

# Pharmacy Workforce Planning Committee

## Pharmacy Workforce Planning Committee

### SUMMARY REPORT

Health care in Canada requires the provision of sustainable, high quality pharmacy services in a complex and evolving environment. The Canadian Pharmacists Association (CPhA)–Association of Faculties of Pharmacy of Canada (AFPC) Pharmacy Workforce Planning Committee (PWPC) was created in July 2016 to identify the key elements required to properly undertake pharmacy workforce planning to support the delivery of pharmacy care. PWPC membership is pan-Canadian, and includes representation from across the pharmacy community (including professional associations, regulators, educators, and accreditors). The Committee conducted an environmental scan, heard expert presentations from leaders in health workforce planning, and held a one-day in-person discussion in February 2017 to reach consensus on a way forward. This document provides a summary of the Committee’s findings, and offers recommendations to pharmacy leadership in the development of a proposed needs-based model for a pharmacy workforce intelligence framework.

#### KEY FINDINGS

- Pharmacy scope of practice in Canada has changed significantly over the past decade, while technological advancements and the role of pharmacy technicians may further transform the pharmacy workforce.
- Needs-based workforce planning has replaced supply-based modeling as the global standard.
- International standards and best practices in workforce data collection have been developed and adopted by the World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) to inform needs-based planning.
- Canada’s national health workforce data collection and modeling tools are limited. Internationally-identified best practices should be used to guide planning efforts in Canada to ensure that our pharmacy workforce can respond to changing demographics and health care needs.

#### INTRODUCTION

Pharmacist workforce planning is complex, requiring timely and comprehensive data to support evidence-based policy and planning. Research suggests that pharmacy workforce data collection in Canada lags behind some other health care professions. The Canadian Institute of Health Information (CIHI)’s Health Workforce Database (HWDB) collects standardized, comparative data on the supply, demographics, geographic and distribution characteristics, and education and employment details of pharmacists in Canada, but it is insufficient to support a needs-based workforce planning model. While pharmacist supply data is robust, yet requires supplementation and coordination, information about registered pharmacy technicians in Canada is significantly lacking. New global standards for long-term health workforce planning require an understanding of demand for health and services and workers through factors such as demography, morbidity, healthcare utilization, delivery models, technological advancement, and GDP health expenditure growth.

The establishment of a coordinated national approach toward pharmacy workforce intelligence and planning is needed to enable appropriate education and training that responds to health system needs. Global health human resource standards call for investments in strengthening and centralizing health system data to support supply and demand workforce planning models that promote standardization and interoperability of health human resources data. All levels of government must support the collection of comprehensive, centralized, and timely pharmacy workforce intelligence to ensure that Canadians continue to have access to high quality pharmacy care and medication management services.

Historically, utilization-based planning has used the quantity, mix and population distribution of health workers (primarily physicians) as a baseline to estimate future requirements. Most Canadian provinces have relied on utilization-based models to inform health workforce planning; however, this has shifted in recent years to an increasingly complex needs-based approach. Provincial planning priorities have aligned with global health human resource standards, and utilization-based planning models are no longer prevalent. A Canadian pharmacy workforce intelligence framework must include needs-based and effective-demand based functions to determine future requirements for pharmacists and pharmacy technicians.

**Table 1: Established approaches to health workforce planning<sup>1</sup>**

Name of planning approach	Details of the approach	Assumptions of the approach
<b>Utilization-based planning</b>	The quantity, mix and population distribution of health workers are used as a baseline for estimates of future requirements.	<ol style="list-style-type: none"> <li>1) The current quantity, mix and distribution of services in the population are appropriate.</li> <li>2) The age- and sex-specific resource requirements remain constant in the future.</li> <li>3) The size and demographic profile of the population change over time in ways predicted by currently observed trends in age- and sex-specific rates of mortality, fertility and migration.</li> </ol>
<b>Needs-based planning</b>	Future requirements for health workers are estimated on the basis of the projected health deficits of the population, and the potential for addressing these deficits with the right mix, supply and distribution of health workers providing the right services.	<ol style="list-style-type: none"> <li>1) All healthcare and health promotion/disease prevention needs can and should be met.</li> <li>2) Cost-effective methods of addressing healthcare and health promotion/disease prevention needs can be identified and effectively implemented.</li> <li>3) Healthcare and health promotion/disease prevention resources are only used appropriately (i.e. to address relative levels of need).</li> </ol>

<sup>1</sup> Table 1: Established approaches to health workforce planning. McMaster Health Forum Evidence Brief: Planning for the Future of the Health Workforce of Ontario. September 2016. <https://www.mcmasterhealthforum.org/docs/default-source/Product-Documents/evidence-briefs/workforce-planning-eb.pdf?sfvrsn=2>.

**Effective demand-based planning**

Future requirements for health workers are estimated through the integration of healthcare and health promotion/disease prevention needs alongside important economic considerations (e.g. size and projected growth of the economy), and acknowledges that resources limitations mean that not all healthcare and health promotion/disease prevention needs can and should be met.

- 1) Cost-effective methods of addressing healthcare and health promotion/disease prevention needs can be identified and effectively implemented.
- 2) Healthcare and health promotion/disease prevention resources are only used appropriately (i.e. to address relative needs).
- 3) Implications of economic considerations can be used to prioritize which healthcare and health promotion/disease prevention needs should be met.

