5. Delivery arrangements 2: Workforce

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Key messages for citizens

- While a distinction is frequently made between regulated health professionals (e.g., nurses and physicians) and unregulated health workers (e.g., personal support workers and paramedics), there are mechanisms in place to protect and serve the public interest where either group is concerned.
- Over the last decade, there have been substantial increases in the number of health professionals and workers, with particularly noticeable increases among: midwives (244%); social workers (162%); dental hygienists (103%); optometrists (84%); health-information management professionals (77%); respiratory therapists (73%); medical physicists (68%); chiropractors (67%); and dietitians (61%).
- The majority (94%) of Ontarians are registered with a primary-care provider, however, less than half (44%) report that they are able to see their family physician the same- or next-day when they are sick.
- Ontarians living in rural and remote areas continue to experience difficulty in accessing family physicians as well as specialists, despite increases in physician supply.

Key messages for health professionals

- From 2000 (which is near the end of a period of 'belt tightening' by the government) to 2013, the unadjusted workforce per 100,000 population has increased across a range of health professionals, with the exception of registered practical nurses and medical laboratory technologists.
- From 2000 to 2011, training capacity for physicians has grown and the total number of medical-school graduates increased by 62% (with 58% of these graduates in 2011 being female).
- New healthcare roles have been created to complement the existing cadres of health professionals (e.g., physician assistants).
- Registered nurses and physicians are not distributed equitably across geographic areas, with numbers particularly low in rural and remote areas.

Key messages for policymakers

- Projections indicate that the supply of physicians will increase by an additional 23% by 2025.
- Unregulated health workers, particularly personal support workers, are playing an increasingly central role in home and community care and in long-term care.
- Using simple headcounts as a measure of supply ignores differences in working hours across workers (e.g., women versus men) and changes in working hours over time (e.g., reduced 'patient care' hours among family physicians).
- Using unadjusted workforce-to-population ratios as a measure of density, as is typically done, ignores the aging of the population.

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In this chapter we continue our focus on delivery arrangements, but move from a focus on infrastructure (Chapter 4) to the health workforce, which is the final 'building block' of the health system. The health workforce is a key input to the health system, albeit one that is – over the short term at least – relatively fixed. Over the longer term, however, changes to the health workforce are and will remain essential to achieving the 'triple aim' of improving the patient experience, improving population health, and keeping per capita costs manageable. We return to the 'triple aim' in Chapter 11, which is focused on the performance of the health system.

Adjusting the supply (e.g., number) and distribution (e.g., location) of regulated health professionals and unregulated health workers to meet the changing health needs of Ontarians is a key challenge for a responsive and efficient health system, both in general, and in particular geographic locations and among particular (e.g., marginalized) groups. The life expectancy of Ontarians has increased over the past decade, and the proportion of Ontarians aged 65 years and over is increasing and projected to double to 25% by 2041.(1; 2) As the age of the population increases, so too does the number of people living with chronic conditions and complex needs.(3) Understanding the existing health workforce along with shifting health needs is key to planning initiatives.

Policy initiatives can also necessitate adjustments to supply and distribution. For example, the Ministry of Health and Long-Term Care's 2015 Patients First initiative and the *Patients First Act, 2016* aim, at least in part, to improve access to care.(4) One of the main components of 'Patients First' is the plan to create geographically defined populations at a Local Health Integration Network (LHIN) 'sub-region level' (which may range from 40,000 citizens to 350,000 in densely populated urban areas) within each of the province's 14 LHINs, where significant effort would be devoted to coordinating and integrating home and community care and primary care (and to some extent public health).(5) Workforce planning and the strategic use of policy levers will be critical to ensuring that the health workforce is aligned with this policy initiative.

In this chapter we describe the workforce in general terms – both regulated health professionals (e.g., nurses and physicians) and unregulated health workers (e.g., personal support workers) – and present profiles of select professions. We also describe the Government of Ontario's strategies to maintain and, where necessary, adjust the supply and distribution of the health workforce, as well as the education and training initiatives and other policy levers being used in the province.

Health workforce supply, density and distribution

Twenty-eight regulated health professions and many categories of unregulated health workers contribute to the health system. Twenty-six regulatory colleges oversee the regulated health professions (see Chapter 2). To illustrate this diversity, we selected 15 of these professions and categories based on the size of the workforce and, for each one, we provide both the definition used by the Canadian Institute for Health Information in tracking the profession's or category's size, and the sector(s) where they commonly work (Table 5.1). While the Canadian Institute for Health Information does not have data available on personal support workers, we include this category of unregulated health workers in Table 5.1 and utilize workforce estimates by the Ministry of Health and Long-Term Care.

Table 5.1: Select regulated health professions and categories of unregulated health workers, and the sectors where they commonly work

Profession or category	Home and community care	Primary care	Specialty care	Long-term care	Public health
Nurses • Regulated health profession that includes registered nurses and registered practical nurses who are engaged in both health promotion and care delivery, either with other health professions or independently • Nurses hold four-year degrees and care for patients with a wide range of complexity and predictability of outcomes • Registered practical nurses hold two-year diplomas and care for less complex patients with more predictable outcomes • Nurse practitioners are a subset of registered nurses and have additional training and a wider scope of practice (e.g., ordering and interpreting diagnostic tests, as well as writing some prescriptions)	✓	✓	✓	✓	✓
Personal support workers • Category of unregulated health workers who provide (often in-home) care and support with a range of personal support services	✓		✓	✓	
Physicians • Regulated health profession that includes family physicians and specialists • Family physicians provide primary care ranging from disease prevention to medical care, disease management, and coordination of care • Specialists have additional training and work in defined areas (e.g., internal medicine, surgery and laboratory medicine)		✓	✓		✓
Social workers • Regulated health profession that provides assessment services as well as a range of psycho-social supports	✓	✓	✓	✓	✓
Dental hygienists • Regulated health profession involved in oral health promotion		✓			✓
Pharmacists • Regulated health profession that dispenses prescription drugs • Expanded scope of practice (as part of the *Regulated Health Professions Statute Law Amendment Act, 2009*) includes renewing and adapting prescriptions, prescribing certain smoking cessation drugs, and administering influenza vaccinations, among other things	✓	✓	✓	✓	

