Rapid Synthesis

Identifying Pharmacist Remuneration Models for the Provision of Clinical Services

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Rapid Synthesis:
Identifying Pharmacist Remuneration Models for the Provision of Clinical Services
30-day response

19 October 2022

McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Timeline

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. This synthesis was prepared over a 30-business-day timeframe. An overview of what can be provided and what cannot be provided in each of the different timelines is provided on McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the rapid synthesis. The funder played no role in the identification, selection, assessment, synthesis or presentation of the research evidence profiled in the rapid synthesis.

Merit review

The rapid synthesis was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

Question

- What are the features and impacts of pharmacist remuneration models for the provision of clinical services in community settings?

Why the issue is important

- Pharmacists' remuneration for providing clinical services is a timely policy issue with focus on identifying who should pay pharmacists for the provision of clinical services, how to pay them, and understanding whether and how financial incentives influence pharmacists' behaviours.
- For instance, pharmacists could be motivated to provide more services or different types of services depending on the remuneration model used.
- To inform this timely policy issue, this rapid synthesis explores the features and impacts of pharmacist remuneration models for the provision of clinical services in community settings.

What we found

- We identified five systematic reviews, one non-systematic review, and 15 primary studies relevant to the question, with most of the evidence identified focusing on the provision of a broad scope of pharmacist clinical services and how those services were remunerated.
- Several studies described how different remuneration models (capitation, pay-for performance, fee-for-service, and value-based payments), used a similar mechanism of setting a remuneration rate based on a per-patient scale and correlating the remunerated amount with the pharmacist's required time and effort.
- Few studies focused on assessing the impacts of implementing different remuneration models on population-health outcomes, costs, and experiences of patients and pharmacists.
- One low-quality systematic review focused on the effects of remuneration and found that despite various remuneration models in use, few have been rigorously evaluated with a lack of controlled studies.
- The same low-quality systematic review concluded that capitation remuneration-style programs could reduce drug costs by increasing the use of generic substitution, and that fee-for-service remuneration was associated with more documentation of pharmacy services.
- One single study concluded that pay-for-performance and value-based payment models have shown to restrict healthcare expenditure and waste while improving quality of care.
- In Canada, one single study estimated that by 2035, the implementation of three pharmacy clinical services (i.e., smoking cessation, advanced medication review, and pneumococcal vaccine administration) could yield total healthcare system efficiencies and increase labour-force productivity value by between $194 million and $2.03 billion.
- Another single study conducted in Canada found that pharmacists have few incentives to deliver expanded, non-dispensing services if compensation for such services is inadequate.
- Our jurisdictional scan of experiences from Alberta, Ontario, Quebec and Nova Scotia, as well as five other countries (Australia, France, New Zealand, the United Kingdom, and the United Sates) yielded limited insights about pharmacist remuneration models for the provision of clinical services in community settings.
- However, from the jurisdictional scan we identified that France, New Zealand, the U.K., the U.S. and all provinces in Canada used fee-for-service as the most frequent remuneration model for pharmacists for clinical services, although Australia, Quebec and Nova Scotia also mentioned the use of salary remuneration.
- We also found that the U.K. uses a blended model that includes fee-for-service and a pharmacy quality scheme based on pay-for-performance, while the U.S. has reported some experiences with value-based models.

QUESTION

What are the features and impacts of pharmacist remuneration models for the provision of clinical services in community settings?

WHY THE ISSUE IS IMPORTANT

In the last 40 years, the pharmacy profession has been associated with dispensing and product reimbursement, leaving little room for pharmacists to evolve their role and focus on innovative services that add value to the healthcare system. However, recently, there has been a growth in published literature describing the work of pharmacists in providing clinical services in community settings, including targeted services in chronic-care management, transitional-care management, medication management, and vaccination services.

Different jurisdictions are developing strategies for embedding pharmacists into the provision of clinical services in community settings. Some jurisdictions are evaluating if clinical services provided by pharmacists adds value to healthcare, are sustainable, and are at least cost-neutral in comparison to usual care.(1) However, despite this progress, in many jurisdictions pharmacists have not been recognized as healthcare providers, or are not allowed to bill independently for pharmacy clinical services.(1)

Pharmacists' remuneration for providing clinical services is a timely policy issue with focus on identifying who should pay pharmacists for the provision of clinical services, how to pay them, and understanding whether and how financial incentives influence pharmacists' behaviours.(2; 3) For instance, pharmacists could be motivated to provide more services or different types of services depending on the remuneration model used (e.g., fee-for-service, capitation, salary, pay-for-performance, blended payment).(2; 3) Moreover, jurisdictions implementing remuneration reforms in their health systems are less willing to use fee-for-service billing and are exploring other bundled-payment arrangements for paying pharmacists for clinical services.(2) To inform this timely policy issue, this rapid synthesis explores the features and impacts of pharmacist remuneration models for the provision of clinical services in community settings.

Box 1: Background to the rapid synthesis

This rapid synthesis mobilizes both global and local research evidence about a question submitted to the McMaster Health Forum's Rapid Response program. Whenever possible, the rapid synthesis summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. An overview of what can be provided and what cannot be provided in each of these timelines is provided on the McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

This rapid synthesis was prepared over a 30-business-day timeframe and involved four steps:

1) submission of a question from a policymaker or stakeholder (in this case, British Columbia Ministry of Health);
2) identifying, selecting, appraising and synthesizing relevant research evidence about the question;
3) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence; and
4) finalizing the rapid synthesis based on the input of at least two merit reviewers.

WHAT WE FOUND

We found five systematic reviews, one non-systematic review, and 15 primary studies relevant to the question that were identified from a targeted search for relevant literature (see Box 2 for our search strategy). In addition, we conducted a jurisdictional scan to identify experiences from Alberta, Ontario, Quebec and Nova Scotia, as well as five other countries (Australia, France, New Zealand, the United Kingdom, and the United Sates).

We outline our key findings from the identified evidence and jurisdictional scan in narrative form below. We provide an overview of the features (populations served, services provided, remuneration-model features and other delivery components) and impacts of models identified from the included evidence documents in Table 1. In addition, we provide details about features and experiences with models identified from the international and Canadian jurisdictional scan in Table 2. Additional details from the research evidence are provided in Appendices 1 and 2.

Box 2: Identification, selection and synthesis of research evidence

We identified research evidence (systematic reviews and primary studies) by searching (on 15 September 2022) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed. In Health Systems Evidence, we searched for overviews of systematic reviews and systematic reviews by combining all the filters related to remunerating providers (financial arrangements) and with the provider filter for pharmacists. In PubMed, we searched for pharmacist AND (remuneration OR payment OR reimburs*) AND clinical AND community.

The results from the searches were assessed by one reviewer for inclusion. A document was included if it fit within the scope of the questions posed for the rapid synthesis.

For each systematic review we included in the synthesis, we documented the focus of the review, key findings, last year the literature was searched (as an indicator of how recently it was conducted), methodological quality using the AMSTAR quality appraisal tool (see the Appendix for more detail), and the proportion of the included studies that were conducted in Canada. For primary research (if included), we documented the focus of the study, methods used, a description of the sample, the jurisdiction(s) studied, key features of the intervention, and key findings. We then used this extracted information to develop a synthesis of the key findings from the included reviews and primary studies.

Key findings from the research evidence

Most evidence identified focused on the provision of a broad scope of pharmacists' clinical services and how those services were remunerated.(2; 4-14) Some studies addressed questions about the effectiveness or quality of non-dispensing services provided by pharmacists, and whether those services should be remunerated separately from the usual dispensing fee.(8; 11; 12; 15) One medium-quality systematic review found different remuneration models, but most studies included in this review (56.3%) did not address any remuneration model.(6)

In most of the studies included in this rapid review, the remuneration model consisted solely of fee-for-service.(2; 4-14) One medium-quality systematic review identified 116 pharmacist remuneration programs and almost all services were paid on a fee-for-service basis, often in the form of a flat fee irrespective of the time spent providing the service.(5) In addition, several studies described different remuneration models such as capitation, pay-for performance, fee-for-service, and value-based payment, and these models were found to use a similar mechanism of setting a rate on a per-patient scale and correlating the remunerated amount with the pharmacist's required time and effort.(7; 9)

Few studies were focused on assessing the impacts of implementing different remuneration models on quadruple-aim outcomes (population health, costs, or experiences of patients and pharmacists). One low-quality systematic review focused on the effects of remuneration models and found that despite various models being in place, few have been rigorously evaluated and that there is a lack of controlled studies.(7) However, this review concluded that capitation remuneration-style programs could reduce drug costs by increasing the use of generic substitution, and that fee-for-service remuneration was associated with more documentation of pharmacy services.(7) In addition, one single study concluded that pay-for-performance and value-based payment models have been shown to restrict healthcare expenditure and waste while improving quality of care.(16)

In Canada, one single study estimated that by 2035, the implementation of three pharmacy clinical services (smoking cessation, advanced medication review, and pneumococcal vaccine administration) could yield total healthcare system efficiencies and increase labour-force productivity value between $194 million and $2.03 billion.(2) Another single study found that public-payer compensation varies significantly across provinces and territories, with some paying for many services while others were paying for none, with variability in the complexity of services provided and the fees charged. For example, advanced medication review and management services can differ from one jurisdiction to the next. The most comprehensive services were found to be provided in Alberta, reflecting the higher fees set in that province.(17) This study also found that pharmacists have few incentives to deliver clinical services or non-dispensing services if compensation for such services is inadequate. Moreover, some policymakers have voiced reluctance to create a new fee-for-service model for other professional groups, with some government payers questioning the sustainability of their current funding models for pharmacy services.(17) Among private insurers, there was low interest found for including pharmacy services in the basket of benefits that make up employer plans, which was noted as being partly because many of the services were seen as being part of what the public sector should cover.(17)

In the following sections, we provide details of evidence found for each remunerating model identified.

Fee-for-service

Fee-for-service was the most common remunerating model addressed in the studies included. We identified four systematic reviews, of which one was deemed to be high quality,(4) two medium quality,(5; 6) and one low quality.(7) Additionally, we identified one non-systematic review,(8) and seven single studies which included two economic evaluations,(9; 10) three that provided data analytics,(2; 11; 12) one with a focus on implementation considerations,(13) and one qualitative study.(14)

Most studies did not specify the population served, but those with explicit information reported a population of 18 years or older.(6; 9) Services provided included medication reviews and medication therapy management (e.g., initiating medication, follow-ups, adaptations, refusal to dispense),(4; 5; 7; 8; 11-13) tobacco cessation services,(6) administration of injections,(5) influenza vaccination,(9) testing or prescribing for minor ailments,(5; 8; 10) and disease-management services (e.g., including diabetes-related education, training, and monitoring in the community setting).(7)

Most studies reported setting a fee according to the pharmacist's time invested.(6; 7; 9; 11-13) For instance, one low-quality systematic review identified 28 remuneration programs, with the most common being the resource-based relative value scale (RBRVS), which involves a fixed rate to be paid per intervention, conditional to the time spent or effort required.(7) One economic evaluation performed in Canada compared two fee-for-service remuneration models for pharmacist prescribing for minor ailments. One model remunerated $18 for each pharmacist consultation independently of a final prescription, and the other model only remunerated if a prescription was made.(10)

Regarding the impact of remunerating pharmacists through a fee-for-service model, one high-quality systematic review and meta-analysis found that patients who received fee-for–service medication reviews were found to achieve target clinical outcomes (e.g., biomarker target, less hospitalization, less mortality) more commonly than the patients in the usual-care group.(4) This review also reported higher levels of adherence/compliance to medications in comparison to patients who received usual care.(4) One low-quality systematic review found that most studies evaluating pharmacist remuneration models did not assess effects on clinical, humanistic, or economic outcomes.(7) However, generally, remuneration systems were determined to be beneficial to patients, and no program was associated with worsened patient outcomes.(7) For instance, one economic evaluation found that the provision of influenza vaccine by pharmacist consultation services for Ontarians aged 65 years and older was predicted to prevent 2,407 cases of mild influenza and three influenza-related deaths.(9) Another economic evaluation reported that pharmacists prescribing for minor ailments might lead to fewer visits to primary-care providers, emergency departments, and walk-in clinics.(10)

Studies that addressed cost outcomes showed significant variability in fees for similar programs, even within the same country or region.(5; 12) One low-quality systematic review found that medical cost savings were suggested for several of the remuneration programs included, but these costs savings were generally limited to rough estimates.(7) One systematic review and two single studies also reported the cost-benefits or cost neutrality of pharmacists providing clinical services in the community setting.(5; 6; 10) Specific details of cost outcomes are described in detail in Table 1.

