Health Policy 119 (2015) 628–639

Contents lists available at ScienceDirect

Health Policy

journal homepage: www.elsevier.com/locate/healthpol

From “retailers” to health care providers: Transforming the role of community pharmacists in chronic disease management

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ARTICLE INFO

Article history:
Received 16 October 2014
Received in revised form 5 February 2015
Accepted 10 February 2015

Keywords:
Community pharmacists
Chronic diseases
Incentives
Cross-national comparison

ABSTRACT

Community pharmacists are the third largest healthcare professional group in the world after physicians and nurses. Despite their considerable training, community pharmacists are the only health professionals who are not primarily rewarded for delivering health care and hence are under-utilized as public health professionals. An emerging consensus among academics, professional organizations, and policymakers is that community pharmacists, who work outside of hospital settings, should adopt an expanded role in order to contribute to the safe, effective, and efficient use of drugs—particularly when caring for people with multiple chronic conditions. Community pharmacists could help to improve health by reducing drug-related adverse events and promoting better medication adherence, which in turn may help in reducing unnecessary provider visits, hospitalizations, and readmissions while strengthening integrated primary care delivery across the health system. This paper reviews recent strategies to expand the role of community pharmacists in Australia, Canada, England, the Netherlands, Scotland, and the United States. The developments achieved or under way in these countries carry lessons for policymakers world-wide, where progress thus far in expanding the role of community pharmacists has been more limited. Future policies should focus on effectively integrating community pharmacists into primary care; developing a shared vision for different levels of pharmacist services; and devising new incentive mechanisms for improving quality and outcomes.

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1. Introduction

Chronic conditions are the largest cause of death and disability in the world [1]. Across countries with advanced economies, an estimated one of five people have multiple chronic conditions—a situation that is expected to worsen as populations age. Management of chronic conditions is among the most pressing challenges of healthcare systems worldwide. There is a need for interventions, strategies, and policies that more effectively manage and treat the rising numbers of people with multiple chronic conditions, but considerable inertia remains

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http://dx.doi.org/10.1016/j.healthpol.2015.02.007
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in policymakers' stewardship of the chronic disease crisis.

One reform that holds particular potential is the involvement of community pharmacists (pharmacists who work outside of a hospital setting). Concerns about the sustainability of healthcare expenditures have fuelled interest in expanding the patient-centered responsibilities of community pharmacists. Community pharmacists constitute a significant portion of the health care workforce. In the United States (US), there are approximately 110,000 practicing community pharmacists [2] as compared to roughly 250,000 primary care physicians [3]. Given the increasing demands on the time of primary care physicians and nurses, policymakers in a number of countries have started to tap into the potential of other professionals who can contribute to appropriate and cost-effective use of medicines.

Pharmacists are well suited to assume an expanded role in the healthcare system. Indeed, despite their current role as "retailers", taking on patient-centered responsibilities is commensurate with the profession's extensive training and expertise. Although educational requirements vary by country, the total length of formal training is typically five to six years, with an additional two or three years required to specialize or obtain an advanced degree [4]. In addition, licensure is often required through a national or regional examination before the right to practice is granted. Unlike hospital pharmacists who are increasingly integrated into clinical care teams, and rewarded for caring for patients, community pharmacists have traditionally worked in isolation from the rest of the primary care workforce—predominantly responsible for retailing and dispensing medicines. Pharmacists are the only health professionals who are not primarily rewarded for delivering health care.

Recognizing this untapped potential [5,6], a number of countries have recently implemented policies to expand the roles of community pharmacists in order to facilitate coordinated care delivery. While these reforms vary in their focus and scope, they are similar in their aim to benefit from pharmacists as primary health care professionals. A system-wide policy agenda is needed to align the roles, objectives, and incentives of health professionals and devise an expanded role for community pharmacists. Such approaches are emerging, albeit slowly. In this paper, we investigate recent reform efforts in Australia, Canada, England, the Netherlands, Scotland, and the US. These countries have recently undertaken a range of reforms with the objective of equipping community pharmacists with expanded roles and responsibilities when caring for people with multiple chronic conditions.

Our paper has three sections. The first section describes the analytic framework and methods used to collect country-level information on the current and future roles and responsibilities of community pharmacists. The second section sets out the results of the cross-country comparison and outlines the policy developments surrounding the key components for expanding the patient-centered responsibilities of community pharmacists. The final discussion section highlights opportunities and challenges ahead for the role of the community pharmacy profession in integrated primary care, and outlines the roadmap for overcoming important practical challenges when moving towards equipping community pharmacists with expanded roles.

2. Methods

2.1. Analytical framework

The analytical framework proposed by Mossialos and colleagues [7] guided our country selection and data collection. This framework builds upon and broadly parallels the domains of Pharmaceutical Care and Total Pharmaceutical Care models [8,9]. Pharmaceutical care is often described as "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life" [8]. Total pharmaceutical care is "the delivery of a comprehensive range of services that result in the maximum possible contribution to the health of a nation's population within the limits of the health care delivery structure" [9].