**BACKGROUND**

From 2006 to 2008, the federally-funded *“Moving Forward: Pharmacy Human Resources for the Future”* initiative gathered qualitative and quantitative data in the area of pharmacy human resources.<sup>2</sup> Since that time, pharmacy practice in Canada has undergone a dramatic transformation. Expanded scope of practice, regulation of pharmacy technicians, reimbursement reform, interprofessional collaboration and the transition to the entry-level Doctor of Pharmacy degree have all contributed to change in the pharmacy workforce.

***“Pharmacists are one of the fastest growing health care professions in Canada, according to a new report from the Canadian Institute for Health Information (CIHI). And while rising demand for pharmacy services is one driver, the increasing number of international pharmacy graduates (IPGs) is helping to fuel growth.”***

Canadian Healthcare Network (2015)

Some data suggests that pharmacy is among the fastest growing health professions in Canada. In 2008, 31,011 pharmacists were licensed to practice in Canada; by 2017, the number had increased by over 37% to 42,584.<sup>3</sup> The ten Canadian faculties of pharmacy graduated 1,353 new pharmacists in 2016. Data from CIHI’s Canadian Pharmacist Database shows that the supply of Canadian pharmacy graduates (CPGs) as compared to international pharmacy graduates (IPGs) has changed significantly in recent years. From 2009 to 2016 there was a 14.2% increase in the number of licensed pharmacists who graduated from Canadian schools of pharmacy compared to an 80.8% increase in licensed pharmacists who were internationally educated (CPGs: 19,097 in 2009 to 21,817 in 2016; IPGs: 5,322 in 2009 to 9,625 in 2016; excludes Quebec).<sup>4</sup>

The Canadian Occupational Projection System (COPS) occupational outlook projects that pharmacists are expected to face labour shortage conditions over the period of 2015-2024; however, this projection was published in 2011 and

<sup>2</sup> Moving Forward: Pharmacy Human Resources for the Future Final Report. September 2008. [http://tools.hhr-rhs.ca/index.php?option=com\\_mtree&task=att\\_download&link\\_id=4506&cf\\_id=68&lang=en](http://tools.hhr-rhs.ca/index.php?option=com_mtree&task=att_download&link_id=4506&cf_id=68&lang=en).

<sup>3</sup> National Association of Pharmacy Regulatory Authorities. National Statistics. [http://napra.ca/pages/Practice\\_Resources/National\\_Statistics.aspx](http://napra.ca/pages/Practice_Resources/National_Statistics.aspx).

<sup>4</sup> Pharmacists 2016. Canadian Institute for Health Information. January 2018 (Table 11). <https://secure.cihi.ca/estore/productFamily.htm?locale=en&pf=PFC3601&lang=fr&media=0>

the environment may have shifted since then.<sup>5</sup> While CIHI's Canadian Pharmacist Database collects information on the supply and distribution, demographics, geography, education and employment of pharmacists, publication of this data is delayed by approximately two years from collection. Additional disparate sources of Canadian pharmacy workforce data track niche populations and indicators, and are not well suited to aggregation.

While pharmacist shortage projections have invited the entry of a growing number of IPGs, the Committee heard reports that the Canadian pharmacist labor market has shifted from a shortage to a surplus. Recent graduates report changing employment conditions in some provinces (e.g. difficulty securing pharmacist employment; lower wages), although certain parts of Canada (e.g. rural and remote areas) and pharmacy sectors are experiencing shortages.<sup>6</sup> For example, Quebec as a whole faces pharmacist shortages, but these are even more pronounced in Quebec's hospital pharmacy sector, where pharmacists are generally required to earn a Master's degree after they complete the PharmD program and where shortages are reportedly as high as 19%.<sup>7</sup>

As of January 1, 2017, there were 7,339 licensed pharmacy technicians in Canada, an increase from 504 in 2012.<sup>8</sup> Almost no data is available on the supply of non-licensed pharmacy technicians and assistants; this was identified as a significant challenge to pharmacy workforce planning in Canada.

At the same time, significant progress has been made in the last ten years to better understand how a complex set of factors interrelate to impact on the supply and demand of the health workforce. For example, within the pharmacy workforce, supply and demand are impacted not only by patient and provider indicators, but by external variables specific to the profession, such as the role of drug prices, insurance coverage, changes in service-based compensation and evolving scopes of practice, among others. Short-term decisions may have a significant impact on the long-term availability of pharmacists. Pharmacy workforce data collection and analysis must improve in order to respond to the demands of changing pharmacy practice and adapt to ensure pharmacy is prepared to contribute to the needs and demand-based interprofessional health human resource modeling tools of the future.

### ***New Standards and Best Practices in Health Workforce Planning***

Since the *Moving Forward* initiative, significant progress has been made in communicating the value that the pharmacy workforce can contribute to Canadian health care. Moreover, since the Final Report was issued, the global context and requirements for pharmacy workforce supply and demand indicators have changed significantly. The adoption of the *Global Strategy on Human Resources for Health: Workforce 2030* by the World Health Organization (WHO) signifies a new approach to health human resources, designed not only to optimize today's existing workforce, but to consider the future population needs for health and social services through needs and demand-based planning.<sup>9</sup>

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<sup>5</sup> Canadian Occupational Projection System (COPS). Occupational Projection: Pharmacists. <http://occupations.esdc.gc.ca/sppc-cops/occupationsummarydetail.jsp?&tid=109>.