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Profession or category	Home and community care	Primary care	Specialty care	Long-term care	Public health
Dentists • Regulated health profession supporting oral health through both prevention and treatment		✓	✓		✓
Paramedics • Category of unregulated health workers providing land and air ambulance services			✓		
Physiotherapists • Regulated health profession providing rehabilitation services to those with an injury or disease	✓	✓	✓	✓	
Medical radiation technologists • Regulated health profession operating radiographic equipment			✓		
Medical laboratory technologists • Regulated health profession conducting laboratory analyses			✓		✓
Occupational therapists • Regulated health profession providing rehabilitation services focused on skill development in daily activities	✓	✓	✓	✓	
Chiropractors • Regulated health profession providing care related to the musculoskeletal system, with a specific focus on the spine		✓			
Psychologists • Regulated health profession providing care for behavioural and mental health and addiction issues		✓	✓		
Dietitians • Regulated health profession providing nutrition related care	✓	✓	✓	✓	✓

Sources: 57-68

The World Health Organization outlines a series of indicators for the health workforce 'building block,' which include: 1) supply (e.g., number of regulated health professionals and unregulated health workers, and annual number of graduates of professionals and workers from educational institutions); 2) density (e.g., health workforce per 100,000 population); and 3) distribution of the health workforce (e.g., occupation/specialization, gender and location).(6) All of these indicators have their challenges. For example, using simple headcounts as a measure of supply ignores

differences in working hours across workers (e.g., women versus men) and changes in working hours over time (e.g., reduced 'patient care' hours among family physicians).(7) Using unadjusted workforce-to-population ratios as a measure of density ignores the aging of the population. Also, changes in these indicators over time depend on the base year, and we have chosen the year 2000, which is near the end of a period of 'belt tightening' by the government. These considerations need to be borne in mind when reviewing the numbers that follow.

Overall, the health workforce in Ontario has grown substantially between 2000 and 2013 (Table 5.2). With the exception of medical laboratory technologists (for whom there was a 9% decrease), all of the regulated health professionals and unregulated health workers listed have increased in number. Of particular note are the increases in:

- midwives (244%);
- social workers (162%);
- dental hygienists (103%);
- optometrists (84%);
- health information-management professionals (77%);
- respiratory therapists (73%);
- medical physicists (68%);
- chiropractors (67%); and
- dietitians (61%).

Physician supply has increased significantly over the same time period, and the Ministry of Health and Long-Term Care states that it has "stabilized."(8) Between 2002 and 2012 (which are slightly different than the years used in Table 5.2) the physician workforce increased by 33% while the population increased by 13%.(8) Through the use of service-utilization models, the ministry estimates that the supply of physicians will increase by an additional 23% by 2025, outpacing anticipated service utilization increases by 8%.(8) However, this upward trajectory is just part of a long-term cycle that reflects the government's willingness and ability to pay for physician services (and its tendency to adjust physician numbers not physician pay, particularly during difficult economic times, such as the late 1990s).

Table 5.2: Number of regulated health professionals and unregulated health workers, 2000, 2010 and 2013[1]

Profession or category	Number				Percentage distribution[2]	13-year percentage change
	Ontario			Canada	Ontario	Ontario
	2000	2010	2013	2013	2013	
Nurses	114,750	125,608	131,408	375,843	35%	15%
Registered nurses[3]	81,679	95,185	96,148	276,914	35%	18%
Nurse practitioners	—	1,518	2,158	3,655	59%	42%
Registered practical nurses	33,071	30,423	35,260	93,656	38%	7%
Physicians[4]	21,176	25,044	28,422	77,674	37%	34%
Specialists	11,202	12,874	14,449	38,282	38%	29%
Family medicine	9,974	12,170	13,973	39,392	35%	40%
Social workers	5,449	12,628	14,264	43,800	33%	162%
Dental hygienists	6,540	11,998	13,271	28,495	47%	103%
Pharmacists	8,490	10,564	12,630	35,337	36%	49%
Dentists[5]	7,095	8,472	9,050	21,731	42%	28%
Paramedics[6]	—	—	7,534	—	—	—
Physiotherapists	5,210	5,597	6,950	19,253	36%	33%
Medical radiation technologists	5,306	6,338	6,651	18,850	35%	25%
Medical laboratory technologists	7,023	6,819	6,411	—	—	-9%
Occupational therapists	3,196	4,337	4,892	14,351	34%	53%
Chiropractors	2,708	4,062	4,515	8,745	52%	67%
Psychologists	2,575	3,367	3,692	17,133	22%	43%
Dietitians	2,202	3,180	3,545	10,847	33%	61%
Respiratory therapists	1,816	2,858	3,137	11,013	28%	73%
Speech-language pathologists	—	2,822	3,014	8,973	34%	7%
Opticians	—	—	2,552	7,700	33%	—
Optometrists	1,178	1,879	2,167	5,425	40%	84%
Health information-management professionals[6]	1,086	1,698	1,924	4,716	41%	77%
Environmental public health[6]	433	619	681	1,621	42%	57%
Midwives	177	471	608	1,173	52%	244%
Audiologists	—	591	657	1,759	37%	11%
Medical physicists[6]	118	181	198	443	45%	68%
Genetic counsellors[6]	—	—	107	258	41%	—