We explored two complementary objectives of an expanded role for community pharmacists: (1) ensuring the effective, safe, and efficient use of medicines, and (2) the prevention and management of chronic disease (Box 1).

2.2. Country selection

Based on this framework, we conducted a tightly focused review of the academic and grey literature. The objective of this first stage exploratory review was to identify the latest policy developments on community pharmacists across Europe and North America and inform the selection of country cases. We first searched international websites including but not limited to the World Health Organization, International Pharmaceutical Federation, and European Pharmacists Forum to identify international developments and country-level professional associations. We then reviewed the publications of professional pharmacist organizations such as the Royal Pharmaceutical Society in the UK to identify the most prominent policy examples. Coupled with a review of academic publications as well as policy documents from governmental agencies, six countries were selected for further investigation: Australia, Canada, England, the Netherlands, Scotland, and the US. These countries have in common that they have started to equip community pharmacists with additional patient-centered roles essential for caring for people with multiple chronic conditions.

The aim of this country selection was not to provide a comprehensive list of policy developments surrounding the community pharmacy profession. Scandinavian countries, for example, have adopted policies equipping pharmacists with patient-centered responsibilities [11,12]. Rather than providing an exhaustive description of policy initiatives in developed countries, this paper offers an in depth analysis within a set of countries that are at various levels of policy development. The objective is to understand the emergence of policy changes related to developing an expanded role for pharmacists in order to contribute to the safe, effective, and efficient use of drugs.

Box 1: Analytic framework
Expanded roles and responsibilities for community pharmacists

1. Ensuring the effective, safe, and efficient use of medicines:
   - (a) monitoring medication use (including avoiding medication errors, minimizing adverse reactions, avoiding drug interactions, monitoring dosage, providing emergency prescription refill, renewing or extending medication, advising patients with over-the-counter medications);
   - (b) ensuring appropriate indication (including recommending additional or alternative drug or non-drug strategy, promoting generic use);
   - (c) improving adherence (including reinforcing prescribing instructions, educating/counseling patients about the importance of continuity of treatment, improving literacy about drugs, including comprehensible communication of risks, providing information on cost, effectiveness or safety, inquiring about satisfaction about therapy); and
   - (d) promoting safety, accuracy and quality of medications (including managing drug distribution systems, ensuring careful purchasing of medications to prevent counterfeit use, adopting quality management systems for timely and effective procurement and storage).
2. Prevention and management of chronic disease:
   - (a) symptom management and continuity of care (including advising patients with minor ailments, referring patients to other health professionals, presenting drug regimens to a care team or physician, developing a care and follow-up plan); and
   - (b) chronic disease management and self-care (e.g., managing asthma care, managing mental illness, monitoring blood pressure, ordering and interpreting tests for chronic conditions such as cardiovascular diseases and diabetes, and administering drugs).

The experiences of the six countries selected in this article carry important lessons for policymakers in other settings who are devising interventions and strategies for incorporating community pharmacists into the care of people with multiple chronic conditions.

2.3. Country questionnaires and data collection

We carried out primary data collection in the six selected countries. The information provided in this paper is based on the information received from national experts, contributing to this cross-country report as co-authors. National experts were selected based on their (1) prominent publications advocating for a new vision for the community pharmacist profession in their country; (2) knowledge of or visible participation in the latest policy developments equipping community pharmacists with new patient-centered roles; and (3) active academic research on the evaluation of past or ongoing policy initiatives around the expanded roles of community pharmacists. One national expert for each country provided detailed responses to a questionnaire on the country-level roles and responsibilities of community pharmacists. Experts were asked about key elements of the economic and political national context within which community pharmacists operate, legislative and policy developments (passed or underway) regarding the two dimensions of the framework in their settings, any evaluated impacts of community pharmacy interventions, and context-specific facilitators or barriers to change for further policy and practice developments. Data collection took place between July 2013 and April 2014. The roles of community pharmacists are evolving in the six countries selected and this article presents a picture of the situation as of early 2015.

3. Results

We reviewed recent national policy developments with regards to the two dimensions of the framework in Australia, Canada, England, the Netherlands, Scotland, and the US. Community pharmacists in the six countries examined have made significant progress in achieving an expanded role in ensuring the effective, safe, and efficient use of medicines. However, developments in establishing a role within the prevention and management of chronic disease have been slow and piecemeal.

3.1. Effective, safe, and efficient use of medicines

Dispensing and retailing remain the core functions of the pharmacy profession, and the selected countries have made great strides in equipping community pharmacists with tasks aimed at ensuring the effective, safe, and efficient use of medicines (Table 1).

The Canadian Medical, Pharmacists, and Nurses Associations issued a joint statement in 2003 to define the scope of shared practices for health professionals including community pharmacists, triggering legislative and regulatory changes. Since then, Canadian community pharmacists have adopted joint care responsibilities with physicians, especially in the area of prescribing [10]. As health care is under provincial jurisdiction, each province has developed its own model for pharmacist medication management, prescribing, and reimbursement [11]. Canadian pharmacists are also increasingly able to renew, adjust or substitute physicians' prescriptions, although again the scope of pharmacist practice varies according to province [12]. For example, since 2007, community pharmacists in Alberta have implemented an expanded prescribing model focusing on adapting existing prescriptions and emergency prescribing. Accredited community pharmacists in Alberta can also independently initiate and manage drug therapy [13]. When independently prescribing medications, pharmacists are required to carefully document their interaction with the patient, including the rationale, assessment, drug information, and follow-up plan with other providers. Three Canadian provinces have recently authorized community pharmacists to order and interpret laboratory tests, with similar legislation under way in three other provinces [11].