<sup>6</sup> Gregory, P., & Austin, Z. (2014). Postgraduation employment experiences of new pharmacists in Ontario in 2012–2013. *CPJ*, 147(5), 290–299.

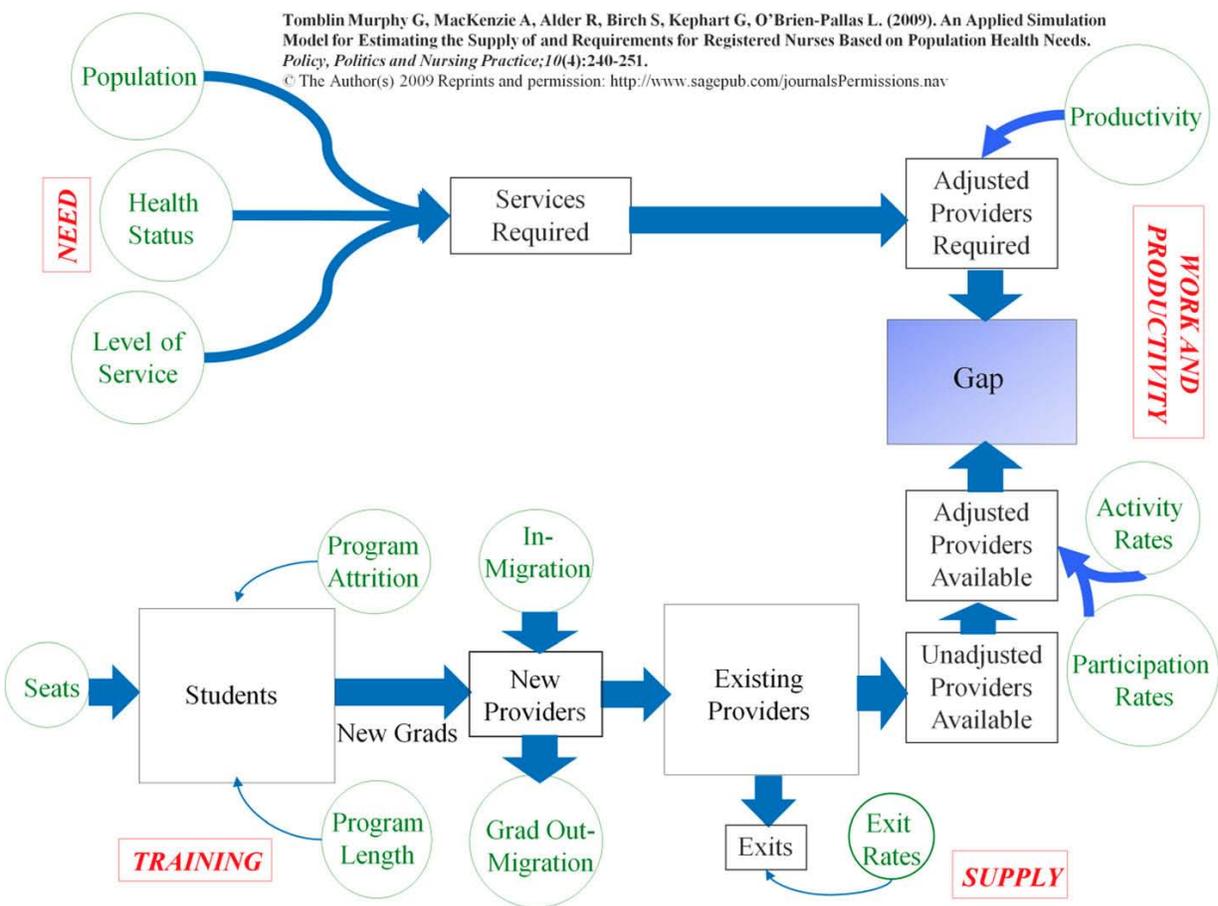
<sup>7</sup> Association des pharmaciens des établissements de santé du Québec.

<sup>8</sup> National Association of Pharmacy Regulatory Authorities. National Statistics. [http://napra.ca/pages/Practice\\_Resources/National\\_Statistics.aspx](http://napra.ca/pages/Practice_Resources/National_Statistics.aspx). Note that pharmacy technicians are regulated in only nine provinces: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland, therefore the number of technicians (regulated and unregulated) practicing in Canada is higher.

<sup>9</sup> Jim Campbell: No health without a workforce – a plan for the world. *International Pharmacy Journal*. Vol. 34, No. 2. July 2016.

The Organization for Economic Cooperation and Development (OECD) has reviewed health workforce planning in OECD countries and developed a general framework focused on supply and demand drivers. The current and future supply of health workers are affected by the 'inflows' in each occupation and the 'outflows' (exits), as well as the activity rates of the 'stock' of health workers (full-time equivalents or FTEs). The range of variables taken into account in practice in this 'stock-flow' approach depends mainly on data availability and relevancy of different variables in particular countries or for particular occupations.<sup>10</sup> Figure 1 (below) demonstrates how this model may be applied to simulate requirements for health care providers based on population health needs.

