Publicly funded remuneration for the administration of injections by pharmacists: An international review

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ABSTRACT

Background: The administration of injections has become an increasingly common addition to pharmacists' scope of practice. Four Canadian provinces, all US states and a number of other countries have regulations allowing pharmacists to administer injections. However, the extent to which such services are remunerated is unknown.

Methods: We contacted regulatory and advocacy organizations within those jurisdictions where pharmacists are authorized to administer injections to identify publicly funded programs that pay pharmacists for these services, as well as details of the eligible drugs/vaccines. Patient or private insurer payment programs were excluded.

Results: Of the 281 organizations we contacted, 104 provided information on a total of 34

pharmacist vaccination programs throughout Canada, the United States, England, Wales and Ireland. Converted to 2013 Canadian dollars, remuneration averages \$13.12 (SD \$4.63) per injection (range, \$4.14-\$21.21). All regions allow pharmacists to bill for administration of the influenza vaccine, while some states allow for a number of other vaccines. Alberta has the broadest range of injections eligible for remuneration.

Discussion: Despite evidence of increased vaccination rates in areas allowing pharmacist administration of injections, the availability of publicly funded remuneration programs and the fee offered vary by more than 5-fold across North America and the United Kingdom.

Conclusion: Pharmacist-administered injections have great public health potential. The range of injections eligible for remuneration should be expanded to include a wide range of vaccines and other injectable drugs, and remuneration should be sufficient to encourage more pharmacists to provide this service. *Can Pharm J (Ott)* 2013;146:353-364.

Pharmacist administration of injections is an increasingly common practice worldwide, but the extent to which it is remunerated is unknown. We wanted to explore the current payment landscape for pharmacist-administered injections to identify trends and innovations that may be valuable in expanding and sustaining this important activity.

Dans le monde entier, les pharmaciens pratiquent de plus en plus d'injections, mais nous ignorons dans quelle mesure ce service est rémunéré. Nous souhaitons documenter les modes de rémunération associés aux activités d'injections pratiquées par les pharmaciens afin d'identifier les tendances et les innovations qui pourraient être utiles à l'expansion et au soutien de cette importante activité.

Background

Low vaccination rates are a major public health concern. Fewer than half of Canadian adults are up to date on their vaccinations.¹ Reasons for low vaccination rates by the public include misinformation and poor communication from health professionals.² For example, 90% of parents believe their children's vaccinations are up to date, but less than two-thirds of 2-year-olds

and only 40% of 7-year-olds have received all the recommended vaccinations for their age group.³ The significance of low vaccination rates can be seen with the recent outbreaks of *Bordetella pertussis* or whooping cough. The pediatric immunization rate for pertussis is high, but a booster is required to maintain immunity, and only 4% of adults are up to date with their boosters.⁴

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KEY POINTS

- Publicly funded programs for administering injections exist in Canada, the United States, England, Wales and Ireland.
- Among 34 programs identified, the average fee claimable by pharmacists is \$13.12 CAD per injection, ranging from \$4.14-21.21.
- All programs include administration of the influenza vaccine; however, coverage for other vaccines or injectable drugs varies widely.
- Given the evidence of improved vaccination rates in regions allowing pharmacist injections, fair payment should be offered for pharmacists to administer a wide variety of injections to improve patients' access to care and ensure sustainability.

Although several effective interventions can increase vaccination rates, including home visits and patient reminders,⁵ one key way to improve vaccination rates is for nonphysicians such as pharmacists or nurses to assume responsibility for independently vaccinating the public.⁶ In Canada, the Blueprint for Pharmacy recognizes administration of injections as a key component of expanded pharmacy services, although only 4 provinces currently authorize pharmacists to administer injections.^{7,8} Pharmacists in all 50 US states can administer injections,⁹ as can pharmacists in the United Kingdom, Ireland, Portugal, Australia and New Zealand.^{10,11} In all situations, pharmacists must complete additional training in immunology, aseptic technique and practical injection skills to obtain the certification required to administer injections.

