Governmental Responsibilities in Optimizing Patient Care Through Physician Human Resources Planning

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Background

The supply and distribution of health professionals in Ontario is critical to meeting the healthcare needs of the province. In the past decade, **there has been concern over the state of health human resource (HHR) planning in Ontario, which has contributed to maldistribution of the physician supply, long patient wait times, and physician unemployment** (Haggie, 2012). Despite efforts by the Ministry of Health and Long-Term Care (MOHLTC) to address this concern, the 2013 Annual Report of the Office of the Auditor General (OAG) of Ontario found that Ontario had still not achieved its overall goal of "**having the right number, mix and distribution of health-care professionals**" (OAG, 2013). **Access to health care is still a problem for many Ontarians who live in rural and northern areas**. Additionally, many specialist physicians **trained in Ontario face underemployment and unemployment and may move to other provinces or countries** (Haggie, 2012). This issue is increasingly important as Ontario's population grows and ages. (The Ontario Seniors' Secretariat, 2013).

Physician Forecasting

Physician workforce forecasting in Ontario directly contributes to achieving and maintaining an optimal supply of the health workforce (Fooks et al, 2002). Ontario has historically adopted supply-based modeling, tracking the progression of a physician throughout their career and calculating the total number of practicing physicians at any given time. This number is then matched to the projected provincial population (Goodyear, 2004). An inherent assumption of supply-based modeling is that there is an optimal and fixed physician-to-population ratio that

should be maintained. This makes it difficult to accommodate for changes in healthcare demand (Fooks et al, 2002). Recognizing the shortcomings of supply-based modeling, the MOHLTC and the Ontario Medical Association (OMA) commissioned the Conference Board of Canada, an independent not-for-profit research vendor, to develop a needs-based physician forecasting model (Singh et al., 2011).

This needs-based forecasting has three components. First, movement of physicians within Ontario's healthcare system, from postgraduate training to retirement, is tracked and used to project future physician supply by specialty, age and sex. This is termed the Assessing Inventories and Netflows Physician Supply Model, and incorporates data from Canadian Institute for Health Information, Ontario Physician Human Resources Data Centre, Canadian Post M.D. Education Registry, and Royal College of Physician and Surgeons of Canada (OAG, 2015). Next, Ontario Health Insurance Plan (OHIP) claims data are used to determine current health care utilization by calculating the number of annual patient visits per physician by specialties – this is called the Physician Utilization Model (OAG, 2015). Lastly, the results of these two models are combined in a third model called the Ontario Population Needs-Based Physician Simulation Model, which applies current health care utilization (from the Physician Utilization Model) to future population demographics to estimate future physician service demands. This future demand for physician services is then compared to the future supply of physicians (from the Assessing Inventories and Netflows Physician Supply Model), and the difference is calculated by specialty and location (OAG, 2015). Unlike supply-based modeling, needs-based modeling considers changing future health service needs.

Since 2010, the MOHLTC has updated the Assessing Inventories and Netflows Physician Supply Model and the Physician Utilization Model to give more current projections. The MOHLTC also committed to updating all three models on a regular scheduled basis, with the latest update in 2015 (OAG, 2015). However, the OAG found the forecasting models to be limited by a lack of reliable data on areas such as physician productivity (OAG, 2015). Physician productivity refers to the capacity of a single physician to deliver healthcare services. Physician productivity is affected by changes in technology (electronic medical records), practice patterns (primary healthcare models), and scopes of practice of other healthcare providers (nurse practitioners). Unfortunately, data on these areas were unavailable for needs-based modelling in 2015 (OAG, 2015). Other factors such as availability of diagnostic and laboratory equipment and operating room time and space, important infrastructure supports for physicians, were also not included. The MOHLTC is currently working to improve physician needs-based model by incorporating the impact of the aforementioned factors (OAG, 2015).

Nationally, the MOHLTC and the Association of Faculties of Medicine of Canada have led the Pan-Canadian Physician Resource Planning Task Force since 2013. To facilitate collaboration and coordination of Canadian physician human resources planning, this Task Force is comprised of representatives from federal and provincial governments, national stakeholders,

medical educators and learner organizations (Mondal & Slade, 2014). Communication of these results to medical students has been facilitated through events such as the *Ontario Medical Students Weekend*, an event attended predominantly by first-year medical students (OAG, 2015).

Physician Unemployment

Physician unemployment is a growing concern in Canada and has costly impacts for both trainees, the province, and the public. Lack of job security is a source of stress for up to half of family medicine residents and three quarters of other specialty residents (National Physician Survey 2012). Moreover, given significant financial investment made to subsidize medical education on Ontario, physician unemployment is a waste of human capital and taxpayer dollars. Furthermore, an inability to find work may ultimately drive physicians to seek employment in other provinces and countries, thus representing a loss of investment for the Ontarian population (Haggie, 2012). Ultimately, this may result in longer wait times and decreased access to appropriate physician services (Haggie, 2012).