**Figure 1: Example of OECD-Based Supply and Demand Model: An Applied Simulation Model for Estimating the Supply of and Requirements for Registered Nurses Based on Population Health Needs. Tomblin Murphy G, MacKenzie A, Alder R, Kephart G, O'Brien-Pallas L (2009).**



More sophisticated global modeling standards demand more comprehensive data. The International Pharmaceutical Federation (FIP) has published a list of thirteen pharmaceutical development goals developed as a platform to build sustainable near and longer term plans of action on behalf of member organizations and partners. Workforce intelligence is identified as a key priority, given that "without workforce intelligence data, there can be no strategic workforce development". FIP calls on member countries to develop monitoring systems to identify workforce trends

<sup>10</sup> OECD Health Working Paper No. 62. Health Workforce Planning in OECD Countries: A Review of 26 Projection Models from 18 Countries. June 2013. [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DELSA/HEA/WD/HWP\(2013\)3&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DELSA/HEA/WD/HWP(2013)3&docLanguage=En).

to enable decision making on deployment and supply of the pharmaceutical workforce, noting that time-lags are often present in these activities.<sup>11</sup>

However, one of the key health workforce challenges at the country level is the availability, completeness and quality of data to support evidence-based policy and planning. The WHO notes that greater efforts are needed to realize the benefits of quality workforce data to inform national, evidence-based policy decisions and harmonize definitions and classification of all health and social care providers across sources, countries and time.<sup>12</sup> Comprehensive and timely workforce intelligence is critical to ensuring a balanced labour market for pharmacists in the short-term; and the development of supply and demand workforce planning models that promote standardization and interoperability of health human resources data in the long-term.

### ***Federal/Provincial/Territorial Workforce Planning Initiatives***

The F/P/T Committee on Health Workforce (CHW) is the national forum for strategic discussions, information sharing, and action on priority federal/provincial/territorial health workforce issues. The CHW provides policy and strategic advice to the Conference of Deputy Ministers of Health on health workforce issues including the planning, organization, and delivery of health services. The administration of the Committee on Health Workforce is supported by a secretariat from Health Canada's Health Human Resources Policy Division.

While workforce planning is primarily undertaken by provinces, pharmacy workforce issues have previously been identified as a priority for F/P/T leadership. In response to a directive from the Premiers to examine opportunities to increase the important role that paramedics and pharmacists can play in providing frontline services, the Council of the Federation's Health Care Innovation Working Group formed a Team-Based Models Task Force in 2014. CPhA was a key member and worked to identify leading-edge examples of pharmacist involvement in team-based care. These examples were presented at a special summit in February 2015 and assembled into a report for Health Ministers.

As CHW's primary mandate is to provide policy and strategic advice to the Conference of Deputy Ministers, their work is influenced by requests from the provincial Deputy Ministers of Health. Such a request informed the establishment of the Physician Resource Planning Task Force, established to support a Deputy Ministers of Health/Deans of Medicine Working Group. This work focuses on advancing a recommendation from the Future of Medical Education in Canada Postgraduate report, "to ensure the right mix, distribution and number of physicians to meet societal needs".<sup>13</sup>

This is a major initiative being led by the Association of Faculties of Medicine Canada (AFMC) and the Conference Board of Canada to develop a pan-Canadian physician planning tool (supply and demand). A needs-based model will project future population health needs and what physician services are required to meet those needs. Data inputs will be provided by CIHI, AFMC, and the Canadian Medical Association (CMA). It will track Canadian doctors returning to practice in Canada, as well as international graduates entering the workforce. Other health care providers (e.g. nurses) intend to leverage this model once it is developed.

<sup>11</sup> Pharmaceutical Workforce Development Goals. Presented at the global conference on pharmacy and pharmaceutical sciences education. International Pharmaceutical Federation (FIP). 2016. [https://fip.org/files/fip/PharmacyEducation/2016\\_report/2016-11-Education-workforce-development-goals.pdf](https://fip.org/files/fip/PharmacyEducation/2016_report/2016-11-Education-workforce-development-goals.pdf).

<sup>12</sup> World Health Organization. Policy Brief: National health workforce accounts: The knowledge-base for health workforce development toward Universal Health Coverage. [http://www.who.int/hrh/documents/15376\\_WHOBrief\\_NHWFA\\_0605.pdf](http://www.who.int/hrh/documents/15376_WHOBrief_NHWFA_0605.pdf).

<sup>13</sup> The Future of Medical Education in Canada Postgraduate Project Report: A Collective Vision for Post-Graduate Medical Education in Canada. 2012. [https://afmc.ca/future-of-medical-education-in-canada/postgraduate-project/pdf/FMEC\\_PG\\_Final-Report\\_EN.pdf](https://afmc.ca/future-of-medical-education-in-canada/postgraduate-project/pdf/FMEC_PG_Final-Report_EN.pdf).