Sources: 69-95

Notes:
[1] Data not available for the specific reference period are denoted by —.
[2] Percentage distribution is the proportion of the profession or category in Ontario
[3] Includes nurse practitioners
[4] Excludes residents
[5] Includes licensed general practitioner and certified dental specialists
[6] No provincial regulatory body (i.e., category of unregulated health workers)

When we examine the numbers of health professionals and unregulated health workers relative to the size of the population (per 100,000), we get a measure of their density and hence some sense of the ease with which we can access them (Table 5.3). Workforce density is still relatively small for some professions (e.g., midwives) and greater for others (e.g., nurses and physicians). Between 2000 and 2013, health workforce density increased across all regulated health professionals and unregulated health workers, with the exception of registered practical nurses and medical laboratory technologists (although as we note below a slightly different pattern emerges with registered practical nurses when data up to 2015 are included).

Table 5.3: Health workforce density, 2000, 2010 and 2013[1]

Profession or category	Workforce per 100,000 population			
	Ontario			Canada
	2000[2]	2010[2]	2013	2013
Nurses	982	956	970	1,069
Registered nurses[3]	699	725	710	788
Nurse practitioners	—	11	16	10
Registered practical nurses	283	230	260	266
Physicians[4]	180	188	210	221
Specialists	95	97	107	109
Family medicine	85	92	103	112
Social workers	47	96	105	125
Dental hygienists	56	90	98	81
Pharmacists	73	80	93	101
Dentists	61	64	67	62
Paramedics	—	—	56	—
Physiotherapists	45	42	51	55
Medical radiation technologists	45	48	49	54
Medical laboratory technologists	60	52	47	—
Occupational therapists	27	33	36	41
Chiropractors	23	31	33	25
Psychologists	19	25	27	49
Dietitians	19	24	26	31
Respiratory therapists	16	22	23	31
Speech-language pathologists	—	21	22	26
Opticians	—	—	19	22
Optometrists	8	14	16	15
Health information-management professionals	9	13	14	13
Environmental public health	4	5	5	5

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Profession or category	Workforce per 100,000 population			
	Ontario			Canada
	2000[2]	2010[2]	2013	2013
Midwives	2	4	4	3
Audiologists	—	4	3	5
Medical physicists	1	1	1	1
Genetic counsellors	—	—	1	1

Sources: 69-106

Notes:
[1] Data not available for the specific reference period are denoted by —.
[2] Some densities were calculated manually. Figures are based on health workforce estimates from 2000 and 2010, taken from the Canadian Institute for Health Information's Health Personnel Database. The population of Ontario in 2000 and 2013 is based on Statistics Canada's population estimates, CANSIM table 051-0001. Workforce per 100,000 is calculated by dividing the number of health professionals by the population of Ontario in 100,000's (e.g., registered nurses per 100,000 population = 81,679 / (11,683,290/100,000)).
[3] Includes nurse practitioners
[4] Excludes residents

The geographic distribution of the health workforce continues to present a challenge for rural, northern and remote communities. As noted in Chapter 1, the Ministry of Health and Long-Term Care's Rural and Northern Health Care Framework defines: 1) rural communities as those with a population of less than 30,000 and over 30 minutes away from a community with a population over 30,000; 2) northern communities as those within 10 territorial districts (145 municipalities) and constituting 90% of Ontario's land area; and 3) remote communities as those that do not have year-round road access or rely on a third party (e.g., airplane or ferry) for transportation to a larger community.(9) As one example of the distribution challenge, approximately 6% of registered nurses were working in rural and remote areas in 2015, whereas 14% of the population lives in rural areas and more live in remote areas (based on the 2011 census).(10; 11) Moreover, the proportion of registered nurses working in rural and remote areas has declined in the province, whereas the registered practical nurse-to-population ratio in rural and remote areas has increased.(12; 13) Similarly, despite high demand, the supply of physicians is not distributed equitably across geographic areas, and only 5% of physicians practice in rural areas.(14)

Regulated health professionals

In this section we focus on nurses and physicians, as they form the two largest regulated health professions in Ontario. Nurses are the largest health profession and there are two types of regulated nursing professions

in the province: 1) registered nurses; and 2) registered practical nurses (who are called licensed practical nurses in some other parts of Canada).(12; 15; 16) Nurse practitioners, a subset of registered nurses, have a broader scope of practice and can diagnose, order and interpret diagnostic tests, and prescribe certain drugs. Physicians are the second largest regulated health profession and are typically considered in two broad categories – family physicians and specialists.

Nurses

Key observations about the province's nursing profile from 2010 to 2015 (Table 5.4) include:

- the overall registered nurse supply (the number of registered nurses eligible to practise in a given year) has decreased by 2% while the nurse practitioner supply has increased by 66% (although it remains small in absolute terms) and the registered practical nurse supply has increased by 25%;
- as of 2015, the majority of registered nurses are female (94%), middle aged (with an average age of 46), and trained in Canada (88%);
- the registered nursing workforce (the number of registered nurses who were employed at the time of annual registration) has increased by 3% (and nurse practitioners by 62%) and the registered practical nurse workforce has increased by 28%;
- as of 2015, the majority of the registered nursing workforce is employed full time (67%), works in a hospital setting (63%), and works in a staff nurse position (74%); and
- as of the same year, 94% of the registered nursing workforce is working in urban areas.

