A comparative analysis of remuneration models for pharmaceutical professional services

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\textbf{Objectives:} Pharmacists provide a wide range of professional services to support the appropriate use of medicines by patients. This study aims to conduct an international, comparative analysis of remuneration models for pharmaceutical professional services.

\textbf{Methods:} Information about remuneration models was derived from a literature review and a semi-structured questionnaire completed by experts.

\textbf{Results:} Remuneration models differ in the way that pharmacists are paid for professional services beyond dispensing medicines. Also, the scope of services that are remunerated varies. The majority of countries regulate remuneration for services only when the medicine is paid for under the reimbursement scheme. Remuneration of services implies a commitment to assure their quality in some countries. Collaborative practice models have been set up where pharmacists work together with other health care professionals to deliver diagnosis-specific services or services based on the patient’s use of medicines. The remuneration of services is influenced by the value of services, budgetary constraints, the payer perspective, and the attitude of physicians, pharmacists and patients.

\textbf{Conclusions:} Professional organisations need to formulate a clear strategy for developing and gaining remuneration for pharmaceutical professional services. This implies that pharmacists not only demonstrate the value of services, but also assure their quality.
1. Introduction

The traditional economic model of community pharmacy has been based on the remuneration of medicine supply and distribution services. Historically, this model originated from the practice that pharmacists prepared medicines and were paid for the products that they dispensed to patients. When providing the medicine to the patient, the pharmacist often explained how to use the medicine, but the medicine itself was the core of the exchange. When the role of preparing medicines was assumed by the pharmaceutical industry, pharmacists principally became distributors of medicines.

Pharmacists not only distribute medicines to patients, they also provide a wide range of services to help patients make the best use of their medicines. There is a growing awareness of the problems with the sub-optimal use of medicines and associated health care costs [1,2]. For instance, it has been estimated that the costs of adverse drug events are at least as high as the cost of the medicines themselves [3]. In order to improve patient safety and treatment outcomes, it has been suggested that a lower proportion of the pharmaceutical budget should be spent on the dispensing activity and a higher proportion of the budget should be allocated to services, although these proportions have not been specified [1,4].

During the last decades, pharmaceutical professional services (PPS) have developed around the world [5], although practices vary between countries [6]. Even if there is no consensus on the definition of the term ‘pharmaceutical service’, the European Society of Clinical Pharmacy [7] and the American College of Clinical Pharmacy [8] view pharmaceutical services as the contribution of pharmacists and their assistants to medicines therapy as a part of the total care supplied to patients, in co-operation with physicians and other health care professionals, with a view to optimizing the efficiency, the effectiveness and the safety of medicines. This study focuses on PPS, where the qualified pharmacist uses the unique knowledge gained during his/her academic vocational education and training, and follows the ethical code defined by a pharmaceutical professional organisation.

Given the need to improve effectiveness and quality of care in the context of finite health care resources, the value of PPS is of concern to public policy makers and health care payers. The clinical and economic impacts of PPS in hospitals and primary care settings have been well documented [9,10]. However, little is known about the various PPS remuneration models that have been implemented by countries. In this respect, remuneration models are defined as systems of allocating money to PPS providers by health care payers (e.g. government, insurers, patients) [11].

The aim of this study was to conduct an international, comparative analysis of PPS remuneration models. This study mapped remuneration models for general PPS and for specific types of PPS. A number of factors affecting remuneration for PPS are also identified. Finally, a strategy for developing and remunerating PPS is proposed. Our findings may serve to inform the debate between pharmacists, pharmaceutical professional organisations, decision-makers and legislators concerned with developing or refining PPS remuneration models. This study was undertaken as part of a working group of the International Pharmaceutical Federation (FIP) on ‘Developing new remuneration models for professional services’.

2. Materials and methods

2.1. Literature search

Studies were identified by searching PubMed, Google Scholar, Centre for Reviews and Dissemination databases (Database of Abstracts of Reviews of Effects, National Health Service Economic Evaluation Database, and Health Technology Assessments Database), Cochrane Database of Systematic Reviews, EMBASE, International Pharmaceutical Abstracts, Psychinfo and EconLit up to September 2009. The bibliography of included studies was checked for other relevant studies.

Additionally, websites were searched, including those of the Pharmaceutical Group of the European Union (PGEU), the World Health Organisation (WHO), the Organisation for Economic Co-operation and Development (OECD), Health Action International (HAI) and the International Society for Pharmacoconomics and Outcomes Research (ISPOR).

Search terms included ‘pharmacy remuneration’, ‘pharmacist remuneration’, ‘pharmacy reimbursement’ and ‘pharmacist reimbursement’. The inclusion of studies was limited to PPS provided in community pharmacies. However, PPS are also provided in hospitals by employed pharmacists who receive a salary. Since hospital pharmacists are providing PPS on the terms of the employer and since the extent to which they can influence the content, quantity and quality of the service is likely to
vary, studies of PPS provided in hospital pharmacies were excluded. Since two previous studies covered the literature on PPS remuneration models until 2006 [12,13], our search focused mainly on articles and reports published after 2006.