***“The role of pharmacy and pharmacists is absolutely critical in terms of ensuring we connect the availability of health care services and medicines. [There is] opportunity for additional innovation where the pharmaceutical workforce may be engaged in health prevention/promotion, communication in terms of good prescribing practice and good behaviour. Pharmacists are part of the integrated approach...”***

Jim Campbell, Director, WHO Health Workforce Department

To date, there has been little consideration by governments of how to plan for the supply, mix and distribution of key health workers outside of publicly-funded physician and nursing services. As pharmacists are increasingly considered an integral part of a fully integrated health system – for example, community pharmacists are relied on to perform vital health system functions such as delivering seasonal flu vaccines and monitoring drug therapy – considering them in system-wide workforce planning models is a necessity.<sup>14</sup>

## **PRESENTATIONS TO THE COMMITTEE**

The Committee heard presentations from leaders in health workforce planning in Canada and the United States, as well as from representatives of the World Health Organization. Presentation findings are summarized below:

### ***Canada***

At present, Canada’s national health workforce modeling tools are limited. While supply-based information is available, a coordinated needs-based approach is lacking. Several provincial governments have developed physician health workforce models, while some provinces are developing models for other health care providers. For example, Ontario is developing a nurse forecasting tool that will incorporate supply, demand, and need.<sup>15</sup> The Canadian Institute for Health Information (CIHI) maintains databases and publishes aggregate supply statistics for several health care provider groups, including pharmacists. The most recent publication (Pharmacists, 2016) identifies 17 pharmacist supply indicators sourced from third parties (e.g. provincial/territorial pharmacy regulatory authorities; Association of Faculties of Pharmacy of Canada; National Association of Pharmacy Regulatory Authorities) and CIHI’s Health Workforce Database.<sup>16</sup> Indicators include: pharmacy programs and number of first-year enrollees; number of pharmacy graduates pharmacist supply, renewal and outflow; age; sex; country of graduation; position; geographic distribution; and licensure registration.

CIHI’s Pharmacists database is the most comprehensive database of pharmacist labour market information in Canada; however, it does not include supply data from Quebec. Furthermore, publication may be delayed by almost two years from collection. While available for over a decade, limited analysis has been undertaken to generate

<sup>14</sup> McMaster Health Forum Evidence Brief: Planning for the Future of the Health Workforce of Ontario. September 2016.

<https://www.mcmasterhealthforum.org/docs/default-source/Product-Documents/evidence-briefs/workforce-planning-eb.pdf?sfvrsn=2>.

<sup>15</sup> Canada: Background Paper. 15<sup>th</sup> IHWC Conference 2015 Country Roundtable. Prepared by Ontario Ministry of Health and Long-Term Care. Health Workforce Policy Branch. May 2015.

[http://rcpsc.medical.org/publicpolicy/documents/2015/Canada\\_15th\\_IHWC\\_Roundtable\\_Backgrounder\\_2015-05-13.pdf](http://rcpsc.medical.org/publicpolicy/documents/2015/Canada_15th_IHWC_Roundtable_Backgrounder_2015-05-13.pdf).

<sup>16</sup> Canadian Institute for Health Information. Health Workforce Database, 2015: Methodology Guide. Ottawa, ON: CIHI; 2016.

[https://secure.cihi.ca/free\\_products/HWDB\\_Methodology\\_Guide\\_EN.pdf](https://secure.cihi.ca/free_products/HWDB_Methodology_Guide_EN.pdf).

specific pharmacy reports. There is untapped potential for new insight through analysis of these 17 indicators, with additional metrics under development to bring Canada's workforce data in line with international standards. There are opportunities for the pharmacy community to optimize the use of existing data, while working cooperatively with CIHI in the development of high-priority indicators. There are related opportunities to incorporate this data into general federal government labour market planning initiatives, including the COPS modelling.

The pharmacy community also engages in pharmacy workforce data collection. All international pharmacy graduates are required to enroll in the National Association of Pharmacy Regulatory Authorities (NAPRA) Pharmacists' Gateway Canada prior to beginning certification through the Pharmacy Examining Board of Canada (PEBC).<sup>17</sup> Since August 2014, over 6000 individuals have registered with the Pharmacists' Gateway, and nearly 4000 have completed document evaluations through PEBC.<sup>18</sup> The Hospital Pharmacy Report publishes the results of the biannual Canadian survey of hospital pharmacy directors and managers. The report includes information about vacancy rates for hospital pharmacy technicians, pharmacists and pharmacy managers; staffing ratios; average budgeted staffing levels (FTEs of pharmacy technicians, pharmacists, and managers); staff age distribution; and salaries.<sup>19</sup> The Community Pharmacy Trends & Insights Report is published biannually and features survey data from community pharmacists and community pharmacy owners and managers. This report also incorporates data from industry sources, including human resources updates.<sup>20</sup> There is a need to coordinate these data sources to understand existing gaps.

## **United States**

In the United States, the pharmacy profession does not rely on the federal government to track pharmacy labour force data. The Pharmacy Workforce Center (PWC), formerly known as the Pharmacy Manpower Project, Inc., is a non-profit corporation whose mission is to serve the pharmacy profession and the public by actively researching, analyzing and monitoring the size, demography and activities of the pharmacy workforce. The PWC administers the National Pharmacist Workforce Survey every four to five years. This comprehensive survey of 5000 randomly selected pharmacists is designed to collect information on demographic characteristics, work contributions, and the quality of work-life of the pharmacist and technician workforce in the United States.<sup>21</sup>

In addition, the Pharmacist Demand Index (PDI) collects reports on the demand for pharmacists from a panel of pharmacist employers, through a secure online portal. Panelists report ratings on a scale of 1 to 5 whether they perceive difficulty in filling open positions or whether demand is less than supply. Results are available within two months, providing responsive labour market information to measure and assess pharmacist and technician demand. Results are reported for generalists, managers, and specialized pharmacists, with breakdowns available by region, state, or practice setting. The PDI is similar to the Canadian Occupational Projection System (COPS), in that it relies on labour market information rather than health workforce indicators.