Table 1
Summary of the expanded scope of community pharmacy practice in promoting effective, safe, and appropriate use of medicines.

	Australia	Canada	England	Netherlands	Scotland	US
Provide emergency prescription refills	Yes	Implemented in 9 of 13 provinces and territories. Pending legislation in Manitoba.	Yes	Yes	Yes	Yes
Renew/extend prescriptions	Renewal of prescriptions is not allowed however extension can be considered part of continued supply (CS). CS has been introduced in July 2013. Pending legislation in all Australian territories.	Authorized in all provinces, except in Nunavut and Yukon.	Yes	Yes, but renewal is limited to certain products. Extension is frequently applied.	Yes	Yes, in 47 states and the District of Columbia as part of collaborative drug therapy management.
Change drug dosage/formulation	No	Authorized, except in Northwest Territories, Nunavut, and Yukon. Pending legislation in Manitoba, Quebec, and Prince Edward Island	Yes	Yes, but within boundaries and close contact with prescribers.	Yes	Yes, in all states.
Make therapeutic substitution	No	Authorized in 6 of 13 provinces and territories. Pending legislation in Quebec.	Yes	No	Yes	Yes, in all states.
Minor ailments prescribing	Yes, but there is no formal scheme or payment system in place to support this.	Authorized in 3 of 13 provinces and territories (Alberta, Saskatchewan and Nova Scotia). Pending legislation in Quebec.	Yes	No	Yes	Yes, in all states.
Initiate prescription drug therapy	No	Authorized in 4 provinces. Pending legislation in Manitoba and Quebec.	Yes	No	Yes	Yes, in 33 states and the District of Columbia.
Order and interpret lab tests	Yes	Ordering and interpreting tests is authorized in Alberta, New Brunswick, and Nova Scotia. Pending legislation in Manitoba, Ontario, and Quebec.	Yes	Yes, but not reimbursed.	Yes	Yes, in 31 states.
Administer a drug by injection	No	Authorized in 5 provinces. Pending legislation in Manitoba, Quebec, Prince Edward Island, and Newfoundland and Labrador.	No	No	No	No

Note: Data provided as of 2013.
Source: Adapted from Canadian Pharmacists Association. Pharmacists' medication management services. Environmental scan of activities across Canada. Ottawa: Canadian Pharmacists Association; 2013.

The UK government has had a long-standing interest in developing and exploiting community pharmacy. The impetus for expanding the role of community pharmacists came with the publication of specific pharmacy policies for the National Health Service in England in 2000 ("Pharmacy in the Future") and Scotland in 2002 ("The Right Medicine"). Since 2005, community pharmacists in England have been providing professional services in three tiers: essential, advanced, and enhanced [14]. Every pharmacy must offer the essential services, including primary and repeat dispensing, support for self-care, and healthy lifestyle promotion. Offering enhanced and advanced services is optional, and requires pharmacists to obtain additional certification. Medication use review is the only advanced service, whereas several interventions such as treatment of minor ailments, chronic disease screening, smoking cessation services, and supplementary prescribing are considered enhanced services (Box 2).

Qualified pharmacists in England and Scotland have been able to independently prescribe medications since 2006 [15]. In 2012, reforms in both countries allowed pharmacists to also prescribe certain controlled drugs. The UK's pharmacy regulator, the General Pharmaceutical Council, accredits prescribing training courses and identifies individuals with supplementary or individual prescribing rights on the register of pharmacists.

Community pharmacy practice in Australia includes provision of drug information and clinical interventions [16,17]. Community pharmacists also have the authority to perform emergency prescribing and continued dispensing and to provide additional services, including medication use reviews. While Australian community pharmacists are encouraged to carry out prescribing for minor ailments, no

Box 2: Medication use review in England: early experience, research, and revision

Early experience

In 2005, the National Health Service of England introduced the Medicine Use Review and Prescription Intervention Service (MUR) with the objective of improving patient knowledge and use of prescription drugs. In a pharmacist-selected, opportunistic face-to-face consultation with patients, MUR focuses on establishing the patient's use, understanding, and experience of taking drugs; identifying, discussing, and resolving any issues; identifying side effects and drug interactions; and improving the clinical and cost-effectiveness of drugs. Within this scheme, certified pharmacists with a private consultation facility receive a set fee per MUR consultation completed within an annual maximum per facility.