Table 5.4: Nurse profile, 2010 and 2015

Characterisic	Number			%	
	Ontario		Canada	Ontario	Canada
	2010[1]	2015	2015	2015	
Supply (eligible to practise)[2]					
Registered nurses[3]	106,959	105,010	296,731		
Nurse practitioners	1,518	2,520	4,353		
Registered practical nurses	34,917	43,656	113,367		

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Characterisic	Number			%	
	Ontario		Canada	Ontario	Canada
	2010[1]	2015	2015	2015	
Registered nurses					
Gender					
Female	101,766	98,448	274,265	94%	92%
Male	5,193	6,562	22,466	6%	8%
Average age	47	46	45		
Age					
<30	—	13,248	42,349	13%	14%
30-34	—	10,945	36,898	10%	12%
35-39	—	9,957	32,475	9%	11%
40-44	—	11,731	34,045	11%	11%
45-49	—	12,858	35,739	12%	12%
50-54	—	14,949	39,763	14%	13%
55-59	—	13,126	35,589	12%	12%
60-64	—	11,540	26,107	11%	9%
65-69	—	4,897	10,243	5%	3%
70+	—	1,758	3,522	2%	1%
Highest level of education in nursing					
Diploma	64,144	47,947	140,188	46%	47%
Baccalaureate	38,805	49,991	142,394	48%	48%
Master's/doctorate	4,010	7,072	14,026	7%	5%
Location of graduation					
Canada	94,218	92,915	269,509	88%	91%
Outside Canada	12,608	11,830	26,474	11%	9%
Years since graduation					
0-10	22,109	28,335	94,841	27%	32%
11-20	2,905	2,329	61,727	2%	21%
21-30	25,564	24,683	66,579	24%	22%
31+	34,682	29,803	71,817	28%	24%
Workforce (employed)[2]					
Registered nurses	95,185	98,064	283,575		
Nurse practitioners	1,482	2,405	4,090		
Registered practical nurses	30,423	39,069	101,319		
Registered nurses					
Employment status					
Full time	62,602	65,635	172,125	67%	61%
Part time	24,742	25,553	81,661	26%	29%
Casual	7,841	6,876	29,267	7%	10%
Place of work					
Hospital	61,449	62,018	178,359	63%	63%

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Characterisic	Number			%	
	Ontario		Canada	Ontario	Canada
	2010[1]	2015	2015	2015	
Registered nurses – continued					
Community health	18,356	16,877	44,121	17%	16%
Long-term care home	7,854	7,923	26,086	8%	9%
Other place of work	6,483	11,246	33,192	11%	12%
Position					
Staff nurse	72,249	72,601	217,088	74%	77%
Manager	5,522	5,512	18,053	6%	6%
Other positions[4]	16,715	19,951	46,359	20%	16%
Location					
Urban	89,157	91,945	253,177	94%	89%
Rural/remote	6,028	6,118	30,284	6%	11%

Sources: 10; 15; 107-119

Notes:
[1] Data not available for the specific reference period are denoted by —.
[2] Supply refers to all nurses eligible to practice, including those employed or unemployed at time of registration. Workforce refers to nurses who were employed at time of registration.
[3] Includes nurse practitioners
[4] For example, instructor/professor/educator, researcher, consultant, clinical specialist, nurse midwife, and nurse practitioner

The ratio of registered nurses to registered practical nurses has changed over the past decade, from 3:1 in 2005-10 to 2.3:1 in 2015.(17) The registered nursing supply peaked in 2013 with 108,705 registered nurses, and has since dropped by 3% to 105,010 in 2015.(15) The change reflects a shift away from registered nurse employment to registered practical nurse employment, primarily in hospital settings.(16) The decrease in the number of registered nurses can also be attributed to the 2014 Declaration of Practice, a requirement by the College of Nurses of Ontario, according to which members must declare whether they have practised in Ontario within the previous three years as part of membership renewal.(18)

Physicians

Key observations about the province's physician profile from 2010 to 2014 (Table 5.5) include:

- the total number of physicians has increased by 17% (family medicine by 21% and specialists by 14%);
- as of 2014, the average physician age is 51;
- as of the same year, 62% of physicians are male, however, the number of female physicians has increased from 2010 to 2014 by 26% (family

Table 5.5: Physician profile, 2010 and 2014

Characterisic	Number			%	
	Ontario		Canada	Ontario	Canada
	2010	2014	2014	2014	
Total number of physicians	25,044	29,368	79,905		
Family medicine	12,170	14,695	40,781		
Specialists	12,874	14,673	39,124		
Average age	51	51	50		
Family medicine	51	51	50		
Specialists	51	52	50		
Gender					
Male	16,305	18,346	48,727	62%	61%
Family medicine	7,306	8,482	22,889	46%	47%
Specialists	8,999	9,864	25,838	54%	53%
Female	8,737	11,018	31,148	38%	64%
Family medicine	4,862	6,209	17,867	56%	57%
Specialists	3,875	4,809	13,281	44%	43%
Specialty					
Family medicine	12,170	14,695	40,781	50%	51%
Medical specialists					
Clinical specialists	9,120	10,465	27,531	36%	34%
Laboratory specialists	546	603	1,832	2%	2%
Surgical specialists	3,197	3,595	9,735	12%	12%
Medical scientists	11	10	26	0.03%	0.03%
Years since MD graduation					
<6	925	1,386	4,482	5%	6%
6–10	2,709	3,566	9,977	12%	12%
11–25	9,873	10,690	29,073	36%	36%
26–30	3,501	3,474	9,810	12%	12%
31–35	3,016	3,528	9,313	12%	12%
36+	5,008	6,698	16,787	23%	21%
Place of MD graduation					
Canada	18,566	21,033	59,151	72%	74%
Family medicine	9,055	10,158	28,959	48%	49%
Specialists	9,511	10,875	30,192	52%	51%
Outside Canada	6,471	8,318	20,295	28%	25%
Family medicine	3,111	4,520	11,549	54%	57%
Specialists	3,360	3,798	8,746	46%	43%