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<sup>17</sup> International pharmacy graduates seeking licensure in Quebec are not required to enroll in the Pharmacists' Gateway; however enrollment is required in order to obtain the PEBC Certificate of Qualification.

<sup>18</sup> This does not include evaluations completed by L'Ordre des pharmaciens du Québec.

<sup>19</sup> Hospital Pharmacy in Canada 2013/14 Report. Published by the Hospital Pharmacy in Canada Editorial Board. [http://stage.lillyhospitalsurvey.ca/hpc2/content/2015\\_report/FULL-2015.pdf](http://stage.lillyhospitalsurvey.ca/hpc2/content/2015_report/FULL-2015.pdf).

<sup>20</sup> Report available for purchase at <http://www.pharmacyu.ca>.

<sup>21</sup> Final Report of the 2014 National Sample Survey of the Pharmacist Workforce to Determine Contemporary Demographic Practice Characteristics and Quality of Work-Life. Midwest Pharmacy Workforce Research Consortium. April 2015.

<http://www.aacp.org/resources/research/pharmacyworkforcecenter/Documents/FinalReportOfTheNationalPharmacistWorkforceStudy2014.pdf>.

The PWC may offer an approximate model for the creation of a uniquely Canadian entity (on a smaller scale and at reduced cost). Canada has a greater number of data sources to leverage (such as the existing body of CIHI data). However, a centralized body could serve to coordinate existing standalone pharmacy workforce intelligence data and conduct surveys to identify significant informational gaps.

### **World Health Organization (WHO)**

#### *WHO Health Workforce Department (Geneva)*

The WHO Health Workforce Department is tasked with designing and executing a global strategy on human resources for health (Workforce 2030). A key pillar is strengthening data, evidence and knowledge to support health human resource policy decisions. The WHO Health Workforce Accounts are a set of 90 key indicators intended to establish a global standard to harmonize health workforce planning among member countries, which reflect a needs-based approach to health workforce planning.<sup>22</sup> Canada has committed to sharing data through national health workforce accounts and submitting core indicators to the WHO Secretariat annually.

CIHI has engaged in the development of a limited set of initial indicators for Canada, identified in Module 1 of the *National Health Workforce Accounts: A Handbook*. The table below highlights the 8 indicators included, as well as variations in terminology for the data presented by CIHI:

<b>CIHI indicators for health professions</b>	<b>WHO indicators</b>
Health care providers employed in direct care per 100,000 population, by type of provider and jurisdiction, for selected provinces/territories, 2007 to 2016	1-02: Density of Active Health Workers per 1,000 Population, by Cadre 1-03: Density of Active Health Workers per 1,000 Population by Cadre and at Subnational Level
Health care provider supply, by employment status and type of provider, per 100,000 population, for selected provinces/territories, 2007 to 2016	1-04: Density of Active Health Workers per 1,000 Population, by Cadre, by Activity Level (Practising, Professionally Active, Licensed to Practice)
Ratio of health care providers employed in direct care to supply, by type of provider for selected provinces/territories, 2007 to 2016	1-05: Ratio Between Active and Registered Health Workers, by Cadre
Health care providers employed in direct care, by age group, for selected provinces/territories, 2007 to 2016	1-07: Percentage of Active Health Workers in Different Age Groups, by Cadre and Sex
Health care providers employed in direct care, by country of graduation and type of provider, for selected provinces/territories, 2007 to 2016	1-09: Percentage of Active Foreign-Trained Health Workers by Place of Birth (Domestic/Foreign) and by Country of Training
Health care providers employed in direct care, by	1-11: Percentage of Active Health Workers

<sup>22</sup> World Health Organization. National Health Workforce Accounts: A Handbook (Draft for Consultation). [http://who.int/hrh/documents/handbook\\_health\\_workforce\\_14a.pdf?ua=1](http://who.int/hrh/documents/handbook_health_workforce_14a.pdf?ua=1).

place of work and type of provider, for selected provinces/territories, 2007 to 2016	Employed by Facility Type, by Cadre
Health care providers employed in direct care, by health region, jurisdiction and for selected provinces/territories, 2007 to 2016	1-12: Density of Active Health Workers in Different Regions (by Regional Typology, by Cadre)
Health care providers employed in direct care per 100,000 population, by health region, jurisdiction and for selected provinces/territories, 2007 to 2016	1-12: Density of Active Health Workers in Different Regions (by Regional Typology, by Cadre)

CIHI intends to review additional indicators and collaborate with stakeholder to prioritize future reporting. There are opportunities for the profession to guide the development of future indicators to leverage the work of CIHI to inform the creation of a needs-based workforce planning model for pharmacy.

*WHO Collaborating Centre on Health Workforce Planning and Research (Dalhousie University)*

The WHO Collaborating Centre on Health Workforce Planning and Research is based at Dalhousie University in Halifax, Nova Scotia. The Centre’s mandate is to build capacity in health systems and needs-based health human resources planning within Canada and internationally, which aligns with the WHO’s Strategic Objective to Strengthen Health Systems. The Committee learned that a made-in-Canada methodology already exists to forecast pharmacist and other health professional workforce numbers using a needs-based projection model.<sup>23,24,25</sup> This methodology can be applied on a national, provincial or regional basis. Success is dependent upon buy-in from government, health authorities and the private sector, investment in appropriate planning data, and ongoing monitoring and evaluation.