Research and evaluation

Despite initial enthusiasm, the uptake of the MUR—both in terms of the number of participating community pharmacies and the number of consultations undertaken—was initially low, with independent pharmacists lagging behind groups.[1] Initial evaluations suggested that lack of support from and collaboration with primary care physicians and workload constraints were among important barriers to wider adoption of MUR.[1,2] Recent research also showed that consultations were brief encounters, dominated by closed-ended questions.[3] Although some patients felt more assured about drug therapy as a result of MURs, such consultations did not have a notable impact on patients' knowledge of their prescribed medicines.[3]

Revision

In October 2011, new legislation targeted certain groups of patients to receive MUR, including those receiving high-risk medicines such as non-steroidal anti-inflammatory or anticoagulant drugs and those discharged from hospital in the previous eight weeks who had had changes made in their prescribed medication.

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formal scheme of financial and professional support is in place for such tasks. Collaborative medication reviews are also widespread between community pharmacies and primary care practices [16]. Research evaluating the impact of collaborative medication reviews indicates that such services improve prescribing, and have the potential to reduce health service use and medication costs for patients with multiple chronic conditions [18,19]. The Australian data also show that a majority of general practitioners have accepted and implemented the medication changes proposed by community pharmacists as part of these collaborative agreements [20].

Community pharmacists in the Netherlands have faced a number of roadblocks in recent years. In 2008, a "preference policy" (tender-based purchase of medicines) was adopted by the health insurers to reduce national prescription drug spending by limiting the number of reimbursed medicines per beneficiary. Despite its well-intentioned objectives, this policy had unintended consequences and considerably limited the number and scope of patient-centered services offered by community pharmacists as these services had to be financed out of the pharmacy's retailing-related income. Responding to this challenge, the Royal Dutch Pharmacists Association spearheaded reform efforts and devised a new vision for the community pharmacy profession in an influential white paper in 2011. In this report, the Association proposed a new vision for the profession and promoted the role of community pharmacists beyond the distribution of medicines. Currently, community pharmacists in the Netherlands are allowed to renew prescriptions for certain products such as insulin and contraceptives [21]. Despite limited progress on the prescribing front, recent legislation is aimed at giving pharmacists access to laboratory test results and indications for prescribing, both of which are essential to monitor the safety of medication use. Although these changes have been approved in parliament, and there are increasing numbers of pharmacists and general practitioners that cooperate closely, pharmacist access to data is not yet widely implemented, mostly due to a lack of adequate training and necessary information technologies. A recent study on drug-related hospital admissions has illustrated that medication reviews are now increasingly performed by Dutch community pharmacists [22].

In the US, there are recent developments on both federal and state levels. At the federal level, the Medicare Prescription Drug Benefit (Medicare Part D), which came into effect in 2006, introduced Medication Therapy Management (MTM) as a quality improvement strategy at the federal level [23]. Similar to medication use review programs commonplace in other countries, MTM in the US aims to prevent adverse effects associated with prescription drug therapy and improve adherence for Medicare beneficiaries. During comprehensive medication review, pharmacists can identify safety, effectiveness, and cost issues about prescription drug therapy for beneficiaries enrolled in prescription drug plans. Existing evidence from systematic reviews suggests that such practices reduce medication-related problems, improve adherence, and achieve better clinical outcomes [24]. In the Asheville Project, patients with diabetes had improved outcomes following the initiation of community-based pharmaceutical care services [25]. Expanding the number of community pharmacists who participate in MTM and the number of eligible Part D enrollees who obtain a comprehensive medication review is a focus of policy initiatives.

At the state level, an increasing number of Collaborative Drug Therapy Management agreements between pharmacists and providers, which vary greatly by state, now

allow pharmacists to perform clinical tasks such as initiating, modifying, or continuing drug therapy and ordering laboratory tests [26,27]. Many states also allow community pharmacists to provide emergency prescriptions to patients, although varying levels of restrictions apply in different states.

3.2. Chronic disease prevention and management

There is a strong case for equipping community pharmacists with clinical tasks aimed at managing chronic diseases. Previous research showed that patients with diabetes visit community pharmacists five times more frequently than other primary healthcare professionals [28]. Yet, with the exception of England and Scotland, progress in transforming the roles of community pharmacists in chronic disease management has been limited.

In the Netherlands, despite widespread enthusiasm among professional organizations in equipping community pharmacists with key responsibilities in managing chronic conditions, recent efforts did not go beyond implementing a number of national campaigns for the detection of diabetes and asthma (such as free testing in pharmacies). Recently pharmacists are becoming members of so called 'care groups' in which primary care physicians, pharmacists, and other health care providers engage in defining and coordinating the care for chronic diseases (especially chronic obstructive pulmonary disease, diabetes and cardiovascular risk management). Progress has been slow in Canada as well. A small pilot study in the province of Nova Scotia showed that a variety of health care professionals agree that community pharmacists have a role to play in the management of patients with diabetes, including counselling; providing feedback to physicians; monitoring and reinforcing the messages of other professionals; giving patients information; and educating them about their diabetes [29]. Barriers to further progress range from practical considerations (lack of time, funding, and workforce) to limited patient awareness and inadequate training of pharmacists [29].

In Australia, community pharmacies offer smoking cessation and weight management programs as part of their routine practice. Two pilot studies assessing the potential for the involvement of community pharmacists in chronic disease control programs demonstrated the important role that community pharmacists can play in managing some conditions, as long as there is a strong coordination system in place between the healthcare professionals involved [30].