During the 2011-2012 flu season, fewer than half of Canadians reported receiving an influenza vaccine, ranging from 27% in Quebec to 52% in British Columbia.¹² Efforts to increase immunization rates for influenza and other vaccine-preventable illnesses worldwide have considered the potential role of community pharmacists due to their high accessibility and public trust. For example, pharmacists in Washington state were authorized to administer injections in 1994, and rates of influenza vaccination were found to increase once pharmacists were authorized to administer the vaccine to residents 65 years of age and older—a high-risk group for influenza complications.¹³

In some jurisdictions, pharmacists can also administer non-vaccine injectable products to patients, providing a service that was previously offered only in physician offices. Despite evidence of increasing immunization

rates and the potential to free physicians' time by administering some injectable products in community pharmacies, the accessibility and sustainability of this service depend in part on fair remuneration for pharmacists' time and expertise administering the injection and performing follow-up. Accordingly, the objective of this study was to determine the availability of publicly funded remuneration programs for pharmacist administration of vaccines or other drugs by injection.

Methods

To identify publications describing the role and remuneration of pharmacists who administer injections, we searched the literature with medical librarian assistance using MEDLINE, PubMed, Embase, International Pharmaceutical Abstracts, the Cochrane Library, EconLIT, Scopus and Web of Science from their inception to January 2013, using search terms including *pharmacy*, *pharmacist*, *vaccine*, *vaccination*, *injection*, *fee*, *pay* and *remuneration*. However, our review of the retrieved articles did not reveal any information on current remuneration models in place for these services.

We compiled a database of all countries, provinces, states and regions where pharmacists were authorized to administer injections as described above and visited websites for both the licensing and advocacy bodies for each region to identify policies for pharmacist administration of injections and remuneration available. We then contacted individuals at each organization directly if this information was not available online or if more information was required. We also contacted national and provincial/state programs where pharmacists were recognized as injection providers (e.g., Medicare, Medicaid and the Vaccines for Children programs in the United States). A second study author (KAG) independently verified information retrieved. As the scope of this review was limited to publicly funded remuneration programs, we excluded any fees claimable through private insurance plans or billed directly to patients, including patient co-pays. We converted all fees to Canadian dollars using currency conversion rates of the Bank of Canada, as of April 2013.

Results

Response rates across all jurisdictions where pharmacist administration of drugs or vaccines

by injection is authorized are provided in Table 1. Of the 281 regions/programs authorizing pharmacists to administer injections, 104 responded to requests for information, of which 34 offered remuneration for pharmacist-administered injections. The remaining 70 programs did not remunerate pharmacists for this service but rather relied on payment by third-party coverage or out of pocket by the patient.

Pharmacists in Australia, Scotland, New Zealand and Portugal are authorized to administer injections but are not eligible for any public funding to provide this service. We obtained information on publicly funded remuneration programs for pharmacist administration of injections throughout Canada, the United States, England, Wales and Ireland. Descriptions of these programs are provided in Table 2, including the drugs/vaccines eligible, fee provided and any restrictions on those patients eligible for the service.

The influenza vaccine is included in all programs offering remuneration for pharmacist-administered injections. Pharmacists in some US states are also remunerated for administering hepatitis, pneumococcal, human papillomavirus,

POINTS CLÉS

- Des programmes financées par des organismes publiques pour l'administration d'injections existent au Canada, aux États-Unis, en Angleterre, au pays de Galles et en Irlande.
- Parmi les 34 programmes identifiés, les pharmaciens facturent en moyenne 13,12 \$CAD par injection. Les prix varient entre 4,14 \$ et 21,21 \$.
- Tous les programmes incluent l'administration du vaccin contre la grippe. Toutefois, le remboursement des autres vaccins ou médicaments injectables varie grandement d'un régime à l'autre.
- Comme il a été démontré que les taux de vaccination sont supérieurs dans les régions où les pharmaciens sont habilités à faire des injections, une rémunération raisonnable devrait être offerte aux pharmaciens qui administrent une grande variété d'injections afin d'améliorer l'accès des patients aux soins et d'assurer la viabilité de la pratique.

herpes zoster and varicella vaccines and some routine childhood immunizations. Alberta is the only region to allow pharmacists to claim administration fees for nonvaccine injections, including all drugs listed on the provincial drug benefit list.

Converted to 2013 Canadian dollars, the average fee for injection administration by a

TABLE 1 Response rates from jurisdictions where pharmacists are authorized to administer injections

Country, state, province, region or program	Responses received	Percentage of eligible respondents
Canada	4/4	100
United States Medicaid programs	27/50	54
United States Vaccines for Children programs	22/50	44
England Primary Care Trusts	29/152	19*
Wales Health Boards	3/7	43
Australia (national)	1/1	100
Ireland (national)	1/1	100
New Zealand (national)	1/1	100
Portugal (national)	1/1	100
Scotland Health Boards	14/14	100
Total	103/281	37

* Primary Care Trusts in England were to be abolished March 31, 2013, with responsibility being shifted to general practitioner-led commissioning consortia and other local councils. Trusts were contacted in February 2013 prior to this change; however, this restructuring may have contributed to low response rates.