Lastly, one single study found that pharmacists have perceived comfort with existing fee-for-service models, mainly due to being easy to implement and to integrate into business planning.(14)

Capitation

One low-quality systematic review identified programs that used a capitation remuneration model for pharmacists providing clinical services, but this review did not provide details about the services or features of the remunerating model.(7) We identified a single study that implemented a partnership between a community pharmacy and a patient-centred medical home. In the partnership, the pharmacist provided initial medication therapy management appointments and offered follow-up services.(18) In this study, the pharmacy received a monthly payment per patient for a predetermined number of 1,000 high-risk patients. The study reported an increase in influenza vaccinations received, and improvement in A1C levels, systolic blood pressure, and weight and LDL levels.(18)

Pay-for-performance (P4P)

One single study defined performance-based pharmacy payment models (PBPPMs) as those that establish reimbursement or fees for community pharmacies partially based on measured-outcomes performance. Pay-for-performance models incentivize pharmacies to enhance patient care by linking reimbursement to performance measures.(3)

One medium-quality systematic review identified a U.K. program where pharmacies provided smoking cessation services.(5) Remuneration was based on the number of people who successfully quit smoking. A pharmacy that had a patient with a verified quit at four, eight, and 12 weeks qualified for an incentive payment ranging from 5 to 200 British pounds, as well as different bonuses based on characteristics of the patients (e.g., if the patient was pregnant, younger than 18 years, or belonged to a targeted ethnic group).(5) We did not identify impacts on population health, but we found two studies (one from Alberta, Canada and another from the U.S.) that reported pharmacist experiences with this model, and found hesitation to radically transform payment for pharmacists' patient-care services towards a pay-for-performance model.(3; 14)

Value-based payments

Three single studies (one implementation, one data analytics, and one qualitative) and one non-empirical document addressed value-based models.(1; 16; 19; 20) In three studies, this model attributed a defined patient population to a community pharmacy and held the pharmacist responsible for outcomes of those patients through value-based payment, all based on a patient's risk score.(1; 16; 19) In one single study, a pharmacist reviewed the chart of each patient on a schedule to identify patients with an HbA1c level greater than nine during the visit. The pharmacist verified medication reconciliations conducted by a nurse, assessed glucose control, adherence to therapy and diet, and verified whether laboratory reports and immunizations were up to date.(19) This study found a statistically significant reduction in HbA1c levels in patients managed in a pharmacist-led program in comparison to those patients in standard care.(19)

In another study, pharmacists provided continuous medication monitoring and solved medication-related problems for an insurance company's target population of 40,000 beneficiaries. In this study, community pharmacies received a per capita payment based on their performance on a set of 18 metrics developed by a

joint council of health plans, community pharmacists and state pharmacy association personnel. The metrics assessed were pharmacy performance on chronic disease medication management, potentially preventable emergency-department visits, preventable admissions, and total cost of care. The chronic disease metrics focused on different conditions including asthma, diabetes, hypertension, high cholesterol, and depression. Using points earned from the 18 metrics, a composite performance score was estimated and used to establish a per capita (per beneficiary per month) payment for beneficiaries attributed to each participating pharmacy organization. This study found that the hospital admission rate and the emergency-department visit rate for the value-based program group were 5.1% and 2.1% (respectively) lower than the no-value-based group, but did not reach statistical significance. The study also found that total costs per beneficiary per month in the value-based program pharmacies (n=15,463) was US$30.48 lower than that of the no-value-based pharmacies (n=140,717), which represents an average of 4.5% in savings.(16)

Lastly, one single study found several implementation challenges related to documentation and billing in pharmacist value-based remuneration models, including challenges with the general cost of documentation platforms, different platforms required by various medication-management programs, and correctly submitting claims.(20)

Key findings from the jurisdictional scan

The remuneration of pharmacists for dispensing reimbursable drugs is regulated in most European countries, unlike in the United States, where margins and drug prices are not regulated.(22) The methods of remuneration differ from country to country. Pharmacists' remuneration was generally organized into two main blocks, although the ways these blocks are combined may vary from country to country. One block refers to retained margins and dispensing fees paid for the pharmacist's dispensing activity. The dispensing activity is the pharmaceutical act that combines the dispensing of medicines with the pharmaceutical analysis of the medical prescription, the preparation of doses to be administered, and the provision of information and advice necessary for the proper use of medicines. Different definitions of the term are possible in other countries, but the specific content of the paid act of dispensing is made by agreement between government and pharmacies. The second block covers single payments for non-dispensing activities, broadly reflecting the diversity of activities carried abroad. Some of those non-dispensing services are paid through quality payments, which aim to remunerate the achievement of objectives defined in advance by agreement. In England, quality payments for pharmacists aim to reward clinical effectiveness, patient satisfaction and safety.

We identified that France, New Zealand, the U.K., the U.S. and all provinces in Canada used fee-for-service as the most frequent pharmacist remunerating model, although Australia, Quebec and Nova Scotia also mentioned using salary. We identified in the U.K. a blended model that includes fee-for-service and a pharmacy quality scheme based on pay-for-performance, while the U.S. has reported some experiences with value-based models.(1; 8) We did not identify evaluation of these models in the documents reviewed.

In Canada, the most common remunerating model was the fee-for-service, and those fees are commonly estimated by a resource-based relative value scale (RBRVS). Different clinical services were provided or are allowed to be performed by pharmacists, and the list of services varies among provinces and territories and is described in Table 2. Regarding the impacts of implementing remunerating models, one document has a general statement that mentions that pharmacists provide valuable care for cardiovascular disease and related conditions, including the management of hypertension and dyslipidemia.(2) Another document mentioned that since influenza vaccination has been offered in community pharmacies, uptake has increased in many jurisdictions.(26) Both documents mentioned that there may be a relationship between higher fees for flu vaccination and higher uptake rates.(2; 26)

Table 1: Overview of the features and impacts of pharmacist remuneration models for the provision of clinical services

Models identified from evidence documents	Features of the models identified	Impacts identified from evaluations of the models identified

Fee for service
• Four systematic reviews
  ○ One high-quality (4)
  ○ Two medium-quality (5; 6)
  ○ One low-quality (7)
• One non-systematic review (8)
• Seven single studies
  ○ Two economic evaluations (9; 10)
  ○ Three data analytics (2; 11; 12)
  ○ One implementation-focused study (13)
  ○ One qualitative study (14)
	Population served
	• Patients 18 years of age and older (6; 9)
	• Beneficiaries of self-insured health care plans in Alabama (U.S.)(13)
	
	Services provided
	• Medication review (4; 5; 7; 8; 12)
	• Follow-ups to medication reviews (5; 11)
	• Prescription adaptations (changes to dose, dosage form, route, duration) (5; 8)
	• Refusal to dispense (5)
	• Administration of injections (5)
	• Tobacco cessation services (6)
	• Influenza vaccination for people aged 65 years and older (9)
	• Testing for minor illnesses (8)
	• Prescribing for minor ailments such as upper respiratory tract infections, contact dermatitis and conjunctivitis (5; 10)
	• Medication therapy management (MTM), typically involves medication reviews by pharmacists with the resolution of any drug-related problems to optimize drug use, adherence assessment and interventions (7; 13)
	• Disease management services, including diabetes-related education, training, and monitoring in the community setting (7)
	• Medication-related services, which included counselling for prescription and over-the-counter (OTC) medications and identifying and resolving adverse drug reactions and drug interactions in consultation with prescribing physicians (7)
	• Medication refill reminders (e.g., by phone, text, or internet) (11)
	• Dispensing medications (8)
	
	Remunerating model features
	• Most of the studies reported setting a fee according to the time invested (6; 7; 9; 11-13)
	• One low-quality systematic review identified 28 remuneration programs; the most common model included the resource-based
		Population health
		• One high-quality systematic review and meta-analysis found that patients who received fee-for-service medication reviews were found to achieve target clinical outcomes (e.g., biomarker target, less hospitalization, less mortality) more commonly than the patients in the usual care group (OR 1.46, 95% CI 1.15, 1.84, P = 0.002) (4)
		  ○ Nineteen studies reported adherence/ compliance to medications, 11 in favour of medication review, six in favour of usual care, and two showed significant and non-significant findings
		• One low-quality systematic review found that only 14 systems had been evaluated for effect on clinical, humanistic, or economic outcomes (7)
		  ○ Most evaluations focused on health-provider satisfaction and program uptake, with clinical and economic outcomes rarely evaluated
		  ○ Generally, remuneration systems were determined to be beneficial to patients
		  ○ No program was associated with worsened patient outcomes
		  ○ In the Australian Home Medication Review (HMR) program, a survey of 57 patients who received a medication review showed improved patient outcomes, including reductions in medication-related health problems and reports of anxiety and depression
		• One economic evaluation found that the provision of influenza vaccine by pharmacist consultation service for Ontarians aged 65 years and older was predicted to prevent 2,407 cases of mild influenza and three influenza-related deaths (9)
		• The benefits of a pharmacist providing tobacco cessation services described in one program was estimated in an increase of cessation rates ranging from 3.98% to 77.14% (6)
		• One economic evaluation in Canada found that per 30,000 patients, the pharmacists prescribing for minor illnesses was projected to lead to cumulative reductions in visits to the family