Notably, community pharmacists in the six countries we examine are increasingly assuming care coordination responsibilities. Such tasks are critical for managing the complex medication regimens of individuals with multiple chronic conditions (and, perhaps, multiple physicians) and those transitioning between care settings or levels of care. Professional organizations and governmental agencies have recently recognized the collaboration between health professionals—including community pharmacists—as a priority in Australia and Canada (Table 2; Box 3). In the Netherlands, specific guidelines outlining the provision of coordinated care in community pharmacies recommend the transfer of medication-related information between pharmacists and other primary and secondary care providers [31].

In the US, limited progress is occurring towards engaging community pharmacists in tasks aimed at chronic disease prevention. So far, employers have been the driving force behind a number of developments. For example, some community pharmacists now conduct health screenings for body mass index as well as laboratory tests for cholesterol levels, blood pressure, and glucose levels; such tests are often reimbursed by employers as part of wellness programs. However, policy developments surrounding community pharmacists' involvement in chronic disease prevention and management remain fragmented.

Box 3: Integrating pharmacists into primary care in Australia: evidence from pilot projects

Community pharmacists in Australia are gradually recognizing the importance of patient-centered tasks such as medication reviews and disease management programs,[1] a move largely driven by influential pharmacist professional associations.[2,3] In a concerted effort to influence policymaking, professional associations and governmental agencies are jointly commissioning research projects to investigate the potential of community pharmacists in providing care for patients with asthma, diabetes, cardiovascular diseases, and mental illnesses. In a notable example, the TEAMCare pilot demonstrated that pharmacists and other primary care professionals can work together to improve older patients' outcomes.[4] Another Australian pilot proposed a role for community pharmacists within a general practice to provide multiple risk management advice and improve patient safety.[5] The evidence from these pilots fed into the Professional Collaboration section of the Fifth Community Pharmacy Agreement in 2012 and will influence policy in the coming years. The Agreement proposes the creation of a National Primary Health Care Professional Forum to unify the different primary care providers and develop a strategic shared vision on the delivery of primary care in Australia at national, regional, and local levels.[6]

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Table 2
Coordinating primary care delivery in Canada: evidence from pilot projects.

Pilot project	Objectives	Main findings
IMPACT (Integrating family Medicine and Pharmacy to Advance primary Care Therapeutics)	To determine the feasibility of integrating community pharmacists into primary care practice teams.	Interprofessional collaborations which include community pharmacists improve the level of care, medication safety, and cost-effectiveness of the health system.[a]
SMART (Senior Medication Assessment research Trial)	To assess whether the intervention of a trained pharmacist as a consultant to a primary care physician could reduce the number of daily medication units taken by elderly patients, as well as costs and healthcare use.	Integrating pharmacists into in-office primary care practice (by serving as consultants to primary care physicians) was feasible to resolve drug-related problems.[b]
BREATHE (Better Respiratory Education and Asthma Treatment in Hinton and Edson)	To determine the effect of a multidisciplinary asthma management program initiated by community pharmacists on asthma control.	No differences in asthma control were found but the multidisciplinary and community-based component of the program was successful in fostering collaboration among primary care professionals.[c]

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Recent reforms in Scotland and England have gone further than those in other countries. In 2013, Scotland's National Health Service introduced the Chronic Medication Service, which formalized the role of community pharmacists in the management of individual patients with chronic conditions [32]. This service involves patients with long-term conditions registering with the community pharmacies of their choice; generation of an individual pharmaceutical care plan; and collaborative management of medicines with patients' primary care providers. The National Health Service in England introduced a New Medicine Service in 2011 for patients receiving a medicine for the first time for a chronic condition [33]. Within this scheme, community pharmacists support patients over several weeks to ensure safe and effective use of drugs. The New Medicine Service is targeted to medicines for the treatment of chronic respiratory and cardiovascular illnesses.

3.3. Paying pharmacists for patient-centered services

Historically, remuneration in community pharmacy settings has been primarily based on retailing and dispensing functions in all countries considered. Although limited, recent reform efforts in some of our country cases have gradually introduced new payment mechanisms to encourage the adoption of patient-centered services in community pharmacist settings.

The level of reimbursement for patient-centered services offered in community pharmacists in Canada varies greatly across provinces, in part because the 10 provincial regulatory bodies have different legislative and professional standards [13,34]. In England, the introduction of the three-tier pharmacy contract changed the existing remuneration mechanisms for community pharmacists. Prior to 2005, legislation limited payments for patient-centered services to the reimbursement of dispensed medicines and fees for dispensing-related activities, creating a product-centric pharmacy practice. After 2005, medication use reviews were introduced on a set fee-for-service basis.

The Australian government introduced new compensation mechanisms for community pharmacists conducting medication reviews in 1997 in residential care and in 2001 for all community patients [16]. Since 2011, the Pharmacy Practice Incentive Program has been providing incentives on a fee-for-service basis for the delivery of patient-centered services in five core areas: diabetes, respiratory disease, cardiovascular disease, mental health conditions and health promotion. It is expected that the range of areas will increase in the coming years. The "Working with others" mechanism was also introduced in 2011 as an annual payment for community pharmacists who collaborate with other health professionals.