2.2. Additional data collection

In addition to the literature search, a semi-structured questionnaire was used to gather information from a convenience sample of 10 people working either as researchers in the field of pharmacy practice research, social pharmacy, pharmacy health economics, or active in leadership positions within pharmacy in different parts of the world (i.e. Australia, Belgium, Canada, the Netherlands, Sweden and the United States). The questionnaire elicited information about different PPS aspects such as the type of the service (e.g. counseling, medicine utilization review), the payer of the service (e.g. national insurance, private insurance, patient co-payment), the target groups of the service (e.g. patients with certain diagnosis), the method of remuneration (e.g. margin, service fee, capitation), conditions/restrictions attached to the service (e.g. only if ordered by physician), follow-up and evaluation of the service (yes/no). Information obtained was validated through personal and e-mail contact with pharmacists in the various countries until a comprehensive picture of the remuneration system in the respective country was reached.

3. Results

The literature search on PPS remuneration models generated 861 studies on pharmacy remuneration, 750 studies on pharmacist remuneration, 4150 studies on pharmacy reimbursement, and 3870 studies on pharmacist reimbursement (see Fig. 1). The difference in the number of studies was attributed to the fact that use of the search term ‘reimbursement’ also generated publications covering institutional care, while ‘remuneration’ most often only yielded publications about outpatient care. Reimbursement as a search term also identified publications about the payment that the third-party payer provides to patients. Finally, seven studies on general PPS, 10 studies on specific PPS and 12 studies on factors affecting PPS remuneration were included.

The evidence generated by the literature search mainly derived from Europe, Australia, Canada and the US. This is because information from other parts of the world was hard to obtain due to language barriers and due to a lack of published articles. The literature search demonstrated that pharmacy remuneration models vary in the way that pharmacists are paid for professional services beyond dispensing and selling medicines. Fig. 2 portrays a general framework of PPS remuneration models which is explained in the sections below.

3.1. General PPS

There is a wide diversity between countries in the scope of PPS that are remunerated. On the one hand, specified PPS are not remunerated in the Nordic countries in Europe (except for Denmark, where asthma counseling is a remunerated service) [14]. In countries such as Iraq, Jordan and Syria, where the status of pharmacists within the society is high, it is considered a professional duty of pharmacists to deliver PPS and those services do not attract a separate remuneration. On the other hand, pharmacists are paid for providing a large number of specified professional services in Australia, New Zealand and the UK.

Furthermore, the majority of countries remunerate PPS only when the medicine is paid for under the reimbursement scheme. However, a number of exceptions exist. For instance, in Scotland and in parts of England and Wales, pharmacists can be paid by the National Health Service for their professional services when selling over-the-counter medicines, if certain conditions are met, in the context of the Minor Ailments Scheme [15]. Also, Latvia has implemented a regulated margin for reimbursed as well as for non-reimbursable medicines.

The legal framework surrounding PPS (and their remuneration) varies between countries. In some countries including Hungary, Peru and Croatia, pharmacists are obliged by law to deliver PPS. This does not mean that they are paid to do so. In both Hungary and Croatia, pharmacy remuneration is based on a mark-up on the price of the medicine dispensed, which is supposed to cover remuneration for PPS. In other countries such as Canada, UK and the Nordic countries in Europe, PPS are not legally mandated, although elements of such services are required (e.g. patient counseling when dispensing a prescribed medicine in Quebec, Canada).

The method of PPS remuneration appears to influence the provision of such services [16,17]. In the Netherlands, pharmacists are not paid for providing defined PPS, but they receive a flat fee that covers all services provided. As a result, there is no incentive for pharmacists to provide more PPS or to deliver higher quality services. This is evidenced by the fact that the frequency of private consultations provided by pharmacists is low [18]. However, it should be noted that most pharmacist interventions are not documented in the Netherlands, except for dispensing activities.

PPS remuneration also implies a commitment to assure the quality of such services in some countries. In Denmark, all community pharmacies need to attain certain standards for general as well as specialised cognitive services, and they need to conduct staff and patient satisfaction and performance assessments [14]. These quality assessments are reviewed by the Danish Medicines Agency. In the UK, community pharmacies need to provide evidence that they meet the conditions of a comprehensive quality assurance framework. For instance, they need to conduct at least two clinical audits (e.g. of inhaler use in asthma) and a patient satisfaction survey per year. They also need to establish a patient complaints system [15].

In some countries, conditions have to be met concerning the layout of the pharmacy in order to gain PPS remuneration. In Belgium, the condition has been imposed that each community pharmacy has an ‘intimate corner’ where PPS services can be provided to patients in a discrete and confidential manner from 2012 onwards [19]. Similarly, in
Fig. 1. Flow chart of the literature search. Note: PPS = pharmaceutical professional services.
Australia, those pharmacies participating in the diabetes medication assistance service must have a separate room or screening area where the pharmacists can hold patient consultations [20].

A variety of PPS are offered in different countries that do not attract remuneration. Examples are weight clinics, smoking cessation programs and conception clinics in Australia; measurement of blood glucose, blood pressure and cholesterol in Denmark; and point-of-care testing and follow-up for several diagnoses in Canada. It is beyond the scope of this study to describe all the different services since, in most cases, they are local or individual business arrangements and are not remunerated for the pharmacy profession as a whole.