	relative value scale (RBRVS), which involves setting a fixed rate to be paid per intervention, depending on the time spent or effort required (7) • For tobacco cessation, one program provided up to $200 for the pharmacist's time ($75 for the initial visit, $25 for month-one follow-up and $50 for months three and six follow-ups)(6) • The consultation fee for influenza vaccination for Ontarians aged 65 years and older was set at $15, a fee that is similar in terms of time, effort, and documentation requirements to that of the Pharmaceutical Opinion Program in Ontario, a service currently offered by pharmacists and reimbursed at a rate of $15 by the government (9) • In one economic evaluation, two remuneration models for pharmacist prescribing for minor ailments were compared: 1) a prescription-detached scenario, where pharmacists were remunerated $18 for each consultation; and 2) a Prescription-Attached Scenario, where pharmacists were only remunerated if a decision to prescribe was made (10) *Delivery features (i.e., coordination, providers, settings and other supports)* • In the pharmacist consultation service on influenza vaccination for Ontarians aged 65 years and older, the provision of consultation services was at the professional discretion of the consulting pharmacist in response to an identified knowledge gap or questions around influenza vaccination from eligible individuals or on request from eligible individuals (9) o The consultation service comprised a face-to-face comprehensive and individualized assessment of the patient's reservations surrounding influenza vaccination, followed by an appropriate provision of high-quality, tailored information, conducted in a private counselling area within the pharmacy, and was anticipated to take less than 15 minutes of the pharmacist's time, including standard documentation requirements • One medium-quality systematic review identified delivery models of pharmacist-led tobacco cessation services, which included an appointment-based, individual, face-to-face session between the patient and pharmacist (6) • In one single study, pharmacists researched the employer's health and pharmacy benefit plan and became familiar with the fee structure, co-payment requirements, medication tiers, and formulary (13)	physician, the emergency department, and walk-in clinics by 3,677, 799, and 5,090, respectively (10) *Costs* • One high-quality systematic review and meta-analysis found nine studies that measured economic outcomes, two in favour of medication review, three in favour of usual care and four found not significant differences between groups (4) • One medium-quality systematic review reported large ranges in fees offered for similar programs across programs, even within the same country or region (5) o Initial medication-review services were remunerated at an average of $US71.48 (SD $44.47, range $35-$247.11) for an estimated 30-minute interaction o Follow-ups to medication reviews were remunerated at an average of US$19.13 (SD $7.85, range $11.72-$40) o Prescription adaptations were remunerated at an average of US$18.49 (SD $10.79, range $4-$30) o Refusal to dispense was remunerated at an average of US$8.75 (SD $3.78, range $5.01-$15.62) o Fees for the administration of injections averaged US$12.95 (SD $5.61, range $3.31-$23.28) o Assessment and initiation of therapy for minor ailments was remunerated at an average of US$7.52 (SD $12.93, range $2.81-$21.10) per encounter, whereas assessment and initiation of therapy for other conditions was remunerated at an average of US$19.22 (SD $5.57, range $10.56-$42.23) • One low-quality systematic review found that although medical cost savings were suggested in several of the programs, they were commonly limited to rough estimates (7) o The Washington Cognitive Activities and Reimbursement Effectiveness (CARE) Project, for example, estimated that the cost savings to Medicaid per patient ranged from US$21.69 to US$118.54, accruing over one year o In the Iowa Pharmaceutical Care Delivery Demonstration Project, the fiscal impact of the program was budget neutral when both medical and pharmaceutical claims were considered o The Australian HMR program demonstrated cost savings, along with gains in quality-adjusted life years (QALY) and future cost savings, suggesting that budget gains may be

	○ Pharmacists tried to ascertain whether the decision-maker would be interested in data beyond return on investment, such as the impact of MTM services on productivity, absenteeism, employee satisfaction, and employee health-related quality of life	evident after the demonstration project progresses into a permanent system ○ Primary Care Trusts in England are showing interest in Minor Ailment Services as a cost-effective local health service to meet national health targets ○ In the Asheville project, the number of sick days decreased every year from 1997 to 106; for one employer alone, there was an estimated increase of US$26,000 in productivity • One low-quality systematic review found that the rate of payment for medication therapy management generally ranged from $27 to $170 per review (7) ○ Payments for disease management ranged from $33 to $134.80 per visit, with more remuneration given per session if group sessions were carried out ○ Payment for medication-related services ranged from $4 to $17 per intervention, depending on the time spent and whether the physician was contacted • One economic evaluation assessing pharmacists prescribing for minor ailments found that a remuneration model paying for consultation independently of whether a prescription was made, leading to savings of $7.51, $4.08 and $5.15 per patient for upper respiratory tract infections, contact dermatitis and conjunctivitis, respectively (10) ○ In the remuneration model attached to the prescription, the pharmacists prescribing for minor ailments were projected to have more significant savings of $12.26, $4.89 and $9.27 for upper respiratory tract infections, contact dermatitis and conjunctivitis, respectively ○ In 100% of the remuneration models attached to the prescription scenarios simulated, pharmacists as prescribers led to cost savings • One single study that explored community pharmacist-led medication-review procedures across Europe, including 34 countries, found that in 10 countries, those services were remunerated by a third party, and in all of them, a fixed price for each performed service is provided ranging from 30 to 80 euros (12) • The provision of influenza vaccine consultation services was predicted to prevent 2,407 cases of mild influenza and three influenza-related deaths at an additional cost of $2.03 per person over current practices (9)

		○ The incremental costs per quality-adjusted life-year (QALY) gained for the enhanced care strategy compared with standard care was $2,087 ○ The interpretation of the base-case result was found to be robust across all sensitivity analyses ○ The projected additional costs of implementing pharmacist consultations in Ontario were estimated at $1.15 million per year, and the anticipated benefits included a gain of 507 QALY per year • The cost-saving benefits of a pharmacist providing tobacco cessation services described in one program were estimated as $635 based on a $3,105/quit estimate (6) *Patient experience* • One high-quality systematic review and meta-analysis found that patients' quality of life was measured in 17 studies, six in favour of the medication review, two in favour of usual care and eight found not significant differences between groups (4) *Pharmacist experience* • One single study found that pharmacists have perceived comfort with the existing fee-for-service (FFS) model mainly due to its ease related to business planning (14) *Payers' perceptions* • Payers' preferences and attitudes of impact about the care being provided in a community pharmacy setting by a suitably trained pharmacist indicated that pharmacists were viewed positively by payers for the provision of medication services (11) ○ Payers think that more clinical services should be offered in the community pharmacy ○ Trust in pharmacists providing information services on general health and medications, and pharmacist competency was strongly positive ○ Payers are willing to reimburse those pharmacist services
Capitation • One low-quality systematic review (7) • One single study (18)	*Population served* • A patient-centred medical home (PCMH) office serving more than 9,000 patients in the Cincinnati area (18) *Services provided* • In one single study (implementation research), the pharmacist provided initial medication therapy management appointments in a patient-	*Population health* • In one single study (implementation research), 105 patients were seen by the pharmacist during the study period, with 1.5% of the total managed at the office (18) ○ There was a statistically significant increase in influenza vaccinations received from 24.4% to 28.1% ($P < 0.001$)

	centred medical home and offered follow-up services in the office, the pharmacy, or both, depending on patient preference (18) ○ Patients were also scheduled for one-on-one appointments with the pharmacist for MTM, diabetes education, weight loss education, or a variety of other services *Remunerating model features* • Setting a rate on a per-patient scale, the remunerated amount correlated with the pharmacist's required time and effort (7) • The pharmacy received a capitated payment per patient per month for a predetermined number of 1,000 high-risk patients (18) • That number of high-risk patients was derived from 2,114 patients having an A1C of 9% or higher; blood pressure of 140/90 mm Hg or higher, or 130/90 mm Hg or higher with diabetes, or total cholesterol of 240 mg/dL or higher at project initiation (18) *Delivery features (i.e., coordination, providers, settings and other supports)* • While in the office, the pharmacist identified eligible patients, built relationships with office staff, and answered patient and prescriber questions (18) • Once per month, the pharmacist hosted an in-service training session and educated the office staff on various relevant health topics (18)	○ On a patient level, there was a statistically significant improvement in A1C from a mean of 8.7% to 7.8% (P = 0.002) ○ Systolic blood pressure improved from a mean of 145 mm Hg to 127 mm Hg, which was statistically significant (P = 0.014) ○ There were minor improvements in weight and LDL that were not statistically significant *Costs* • Capitation remuneration-style programs can reduce drug costs by increasing the use of generic substitution (7)
Pay for performance (P4P) • One systematic review (5) • Two qualitative studies (3; 14)	*Population served* • Not specified *Services provided* • One medium-quality systematic review identified a U.K. program where pharmacies provided smoking cessation services; pharmacies were equipped with point-of-care carbon monoxide monitors to verify patients' smoking status (5) *Remunerating model features* • Remuneration was based on outcome (i.e., smoking successful quit)(5) • A pharmacy that had a patient with a verified quit at four, eight, and 12 weeks qualified for an incentive payment ranging from 5 to 200 British pounds ($7.05-$281.88)(5) • Nonverified (patient self-report) quits qualified for incentive payments ranging from £4 to £82 ($5.64-$115.57)(5) *Delivery features (i.e., coordination, providers, settings and other supports)* • Not identified	*Costs* • One medium-quality systematic review identified a U.K. program where pharmacies provided smoking cessation services; some commissioning groups offered additional bonuses based on patient characteristics, including the following (5) ○ 5 British pounds ($7.05) per successful quit if the patient was eligible for prescriptions at no charge, ○ 20 to 150 British pounds ($27.56-$206.72) if pregnant, ○ 10 British pounds ($13.78) if the patient also had severe mental health problems, ○ 100 British pounds ($137.81) if age less than 18 years or a member of a targeted ethnic group, and ○ 10 to 20 British pounds ($13.78-$27.56) if the patient resided in a region with significant deprivation ○ Other commissioning groups offer incentive payments based on the number of successful quits achieved annually by the pharmacy ○ For example, one offers 5 British pounds ($7.05) per patient who quits if the pharmacy reaches its target count and an

		additional 500 British pounds ($689.08) if 40 patients successfully quit o Another offers 250 British pounds ($344.54) for 50 to 100 quits, 500 British pounds ($689.08) for 101 to 150 quits, and 1,000 British pounds ($1378.15) for more than 150 quits in a specified year *Pharmacist experience* • One single study found that in Alberta, pharmacists have concerns about the degree of influence pharmacists can have on outcomes achieved by patients, the perceptions of patients and other healthcare professionals on outcome-based payment, and concerns about the impact of variable remuneration on the pharmacy business model (14) o This study reveals a hesitation to radically transform payment for pharmacists' patient-care services toward a P4P model o Authors suggested that efforts to implement P4P should therefore be gradual and accompanied by a robust evaluation plan • One qualitative study in the U.S. identified several barriers to implementing pharmacist pay-for-performance models, among them:(3) o related to information technology (e.g., the vast number of sources for performance and patient data is overwhelming, and that data is not always readily shared with pharmacists) o related to workload operation (e.g., existing high workloads and lack of incentive to change workflow) o related to the training, given that pharmacists are sometimes unaware they are in a performance-based program and do not understand performance measures or their connection to payment o related to broader contextual influences (e.g., there is some resistance to change toward the pay for outcomes-based programs compared to continuing with the old-style pharmacy role, lack of recognition of pharmacists as healthcare providers and reimbursement for all pharmacist-provided services) o related to motivations and pressures (e.g., lack of direct incentives applied to individual pharmacists)
Value-based payments • Three single studies,	*Population served* • Patients with uncontrolled diabetes (19)	*Population health*