***The Pharmacy Student Perspective***

Research published in the Canadian Pharmacists Journal surveying post graduation employment experiences of new pharmacists in Ontario in 2012-13 found that fewer students are securing full-time positions with benefits, and more are relying upon temporary, part-time work with multiple employers. The researchers concluded that sustainable, longitudinal tracking of the pharmacy workforce, and in particular of new graduates’ experiences, would be valuable to facilitate better workforce planning and to help educators and employers work together to better support new graduates in their transition from students to pharmacists.<sup>26</sup> PWPC student representatives reported that recent graduates are feeling the impact of these trends across Canada.

<sup>23</sup> Tomblin Murphy G, O'Brien-Pallas L: Appendix: example of a conceptual model for HHR planning. *A Framework for Collaborative Pan-Canadian Health Human Resources Planning*. Ottawa: Federal/Provincial/Territorial Advisory Committee on Health Delivery and Human Resources; 2006:29–36.

<sup>24</sup> Birch S, Kephart G, Tomblin Murphy G, et al. Human resources planning and the production of health: a needs-based analytical framework. *Can Public Pol* 2007, 33(Suppl):S1–S16

<sup>25</sup> Tomblin Murphy G, MacKenzie A, et al. An applied simulation model for estimating the supply of and requirements for registered nurses based on population health needs. *Pol Polit Nurs Pract* 2009, 10(4):240–251.

<sup>26</sup> Gregory, P., & Austin, Z. (2014). Postgraduation employment experiences of new pharmacists in Ontario in 2012–2013. *CPJ*, 147(5), 290–299.

## PHARMACY WORKFORCE PLANNING COMMITTEE (PWPC) FINDINGS

This section of the report provides a roadmap for pharmacy leadership to develop pharmacy workforce planning capacity through short- and long-term recommendations informed by the Committee's Key Findings:

- Pharmacy scope of practice in Canada has changed significantly over the past decade, while technological advancements and the role of pharmacy technicians may further transform the pharmacy workforce.
- Needs-based workforce planning has replaced supply-based modeling as the global standard.
- International standards and best practices in workforce data collection have been developed and adopted by the World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) to inform needs-based planning.
- Canada's national health workforce data collection and modeling tools are limited. Internationally-identified best practices should be used to guide planning efforts in Canada to ensure that our pharmacy workforce can respond to changing demographics and health care needs.

### *Key Areas of Focus and Influence*

In response to the Key Findings, the Committee has identified four key areas of focus for the profession in optimizing pharmacy workforce planning for pharmacists and regulated pharmacy technicians with a view to improving pharmaceutical care. The PWPC encourages pharmacy organizations, in collaboration with relevant stakeholders, to take leadership roles on these focus areas, as per their organizational mandates. These areas of focus should guide the actions of the profession in the development of a needs-based model for pharmacy workforce planning:

1. Develop indicators required to determine if the pharmacist/technician workforce is available, accessible, acceptable, and possesses the appropriate competencies to provide high quality health services. Such indicators will support needs-based planning and evidence-based policy decisions.
2. Identify trends in the pharmacist/technician workforce in relation to:
  - Production (education and training outputs)
  - Inflows and outflows
  - Deployment trends: skill mix; equity; gender distribution; international education; etc.
3. Identify gaps in the pharmacist/technician workforce in relation to:
  - Equity and skill mix
  - Productivity and performance
  - Patient needs
4. Identify potential disruptors in pharmacy and assess their impact on health workforce planning in Canada, for example:
  - Pharmacy technicians and assistants
  - Automation and technology
  - Pharmacist specialization
  - Online and mail order pharmacy

Lastly, pharmacy workforce planning should take into consideration other influencers and how they may affect the pharmacist/technician workforce balance and societal needs. The following are examples of such influencers:

- Changes to the capacity and mix of practicing pharmacy workers in the system
- Changes in the information provided to pharmacy students and technicians that may influence where, what and how they practice
- Changes in financial incentives to pharmacists and technicians to support pharmacy labour market balance
- Changes to training and education curricula
- Changes to immigration policy

### ***Canadian Pharmacy Workforce Centre***

Pharmacist workforce planning is complex, requiring timely and comprehensive data to support evidence-based policy and planning. The establishment of a Canadian Pharmacy Workforce Centre (CPWC) could help the profession achieve success in its key areas of focus. The CPWC could serve as a centralized intelligence centre for Canadian pharmacy workforce planning and evaluation activities, with a primary mission to develop and support a repository of workforce data about pharmacist and pharmacy technician supply and demand. Core functions could include:

- Serve as a data resource for Canadian health care organizations.
- Administer surveys about pharmacists and pharmacy technicians
- Produce routine statistical reports and projections about the pharmacy workforce.