TABLE 2 Administration fees and eligible drugs/vaccines by region for publicly funded programs

Region/program	Eligible drugs or vaccines	Administration fee	Patient eligibility or other restrictions
Canada			
Alberta ^{14,15}	All injectable products listed on the Alberta Drug Benefit List, excluding travel vaccines	\$20.00 CAD	Alberta residents ≥5 years of age. Maximum of 1 fee claim per patient per day, even if multiple injections administered.
	Influenza vaccine	\$20.00 CAD	Alberta residents ≥9 years of age
British Columbia ¹⁶⁻¹⁸	Influenza vaccine	\$10.00 CAD	British Columbia residents ≥5 years of age, who are: <ul style="list-style-type: none"> • At high risk of illness or complications • Capable of transmitting influenza to those at high risk • Providing essential community services
	Pneumococcal vaccine	\$10.00 CAD	British Columbia residents ≥5 years of age, plus any of the following: <ul style="list-style-type: none"> • Age ≥65 years • Residents of extended or intermediate care facility • Individuals with immunodeficiency or chronic disease, homelessness or illicit drug use
Ontario ¹⁹	Influenza vaccine	\$7.50 CAD	Ontario residents ≥5 years of age
New Brunswick ²⁰	Influenza vaccine	\$12.00 CAD	New Brunswick residents who are: <ul style="list-style-type: none"> • Age 5 to 18 years • Age ≥65 years • Age ≥5 years and older with identified chronic conditions^a
United States			
Medicare Part B (all states) ^{21,22}	Influenza, pneumococcal vaccines	Varies by state. Ranges not available from Medicare.	Medicare beneficiaries. Must be age ≥65 years or have immunocompromised status to qualify for pneumococcal vaccine.
	Hepatitis B vaccine		Intermediate- to high-risk patients (end-stage renal disease, those living in a household or care facility with hepatitis B carriers, health professionals exposed to bodily fluids on a regular basis, on dialysis or immunosuppressed)
	Rabies, tetanus vaccines		Medicare beneficiaries following direct exposure
Medicare Part D (all states) ^{21,22}	Diphtheria, hepatitis A, hepatitis B, herpes zoster, human papillomavirus, Lyme disease, measles, meningococcal, mumps, pertussis, polio, rabies, rotavirus, rubella, tetanus, typhoid, varicella, yellow fever vaccines		Medicare beneficiaries without direct exposure

TABLE 2 (continued)

Region/program	Eligible drugs or vaccines	Administration fee	Patient eligibility or other restrictions
Alabama ²³	Influenza, pneumococcal or Tdap (tetanus, diphtheria, pertussis) vaccines	\$5.00 USD	Alabama Medicaid beneficiaries age ≥ 19 years. Prescription from physician required for pneumococcal and Tdap vaccines.
Alaska ²⁴	Hepatitis A, hepatitis B, herpes zoster, human papillomavirus, influenza, measles/mumps/rubella, meningococcal, pneumococcal, rabies, tetanus/diphtheria/pertussis, varicella vaccines	\$17.46 USD	Alaska Medicaid beneficiaries age ≥ 21 years ^b
Arizona ²⁵	Influenza, pneumococcal vaccines	\$4.10 USD	Arizona Health Care Cost Containment System member age ≥ 21 years ^c
Arkansas ²⁶	Influenza, pertussis, tetanus vaccines	\$20.00 USD	Immunizations delivered at local daycare facilities
Illinois ²⁷	Influenza vaccine	\$6.40 USD	Illinois Medicaid beneficiaries age ≥ 19 years ^d
Kentucky ^{28,29}	Influenza vaccine	\$18.40 USD	Adult Medicaid beneficiaries
	Influenza vaccine	\$14.17 USD	Kentucky residents age < 18 years who qualify for the state Vaccines for Children program
Louisiana ^{30,31}	Influenza vaccine	\$14.70 USD	Louisiana Medicaid beneficiaries age ≥ 19 years
Michigan ³²	Influenza vaccine	\$7.00 USD	Michigan Medicaid beneficiaries age ≥ 19 years and beneficiaries of the adults benefit waiver, children's special health care services and maternity outpatient medical services programs
Minnesota ^{33,34}	Hepatitis A, hepatitis B, human papillomavirus, influenza vaccines	\$14.69 USD for initial administration, \$7.35 USD for each additional	Minnesota Medicaid beneficiaries or children age < 18 years who are uninsured through the Vaccines for Children program. Higher administration fees are available for vaccines not available through Minnesota Department of Health programs (up to \$19.24 for initial administration and \$9.21 for each additional administration).
Mississippi ^{35,36}	Influenza, pneumococcal vaccines	\$19.64 USD	Mississippi Medicaid beneficiaries age ≥ 19 years who are not residents of long-term care facilities
Nevada ^{37,38}	Diphtheria, hepatitis A, hepatitis B, herpes zoster, human papillomavirus, influenza, measles, meningococcal, mumps, pertussis, pneumococcal, poliovirus, rotavirus, rubella, tetanus, varicella vaccines	\$7.80 USD	Nevada Medicaid beneficiaries age ≥ 19 years or children ≤ 18 years who are covered through the Nevada Vaccines for Children program. Exceptions: <ul style="list-style-type: none"> • Human papillomavirus for male and female children between the ages of 9 and 18 years who are covered through the Nevada Vaccines for Children program • Herpes zoster limited to adult Medicaid recipients age ≥ 50 years