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Characterisic	Number			%	
	Ontario		Canada	Ontario	Canada
	2010	2014	2014	2014	
Location[1]					
Urban	23,833	27,914	73,192	95%	92%
Family medicine	11,103	13,430	35,045	48%	48%
Specialists	12,730	14,484	38,147	52%	52%
Rural	1,199	1,396	6,577	5%	8%
Family medicine	1,061	1,230	5,646	88%	86%
Specialists	138	166	931	12%	14%

Source: 14

Note:
[1] Urban and rural areas were assigned based on Statistics Canada's definitions.

medicine by 28% and specialists by 24%);

- as of 2014, roughly half of physicians practise family medicine (50%), with specialists including clinical specialists (36%), surgical specialists (12%), and laboratory specialists (2%);
- as of the same year, nearly three quarters of physicians graduated from a Canadian medical school (72%); and
- as of 2014, 95% of physicians (and 92% of family physicians) practise in urban areas, however, the number of physicians practising in rural areas has increased by 16% from 2010 to 2014.

Family physicians

Most Ontarians (94%) now report having access to a family physician, however less than half (44%) report that they are able to see their family physician the same or next day when they are sick.(19) Key findings for Ontarians from the Commonwealth Fund's 2015 International Health Policy Survey of Primary Care Physicians include:

- 66% of family physicians were able to provide same- or next-day appointments almost all or most of the time to their patients (versus 56% in B.C. and 34% in Quebec);
- 67% of family physicians have an arrangement where patients can access after-hours care, through a nurse or physician, to avoid going to the hospital or emergency department (versus 31% in B.C. and 37% in Quebec);
- 60% of family physicians thought their patients experience long wait times to see a specialist after referral (versus 75% in B.C. and 81% in Quebec);

- 20% of family physicians thought their patients experience long wait times for treatment after diagnosis (versus 32% in B.C. and 20% in Quebec);
- 53% of family physicians reported that they or someone in their practice frequently coordinates care with social services or other types of care in the community (versus 44% in B.C. and 46% in Quebec); and
- 36% of family physicians thought it was easy to coordinate care for a patient with social services or other community supports, such as housing and transportation (versus 32% in B.C. and 32% in Quebec).(20; 21)

Specialists

While government initiatives, including those designed to increase medical-school enrolment, postgraduate-training positions and recruitment to underserved communities, have increased the total number of physicians in Ontario, challenges remain with specialist retention and distribution. Retention rates are the lowest among specialist graduates for surgeons, with 33% leaving the province between 2005 and 2011.(8) This has been attributed to a lack of full-time employment opportunities for certain specialties (neurosurgeons and cardiac, orthopedic, pediatric and general surgeons) despite long wait times for some services provided by these specialties (e.g., 312 day wait time for lumbar disc surgery).(22; 23) The geographic distribution of specialists is particularly low, with less than 1% of specialists working in rural communities (Table 5.5).

The Government of Ontario spent $438 million on specialist education in 2011, a 63% increase since 2005.(22) On average it costs $780,000 for each specialist trained, which includes a three-or-four-year undergraduate degree, two-to-five years of postgraduate residency training, and resident salary and benefits.(22) However, 'public dollars' are also spent on many professional degree holders (e.g., engineering) and the dollars spent on resident salary and benefits include remuneration for many services that would cost much more if they had to be provided by a fully trained specialist.

Training capacity

The training capacity of physicians has grown substantially in the province (Table 5.6). Between 2000 and 2011, training capacity grew to 965 medical-school positions, and the total number of graduates increased by

Table 5.6: Number of graduates from medical education programs and training capacity, 2000, 2010 and 2011

School	Graduates			Training capacity
	2000	2010	2011	2011
University of Toronto	167	223	223	259
Males	104	95	97	
Females	63	128	126	
McMaster University	103	156	181	203
Males	37	67	64	
Females	66	89	117	
Western University	101	139	144	171
Males	62	74	73	
Females	39	65	71	
University of Ottawa[1]	84	147	152	168
Males	37	53	60	
Females	47	94	92	
Queen's University	75	99	97	100
Males	46	47	51	
Females	29	52	46	
Northern Ontario School of Medicine[2]	n/a	52	59	64
Males	n/a	23	16	
Females	n/a	29	43	
Total	530	816	856	965
Males	286	359	361	
Females	244	457	495	

Sources: 24; 25

Notes:
[1] Program is offered in both English and French.
[2] Collaborative program between Laurentian University and Lakehead University

62%. In 2011, 58% of the graduates were female.(24; 25) In addition, the number of first-year postgraduate residents increased by 122% (from 557 to 1,237) between 2000 and 2014.(8)

While the number of medical-school positions has grown in the province, the number of residency positions has decreased recently. In 2016 the government cut 25 residency positions and had plans to cut an additional 25 positions in 2017, although the latter has been placed on hold until at least 2018-19.(26) There were a total of 5,137 residents in 2015-16, of which 4,855 are funded by the Ministry of Health and Long-Term Care.(27; 28) In 2016 there were a total of 1,194 R-1 (entry-level

postgraduate) residency positions available, with 994 for Canadian medical graduates (of which 966 were filled) and 200 for international medical graduates (of which 179 were filled).(29) Examples of the distribution of filled positions for Canadian medical graduates (and international medical graduates) include: 424 (and 64) in family medicine, 142 (and 32) in internal medicine, 61 (and 15) in psychiatry, 32 (and four) in general surgery, and seven (and one) in public health and preventive medicine.(29)

International medical graduates

Ontario has the largest number of postgraduate medical training positions for international medical graduates in the country, and offers 200 of the available 340 training and assessment places each year.(30) The program enables physicians trained outside of Canada to train and practise in the province. Of the 200 positions offered, half are two-year residencies in family medicine and the other half are for specialties requiring at least four years of residency.(30) As part of the program, physicians sign a return-of-service agreement with the Ministry of Health and Long-Term Care for five years of full-time services in eligible communities, which are communities in need of physicians.(30)

Title of 'doctor'

As noted in Chapter 2, the *Regulated Health Professions Act, 1991* states that only certain regulated health professionals can use the title of 'doctor' when providing (or offering to provide) health services to individuals. In addition to physicians, which are our focus here, the list includes chiropractors, dentists, optometrists, and psychologists, as well as (with certain conditions and restrictions) naturopaths and practitioners of traditional Chinese medicine.

