(2)2260/13-14(01)
	12.9.2014 (Item I)	Agenda Minutes
	4.5.2015 (Item I)	Agenda Minutes CB(2)399/15-16(01)
	14.12.2015 (Item III)	Agenda

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