○ One implementation research (19) ○ One data analytics (16) ○ One qualitative (20) • One non-empirical (1)	• 40,000 beneficiaries of an insurance company (16) *Services provided* • A pharmacist reviewed the chart of each patient on schedule to identify patients with an HbA1c level greater than 9; during the visit, the pharmacist verified medication reconciliations done by the nurse, assessed glucose control, adherence to therapy and diet, and confirmed up-to-date laboratory reports and immunizations (19) • The pharmacists delivered continuous medication monitoring in which they identified, resolved, and recorded medication-related problems at the time of dispensing (e.g., non-adherence, adverse drug reactions, and duplication of therapy)(16) *Funding model features* • The model attributes a defined patient population to a community pharmacy and holds the pharmacy responsible for the outcomes of those patients through value-based payment, all based on a patient's risk score (1; 19) • The value-based pharmacy program (VBPP) paid community pharmacies a per capita payment based on their performance on a set of metrics (16) ○ The value-based program established payments considering 18 metrics developed by a joint council of health plan, community pharmacists and state pharmacy association personnel ○ The metrics assessed were pharmacy performance on chronic disease medication management, potentially preventable emergency-department visits, potentially preventable admissions, and total cost of care ○ The chronic disease metrics focused on asthma, diabetes, cardiovascular (hypertension, high cholesterol), and depression ○ The VBPP payments were separate from dispensing payments and were provided directly by the insurer ○ Using points earned from the 18 metrics, a composite performance score was calculated and used to determine a per capita (per beneficiary per month (PBPM) payment for beneficiaries attributed to each participating pharmacy organization *Delivery features (i.e., coordination, providers, settings and other supports)*	• There was a statistically significant reduction in mean HbA1c; levels changed from greater than 9% to less than 9% (9.3% vs. 8.1%, $P < 0.001$) in patients managed by a pharmacist-led program and those in standard care (19) • The hospital admission rate for a value-based group was 5.1% lower but was not statistically significant (95% CI = -12.9% to 3.3%) (16) ○ The emergency-department visit rate for the value-based group was 2.1% lower than the non-value-based group but did not reach statistical significance (95% CI = -8.6% to 3.3%) *Costs* • Total costs per beneficiary per month attended in value-based pharmacies (N = 15,463) was $30.48 lower than that of the non-value-based group (N = 140,717), which represents an average 4.5 % lesser costs (4.5%; 95% CI = -6.2% to -2.7%) (16) *Pharmacist experience* • One qualitative study found several implementation challenges related to documentation and billing (challenges with the general cost of documentation platforms, different platforms required by various medication-managements programs, and correctly submitting claims)(20)

	• The potential for successful integration of the pharmacist into value-based care settings depends mainly on the ability to measure value-added services (1) • Without collecting patient-level outcomes and quantifying pharmacist and pharmacy extender contribution, the value proposition cannot be demonstrated (1) • In emerging value-based payment frameworks, pharmacists must take a leadership role in optimizing medication use through closing gaps in care and establishing team-based care models (1) • The pharmacy profession must seek validation of a measure to realize the value gained from pharmacy services (1) • Clinical documentation of services provided to attributed beneficiaries was auditable by the insurance company (16)	

Table 2: Experiences from other countries and Canadian provinces and territories with pharmacist remuneration models for the provision of clinical services

Jurisdiction	Remuneration model	Remuneration model features	Services provided	Remuneration model impacts
Other countries				
Australia (21)	Salary	• Pharmacists in 2023 actions 7 and 8, describe the changes that must occur to support a pharmaceutical workforce able to meet the health needs of Australia's population • The document called for an increase in total remuneration in the pharmaceutical sector and in the salaried remuneration awarded to pharmacists to support growth, performance over time and improved health care outcomes	• The document included three settings for pharmacists' services: 1) the community pharmacy, 2) the hospital, and 3) embedded within the primary-care team at a general practice • Community pharmacy functions include dispensing medicines and counselling, triage and referral of patients, facilitating continuity of drugs at transitions of care, administering opioid substitution therapy and vaccines, medicine reviews, and preventive health services, including screening, weight management, and smoking cessation services	Not mentioned

			• In the hospital, functions include dispensing medicines and counselling, medication reconciliation, clinical review of medicine, transition of care liaison, therapeutic drug monitoring and dose adjustment, participation in team rounds, multidisciplinary team meetings, and outpatient outreach clinics • Pharmacist's function when embedded within the primary-care team at a general practice includes consultations to identify and resolve medicine problems and improve medicine use, medicine reconciliation and liaison at transitions of care, liaison with patient's regular community pharmacy, medicine counselling and patient education, preventive health interventions (e.g., smoking, point-of-care testing, etc.)	
France (22)	Fee-for-service	• The act of dispensing by the retail pharmacist is remunerated in several ways: o The packaging fee charged by the pharmacist for each box of reimbursable medication dispensed o Prescription fee charged by the pharmacist for filling any prescription for reimbursable drugs o Depending on the context, other fees apply, for instance: o Fees related to the so-called complex prescription, charged by the pharmacist for any dispensation resulting in the filling of a prescription containing at least five different lines of reimbursable pharmaceutical specialties and billed to the health insurance company in a single dispensation	• In France, the decree on the new missions of the dispensing pharmacist published in October 2018 defines new services, including health education, prevention and screening of certain diseases, the fight against addictions, pharmaceutical monitoring and support actions, and the prevention of drug iatrogenic.	Not mentioned

		○ Fee for filling a prescription containing one or more specific drugs (for example, drugs with an initial hospital prescription and drugs with an initial prescription reserved for specialists) ○ Prescription fees for children under three years of age and patients over 70 years of age ○ Fee for pharmaceutical support for patients on oral anti-cancer therapy		
New Zealand (23)	Fee-for-service	• New Zealand community pharmacies changed from a reimbursement per dispensing model to a patient-centred services model • The significant change between the previous contract and the new reimbursement model called the Community Pharmacy Services Agreement (CPSA) is the introduction of the long-term conditions service (LTC) • LTC is a medicine management-based service aimed at patients with multiple long-term conditions and identified medicine-adherence issues • This remunerating model decreased the fees for dispensing pharmaceuticals and created an extra fee of $20 monthly per patient with multiple long-term conditions; the model focuses on optimal use, medicines adherence and decreasing the pharmacist's behaviour of dispensing as many prescriptions as they can in a day • This model is expected to generate incentives for pharmacies to provide for individual patient needs rather than being financially rewarded for dispensing high volumes of medicines	• Dispensing pharmaceuticals • Medicines-management service • Methadone dispensing • Medicine-use reviews • Community pharmacy anticoagulation management • Vaccinations • Blood glucose monitoring • Blood pressure monitoring • Erectile dysfunction treatment	• There is limited evidence on how pharmacies are performing while using this new funding model • Evaluation of the impact of New Zealand pharmacy policy change is limited to pharmacist perceptions of the CPSA agreement • A report published in 2015 indicated that many pharmacies were struggling to perform against the CPSA measurements (24) • Little is known about the impact of this model on population health outcomes, cost, and experiences of patients (23)

United Kingdom (25)	Blended (principally fee-for-service with a pharmacy quality scheme based on pay-for-performance)	• National NHS community pharmacy funding comprises two key elements – fees (remuneration) and retained margin (part of reimbursement) • Retained margin or reimbursement refers to the reimbursement that pharmacies receive from the NHS (given that pharmacies purchased the medicaments from drug wholesalers and delivered to the patient), and that reimbursement is according to the Drug Tariff, which sets out prices for many medicines and a 'discount deduction' scale • The difference between reimbursement and purchase price constitutes a 'retained margin' which pharmacies are allowed to keep as part of their agreed funding subject to a collectively agreed total (currently 800 million British pounds) • The fees or remuneration element covers several services and their associated fees, all pharmacies are paid according to the same framework and with the same fees; services paid under fee are: o A single Activity Fee (SAF) is a payment made per prescription item dispensed o Establishment Payment (EP) is a fixed payment available to all contractors, subject to a volume (of prescription items dispensed) threshold o Advanced Services, which include Medicines Use Reviews (MURs), the New Medicine Service (NMS), the Flu Vaccination Service, Appliance Use Reviews (AURs), Stoma Appliance Customization (SAC), and	• Dispensing pharmaceuticals • Medicines-use reviews • New medicine service • Flu vaccination service • Appliance use reviews • Stoma appliance customization • Community pharmacy consultation service	Not identified

		the Community Pharmacy Consultation Service (CPCS) ○ 2A-2F Fees are payments to cover the dispensing of unlicensed medicines, certain appliances, oral liquid methadone, Schedule 2 and 3 Controlled Drugs, and expensive items • The pharmacy Quality Scheme (PQS) makes payments to community pharmacies that meet specific Gateway and Quality criteria; payments are made to eligible pharmacies depending on how many of the Quality criteria they have completed (the number of 'points' earned) • In 2020, NHS Pharmacy First Scotland was launched, which offers the people of Scotland free consultations for common minor illnesses, delivered by trained members of their local community pharmacy team • Consultations can result in one or more of three outcomes: advice on how to manage the condition will always be given, referral to another healthcare professional or team can be made if appropriate, or a treatment may be supplied free of charge on the NHS if necessary • With NHS Pharmacy First Scotland, pharmacy contractors who agree to fulfil NHS Pharmacy First Plus service specification and provide the service for a minimum of 25 hours a week for at least 45 weeks of the year, will receive a payment of 2,000 British pounds a month		
United States (1; 8)	• Principally, fee-for-service	• Oregon does not require insurers to provide payment, but requires	• Review of existing statutes and regulations on reimbursement for	• Not identified

	• Some experiences with value-based	pharmacists to contract and credential with each insurer without the mandate for payment • In California, pharmacists receive 85% of the established fee schedule that physicians receive for equivalent services, and payment is issued to the pharmacy, not the individual pharmacist • California and New Mexico both only allow specified pharmacies or pharmacists to bill (advanced credentials or a tiered licensing model) • In Alaska, scope and payer regulations align to allow compensation for covered services; however, insurance credentialing portals are not configured to enroll pharmacists as billing providers • In Idaho, in May 2020, the Medicaid basic plan regulations added pharmacists as non-physician ordering, referring, and prescribing providers	pharmacist-provided healthcare services, including administering medications, initiating, and adjusting medication therapy, providing testing for minor illnesses	
Canadian provinces and territories				
Pan-Canadian (2)	• Fee-for-service • Resource Based Relative Value Scale (RBRVS)	• Manitoba, New Brunswick, Prince Edward Island, and Newfoundland and Labrador do not provide funding for pharmacists prescribing for minor ailments or smoking cessation programs (2) • For annual smoking cessation-related services, Saskatchewan provides up to $300 annually (2) • Many jurisdictions offer government-sponsored medication review and management programs, remuneration ranges from $100 per Comprehensive Annual Care Plan (CACP), to $60 per Standard Medication Management Assessment (SMMA) in Alberta, to $60 per MedsCheck in Ontario (2)	• Prescribing for minor ailments in all provinces except British Columbia and Ontario, pharmacists can assess and prescribe schedule 1 drug therapy for the treatment of specific conditions outlined in jurisdictional legislation/regulation; conditions that pharmacists are allowed to prescribe vary across the provinces (2; 26) • All provinces also allow pharmacists to provide non-prescription and non-pharmacological counselling and options (2) • Prescribing schedule 1 drug therapy for smoking or tobacco cessation is allowed in every province except British Columbia and Saskatchewan (2)	• One document has a general statement that mentions that pharmacists provide valuable care for cardiovascular disease and related conditions, including the management of hypertension and dyslipidemia (2) • Since influenza vaccination has been offered in community pharmacies, uptake has increased in many jurisdictions, although the evidence of the impact on health outcomes and health system costs is limited (26)