Unregulated health workers

Unregulated health workers are also contributing significantly to the growth of the health workforce. Despite the lack of a self-regulation regime governing these workers, there are mechanisms in place to protect and serve the public interest where most categories of them are concerned (e.g., regulations, contracts and other arrangements with their employers). While we focus here on two types of workers, we recognize that there are many others (e.g., paramedics and dental assistants). First, we focus on personal support

workers, who play a central role in home and community care. The home and community care sector is a major focus of the Patients First initiative, and care is increasingly being shifted from traditional hospital settings to community-based settings.(31) Second, we focus on physician assistants, who have been a more recent and contested addition to the health workforce.(32)

Personal support workers

Personal support workers deliver a range of personal support services, typically under the direction of a registered nurse or registered practical nurse, and primarily in the home and community care sector (e.g., private homes) and long-term care sector (i.e., long-term care homes), and to a lesser extent in hospitals (e.g., rehabilitation and palliative care).(33; 34) There is limited information available on the personal support worker workforce in Ontario and no statistics available through the Canadian Institute for Health Information. In 2011, the Ministry of Health and Long-Term Care created a registry to recognize and collect information on the profession, however, the registry was subsequently closed in February 2016.(35; 36)

The Ministry of Health and Long-Term Care estimates that there are approximately 100,000 personal support workers working in Ontario, of which approximately 57,000 work in long-term care homes, over 34,000 work in the home and community care sector, and 7,000 provide care in hospitals.(36; 37) Their base hourly wage has been increased by $4.00, and as of 2015 publicly funded personal support workers earn a minimum base wage of $16.50 per hour.(37) The Ministry's Personal Support Worker Workforce Stabilization Strategy currently focuses on: 1) creating full-time/permanent employment; 2) assisting recent graduates; 3) supporting leadership among personal support workers; and 4) recruiting and retaining them.(37)

Physician assistants

Physician assistants are a category of unregulated health worker that has recently been added to Ontario's health system. Established in 2007, physician assistants support and extend the reach of physicians, often in interprofessional teams, and work primarily in emergency medicine and primary care.(38) The aim in introducing physician assistants was to

improve patient access and reduce wait times (e.g., in emergency room departments). In 2016 there were 200 physician assistants working in over 100 sites.(39) Two universities in the province offer education programs: McMaster University and the University of Toronto (in collaboration with the Northern Ontario School of Medicine and The Michener Institute for Applied Health Sciences).(39)

Planning, education and training, and other policy levers

Several organizations are involved in planning, education and training, and other initiatives related to the health workforce (Table 5.7). The Health Professions Regulatory Advisory Council (established by the *Regulated Health Professions Act, 1991*) advises and makes recommendations to the Minister of Health and Long-Term Care on whether unregulated health workers should be regulated and whether amendments to the act should be made.(40) HealthForceOntario was created in 2006 to address workforce planning, as a combined initiative of the Ministry of Health and Long-Term Care and the Ministry of Advanced Education and Skills Development (formerly the Ministry of Training, Colleges and Universities).(41; 42) HealthForceOntario's strategy includes introducing new and expanding healthcare provider roles. HealthForceOntario Marketing and Recruitment Agency was created in 2007 and focuses on the recruitment, retention and distribution of regulated health professionals and unregulated health workers.(43) The budget for HealthForceOntario's strategy has grown from $448 million in 2006 to $738.5 million in 2013, a 65% increase.(22)

Table 5.7: Health workforce: Planning, education and training, and related initiatives

Planning
HealthForceOntario's 2014 strategic directions include:(120) • delivering health workforce solutions through supporting recruitment and retention as well as efforts related to distribution of health human resources; • building strategic partnerships through outcome-based partnerships; and • improving processes by maximizing opportunities for efficiencies and integration of leading practice tools.
HealthForceOntario has created a strategy specific to nurses to address the instability in the nursing workforce.(121) The strategy focuses on: • full-time employment; • recruitment and retention; and • creating positive and rewarding work environments.

Continued on next page

Planning - continued

Health human resource forecasting models (22)

- Planning for physician human resources in Ontario has traditionally been utilization-based. In 2007, the Ministry of Health and Long-Term Care in conjunction with the Ontario Medical Association contracted the Conference Board of Canada to develop a needs-based model. The model compares the supply of physician services to the population's need for health services in order to quantify the gap in services as well as physician requirements. Some limitations exist with the model as a result of data-availability issues.
- In 2008 the Ministry of Health and Long-Term Care engaged in a similar process to develop a needs-based nursing model. However, there were various issues, including problems with the understatement of first-year enrolment, which have limited the applicability of the model.

Education and training

Nursing education (122)

- The College of Nurses of Ontario is the regulatory body and sets the requirements for entry-to-practice as well as practice standards.
- There are three types of nursing programs:(123)
  1. registered nurses, which is a university (baccalaureate) degree program offered either through a collaborative college-university program or a four-year university program;
  2. nurse practitioners, which is an advanced university education program for registered nurses, delivered by a consortium of nine universities, and overseen by the Council of Ontario University Programs in Nursing; and
  3. registered practical nurses, which is a two-year college diploma program.