The remuneration system in place in the Netherlands is not designed to encourage pharmacists to provide patient care as it is mostly aimed at reimbursing dispensing services. Although community pharmacists can get marginal additional reimbursement for a limited number of patient-centered services such as medication reviews, the level of reimbursement differs by health insurer and generally pharmacists are allowed to offer these services to a limited number of patients. In addition, primary care providers are easy to access in the Netherlands and are exempt from co-payments, which further hinders the development of community pharmacists' role in safe, effective, and efficient use of medications, and in the prevention and management of chronic conditions.

Currently, in the US, pharmacist remuneration is primarily based on retailing functions, which are determined by payers, pharmacy benefit managers, or health plans. In community settings, pharmacists may provide patient counseling and self-care recommendations, but reimbursement is not available. Many community pharmacies now provide vaccinations and this is reimbursed by health insurers. Increasingly, contracted private MTM companies link community pharmacists with health plans and provide reimbursement for MTM services. Depending on the MTM provider and the Part D plan, community pharmacists

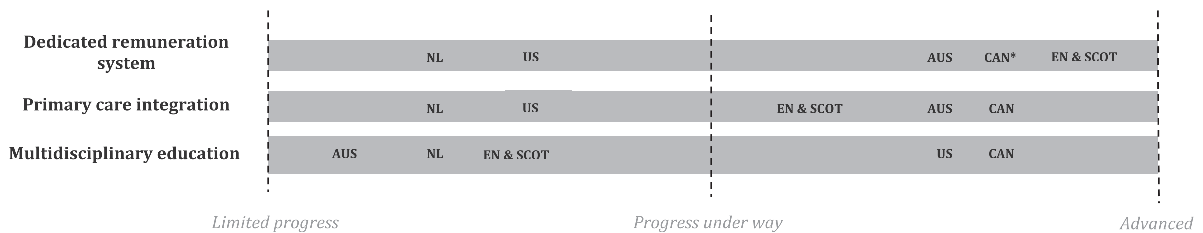

Fig. 1. Advances in involving community pharmacists in prevention and management of chronic diseases.
AUS: Australia; CAN: Canada; EN: England; NL: Netherlands; SCOT: Scotland; US: United States.
*Only Alberta and Saskatchewan have reimbursement systems in place for pharmacist prescribing.

may be reimbursed for comprehensive medication review, phone follow-up on new prescriptions or resolving drug-related problems. Some programs have linked community pharmacies to hospitals/healthcare systems by focusing on medication reconciliation during care transitions, but these practices are not standardized.

3.4. Interprofessional education

Although developments remain limited, Canada has been at the forefront of interprofessional education. Many Canadian universities offer training in interdisciplinary care to nursing, medical, and pharmacy students [10]. Similar developments are occurring in the US, where there is a greater emphasis on training health professionals in interdisciplinary collaborative teams [35]. There are already several universities in the US offering training courses in interprofessional education [36]. Postgraduate training courses in the US include community pharmacy residencies focused on advancing skills in collaborative patient care. In the Netherlands interdisciplinary education is limited to one week during the curriculum, and is sometimes only optional.

4. Discussion

This cross-country comparison of policy developments highlights the increasing appetite for reconfiguring the responsibilities of the pharmacist profession, better integrating pharmacists into the healthcare system, and equipping community pharmacists with patient-centered roles commensurate with their training and expertise in medications.

Fig. 1 summarizes where the six countries selected in this cross-country comparison stand with respect to three aspects which are crucial for the expansion of the role of community pharmacists: (1) a dedicated remuneration system; (2) primary care integration; (3) multidisciplinary education. The six countries considered in this article are at different stages of policy implementation. Notably, England and Scotland have been at the forefront of defining different "tiers" of community pharmacist roles in terms of both (1) effective, safe, and efficient use of medicines and (2) prevention and management of chronic conditions. Policymakers in England and Scotland have also aligned these new responsibilities with specific remuneration systems. Canada and the US have pioneered multidisciplinary pharmacy education—an essential component to ensure that future health care professionals view community pharmacists as members of integrated care teams. Australia has made progress on a number of different fronts, and specifically in the area of integrating community pharmacists within the primary care system. Despite slow progress on the implementation front, a number of policy developments are currently underway in the Netherlands and policymakers are actively engaged in developing legislation to expand the roles of community pharmacists.

Paradoxically, with the exception of the US and the Netherlands, community pharmacists are often not playing a key role in the recent policy evolution of accountable care. Although quality improvement efforts are prominent on the political agenda in the US, progress thus far remains limited. For example, there are several ongoing initiatives which aim to improve the quality of prescription drug therapy by holding health plans accountable for the care they provide to patients. The National Quality Forum recently developed pharmacy-specific quality indicators, primarily used by health plans, aimed at monitoring the safety of prescription drug therapy, promoting generic drug use, and improving adherence. The Pharmacy Quality Alliance is actively pursuing the development and adoption of metrics of community pharmacy services for use in quality improvement, benchmarking, and pay-for-performance benchmarks [37].