		• All provinces (except Quebec) provide public remuneration for flu vaccines (fee-for-service)(2) • Alberta provides the highest public payment ($20), covering 11.4% of the provincial population, and Manitoba provides the lowest fee for flu vaccines ($7), covering 2.8% of the population of the province (2) • British Columbia, Saskatchewan, Nova Scotia, New Brunswick, Ontario, Prince Edward Island, and Newfoundland and Labrador also provide fees for flu vaccination (2)	• Many provinces offer medication review and management, which include assessment, medication reconciliation, resolution of drug-related problems, and a follow-up and monitoring plan (2; 26) • Pharmacists in most jurisdictions are allowed to administer a drug or substance by injection, although jurisdiction-specific regulations apply (e.g., training requirements, age limitations)(2) • Pharmacists in Saskatchewan, Manitoba, New Brunswick, Newfoundland and Labrador, and Prince Edward Island have vaccination and injection authority for most drugs (limitations apply)(2) • British Columbia and Nova Scotia have injection authority for vaccines (limitations apply)(2)	• Individuals who received their flu vaccine in a community pharmacy were generally satisfied or very satisfied with the service they received, convenience and acceptability being key factors (2; 26) • Regarding flu vaccination, there may be a relationship between higher fees and higher uptake rates (2; 26)
Alberta	• Fee-for-service with changes introduced in 2014	• Prescribing in Alberta is reimbursed through Comprehensive Annual Care Plans (CACPs), Standard Medication Management Assessments (SMMAs), or initial-access prescribing (2) • Alberta provides the highest public payment for flu vaccines ($20), covering 11.4% of the provincial population (2)	• Services provided by pharmacists include: o Comprehensive annual care plan and follow-up o Standard medication management review and follow-up o Standard medication management o Review – diabetes o Specific care plan o Standard medication management o Review – tobacco o Cessation-specific care plan (2) o Administration of drug by injection o Prescription adaptation o Immunizations (flu and others) o Prescription renewal o Prescription emergency o Prescribing at initial access or to manage ongoing therapy	• Not identified

			○ Refusal to fill ○ Trial prescription ○ Assessment to screen and/or test for infectious diseases related to COVID-19 ○ Assessment for the intention to test for COVID-19 • Pharmacists in Alberta have authorization for all drugs and blood products to be injected (subcutaneous or intramuscular) for anyone over five years old (2) • Alberta provides public remuneration for the assessment and injection of drugs that are listed as benefits on the Alberta drug Benefit List, the Alberta human services drug benefit supplement, or the palliative care drug benefit supplement (2)	
Ontario	• Fee-for-service	• For annual smoking cessation-related services, Ontario provides a community pharmacy fee of up to $125 annually per person (2) • Public payment for flu vaccines has a fee of $7.50, covering 6.5% of the provincial population (2) • In 2019, a change was announced, instead of paying pharmacists for each individual prescription, the government issued a flat fee for every patient receiving prescriptions in a long-term care home	• Services provided by pharmacists include: ○ MedsCheck annual ○ MedsCheck follow-up ○ MedsCheck for diabetes ○ MedsCheck for diabetes follow-up ○ MedsCheck at home ○ Pharmaceutical opinion ○ Immunization (flu) ○ Smoking cessation – first consultation ○ Smoking cessation – primary follow up ○ Smoking cessation – secondary follow up • As of December 15, 2016, Ontario pharmacists are authorized to inject for 13 different preventable diseases (2)	• An evaluation of Ontario's MedsCheck program suggests that refinements are needed to improve the health and economic value by shifting focus from the number of services provided to the quality of the service (2)
Québec	• Salary • Fee-for-service	• Quebec provides $16 per minor ailment assessment (2)	• The provincial health insurance plan covers the following functions: ○ Dispensing medicaments	• Not identified

		• Pharmacists in Quebec can only prescribe schedule 1 drug therapy under a collaborative agreement (2) • Quebec does not provide public remuneration for flu vaccines (2)	○ Administration of certain drugs in an emergency situation ○ Adjustment of a prescription to attain therapeutic targets ○ Initiating a drug therapy (including emergency oral contraception) ○ Modification of a drug therapy ○ Prescription of some drugs ○ Case management after hospitalization ○ Case management of clientele receiving palliative care ○ Assessment to extend a prescription and its extension ○ Therapeutic substitution of a drug ○ Vaccination at a pharmacy in accordance with the conditions of the Québec Immunization Program	
Nova Scotia	• Salary • Fee-for-service	• Public payment for flu vaccines has a fee of $12, covering 10.7% of the provincial population (2)	• Services provided by pharmacists include: ○ Advanced medication review ○ Basic medication review ○ Medication review follow-up ○ Prescription adaption ○ Refusal to fill (prescription monitoring program) ○ Therapeutic substitution ○ Immunization (flu) ○ Prescription renewal ○ Uncomplicated cystitis ○ Herpes zoster ○ Contraception management ○ Naloxone training ○ Nova scotia has injection authority for vaccines (limitations apply) (2)	• Not identified

REFERENCES

1. Cowart K, Olson K. Impact of pharmacist care provision in value-based care settings: How are we measuring value-added services? *Journal of the American Pharmacists Association* 2003; 59(1): 125-128.
2. Gagnon-Arpin I, Dobrescu A, Sutherland G, Stonebridge C, Dinh T. The Value of Expanded Pharmacy Services in Canada. Ottawa: The Conference Board of Canada; 2017.
3. Richard C, Urick BY, Pathak S, Jackson J, Livet M. Performance-based pharmacy payment models: key components and critical implementation considerations for successful uptake and integration. *Journal of Managed Care and Specialty Pharmacy* 2021; 27(11): 1568-1578.
4. Hatah E, Braund R, Tordoff J, Duffull SB. A systematic review and meta-analysis of pharmacist-led fee-for-services medication review. *British Journal of Clinical Pharmacology* 2013; 77(1): 102-15.
5. Houle SK, Grindrod KA, Chatterley T, Tsuyuki RT. Paying pharmacists for patient care: A systematic review of remunerated pharmacy clinical care services. *Canadian Pharmacists Journal* 2019; 147(4): 209-32.
6. O'Reilly E, Frederick E, Palmer E. Models for pharmacist-delivered tobacco cessation services: A systematic review. *Journal of the American Pharmacists Association* 2019; 59(5): 742-752.
7. Chan P, Grindrod KA, Bougher D, et al. A Systematic Review of Remuneration Systems for Clinical Pharmacy Care Services. *Canadian Pharmacists Journal* 2008; 141(2): 102-112.
8. Nguyen E, Walker K, Adams JL, Wadsworth T, Robinson R. Reimbursement for pharmacist-provided health care services: A multistate review. *Journal of the American Pharmacists Association* 2021; 61(1): 27-32.
9. Pullagura GR, Waite NM, Houle SKD, Violette R, Wong WWL. Cost-utility analysis of offering a novel remunerated community pharmacist consultation service on influenza vaccination for seniors in Ontario, Canada. *Journal of the American Pharmacists Association* 2019; 59(4): 489-497.
10. Kim JJ, Tian AH, Pham L, et al. Economic evaluation of pharmacists prescribing for minor ailments in Ontario, Canada: a cost-minimization analysis. *International Journal of Pharmacy Practice* 2021; 29(3): 228-234.
11. Merrill BS, Tak CR, Feehan M, Munger MA. Payers' Perspectives on Pharmacist-Directed Care in a Community Pharmacy Setting. *Annals of Pharmacotherapy* 2019; 53(9): 916-921.
12. Imfeld-Isenegger TL, Soares IB, Makovec UN, et al. Community pharmacist-led medication review procedures across Europe: Characterization, implementation and remuneration. *Research in Social and Administrative Pharmacy* 2020; 16(8): 1057-1066.
13. Lloyd KB, Evans RL. Reimbursement model for pharmacist-directed medication therapy management. *Journal of the American Pharmacists Association* 2012; 52(2): 161-9.
14. Rosenthal MM, Desai N, Houle SKD. Pharmacists' perceptions of pay for performance versus fee-for-service remuneration for the management of hypertension through pharmacist prescribing. *International Journal of Pharmacy Practice* 2017; 25(5): 388-393.
15. Hughes CA, Breault RR, Hicks D, Schindel TJ. Positioning pharmacists' roles in primary health care: a discourse analysis of the compensation plan in Alberta, Canada. *BMC Health Services Research* 2017; 17(1): 017-2734.
16. Doucette WR, DeVolder R, Heggen T. Evaluation of financial outcomes under a value-based payment program for community pharmacies. *Journal of Managed Care and Specialty Pharmacy* 2021; 27(9): 1198-1208.
17. Dinh T, Stonebridge C. Getting the Most out of Community Pharmacy: Recommendations for Action. Ottawa: The Conference Board of Canada; 2017.

18. Luder HR, Shannon P, Kirby J, Frede SM. Community pharmacist collaboration with a patient-centered medical home: Establishment of a patient-centered medical neighborhood and payment model. *Journal of the American Pharmacists Association* 2018; 58(1): 44-50.

19. Stafford RA, Garrett LN, Bates KA, et al. Development and implementation of a collaboration between a patient-centered medical home and community pharmacy. *Journal of the American Pharmacists Association* 2020; 60(1): 122-129.

20. Pestka DL, Stoa MK, Sorensen TD, Blanchard CM. Community pharmacists' perceptions of acceptability, appropriateness, and feasibility of a value-based care model for comprehensive medication management. *Journal of Managed Care and Specialty Pharmacy* 2021; 27(7): 865-872.

21. Pharmaceutical Society of Australia. Pharmacists in 2023: Roles and remuneration. Canberra: PSA; 2019.

22. l'Assurance Maladie. Missions et Remuneration des Pharmaciens: Eclairages Internationaux. Paris; 2022.

23. Moore D, Love T, Boyle R, Poynton M. Community Pharmacy Services Agreement 2012 Evaluation. Central Regions Technical Advisory Service; 2015.

24. Smith AJ, Scahill SL, Harrison J, Carroll T, Medlicott NJ. Service provision in the wake of a new funding model for community pharmacy. *BMC Health Services Research* 2018; 18(307): 1-10.

25. Pharmaceutical Services Negotiating Committee. Community Pharmacy Funding in 2020/21. PSNC Briefing 010/20. United Kingdom: Pharmaceutical Services Negotiating Committee; 2020.

26. The Conference Board of Canada. A Review of Pharmacy Services in Canada and the Health and Economic Evidence. Canada Pharmacists Association; 2016.

27. Tong B, Kapanen AI, Yuen J. Third-party Reimbursement of Pharmacist-Led Cardiovascular and Diabetes Preventive Health Services for Workplace Health Initiatives: A Narrative Systematic Review. *Innovations in Pharmacy* 2021; 12(1).

28. Houle SKD, Carter CA, Tsuyuki RT, Grindrod KA. Remunerated patient care services and injections by pharmacists: An international update. *Journal of the American Pharmacists Association* 2003; 59(1): 89-107.