TABLE 2 (continued)

Region/program	Eligible drugs or vaccines	Administration fee	Patient eligibility or other restrictions
New York ³⁹	Influenza, pneumococcal vaccines	\$13.23 USD	New York Medicaid beneficiaries age ≥ 19 years or children age ≤ 18 years who are covered through the New York Vaccines for Children program (influenza vaccine only)
North Dakota ⁴⁰⁻⁴³	Hepatitis B, human papillomavirus, influenza vaccines	\$13.90 USD	North Dakota Medicaid beneficiaries. Human papillomavirus restricted to males and females 19 to 21 years of age ^e
	Diphtheria, hepatitis A, hepatitis B, human papillomavirus, influenza, measles, meningococcal, mumps, pertussis, pneumococcal, polio, rubella, tetanus, varicella vaccines	\$20.99 USD	Influenza vaccine may be provided to children 5 years of age who are covered through the North Dakota Vaccines for Children program. All other vaccines limited to children covered by this program and ages 11 to 18 years, with the exception of human papillomavirus, which is limited to those ages 9 to 18 years. Pneumococcal vaccine is limited to children with chronic illness, immunosuppression or cochlear implants. ^f
Ohio ⁴⁴	Influenza vaccine	\$10.00 USD	Ohio Medicaid beneficiaries who do not reside in a long-term care facility
Oregon ⁴⁵⁻⁴⁷	Diphtheria, hepatitis A, hepatitis B, human papillomavirus, influenza, measles, meningococcal, mumps, pertussis, pneumococcal, polio, rubella, tetanus, varicella vaccines	\$16.41 USD for initial administration, \$8.35 USD for each additional	Oregon Medicaid beneficiaries age ≥ 19 years
		\$15.19 USD	Children ages 11 to 18 years who are covered through the Oregon Vaccines for Children program
South Carolina ⁴⁸	Influenza, pneumococcal vaccines	Not specified	South Carolina Medicaid beneficiaries age ≥ 21 years
Texas	Not specified	\$7.84 USD	Texas Medicaid beneficiaries ^g
Utah ⁴⁹	Hepatitis B, herpes zoster, influenza, pneumococcal vaccines	\$8.90 USD	Adult Utah Medicaid beneficiaries
	Not specified	\$14.52 USD	Utah residents age ≤ 18 years under the state Vaccines for Children program
	Hepatitis B vaccine	\$14.52 USD	Limited to residents of jails, substance abuse clinics or homeless clinics ^h
Washington ⁵⁰	Influenza, pneumococcal vaccines	\$11.47 USD	Washington Medicaid beneficiaries age ≥ 19 years
Wisconsin ⁵¹	Influenza vaccine	\$15.00 USD	BadgerCare and Medicaid beneficiaries age ≥ 6 years

TABLE 2 (continued)