In a study presented at the 2015 National Physician Employment Summit, the Royal College of Physicians and Surgeons of Canada found that 16% of all specialist and sub-specialist physicians could not find work as of August 2013 (as compared to 7.1% for the general Canadian population) (Royal College of Physicians and Surgeons of Canada, 2015). Three main contributors for this trend were identified:

1. The weak economy has forced many physicians to delay their retirement and hospitals to control spending. A weakened stock market has resulted in older physicians continuing to occupy positions that in the past would have been vacated. Hospital resources that physicians need to practice, such as operating rooms and hospital beds, have also been reduced to control costs.
2. The evolution of the health care system has resulted in the emergence of interprofessional models of care that rely less on physicians. Such evolution has not been adequately accounted for in physician planning models, resulting in a misalignment between health workforce planning, health care delivery models and residency intake quotas.
3. Personal and context-specific issues were also identified as a contributor. A lack of adequate career and job search counselling hinders trainees from making informed specialty choices. Newly graduated medical specialists are also older today than in the past and are more likely to have families, often making it more difficult for them to relocate.

Health Human Resource planning by other provinces and countries

Physician resource planning is a challenge faced by other provinces and countries. Most Canadian jurisdictions, except for Prince Edward Island and the territories, use supply-based

forecasting models for health workforce planning. Quebec, Manitoba, Nova Scotia, Alberta and Ontario also utilize a demand-based model (Cameron Health Strategies Group, 2010).

New Zealand, with a publicly funded healthcare system like Canada, reports that traditional demand-based modelling does not adequately project health workforce need in such an unreliable future health milieu. As such, Health Workforce New Zealand developed a unique strategy that includes needs-based projections of health force requirements, advocacy for generalist scopes of practice, and cross-sectional analyses of workforce forecasts to enhance planning. This has proven to be highly effective (Gormer, 2015).

Communicating Human Resource Planning to Medical Students

The MOHLTC's current communication to medical students regarding the physician employment landscape is insufficient. While the MOHLTC's Health Force Ontario Marketing and Recruitment Agency conducts presentations at medical schools and at events including the annual Ontario Medical Students' Weekend, these presentations are limited and do not include detailed information regarding future employment trends (OAG, 2013).

In 2015, the MOHLTC announced a cut of 25 Canadian Medical Graduate residency spots in Ontario for 2016 and a further reduction of 25 International Medical Graduate positions for 2017 (OMSA, 2015). Given that the medical students affected by this decision were due to be applying for residency positions in November 2015, the timing of this announcement only gave them a few months to respond. For many, it was difficult to consider changing specialty choice as students often arrange research opportunities one to two years before applying for residency (Deschamps, 2015).

Given concerns about physician unemployment, more medical students are factoring postgraduate employment prospects into their specialty choice (Ko et al., 2007). Conversely, the number and mix of residency positions dictate the health services that will be available to future Ontarian populations. Providing reliable information on the current and future health needs of Ontario can therefore not only help trainees make evidence-based decisions that will help them secure employment after postgraduate training, but also help them select careers that best match the needs of their patients.

Principles
1. Evidence-based workforce planning should be used to guide trainees and improve patient care in Ontario.
    a. Management of physician numbers occurs at the beginning of the medical training continuum in that the number of yearly medical students corresponds with residency positions, and aligns with forecasted jobs in all specialties.

     b. This information should be communicated to all key stakeholders including medical students in a robust and standardized way to ensure transparency.

     c. Evidence at the provincial level would accelerate development of a pan-Canadian strategy for health human resources that emphasizes federal/provincial/territorial collaboration.

2. Distribution/allocation of residency training positions should accord with population needs and job availability.

     a. Allocate residency positions based on population need and employment capacity per specialty.

3. Career counselling and promotion of social accountability should be incorporated in formal medical training.

Recommendations

1. That the MOHLTC use needs-based projections to plan physician service requirements.

Although the physician supply has stabilized, there continues to be a maldistribution of physician resources in the province (Frechette et al, 2013). Anticipating the needs for physician services is complex, especially with the current aging population and technological advancements in medicine. Utilizing needs-based projections to determine future physician number, mix and distribution will enable Ontario to better prepare its medical students to work in locations and specialties that will optimize their ability to serve the population.

The development of the Ontario Population Needs-Based Physician Simulation Model (NBM) in 2011 by the MOHLTC and the OMA (OAG, 2015) was a positive step. However, contrary to the MOHLTC's original intentions, no regular updates to the NBM have been made. Furthermore, the NBM did not incorporate certain important factors that affect physician supply, such as changes to technology and practice patterns, nor did it account for physician productivity (OAG, 2015). We recommend for the MOHLTC to develop an updated NBM with the addition of incorporating technology and practice patterns, then implement and repeat it routinely to enhance evidence-based physician service planning. In that way, medical students can direct their training to areas that will maximize their care for Ontarians.