APPENDICES

The following tables provide detailed information about the systematic reviews and primary studies identified in the rapid synthesis. The ensuing information was extracted from the following sources:

- systematic reviews - the focus of the review, key findings, last year the literature was searched, and the proportion of studies conducted in Canada; and
- primary studies - the focus of the study, methods used, study sample, jurisdiction studied, key features of the intervention and the study findings (based on the outcomes reported in the study).

For the appendix table providing details about the systematic reviews, the fourth column presents a rating of the overall quality of each review. The quality of each review has been assessed using AMSTAR (A Measurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8).

All of the information provided in the appendix tables was taken into account by the authors in describing the findings in the rapid synthesis.

Appendix 1: Summary of findings from systematic reviews and other types of reviews about pharmacist remuneration models for the provision of clinical services

Type of review	Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Systematic reviews	Models for pharmacist-delivered tobacco cessation services (6)	This systematic review focused on delivery models of pharmacist-led tobacco cessation services in patients 18 years of age and older. The authors found 16 articles, most of them observational (87.5%). The pharmacy settings included ambulatory care (68.8%), community (25%), and managed care (6.3%). Service models described most frequently followed an appointment-based, individual, face-to-face session between the patient and pharmacist. Business models included grant funding (12.5%), fee-for-service (6.3%), value-based (6.3%), and free services (6.3%), but most studies (56.3%) did not address reimbursement. Cessation rates ranged from 3.98% to 77.14% and were predominantly measured through self-report (62.5%). The timing of follow-up varied from one to six months after program completion, but in some articles was not reported (37.5%). The grant funding method was specific to the state of New Mexico, in which a program supported community pharmacies beginning to implement a tobacco cessation protocol. The grant provided up to US$200 for the pharmacist's time ($75 for the initial visit, $25 for month one follow-up and $50 for months three and six follow-ups). The cost-saving benefits of a pharmacist providing tobacco cessation services described in one program was estimated as US$635 based on a $3,105/quit estimate.	Last search April 2019	4/9	0/16
	Third-party Reimbursement of Pharmacist-Led Cardiovascular and Diabetes Preventive Health Services for Workplace Health Initiatives: A Narrative Systematic Review (27)	The aim of this review was to summarize available literature describing third-party payer reimbursement models for pharmacist-led preventive health services as part of workplace health initiatives. Programs that were reimbursed by government resources or studies lacking reimbursement model details were excluded. Three studies with varying quality of reporting were included, and reimbursement models varied from US$40 for a 20-minute visit to US$391 to $552 total per patient with an average of six visits per patient. The review concluded that there is a lack of quality literature describing third-party reimbursement models for pharmacist-led preventive health services, which hinders the ability to implement a standardized model	Last search November 2019	4/9	0/3
	Remunerated patient care services and injections by pharmacists: An international update (28)	This review updated a previous publication focused on remuneration programs available to pharmacists internationally for no dispensing services. Programs were included if they were newly introduced or had changes to patient eligibility criteria and fees since previously published reviews, and if they were established programs offered by third-party payers for activities separate from dispensing. Over the five-year period studied, 95 new programs for no injection patient-care services and 37 programs for pharmacist-administered injections were introduced. Almost all services were remunerated on a fee-for-service basis, often in the form of a flat fee regardless of the time spent	Last search February 2018	4/9 (AMSTAR rating from McMaster Health Forum)	23/184

Type of review	Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
		providing the service. Large ranges in fees offered for similar programs were observed across programs, even within the same country or region. Initial review services were remunerated at an average US$71.48 (range $35-$247.11) for an estimated 30-minute interaction. Follow-ups to medication reviews were remunerated at an average US$19.13 (range $11.72-$40). Prescription adaptations (changes to dose, dosage form, route, duration) were remunerated at an average US$18.49 (range $4-$30), whereas refusal to dispense was remunerated at an average US$8.75 (range $5.01-$15.62). Assessment and initiation of therapy for minor ailments was remunerated at average US$7.52 (range $2.81-$21.10) per encounter, whereas assessment and initiation of therapy for other conditions was remunerated at an average of US$19.22 (range $10.56-$42.23). Fees for the administration of injections averaged US12.95 (range $3.31-$23.28). Only smoking cessation services in the United Kingdom were remunerated based on outcome (successful quit). A pharmacy that had a patient with a verified quit (carbon monoxide monitors to verify patients' smoking status) at four, eight, and twelve weeks qualified for an incentive payment ranging from 5 to 200 British pounds. Non-verified (patient self-report) quits qualified for incentive payments ranging from 4 to 82 British pounds. Some commissioning groups offered additional bonuses based on patient characteristics, including successful quit if the patient was eligible for prescriptions at no charge, if pregnant, if the patient also had severe mental health problems, if age less than 18 years or a member of a targeted ethnic group, and if the patient resided in a region with significant deprivation. Other commissioning groups offer incentive payments based on the number of successful quits achieved annually by the pharmacy. For example, one offers 5 British pounds per patient who quits if the pharmacy achieves their target count and an additional 500 British pounds if 40 patients successfully quit. Although funding for pharmacists' activities continues to show growth, concerns identified in previous reviews persist, including the great variability in remunerated activities, patient eligibility, and fees.			
	A systematic review and meta-analysis of pharmacist-led fee-for-services medication review (4)	The aim of this review was to examine the impact of fee-for-service pharmacist-led medication review on patient outcomes. Outcomes were grouped into primary (changes in biomarkers, hospitalization, and mortality) and secondary outcomes (medication adherence, economic implications and quality of life). Of the 135 relevant articles located, 21 studies met the inclusion criteria for primary outcomes and 32 for secondary outcomes. Interventions were conducted mostly in a community pharmacy (n = 9, 42.9%), five studies (23.8%) in multiple settings (at the pharmacy and the patient's home), four (19%) at GP clinics/surgeries or at community health centres, and three (14.3%) at the patient's home.	Last search February 2011	9/11	3/36

Type of review	Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
		Significant results favouring pharmacists' intervention were found for blood pressure (OR 3.50, 95% CI 1.58, 7.75, P = 0.002) and low-density lipoprotein (OR 2.35, 95% CI 1.17, 4.72, P = 0.02). Outcomes on hospitalization (OR 0.69, 95% CI 0.39, 1.21, P = 0.19) and mortality (OR 1.50, 95% CI 0.65 to 3.46, P = 0.34) indicated no differences between the groups. On subgroup analysis, clinical medication review (OR 0.46, 95% CI 0.26, 0.83, P = 0.01) but not adherence support review (OR 0.88, 95% CI 0.59, 1.32, P = 0.54) reduced hospitalization. Patients who received fee-for–service medication reviews were found to achieve target clinical outcomes (e.g., biomarker target, less hospitalization, less mortality) more commonly than the patients in the usual care group (OR 1.46, 95% CI 1.15, 1.84, P = 0.002). Nineteen studies reported improved adherence/compliance to medications, 11 in favour of medication review, six in favour of usual care, and two showed significant and not-significant findings. Patients' quality of life was measured in 17 studies, six in favour of the medication review, two in favour of usual care and eight found not-significant differences between groups. Nine studies measured the economic outcomes, two in favour of medication review, three in favour of usual care and four found not-significant differences between groups.			
	A Systematic Review of Remuneration Systems for Clinical Pharmacy Care Services (7)	The aim of this review was identifying existing remuneration models for pharmacist clinical care services and to summarize the existing evaluations of economic, clinical, and humanistic outcome studies of the remuneration models. This review included articles that described or evaluated current remuneration systems for pharmacist clinical care services, and that involved a substantial number of pharmacists who were paid by a third party other than the patient. Authors identified 28 remuneration systems; most commonly, payers were government agencies, and services were directed at the management of chronic diseases or complex medication regimens. Of the remuneration systems identified, 12 were developed for community pharmacies, seven for hospital pharmacy services (both inpatient and outpatient), one for a family practice site, two for care provided in patients' homes, and two for residential care, with the remaining four systems at various sites not specific to a community or a hospital pharmacy. The main types of services remunerated include medication therapy management (MTM), disease management, or non-dispensing services related to the provision of a medication (medication-related services). MTM typically involved medication reviews by pharmacists with the resolution of any drug-related problems to optimize drug use. Disease management services most involved were diabetes-related education, training, and monitoring in the community setting. Medication-related services included counselling for prescription and over the counter (OTC) medications, and identifying and resolving adverse drug reactions and drug interactions in consultation with prescribing physicians. The most common remuneration models included the resource-based relative value scale (RBRVS), and involved setting a fixed rate to be paid per intervention (fee-for-service), depending	Last search June 2006	3/9	Not informed

Type of review	Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
		on the time spent or effort required. The capitation model, which sets a rate on a per-patient scale, was less common. In all systems, the remunerated amount correlated with the pharmacist's required time and effort, which translated into greater rates for MTM and disease-management services compared with medication-related services. The rate of payment for MTM generally ranged from $27 to $170 per review, depending on various factors that included the number of drug-related problems resolved, interventions performed, and time spent. Payments for disease management ranged from $33 to $134.80 per visit, with more remuneration given per session if group sessions were carried out. Payment for medication-related services ranged from $4 to$17 per intervention, depending on the time spent and whether the physician was contacted. Only 14 systems had been evaluated for an effect on clinical, humanistic, or economic outcomes. Most evaluations focused on health-provider satisfaction and program uptake, with clinical and economic outcomes rarely evaluated. Generally, remuneration systems were determined to be beneficial to patients. No program was associated with worsened patient outcomes. In the Australian Home Medication Review (HMR) program, a survey of 57 patients who received a medication review showed improved patient outcomes, including reductions in medication-related health problems and reports of anxiety and depression. Although medical cost savings were suggested in several of the programs, they were generally limited to rough estimates. The Washington Cognitive Activities and Reimbursement Effectiveness (CARE) Project, for example, estimated that the cost savings to Medicaid per patient ranged from US$21.69 to US$118.54, accruing over one year. In the Iowa Pharmaceutical Care Delivery Demonstration Project, the fiscal impact of the program was budget neutral when both medical and pharmaceutical claims were considered. The Australian HMR program demonstrated cost savings, along with gains in quality-adjusted life years (QALY) and future cost savings, suggesting that budget gains may be evident after the demonstration project progresses into a permanent system. Primary Care Trusts in England are showing interest in Minor Ailment Services as a cost-effective local health service to meet national health targets. In the Asheville project, the number of sick days decreased every year from 1997 to 106, for one employer alone, there was an estimated increase of $26,000 Australian in productivity.			