In the Netherlands, the Dutch Healthcare Inspectorate and the Royal Dutch Pharmacists Association developed indicators to evaluate the quality of care in community pharmacies [38]. Introduced nationally in 2008, the indicators were designed to provide pharmacist-reported data on the structure, process and outcome of care at the level of a community pharmacy [38].

When moving forward, policy-makers should consider a number of important practical objectives: effectively integrating community pharmacists into primary care; developing a shared vision for different levels of pharmacist services; and devising new remuneration mechanisms and performance-based incentive mechanisms [39]. Table 3 provides a roadmap for the expansion of the role of pharmacists, detailing the mechanisms and processes by which these three objectives were achieved in the countries, and the facilitators or barriers to successful policy implementation.

4.1. Interprofessional collaboration

There is a need to foster collaboration between different provider groups by integrating community pharmacists

Table 3
Overcoming practical challenges when expanding the role of community pharmacists in different settings.

Policy objective	Mechanism by which policy objective could be achieved	Process by which policy objective was achieved in successful countries	Facilitators to successful policy implementation	Barriers to successful policy implementation
Effectively integrating community pharmacists into primary care	Interprofessional collaboration achieved through interdisciplinary education and data sharing	Many Canadian universities offer training in interdisciplinary care to nursing, medical, and pharmacy students. Collaborative work was also fostered by a number of federal/provincial-level reports. For example, the Federal/provincial advisory committee developed a framework for collaborative health human resource planning in 2005. In addition to initiatives at provincial level–especially in Ontario and Alberta–a national interprofessional competency framework was established in 2014. In the Netherlands, enabling patients' health information to be electronically transferred to and from community pharmacies is a national priority, allowing community pharmacists and primary care physicians to increasingly consult each other. In addition, a national electronic patient record is being developed, which will contain information on prescription drugs and relevant clinical information. In Australia, the National Health Policy encourages the integration of community pharmacists through for instance payment for referral by the primary care physicians for Home Medicines Reviews; or review and reporting by pharmacist to primary care physicians; or payment for "collaboration with others" as part of the Pharmacy Practice Incentives.	In Canada, facilitators include flexible regulatory frameworks, emerging alternative financing and reimbursement approaches as well as the publication of the national interprofessional competency framework in 2014. In the Netherlands, community pharmacists and primary care physicians have been cooperating through Pharmacotherapy Quality Circles. They are also increasingly located in the same Community Health Care Centres. In Australia, facilitators include remuneration for pharmacist services, employment of practice facilitators and computer-dedicated programs.	In Canada, the limited development of electronic medical records could be a barrier to the integration of community pharmacists. In the Netherlands, choice and competition across service providers pose a barrier to effective integration of pharmacists into primary care and are responsible for discontinuing care.
Developing a shared vision for different levels of pharmacist services	Differentiation of pharmacist services	England recognizes different levels of pharmacy services, accompanied by respective sets of tasks and required skills: essential, advanced, and enhanced. The government has had a long-standing interest in developing and exploiting community pharmacy. As early as 1992, it established a Joint Working Party with the Royal Pharmaceutical Society on pharmaceutical care [46]. The greatest impetus for expanding the role of community pharmacists came with the publication of specific pharmacy policies for the NHS in England and Scotland in the early 2000s. The period between 1995 and 2005, which preceded the introduction of England's 3-tier NHS Pharmacy Contractual Framework, witnessed a range of local community pharmacy initiatives, involving evidence generation, pilots and service development.	The pharmacy contract served as the primary driver to successful implementation and adoption [47]. Relationships between commissioners (those who decide which services should be provided, who should provide them, and how they should be paid for) and local pharmaceutical committees were important facilitators. Awareness, availability, and attitude of local community pharmacists were facilitators of successful implementation.	Access to funding and adequate resources to commission new community pharmacist services were identified as key barriers [47]. Support from primary care physicians was also identified as a critical barrier to successful implementation.

Performance-based financial and nonfinancial incentive mechanisms to encourage service provision rather than dispensing	Development of quality indicators and performance metrics that can be tied to payment models	The Netherlands introduced a set of 42 indicators to measure the quality of care provided by community pharmacists in 2008. The indicators were developed in collaboration between the Dutch Healthcare Inspectorate and the Royal Dutch Pharmacists Association. In the United States, the National Quality Forum (NQF) developed pharmacy-specific quality indicators, primarily used by health plans. Similarly, the Pharmacy Quality Alliance is actively pursuing the development and adoption of metrics of community pharmacy services for use in quality improvement and pay-for-performance benchmarks. NQF was created (1999) by a group of public and private health leaders, arising from work accomplished during President Clinton's initiative for a Consumer Bill of Rights. Pharmacy Quality Alliance was created (2006) by the stakeholders of Medicare Part D to help ensure its quality.	Quality improvement is a shared objective in the health care system. The Ministry of Health introduced quality indicators for all sectors of healthcare, without singling out community pharmacy. The Affordable Care Act aims to reward improved quality, outcomes, and efficiency. The Center for Medicaid and Medicare seeks to achieve improved quality, improved health and lower costs, known as the triple aim. Healthcare reimbursement continues to move away from fee-for-service with no link to quality, toward global outcomes-based population incentives, using key performance targets and quality indicators as the basis for aspects of reimbursement. In pharmacy, EQuIPP is a platform developed to improve performance in community pharmacies via comparisons of quality indicators across groups of pharmacies and/or plans. Large pharmacy chain organizations are likely to have the vision, information technology and human resources to adapt to quality-based reimbursement models.	Lack of clarity around how the quality indicators will be used, for example in remuneration decisions. Lack of knowledge of changing reimbursement models, as they may not directly impact front-line pharmacists yet. Information systems are necessary within practices to monitor their own performance. Pharmacists' personal performance and compensation may not align with newer reimbursement models.