Region/program	Eligible drugs or vaccines	Administration fee	Patient eligibility or other restrictions
England			
City & Hackney PCT ⁵²	Influenza vaccine	£7.80	<ul style="list-style-type: none"> • Age ≥65 years • Pregnant • Have chronic medical conditions (respiratory disease, heart disease, kidney disease, liver disease, neurological disease, diabetes or immunodeficiency) • Long-term care resident • Caregiver for high-risk individual • Health care or social care worker
NHS Bury ⁵³	Influenza vaccine	Not specified	Same as for City & Hackney PCT ⁱ
NHS Heywood, Middleton and Rochdale	Influenza vaccine	£7.54	Same as for City & Hackney PCT ^j
NHS Manchester	Influenza vaccine	£7.00	Same as for City & Hackney PCT ^k
NHS Norfolk & Waveney	Influenza vaccine	£10.00	Same as for City & Hackney PCT ^l
NHS South East London Cluster	Influenza vaccine	£7.64	Same as for City & Hackney PCT ^m
Wales			
All regions ⁵⁴	Influenza vaccine	£9.33	<ul style="list-style-type: none"> • Age ≥65 years • Pregnant • Have chronic medical conditions (respiratory disease, heart disease, neurological disease, diabetes or immunodeficiency) • Long-term care resident • Caregiver for high-risk individualⁿ
Ireland			
All regions	Influenza vaccine	€15	As above for Wales, but also those with morbid obesity or in contact with pigs, poultry or water fowl ^o

a: New Brunswick Pharmacists Association, personal communication, Dec. 10, 2012.

b: State of Alaska, Division of Health Care Services, personal communication, Feb. 26, 2013.

c: Arizona Health Care Cost Containment System, personal communication, Feb. 26, 2013.

d: Illinois Department of Healthcare and Family Services, Department of Pharmacy Practice, personal communication, Feb. 26, 2013.

e: North Dakota Medicaid, personal communication, March 4, 2013.

f: North Dakota Department of Health, Division of Disease Control, personal communication, Feb. 26, 2013.

g: Texas Health and Human Services Commission, personal communication, March 4, 2013.

h: Utah Department of Health Immunization Program, personal communication, Feb. 27, 2013.

i: NHS Bury, personal communication, Feb. 18, 2013.

j: NHS Heywood, Middleton and Rochdale, personal communication, March 26, 2013.

k: NHS Manchester, personal communication, Feb. 18, 2013.

l: NHS Waveney, personal communication, Feb. 18, 2013.

m: NHS South East London, personal communication, March 18, 2013.

n: NHS Wales, personal communication, Feb. 19, 2013.

o: Irish Pharmacy Union, personal communication, Jan. 23, 2013.

pharmacist in regions where remuneration is provided is \$13.12 (SD \$4.63). Fees range from \$4.14 for influenza immunization in Arizona (Arizona Health Care Cost Containment System, personal communication, Feb. 26, 2013) to \$21.21 for pediatric vaccinations in North Dakota (North Dakota Department of Health, Division of Disease Control, personal communication, Feb. 26, 2013). In terms of fees for multiple vaccines, Minnesota and Ohio offer higher fees for the first injection per visit, with lower fees for each subsequent injection.^{33,44} In comparison, Alberta has a limit of 1 administration fee per patient per day, even if multiple injections are administered.¹⁴

Discussion

The administration of injections by pharmacists has been authorized in a number of countries, but not all have payment strategies in place. Even where such strategies are in place, eligibility criteria and remuneration vary more than 5-fold. We identified 34 separate programs for publicly funded remuneration of pharmacist-administered injections, with an average fee of \$13.12 CAD (SD \$4.63) per injection. All programs pay pharmacists to administer influenza vaccinations, while other programs in the United States allow for the administration of other vaccines in certain jurisdictions. Alberta is the only region offering remuneration for the administration of both vaccines and non-vaccine injectable drugs. In many circumstances, patients must pay out of pocket for pharmacist-administered vaccines or have private insurance cover the administration cost.

While this is the first study to systematically collect information on remuneration for pharmacist-administered injections, much has been published on the safety and efficacy of these services and the public's perception of pharmacists as injectors. A study on the implementation of an immunization program in a US supermarket chain reported no serious injection site or allergic reactions following 18,000 influenza and 1200 pneumococcal vaccinations.⁵⁵ Survey results from more than 1700 patients receiving influenza and/or pneumococcal vaccines in 21 pharmacies across 10 US states also reported high patient satisfaction, with 100% of respondents feeling they were treated respectfully, 98.5% feeling they had sufficient privacy in the pharmacy and 99% reporting that they would encourage a friend to

receive vaccinations at the pharmacy. The vast majority of respondents (84%) also came to the pharmacy specifically to be vaccinated, while only 10% were there to receive a prescription medication.⁵⁶ Marketing strategies such as placing signs outside the pharmacy offering walk-in availability of vaccines were found to be effective in encouraging vaccination.