Appendix 2: Summary of findings from primary studies about pharmacist remuneration models for the provision of clinical services

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
The value of expanded pharmacy services in Canada (2)	*Publication date:* 2017 *Jurisdiction studied:* All provinces, Canada *Methods used:* Economic evaluation	N/A	Economic modelling exercise focused on the potential impact of greater uptake of three pharmacy services – smoking cessation, advanced medication review, and pneumococcal vaccine administration	It was estimated that by 2035, Canada-wide implementation of just these three pharmacy services could yield total health care system efficiencies and increased labour force productivity valued between $194 million and $2.03 billion. From the perspective of the provincial/territorial government payer, a large return on investment (ROI) of scaling up services is estimated at $9.10 for smoking cessation, $2.30 for advanced medication review and management for cardiovascular disease, and $72 for pneumococcal vaccination for every dollar invested over this forecast period.
Getting the most out of community pharmacy: Recommendations for action (17)	*Publication date:* 2017 *Jurisdiction studied:* All provinces, Canada *Methods used:* Qualitative study	N/A	This brief focused on the policy and practice implications for getting the most out of community pharmacy for better population health and value for money.	Public payer compensation varies significantly across jurisdictions – some pay for many services while others pay for none, and not all services are the same, which may reflect some variation in fees paid. For example, advanced medication review and management services can differ from one jurisdiction to the next, with most comprehensive services in Alberta reflecting the higher fees set in that province. From the perspective of the pharmacist and pharmacy, the main challenge concerning funding is that the ability or motivation to deliver on expanded services is contingent upon the funding available to do so. There is a sentiment that there is little incentive to deliver expanded, non-core services if compensation for such services is inadequate. Some governments have voiced reluctance in creating a new fee-for-service model for other professional groups, with some government payers questioning the sustainability of their current funding models for pharmacy services. Among private insurers, there appears to be limited appetite for including pharmacy services in the basket of benefits that make up employer plans. From the insurer perspective, this is partly because many of the services are seen as being part of the public realm. and partly because the cost of coverage for things like specialty medicines are crowding out other potential items in benefits plans.
Community pharmacist-led medication review procedures across	*Publication date:* 2020 *Jurisdiction studied:*	This survey was sent to a purposive sample of three individuals per	A survey was developed to characterize medication review procedures level of implementation and remuneration by a third party.	Data were received from 34 out of 44 targeted European countries (November 2016–October 2017). Overall, 55.9% of the countries provided at least one type of medication review as an implemented service or project. Type 1 (n=13), type 2a (n= 14), type 2b (n= 3), type 3 (n= 4).

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
Europe: Characterization, implementation and remuneration (12)	Europe *Methods used:* Data analytics	country, with a working background in community pharmacy, pharmacy practice research, or health policy to ensure reliable data.	Three types of medication review were explored; type 1 (based on the medication history), type 2a (medication history + patient interview), type 2b (medication history + clinical data); and type 3 (medication history + patient interview + clinical data).	Ten of the mentioned services or projects were remunerated by a third party. In Belgium and in Germany remuneration is only available within specific projects. In all countries where remuneration exists, a fixed price for each performed service is provided ranging from 30 to 80 euros. In England, remuneration was restricted to a maximum of 400 medication use reviews per pharmacy a year.
Community pharmacist collaboration with a patient-centred medical home: Establishment of a patient-centred medical neighbourhood and payment model (18)	*Publication date:* 2018 *Jurisdiction studied:* Cincinnati, Ohio, U.S. *Methods used:* Implementation	The Kroger Co. is a large grocery store chain that operates 102 pharmacies in the Cincinnati-Dayton marketing area. The PCMH practice is an accredited PCMH office serving more than 9,000 patients in the Cincinnati area.	This study aimed to determine the feasibility of a partnership between a community pharmacy and a patient-centred medical home (PCMH) by measuring the impact on office- and patient-level clinical outcomes such as A1C, blood pressure, and lipid measures. In a medical neighbourhood, a PCMH coordinates care with other local specialty practices or partners. The pharmacist spent two half-days per week at the PCMH, providing initial medication therapy management appointments and offering follow-up services in the office, the pharmacy, or both, depending on patient preference. While in the office, the pharmacist identified eligible patients, built relationships with office staff, and answered patient and prescriber questions. Patients were also scheduled for one-on-one appointments with the pharmacist for MTM, diabetes education, weight loss education, or a variety of other services.	One hundred and five patients were seen by the pharmacist during the study period, with 1.5% of the total managed at the office. There was a statistically significant increase in influenza vaccinations received. On a patient level, A1C and systolic blood pressure significantly improved. For patient-level outcomes, isolating only the patients with a scheduled appointment with the pharmacist, there was a statistically significant improvement in A1C from a mean of 8.7% to 7.8% ($P = 0.002$). In addition, systolic blood pressure improved from a mean of 145 mm Hg to 127 mm Hg, which was statistically significant ($P = 0.014$). There were small improvements in weight and LDL that were not statistically significant. The partnership with Kroger Pharmacy used a capitated payment model whereby Kroger Pharmacy received a fixed fee per patient per month for an estimated 1,000 high-risk patients. That number of high-risk patients was derived from 2,114 patients having an A1C of 9% or higher; blood pressure of 140/90 mm Hg or higher, or 130/90 mm Hg or higher with diabetes; or total cholesterol of 240 mg/dL or higher at project initiation.
Development and implementation of a collaboration between a patient-centred medical home and community pharmacy (19)	*Publication date:* 2020 *Jurisdiction studied:* Arkansas, U.S. *Methods used:* Implementation	The Kroger Co. is a large grocery store chain that operates 27 pharmacies in the state of Arkansas, with 20 locations in the central Arkansas area. PCMH is part of a large health	The community pharmacist spent 20 hours per week in the PCMH providing medication therapy and management services for patients with uncontrolled diabetes. A pharmacist reviewed the chart of each patient on schedule to identify patients with an HbA1c level greater than 9.	A total of 312 individual patients interacted with the pharmacist (228 had diabetes, and 111 underwent pre-post HbA1c analysis). There was a statistically significant reduction in mean HbA1c, with HbA1c level changed from greater than 9% to less than 9% (9.3% vs. 8.1%, $P < 0.001$) in patients managed by the program and those in standard care.

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
		system in central Arkansas with 10 primary-care clinics in the area.	During the visit, the pharmacist verified medication reconciliations done by the nurse, assessed glucose control, adherence to therapy and diet, and verified up to date laboratory reports and immunizations.	
Payers' Perspectives on Pharmacist-Directed Care in a Community Pharmacy Setting Primary healthcare policy and vision for community pharmacy and pharmacists in the United States (11)	*Publication date:* 2019 *Jurisdiction studied:* U.S. *Methods used:* Data analytics	The study recruited 50 payers from a diverse set of U.S. organizations	A 15-minute online survey was administered to determine payers' preferences and attitudes of impact about care being provided in a community pharmacy setting by a suitably trained pharmacist (with physician supervision) versus a nurse practitioner or physician assistant. In the Optimal Pharmacy configuration, medication services provided by the pharmacist included meeting to discuss new prescriptions, medication refill reminders (e.g., by phone, text, or internet). In the advanced pharmacy program, medication services provided by the pharmacist included meeting with pharmacist to discuss all the medications, disease and health, as well as medication refill reminders. In both services the patient was charged a fee of US$15, paid out-of-pocket.	The likelihood indicated for reimbursement for the suite of services in the Optimal Pharmacy configuration was likely/very likely (66%), neutral (22%), and unlikely/very unlikely (12%). When a pharmacist provided the care at the Optimal Pharmacy configuration, the payers remained positive, at 46% likely/very likely and 26% neutral; however, the negative impact increased to 28%. The likelihood indicated for reimbursement in the Advanced Pharmacy configuration was also likely/very likely (58%), neutral (24%), and unlikely/very unlikely (18%). With a pharmacist providing the services, the impact was 52% likely/very likely, 20% neutral, and 28% unlikely/very unlikely. The study concluded that pharmacists were viewed positively by payers for the provision of these services. Payers think that more clinical services should be offered in the community pharmacy. Trust in pharmacist-provided information services on general health and medications, and pharmacist competency were strongly positive.
Performance-based pharmacy payment models: key components and critical implementation considerations for successful uptake and integration (3)	*Publication date:* 2021 *Jurisdiction studied:* U.S. *Methods used:* Qualitative (*peer-reviewed and grey literature in addition to semi-structured stakeholder interviews)*	Seventeen individuals, who were community pharmacists, payers, quality measure developers and vendors, academics, and pharmacy advocacy organization leaders	Performance-based pharmacy payment models (PBPPMs) were defined as prescription drug payment models that determine reimbursement or fees for community pharmacies based in part on measured performance. These PBPPMs incentivize pharmacies to improve patient care by linking reimbursement to performance measures.	Authors identified several barriers, among them, related to information technology (e.g., the vast number of sources for performance and patient data is overwhelming, and that data is not always readily shared with pharmacists); related to workload operation (e.g., existing high workloads and lack of incentive to change workflow); related to training given that pharmacists are sometimes unaware they are in a performance-based program and do not understand performance measures or their connection to payment; related to broader contextual influences (e.g., there is some resistance to shift toward the pay for outcomes-based programs compared to continuing with the more traditional pharmacy role, lack of recognition of pharmacists as healthcare providers and reimbursement for all pharmacist provided services); and related to motivations and pressures (e.g., lack of direct incentives applied to individual pharmacists and increased pressure to provide additional patient care).

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				To improve future development and implementation of these models, the following recommendations were highlighted: 1) increase transparency and alignment of measures with the incentive structure; 2) embrace innovative business models; 3) carefully plan and use roadmaps that outline successful uptake and implementation; and 4) foster culture of quality at all levels of healthcare.
Community pharmacists' perceptions of acceptability, appropriateness, and feasibility of a value-based care model for comprehensive medication management (20)	*Publication date:* 2021 *Jurisdiction studied:* U.S. *Methods used:* Qualitative (semi-structured interviews)	Fourteen pharmacists and pharmacy managers participating in the PIE program	HealthPartners is an integrated health plan offering comprehensive medication management (CMM) under a value-based care model called Partners in Excellence (PIE). In PIE, participating organizations are incentivized to conduct CMM visits and are eligible for bonus payments if they achieve quality and engagement metrics. CMM, in contrast with medication therapy management, can be delivered to any patient with potential for medication therapy problems (not only Medicare), and can be offered as frequently as necessary to get patients to their desired goals.	Although the acceptability, appropriateness, and feasibility of the PIE program was generally positive, participants cited several implementation challenges related to documentation and billing (challenges with the general cost of documentation platforms, different platforms required by different CMM programs, and correctly submitting claims) and producing a sustainable CMM model. A few managers suggested changing the financial structure of the PIE program to a value-based, per-member-per-month payment structure. Previous studies on CMM have demonstrated a 12:1 return on investment. Some participants spoke of challenges of fitting CMM into pharmacy workflows, engaging pharmacy personnel in CMM, patient and provider buy-in of CMM, and collecting clinical patient information.
Evaluation of financial outcomes under a value-based payment program for community pharmacies (16)	*Publication date:* 2021 *Jurisdiction studied:* U.S. *Methods used:* Data analytics (Generalized linear models)	73 community pharmacies for about 40,000 commercial beneficiaries of Wellmark, Inc. Beneficiaries were attributed to pharmacies based on the number of prescriptions dispensed and were compared with non-participating pharmacies (847 pharmacies).	Evidence from value-based pharmacy programs (VBPPs) is needed to guide the use of these mechanisms in health care. The VBPP paid community pharmacies a per capita payment based on their performance on a set of metrics to deliver care the pharmacists believed was necessary to optimize the beneficiaries' medication therapy and associated outcomes. For the VBPP, beneficiaries with at least one chronic condition were attributed to pharmacies that dispensed the most prescription medications to them during a previous 12-month period (about 40,000 beneficiaries).	Analyses showed in 2018 that the per beneficiary per month total costs of care for the beneficiaries going to the VBPP pharmacies (N = 15,463) was US$30.48 (4.5%; 95% CI = -6.2% to -2.7%) lower than that of the non-VBPP group (N = 140,717). The hospital admission rate for the VBPP group was 5.1% lower, but was not statistically significant (95% CI = -12.9% to 3.3%). The ED visit rate for the VBPP group was 2.1% lower than the non-VBPP group, but did not reach statistical significance (95% CI = -8.6% to 3.3%).