### **PHARMACY LABOUR MARKET WORKING GROUP (PLMWG)**

One year after the formation of the PWPC, the Pharmacy Labour Market Working Group (PLMWG) was created at the request of CPhA and AFPC in order to address more immediate labour market concerns in Canada not included in the PWPC mandate. The PLMWG will compile and analyze existing labour market data to confirm and quantify a labour market surplus, address any gaps in workforce supply data, and make recommendations to the pharmacy community and government stakeholders to correct any identified pharmacist workforce supply imbalances. The activities of the PLMWG will be conducted in alignment with the work of the PWPC. This includes collecting pharmacy workforce data; exploring partnerships and information sharing arrangements with data collection and workforce planning agencies; guiding the development of new labour market indicators; developing policy recommendations, and ensuring that data collection and analysis can be appropriately leveraged for needs-based pharmacy workforce planning.

## PHARMACY WORKFORCE PLANNING COMMITTEE (PWPC) RECOMMENDATIONS

### *Short Term Recommendations (8 – 12 months)*

- 1. Seek project support in principle from CPhA and AFPC Boards of Directors.**
  - Submit report for Board review with accompanying letter from PWPC Chair.
  - CPhA Board Meeting 4-5 April 2017.
  - AFPC Board Meeting 4 June 2017.
  
- 2. Seek project support from PWPC member organizations.**
  - Disseminate report to PWPC member organizations through pharmacy leadership channels.
  - PWPC members will be encouraged to share the report recommendations with their respective leadership to gauge interest and seek project support.
  
- 3. Formalize engagement and collaboration with government research bodies (e.g. CIHI; Employment and Social Development Canada; Health Canada (Health Human Resources Policy Division and CHW)).**
  - Pharmacy community to explore public sector funding and pharmacy representation in public and private-sector health workforce initiatives.
  - Engagement should be formalized and linked to ongoing government commitments (e.g. supporting the development of Health Workforce Accounts indicators for pharmacy).
  
- 4. Develop, administer, analyze and report on registered pharmacy technician survey.**
  - Committee members identified significant gaps in registered pharmacy technician workforce data.
  - An immediate need was determined to collect data and report on registered pharmacy technicians.
  
- 5. Explore partnership with WHO Collaborating Centre on Health Workforce Planning and Research for the development of a needs-based national forecast of pharmacist demand in Canada.**
  - Preliminary discussions suggest that WHO Collaborating Centre on Health Workforce Planning and Research has expertise and capacity to develop needs-based workforce planning model for pharmacy in Canada.

### *Medium Term Recommendations (12 – 36 months)*

- 1. Develop business case for Canadian Pharmacy Workforce Planning Centre (CPWC).**
  - PWPC membership (or sub-group) to explore development of CPWC business case.
  
- 2. Determine partnership model and oversight structure for pharmacy workforce intelligence body (e.g. establish CPWC or alternative organizational model).**
  - Critical to put infrastructure in place to ensure project doesn't lose momentum over time.
  - Formal Corporation not required; collaborative agreements similar to *Moving Forward* and *Blueprint for Pharmacy* initiatives could support centralized infrastructure.

- 3. Develop funding proposals to government and private sector to secure external financial support pharmacy workforce intelligence.**
  - Funding requests should be tied to meeting global standards to which Canada has committed through WHO, OECD, etc.
- 4. Review existing pharmacist data. Identify gaps and determine plan to collect data.**
  - Pharmacist workforce data sources are disparate and widely held.
  - Identify gaps (with a focus on data to inform needs-based planning).
- 5. Develop, administer, analyze and report on pharmacist survey (through CPWC or alternative organizational model).**
  - If it is determined that a pharmacist workforce survey is not required, other data collection mechanisms could be explored (e.g. data collection through existing touch points with regulators).
- 6. Review pharmacy technician data.**
  - Determine if sufficient data available to initiate creation of pharmacy technician (needs-based) planning model.

### ***Long Term Recommendations (3 – 7 years)***

- 1. Execute needs-based pharmacy workforce planning model (through CPWC or alternative organizational model).**
- 2. Repeat pharmacist and technician data collections every 4-5 years.**
- 3. Repeat pharmacist and technician long-term needs-based projections every 4-5 years.**
- 4. Review partnership model and oversight structure on a regular basis.**
- 5. Use data and needs-based projections to inform evidence-based pharmacy workforce planning decisions that are responsive to changing health care needs.**

## About CPhA-AFPC Pharmacy Workforce Planning Committee

The CPhA-AFPC Pharmacy Workforce Planning Committee was convened in July 2016 to “conduct a comprehensive assessment of the current and future pharmacist workforce, focusing on both the supply and demand for pharmacists.” Membership is pan-Canadian, and includes representation from across the pharmacy community (including professional associations, regulators, educators, and accreditors). The following organizations are represented on the CPhA-AFPC Pharmacy Workforce Planning Committee:

- Canadian Pharmacists Association (CPhA)
- Association of Faculties of Pharmacy of Canada (AFPC)
- Canadian Association of Pharmacy Students and Interns (CAPSI)
- Canadian Council for the Accreditation of Pharmacy Programs (CCAPP)
- Canadian Council on Continuing Education in Pharmacy (CCCEP)
- Canadian Society of Hospital Pharmacists (CSHP)
- Association des pharmaciens des établissements de santé du Québec (APES)
- National Association of Pharmacy Regulatory Authorities (NAPRA)
- Canadian Association of Pharmacy Technicians (CAPT)
- Canadian Pharmacy Technicians Educators Association (CPTEA)
- Pharmacy Examining Board of Canada (PEBC)
- Neighbourhood Pharmacy Association of Canada (NPAC)
- Provincial pharmacy regulatory organizations
- Provincial pharmacy associations