Medical education (22)

- The College of Physicians and Surgeons of Ontario regulates the practice of medicine in the province.
- Both undergraduate and postgraduate medical education is offered at the six universities listed in Table 5.6.

Continuing professional development (50)

- Continuing professional development programs are available through universities, hospitals, professional associations, and regulatory colleges.
- Continuing medical education is monitored through the College of Family Physicians of Canada and the Royal College of Physicians and Surgeons of Canada.

Related initiatives

Nursing initiatives:(48)

9,000 Nurses Commitment (22)

- In 2007, the government made a commitment to hiring 9,000 more nurses over four years. However, the initiative has been extended in order to reach the goal and data are not available to determine the number of nursing positions that were created through the initiative.

Late Career Nurse Initiative

- For nurses aged 55 and older who spend a portion of time in less physically demanding activities (e.g., mentoring and teaching).

Nursing Graduate Guarantee Initiative

- The initiative supports new nurses through full-time job opportunities.

Nursing Career OrIENtation

- The program provides full-time employment to internationally educated nurses who are newly registered in Ontario.

Tuition Support Program for Nurses

- The program provides tuition reimbursement for graduating nurses from rural and remote communities in exchange for signing a return-of-service agreement.

Continued on next page

Related initiatives – continued

From 2005 to 2012, the Ministry of Training, Colleges and Universities worked with the Ministry of Health and Long-Term Care to increase enrolment in physician training programs by the following amounts:(22)

- 22% increase in first-year undergraduate medical-school enrolment;
- 60% increase in first-year postgraduate trainees;
- 67% increase in family medicine first-year postgraduate trainees;
- 56% increase in specialist first-year postgraduate trainees; and
- 48% increase in international medical graduates in residency training.

Physician initiatives:(124)

Northeastern Ontario Health Professional Development Program

- Targeted to health professionals in northeastern Ontario to increase access to educational opportunities.

Ontario Physician Locum Programs

- The Emergency Department Locum Programs provide emergency department locum coverage for designated hospitals with difficulties filling emergency department shifts.
- Northern Specialist Locum Programs – Urgent Locum Tenens Program and the Respite Locum Tenens Program – are designed specifically for northern Ontario communities.
- The Rural Family Medicine Locum Program provides temporary, short-term replacement coverage for practising rural family physicians.

Physician Outreach Program for General/Family Practitioners

- As part of the Northern Health Programs, the program provides primary-care clinics and physician telephone back-up services to underserviced areas.

Sources: 22; 50; 120-122; 125-129

Planning

Health workforce planning provides the foundation for considering and making changes to the supply and distribution of the workforce. There are three main approaches to planning: 1) utilization-based, 2) needs-based, and 3) effective demand-based.(44) Utilization-based planning incorporates the number, mix and population distribution of health professionals and health workers to create baseline estimates for future planning. Needs-based planning differs in that workforce decisions are based on projected population-health needs and the mix, supply and distribution of workers required to address these needs. Effective demand-based planning incorporates population-health needs as well as societal economic considerations, taking into account that resource constraints limit the extent to which health needs can be met.(44)

The Ministry of Health and Long-Term Care has relatively recently transitioned from a utilization-based approach to workforce planning to a mixed approach that incorporates elements of needs-based planning and shifts from a sole focus on physicians to a focus on both physicians and nurses. Historically, the ministry focused on estimating medical workforce

needs based on the number and geographic distribution of physicians in the province (e.g., using physician-to-population ratios).(44) In 2007, the ministry, in collaboration with the Ontario Medical Association (OMA), contracted the Conference Board of Canada to create a needs-based model for physician workforce planning.(45) The model helped to project the population-health needs for physician services by taking into account disease incidence and prevalence, socio-economic and lifestyle factors, and population demographics.(45) The model was found to have limited reliability due to data availability and quality issues.(8)

In 2008, the ministry contracted with an external consultant to develop a similar needs-based model for nursing workforce planning.(22) The model had limitations both in the assumptions being used (e.g., understating first-year enrolment data and rate of direct patient care) and in forecasting any gaps between supply and need at the regional level.(22)

To support health workforce planning for nurses, the College of Nurses of Ontario created the three-factor framework to account for the factors that influence decision-making related to the category of nurse assignment (registered nurse or registered practical nurse).(46) The level of autonomy and scope of practice between the different nursing professions varies based on the education and training demanded, and the framework guides employers to make decisions on nurse utilization based on three factors:

1) client factors, including complexity of the client's condition, predictability of the client's outcomes, and likelihood that the client will experience negative outcomes;
2) nurse factors, consisting of efficient consultation, transferring an element of the care or transferring all care; and
3) environment factors, including practice supports (e.g., policies and protocols), consultation resources, and the stability/predictability of the environment.(46)

The three factors are placed on a continuum such that registered practical nurses or registered nurses autonomously provide care for clients with cases that are less complex, predictable, and at lower risk for negative outcomes.(46) As the complexity increases, care moves away from registered practical nurses to registered nurses and the need for registered nurses to consult and collaborate with other health professionals increases.

Education and training

Nursing education in the province ranges from a two-year college diploma (registered practical nurses) to an advanced university education (nurse practitioners) (Table 5.7). The College of Nurses of Ontario, as the regulatory body for the profession, sets the requirements for entry-to-practice as well as practice standards. In 2014, there were 4,034 registered nursing graduates ready for entry to practice (which includes pre-licensure nursing education that entitles successful graduates to apply for licensure), of whom 239 were nurse practitioners.(47) The Nursing Education Initiative provides $1,500 professional-development grants to registered nurses and registered practical nurses, and focuses on supporting nursing knowledge and skill development.(48) The program is funded by the Ministry of Health and Long-Term Care and administered by the Registered Nurses' Association of Ontario.