into the wider primary care workforce. Without such collaboration, equipping community pharmacists with new responsibilities risks fragmenting primary care services.

One aspect of collaboration is data sharing facilitated by information technology. Enabling patients' health information to be electronically transferred to and from community pharmacies is crucial. In the Netherlands, the transfer of information between health professionals is becoming a reality. In particular, community pharmacists and primary care physicians increasingly consult to ensure appropriate medication use, including periodic pharmacotherapy consultation.

Another key component of collaboration is interdisciplinary education of nursing, medical, and pharmacy students. Such training that fosters collaborative work is increasingly commonplace in Canada. In addition to initiatives at provincial level—especially in Ontario and Alberta—a national interprofessional competency framework was established in 2014; these serve as key facilitators for successful development and implementation of interprofessional collaboration curricula around the country.

4.2. Differentiation of pharmacist services

Although all six countries have gradually expanded the responsibilities of community pharmacists in patient care, there is still no consensus on how best to differentiate services at different pharmacy practice tiers [40]. Reflecting the government's long-standing interest in strengthening the community pharmacy profession, in 2005, England established the pharmacy contract to recognize different levels of pharmacy services, accompanied by respective sets of tasks and required skills. In addition to this contract, awareness, availability, and attitude of local community pharmacists were key facilitators of successful implementation [47].

Such clearly defined responsibilities would help community pharmacists and other health professionals in other countries understand their roles, establish performance indicators, and design adequate educational programs [40]. Professional and regulatory organizations have so far been instrumental in defining the core competencies of community pharmacists. Learning from other professional groups such as those involved in national health technology assessments, forming international collaborations, and forging consensus among national and local community pharmacist organizations could lead to the identification of a tiered set of professional standards to form the basis of future policy discussions.

4.3. Revised payment model

One of the primary obstacles to more widespread implementation of patient-centered roles for community pharmacists is the current remuneration model [41]. Pharmacy has previously been recognized as the only health profession that is primarily reimbursed for the sale of a product rather than provision of a service [16]. Thus, an adequate remuneration model is needed to balance the income from dispensing and retailing medicines with that from an expanded service to patients.

Pharmacist remuneration in most settings is primarily based on dispensing. In 2010, the Canadian Academy of Health Sciences (CAHS) underlined the necessity of building a remuneration system for non-medical health professionals in an attempt to integrate them into the primary care system by aligning funding and provider remuneration with patient outcomes. One promising financing model would involve the funding of community pharmacists to be part of the primary care system [42]. A subsequent report from CAHS developed a conceptual framework for innovative models of care to optimize scope the scope of practice, including flexible legislative frameworks and alternative funding models [43]. In the US, the latest health care reforms (Affordable Care Act) aims to shift reimbursement of health care providers from fee-for-service payment toward rewards for improved quality, outcomes, and efficiency [44].

Introducing policy changes to formally expand the role of community pharmacists cannot be achieved at once, especially in this economic context. Rather, countries should consider adopting a tiered implementation strategy to facilitate the transformation of the community pharmacy practice. The first tier could represent the high priorities of moving beyond the traditional retailing and dispensing of medications. It could include monitoring the safety, accuracy and quality of drug dispensing and use. The second tier could consist of overseeing the appropriate indication and adherence to medicinal prescriptions–an essential component of chronic disease prevention and management. Finally, more focused prevention and management of chronic disease could constitute the third tier. Implementation will have to be carefully designed, taking into account national circumstances, data availability, and the legitimate concerns of community pharmacists regarding their professional supply and the required structural changes. An important consideration is to accompany policy changes with carefully designed and executed evaluation strategies.

5. Conclusions

Community pharmacists are underutilized professionals: they have the skills and position in the healthcare system to engage further in the provision of care for people with multiple chronic diseases. The magnitude and range of reform efforts across the countries covered in this article demonstrate the enthusiasm and political will to equip community pharmacists with patient-centered roles. Integration of community pharmacists into primary care faces the following obstacles: lack of established collaboration among providers; inadequate compensation models that fail to reward the delivery of patient-centered services in the pharmacy setting; and lack of a shared vision for different levels of pharmacist services. Our policy review highlights the need to devise targeted efforts to formally integrate community pharmacists into the primary healthcare system and make community pharmacy a "health hub destination for the future" [45].

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