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
			The VBPP based payments on 18 metrics developed by a joint council of health plan, community pharmacists and state pharmacy association personnel. The metrics assessed pharmacy performance on chronic disease medication management, potentially preventable emergency-department (ED) visits, potentially preventable admissions, and total cost of care (medical and drug costs). The chronic disease metrics focused on asthma, diabetes, cardiovascular (hypertension, high cholesterol), and depression. To support pharmacist monitoring, performance metrics were calculated monthly for each pharmacy from a rolling 12 months of claims data and from data uploaded by participating pharmacies through a web-based VBPP dashboard. These monthly performance reports were made available to the pharmacies via the VBPP dashboard. The VBPP payments were separate from dispensing payments and were provided directly by Wellmark (i.e., not through a pharmacy benefits manager). Per capita payment amounts were calculated annually based on three relative performance components: 1) in relation to the median performance of all pharmacies in Wellmark's network (VBPP and non-VBPP); 2) self comparison over time (i.e., current year to previous year); and 3) to only the VBPP participating pharmacies (i.e., compared to the 85th percentile of all pharmacies participating in the VBPP).	

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
			Using points earned from the 18 metrics, a composite performance score was calculated and used to determine a per capita (per beneficiary per month (PBPM)) payment for beneficiaries attributed to each participating pharmacy organization. The total cost of care, emergency-department visits, and hospital admission metrics were summed to 58% of the overall composite score. Since capitation-based payments were used, no claims were submitted by the pharmacies for services performed for beneficiaries in the VBPP. Clinical documentation of services provided to attributed beneficiaries was auditable by Wellmark.	
Economic evaluation of pharmacists prescribing for minor ailments in Ontario, Canada: a cost-minimization analysis (10)	*Publication date:* 2021 *Jurisdiction studied:* Ontario, Canada *Methods used:* Economic evaluation (cost-minimization analysis)	10,000 Monte Carlo simulations	Two strategies were compared. One model was a remunerated program for pharmacists prescribing for minor ailments (PPMA) such as upper respiratory tract infections (URTIs), contact dermatitis (CD) and conjunctivitis. In this program, a patient seeking care for a minor ailment has the option of going to either a community pharmacist or a physician (walk-in clinic, ED or family physician office). The prescriber has the option of recommending a prescription drug, a non-prescription drug or not recommending any drug therapy. The second strategy was the usual care model (UCM), where all patients receive care from physicians. Two remuneration models for the PPMA strategy were also compared: 1) a prescription-detached scenario (PDS), where pharmacists were remunerated $18 for each consultation; and 2) a Prescription-Attached Scenario (PAS),	At a service uptake rate of 38% for the prescription-detached scenario, the PPMA model led to savings of $7.51, $4.08 and $5.15 per patient for URTIs, CD and conjunctivitis, respectively. In the PAS, the PPMA was projected to have greater savings of $12.26, $4.89 and $9.27 for URTIs, CD and conjunctivitis, respectively. Per 30,000 patients, the PPMA model for these minor ailments was projected to lead to cumulative reductions in visits to the emergency department, family physician and walk-in clinics by 799, 3,677 and 5,090, respectively. In 100% of the PAS scenarios simulated, pharmacists as prescribers led to cost savings.

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
			where pharmacists were only remunerated if a decision to prescribe was made.	
Impact of pharmacist care provision in value-based care settings: How are we measuring value-added services?(1)	*Publication date:* 2003 *Jurisdiction studied:* U.S. *Methods used:* Non-empirical	N/A	The North Carolina CPESN attributes a defined patient population to a community pharmacy and holds the pharmacy responsible for outcomes of those patients through value-based payment, all based on a patient's risk score. Although outcome information from current CPESNs is limited, early implementation has suggested that these clinically integrated community pharmacies can be leveraged to resolve medication-related problems and add value.	The potential for successful integration of the pharmacist into value-based care settings depends largely on the ability to measure value-added services. Without collecting patient-level outcomes and quantifying pharmacist and pharmacy extender contribution, the value proposition cannot be demonstrated. This requires new thinking that places a high priority on patient-centred and population-based care. In emerging value-based payment frameworks, pharmacists must take a leadership role in optimizing medication use through closing gaps in care and establishing team-based care models. To accomplish this, a high priority must be placed on the development of analytic tools and health information technologies that expand proactive management of health into the community. The pharmacy profession must seek validation of a measure to realize the value gained from pharmacy services.
Positioning pharmacists' roles in primary health care: a discourse analysis of the compensation plan in Alberta, Canada (15)	*Publication date:* 2017 *Jurisdiction studied:* Alberta, Canada *Methods used:* Qualitative (discourse analysis)	N/A	A comprehensive Compensation Plan for pharmacy services delivered by community pharmacists was implemented in Alberta in July 2012. Services covered by the Compensation Plan included care planning services, prescribing services such as adapting prescriptions, and administering a drug or publicly funded vaccine by injection.	This study provides insight into how communications regarding the Compensation Plan in Alberta, Canada positioned pharmacists' changing roles in the broader context of changes to primary healthcare delivery, and if those services might be remunerated.
Reimbursement model for pharmacist-directed medication therapy management (13)	*Publication date:* 2012 *Jurisdiction studied:* Alabama, U.S. *Methods used:* Implementation	The Auburn University Pharmaceutical Care Center (AUPCC) is a free-standing clinic located within the school of pharmacy that provides preventive care and MTM services for a population of 11,600 employees and dependents who subscribe to the university's self-insured health plan	An implementation study describing the development of a practice model with sustainable reimbursement for medication therapy management (MTM) services provided by pharmacists for beneficiaries of self-insured healthcare plans. The AUPCC fee schedule is organized by the type of consultation (initial consultation or follow-up for a patient care service), and the price for the visit is based on the average amount of time that is required for an experienced practitioner to provide patient care. The fee schedule is based loosely on time; however, the university is billed a	The study found that when negotiating for reimbursement for MTM services, pharmacists must pay attention to the goals, objectives, and needs of the employer when negotiating with decision-makers in large, self-insured companies. Before engaging in discussions about MTM services, pharmacists should research the employer's health and pharmacy benefit plan and become familiar with the fee structure, co-payment requirements, medication tiers, and formulary. Pharmacists should also research the plan and try to ascertain whether the decision-maker would be interested in data beyond return on investment (ROI), such as the impact of MTM services on productivity, absenteeism, employee satisfaction, and employee health-related quality of life. The interventions should be developed to address the cost drivers within the employer's plan, and whenever possible, ROI calculations should be performed using the employer's own medical and pharmacy claims data.

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			flat fee for a specific service instead of billed per minute. This approach was taken because students and residents participate in patient care, and this introduces variability into the time required for appointments.	
Cost-utility analysis of offering a novel remunerated community pharmacist consultation service on influenza vaccination for seniors in Ontario, Canada (9)	*Publication date:* 2019 *Jurisdiction studied:* Ontario, Canada *Methods used:* Economic evaluation (cost-utility analysis)	The target population for this study included all Ontarians aged 65 years and older who accessed community-pharmacy services. Ontario cost-benefit projections were performed with the use of a sample of 520,509 simulations, equivalent to the number of Ontarians aged 65 years and older estimated to use immunization services in the enhanced-care arm.	A cost-utility analysis was performed from a third-party public payer perspective over one year. In the enhanced-care arm, the delivery of consultation services by community pharmacists on influenza vaccination, billable at $15, was compared with current standard practices (absence of remunerated consultations). The provision of consultation services was at the professional discretion of the consulting pharmacist in response to an identified knowledge gap or questions around influenza vaccination from eligible individuals or on request from eligible individuals. The consultation service comprised a face-to-face comprehensive and individualized assessment of the patient's reservations surrounding influenza vaccination, followed by the provision of high-quality tailored information. This interaction was anticipated to take less than 15 minutes of the pharmacist's time, including standard documentation requirements. The consultation fee on the enhanced-care arm was set at $15. Provision of flu vaccine consultations was considered to be similar in terms of time, effort, and documentation requirements to that of the Pharmaceutical Opinion Program in Ontario, a service currently offered by pharmacists and reimbursed at a rate of $15 by the Ontario Ministry of Health.	The provision of influenza vaccine consultation services was predicted to prevent 2,407 cases of mild influenza and three influenza-related deaths at an additional cost of $2.03 per person over current practices. The incremental costs per quality-adjusted life-year (QALY) gained for the enhanced-care strategy compared with standard care was $2,087. The interpretation of the base-case result was found to be robust across all sensitivity analyses. The projected additional costs of implementing pharmacist consultations in Ontario was estimated at $1.15 million per year, and the anticipated benefits included a gain of 507 QALY per year. In conclusion, pharmacist-delivered consultation services on influenza vaccination are cost effective and lead to improved clinical outcomes for Ontario seniors.

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Pharmacists' perceptions of pay for performance versus fee-for-service remuneration for the management of hypertension through pharmacist prescribing (14)	*Publication date:* 2017 *Jurisdiction studied:* Alberta, Canada *Methods used:* Qualitative	Eight pharmacists were interviewed	This study aimed to elicit the experience of pharmacists practising under fee-for-service (FFS) and pay-for-performance models within the Alberta Clinical Trial in Optimizing Hypertension (RxACTION) study.	Three key themes were identified: a perceived comfort with the existing FFS model, particularly due to its ease related to business planning; the transformative effect of the study on their practices; and a preference for future models to consider a blend of both service count- and performance-driven metrics. The degree of influence pharmacists feel they can have on outcomes achieved by patients, the perceptions of patients and other healthcare professionals on outcome-based payment, and concerns with the impact of variable remuneration on the pharmacy business model are concerns raised with P4P in pharmacy practice. This study reveals a hesitation to radically transform payment for pharmacists' patient-care services towards a P4P model. Authors suggested that efforts to implement P4P should therefore be gradual and accompanied with a robust evaluation plan
Reimbursement for pharmacist-provided healthcare services (8)	*Publication date:* 2021 *Jurisdiction studied:* Alaska, California, Idaho, New Mexico, Oregon, and Washington, U.S. *Methods used:* Non-systematic review	Six states were selected: Alaska, California, Idaho, New Mexico, Oregon, and Washington	Review of existing statutes and regulations on reimbursement for pharmacist-provided healthcare services, including, administering medications, initiating, and adjusting medication therapy, providing testing for minor illnesses.	Oregon does not require insurers to provide payment, but requires pharmacists to contract and credential with each individual insurer, without the mandate for payment. In California, pharmacists receive 85% of the established fee schedule that physicians receive for equivalent services, and payment is issued to the pharmacy, not the individual pharmacist. California and New Mexico both only allow specified pharmacies or pharmacists to bill (advanced credentials or a tiered licensing model). In Alaska, scope and payer regulations align to allow compensation for covered services; however, insurance credentialing portals are not configured to enroll pharmacists as billing providers. In Idaho, in May 2020, the Medicaid basic plan regulations added pharmacists as non-physician ordering, referring, and prescribing providers.

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