Six universities offer undergraduate and postgraduate medical education programs: University of Toronto, McMaster University, Western University, University of Ottawa, Queen's University, and Northern Ontario School of Medicine (Table 5.6). The University of Ottawa is the only program that is offered in both English and French, however, the Northern Ontario School of Medicine offers opportunities for learning in French for Francophone students. The Ministry of Advanced Education and Skills Development provides funding for universities and undergraduate positions, and the Ministry of Health and Long-Term Care funds postgraduate training. In the 2011-12 fiscal year, $485 million was spent on physician initiatives, including $315 million on medical schools and resident salaries, and $107 million on medical schools to support academic activities.(22)

All physicians in the province are required to participate in continuing professional development and report their activities to either the College of Family Physicians of Canada (for family physicians) or the Royal College of Physicians and Surgeons of Canada (for specialists).(49) Continuing professional development programs are available through universities, hospitals, professional associations, regulatory colleges, and national professional bodies. Continuing medical education is offered through the six universities listed above, many hospitals, the OMA, the Ontario College of Family Physicians, the College of Family Physicians of Canada, and the Royal College of Physicians and Surgeons of Canada.(50)

Education and training for leadership roles in the health system is less formalized. The 'LEADS in a Caring Environment Capabilities Framework' is generally well accepted as a guide to understanding and defining health leadership, and many education and training programs (and related resources and tools) are available in the province. Despite the existing and nascent leadership capacity in the system, consulting firms are frequently drawn upon to supplement this capacity.(51; 52)

Other policy levers

There are a variety of policy levers that can be used in order to make adjustments to the supply and distribution of the health workforce. For example, other 'building blocks' can be harnessed, such as governance arrangements to expand scopes of practice, financial arrangements to incentivize specific behaviours, and delivery arrangements to change the skill mix within interprofessional teams. Having pharmacists administer many types of vaccinations and allowing nurses to prescribe, as are currently being considered, would require a change to their respective scopes of practice (a governance arrangement), an appropriate remuneration mechanism (a financial arrangement), and adjustments to policies related to interprofessional models like Family Health Teams (a delivery arrangement). Evidence about the effectiveness of policy levers can be found by searching Health Systems Evidence (www.healthsystemsevidence.org).

A key policy lever for much of the health workforce are collective agreements. In the case of nurses, the Ontario Nurses' Association is the union that bargains with employers on behalf of nurses, whereas the Registered Nurses' Association of Ontario and the Registered Practical Nurses Association of Ontario act as professional associations, not unions. In the case of physicians, on the other hand, the OMA is not a union and it negotiates a Physician Services Agreement (not a collective agreement) with government on behalf of physicians (who are prohibited by the *Labour Relations Act, 1995* from unionizing).(53) The Physician Services Agreement expired in 2014 and a newly negotiated agreement was voted down by OMA members in 2016.

The use of policy levers to make adjustments to the supply and distribution of the health workforce can be fraught, just as it can be with some other types of professionals. Health professionals are highly knowledgeable and

skilled, which leads them (among other factors) to place great value on their professional autonomy. And many health professionals, particularly physicians, have made significant investments in their private practices, which are in many cases essentially small (and sometimes very large) businesses. So the use of policy levers requires that consideration be given to whether and when resistance to particular policy levers is sufficiently justified that the government and voters are willing to sacrifice some or all elements of the health system's 'triple aim.' To add 'improving the provider experience' as a fourth aim, as some have suggested, may not make a decision about trade-offs any easier.

Key health workforce initiatives

There are a number of other initiatives targeting the health workforce, the majority of which are oriented towards increasing access to healthcare in rural and remote communities, by creating opportunities for and incentivizing healthcare providers to practise in these areas (often as a complement to efforts to recruit candidates from and train them in the areas where they will be needed). The Northern Health Programs are provided through the Ministry of Health and Long-Term Care and include programs ranging from recruitment and retention initiatives to tuition support for nurses.(54)

As part of HealthForceOntario's strategy, goals were set to hire 9,000 new nurses and increase the share of nurses working full time in the province to 70% from 64%, over the four-year period of 2008 to 2012.(22; 55) The 9,000 Nurses Commitment had a budget of $309 million to hire the nurses. A review of the program showed that the number of nurses increased by 7,300, which is short of the original goal.(22) Full-time employment goals also fell slightly short of the set goals and by the end of 2011, 67% of nurses were employed full time.(22)

In addition to the recruitment and retention initiatives, HealthForceOntario's strategy established three new healthcare roles in the province. In addition to physician assistants (covered in the unregulated health workers section of this chapter), clinical specialist radiation therapist and anesthesia assistant roles have been created.(56) These new healthcare roles were created to address areas of high need. Clinical specialist radiation therapists are medical radiation technologists with advanced training who work in

interprofessional teams in cancer-care settings. Anesthesia assistants are respiratory therapists and registered nurses with additional training to support anesthesiologists in the care of surgical patients during anesthesia.

Conclusion

Over the past decade the health workforce in Ontario has continued to grow, which has led to some tangible improvements for Ontarians (e.g., the majority of Ontarians are now registered with a primary-care provider). While the health workforce has grown, the trends in workforce supply are not necessarily aligning with the needs of the population. The health system is facing challenges: Ontarians are living longer and experiencing more chronic conditions and complex needs. In addition, Ontarians living in rural and remote areas continue to have trouble accessing care. In order to meet the needs of Ontarians, new approaches to health workforce planning are being applied. These include needs-based modelling, expanding scopes of practice, and the creation of new healthcare roles. Future health workforce considerations that move beyond nurses and physicians include interprofessional teams and fully engaging the range of regulated health professionals and unregulated health workers in the health system and across sectors.

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