2. That the results of the needs-based projections be communicated to medical students and residents in a timely fashion.

Both medical students and residents will highly benefit from foreknowledge of the projected residency and job allocations. The results of needs-based projections should be easily accessible to trainees and updated on a yearly basis. Given that trainees are influenced by the projected job outlook while choosing a residency specialty, effective communication of projected residency positions and future employment trends to medical students and residents may

incentivize them to choose specialties and sub-specialties that are in higher demand, and to train and practice in locations with fewer physicians. This may improve physician cover in underserviced specialities and geographic locations. Furthermore, effective communication of HHR data will greatly assist career councillors in giving evidence-based advice to trainees. This will help medical students and residents make decisions that will not only help them secure employment after post-graduate training, but also select careers that best match the needs of their patients.

Advocacy Note

This policy paper encompasses an important piece of OMSA's advocacy work with respect to Health Human Resource Planning. It is part of a broader effort which includes lobbying for collaborative decision-making on residency position management, and active participation on OMA and the MOHLTC physician resource planning committees. The next policy document in our HHR Series will be available in the near future, and will outline OMSA's recommendations with respect to Health Human Resource Planning in Medical Education.

References

Cameron Health Strategies Group. (2010). *Health Human Resources Forecasting Models in Canada.* Presentation presented at RCPSCNSS HHR Conference, Ottawa, ON.

Deschamps, T. (2015). *Ministry of Health plans to cut 50 residency places, angering doctors in training*. The Star. Retrieved from http://www.thestar.com/life/health_wellness/2015/08/08/ministry-of-health-plans-to-cut-50-residency-places-angering-doctors-in-training.html

Fooks, C., Dulvalko, K., Baranek, P., Lamothe, L. & Rondeau, K. (2002). *Health human resource planning in Canada: Physician and nursing work force issues*. Ottawa, Ontario: Canadian Policy Research Networks.

Frechette D, Hollenberg D, Shrichand A, Jacob C, Datta. (2013). *Findings from the Royal College Employment Study 2013*. Royal College of Physicians and Surgeons of Canada.

Gomer, D. (2015). Developing Health Care Workforces for Uncertain Futures. *Academic Medicine, 90*, 400-403.

Goodyear, J. (2014). Ontario's health human resources strategy. In *Recruit and Retain Conference*. Thunder Bay, Ontario: Ministry of Health and Long-Term Care.

Haggie, J. (2012). *A Doctor for Every Canadian - Better Planning for Canada's Health Human Resources. Canadian Medical Association's brief to the House of Commons Standing Committee*

on Human Resources, Skills and Social Development and the Status of Persons with Disabilities – Addressing Existing Labour Shortages in High-Demand Occupations. Royal College of Physicians and Surgeons of Canada. Retrived from: http://www.royalcollege.ca/portal/page/portal/rc/common/documents/news/2012/RoyalCollegeBrief_HUMA_May2012_e.pdf

Ko, H. H., Lee, T. K., Leung, Y, Fleming, B, Vikis, E, Yoshida, E.M. (2007). Factors influencing career choices made by medical students, residents, and practising physicians. *BCMJ, 49,* 482-489.

Mian O, Pong R. (2012). Does better access to FPs decrease the likelihood of emergency department use?: Results from the Primary Care Access Survey. *Canadian Family Physician, 58,* e658-e666.

Office of the Auditor General of Ontario. (2013). *Annual Report 2013*. Retrieved from: http://www.auditor.on.ca/en/content/annualreports/arreports/en13/2013ar_en_web.pdf

Office of the Auditor General of Canada. (2015). *Annual Report 2015*. Retrieved from: http://www.auditor.on.ca/en/content/annualreports/arreports/en15/2015AR_en_final.pdf

Ontario Medical Students Association. (2015). *OMSA and CFMS Joint Message: Reduction of CMG PGY-1 Positions in Ontario*. Retrieved from: http://www.omsa.ca/news/2015/7/29/omsa-and-cfms-joint-message-reduction-of-cmg-pgy-1-positions-in-ontario

Ontario Seniors' Secretariat. (2013). *Independence, Activity and Good Health: Ontario's Action Plan for Seniors*. Retrieved from: https://dr6j45jk9xcmk.cloudfront.net/documents/215/ontarioseniorsactionplan-en-20130204.pdf

Royal College of Physicians and Surgeons of Canada. (2015). *2015 National Physician Employment Summit.* Retrieved from: http://www.royalcollege.ca/rcsite/health-policy/policy-conferences/2015-national-physician-employment-summit-e

Singh, D., Lalani, H., Kralj, B., Newman, E., Goodyear, J., Hellyer, D., & Tepper, J. (2010). Final report: Ontario population needs-based physician simulation model. *Ontario: Ministry of Health and Long-Term Care*.