Pharmacist administration of injections has been demonstrated to improve vaccination rates worldwide. A US study compared 8 states where pharmacists were authorized to administer injections in 1997 to 8 matched states that did not have this authorization in place before the year 2000¹³ and found that adult influenza vaccination rates were significantly higher in states authorizing pharmacists to administer the vaccine compared with states without an authorization in place (25.5% vs 21.6% among adults ages 18-64 years and 68.4% vs 64.7% in adults age ≥ 65 years, $p < 0.01$ for each). Alberta pharmacists have been able to vaccinate patients since 2010. Over the 2012-2013 season, approximately 150,000 Albertans received an influenza vaccine from a pharmacist.⁵⁷ Ontario pharmacists were first authorized to provide vaccination in the fall of 2012 and, within 6 months, had vaccinated over 200,000 Ontarians.⁵⁸ In their first year of being authorized to administer influenza vaccinations, Ireland pharmacists from 480 pharmacies administered more than 9000 vaccinations (Irish Pharmacy Union, personal communication, Jan. 23, 2013). England's City & Hackney Primary Care Trust saw an increase in influenza immunization rates for seniors from 59% to 76% following the introduction of pharmacists as vaccine providers,⁵⁹ as did the Isle of Wight Primary Care Trust in Wales, which saw increases in influenza immunization rates from 64.1% to 70.3% among those 65 years and older and from 46.4% to 51.2% in those younger than 65 years.⁶⁰

Even in jurisdictions where pharmacists are not authorized to administer injections, community pharmacy-based programs with nurse injectors have been well received by patients. A 2003 pilot project in Nova Scotia used nurses in 42 community pharmacies to administer more than 2800 influenza vaccines. Of those patients receiving vaccines in a community pharmacy, 80% reported that this was their preferred immunization location because of its convenience, reduced waiting time compared

with other settings, ease of parking and the availability of walk-in services not requiring an appointment.⁶¹ Importantly, these programs allow for the in-pharmacy administration of the vaccine rather than simply a recommendation to the primary care physician for administration during the next medical office visit, as this approach has previously been found ineffective at increasing vaccination rates.⁶²

To further improve availability of pharmacist vaccinations, professional and organizational motivators must also be considered. Two surveys of pharmacists certified to administer injections found that pharmacists were motivated to provide vaccines more out of concern for public health and for personal satisfaction than for remuneration.^{63,64} However, time, legal liability and lack of reimbursement were identified as key barriers preventing greater uptake. While remuneration is essential to sustain pharmacist vaccination services, organizational factors such as sufficient time, training, management and staff support and legal liability coverage are other important factors to ensuring a successful vaccination program.

The programs listed in this article should not be considered an exhaustive list of all remuneration schemes available worldwide for pharmacist administration of injections. Indeed, very little information was readily available in the published literature or online, requiring us to contact health regions and pharmacy licensing and advocacy organizations individually for this information. While response rates were reasonable, current restructuring of health boards in the United Kingdom led to a low response rate from this region. Information could also not be obtained from all of the US states on their Medicaid and Vaccines for Children programs. While multiple attempts were made to contact key individuals in these organizations, this remains a limitation

of our study. Finally, since this review focused specifically on publicly funded programs, it does not describe opportunities for remuneration available from private insurance or from direct payment by patients.

Pharmacist-administered injections improve patient access to this important public health service and have been demonstrated to improve vaccination rates for communicable diseases. Therefore, attention should be paid to the fair funding of such services to ensure the sustainability and growth of these programs worldwide. Future research should evaluate whether publicly funded payment for pharmacist injections offers a significant improvement in vaccination rates versus patient-paid or private insurance coverage and, if so, examine the level of remuneration that encourages pharmacist participation in such programs while remaining cost-effective.

Conclusion

Publicly funded remuneration programs for pharmacist administration of injections are available across Canada, the United States, England, Wales and Ireland, while pharmacists in Australia, Scotland, New Zealand and Portugal are authorized to administer injections but are not eligible for any publicly funded fees. Given their extended operating hours, accessibility without an appointment and established trust with patients, community pharmacists are in a unique position to improve vaccination rates and health system efficiency through injection administration. To capitalize on this opportunity, jurisdictions not currently allowing pharmacist administration of injections should consider adopting such legislation, along with an exploration of the options available for paying pharmacists for providing this service to optimize uptake of this expanded scope of practice. ■

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