3.2. Specific PPS

3.2.1. Health care services based on the patient having a specific diagnosis

These are services provided by pharmacists that are not based on a unique knowledge base or skill set, although the therapy includes the use of medicines. Examples are prevention, screening, monitoring, counseling or therapy management in relation to different types of heart and lung diseases, diabetes, Parkinson's disease, renal disease, sexually transmitted diseases, ulcer and reflux diseases, pregnancy, minor ailments, palliative care, seasonal influenza, alcohol misuse, smoking, weight reduction, and use of controlled substances.

To provide such services, collaborative practice models where pharmacists work together with other health care professionals have evolved in some countries. Formal incentives for pharmacists to work collaboratively with physicians are seen in Germany, the Netherlands and Switzerland [21]. In Finland, PPS have been introduced by means of disease-specific programs with community pharmacists becoming key members of national disease management strategies. For instance, the Pharmacy Asthma Program was launched in 1997, the Pharmacy Diabetes Program in 2000, and the Pharmacy Heart Program in 2005. Within such programs, pharmacists collaborate with physicians, nurses, and other health care professionals at the local level [22]. However, at present, none of these services are remunerated. In Germany, the so-called Family Contract has been introduced. In this program, pharmacists are remunerated for providing professional medication and disease management services to patients with asthma/COPD [21]. In the US, diagnosis-specific services provided by pharmacists are well developed under Medicare, the health program for elderly patients, and under Medicaid, the health program for individuals with low incomes [23]. In Australia, the Pharmacy Asthma Management Service involves pharmacists conducting regular consultations with patients suffering from asthma. The service complements asthma management plans set up by the patient’s general practitioner and other members of the asthma care team [24].

3.2.2. Health care services based on the patient’s use of medicines

Health care services based on the patient’s use of medicines can either focus on the use of medicines as a whole or on one specific type of medicine (e.g. anticoagulation management) [25]. Pharmacists have traditionally provided these services as part of their professional responsibility in supplying medicines to patients. Examples of these services include:

- Drug utilization reviews—when the patient’s medicines profile is reviewed by a pharmacist with or without the patient being in direct contact with the pharmacist.
- Medicines use review—one-to-one conversations between a patient and a pharmacist that are designed
to identify any problems a patient is experiencing with medicines (e.g. in New Zealand).

- Medication therapy management or medication reviews include a full clinical examination of the medicines used in relation to diagnoses, laboratory tests, and clinical history.

In England and Wales, the PPS remuneration is divided into essential services (e.g. dispensing prescriptions, repeat dispensing, waste disposal, and participation in public health campaigns), advanced services (medicines use review and prescription intervention) and enhanced services (e.g. pharmacist prescribing, domiciliary visits, opioid substitution program enforcement, vaccine administration, weight management). All community pharmacies with a National Health Service contract need to provide the full range of essential services, whereas advanced and enhanced services are optional, and might require additional education. The essential and advanced services are commissioned by the National Health Service and, thus, cover people throughout the country. The enhanced services are commissioned by the local Primary Care Trust, and are thus not evenly distributed over the country [15].

In the US, the Medicare Part D Medication Therapy Management Programs (MTMP) exemplify a reimbursed PPS based on the patient’s use of medicines [26,27]. The programs purport to optimize therapeutic outcomes through improved medication use, and to reduce the risk of adverse events. The programs specifically target patients with multiple diseases, using multiple medicines or with high medicine costs. Pharmacists are the leading provider of MTMP services, although these services often involve a multi-disciplinary approach.

Medicaid in the US reimburses pharmacists for some health care services based on the patient’s use of medicines, often demanding collaboration between pharmacists and physicians [28]. Iowa has, for example, a Medicaid Pharmaceutical Care Management program. The program involves physicians and pharmacists working together to closely manage the total medication regimens of the most complex patients. Under the Missouri Medicaid Pharmacy program, physician/pharmacist teams develop plans of care and complete follow-ups of their patients. In Australia, the Home Medicines Review program assists patients living at home to maximise the benefits of their medication therapy and to prevent medication-related problems. The review includes the patient’s preferred community pharmacy, general practitioner and, if appropriate, other members of the healthcare team (e.g. nurses in community practice) [29].

3.3. Factors affecting PPS remuneration

A number of factors affect the remuneration of PPS, including the value of PPS, budgetary constraints, the payer perspective, the attitude of physicians, pharmacists and patients.

3.3.1. Value of PPS

PPS remuneration is likely to depend on the value of PPS. There are examples of researchers and the pharmaceutical profession collaborating to provide a body of evidence on the effectiveness and the cost-effectiveness of PPS to support changes in health policy and to obtain remuneration for PPS. For instance, Australia has implemented a range of PPS at a national level in a systematic way, following a funded research program to gather evidence on the effectiveness and the cost-effectiveness of PPS [30,31]. Such evidence has served to inform negotiations between the Pharmacy Guild and the federal government to remunerate PPS. Examples of such PPS include Home Medicines Review, the Diabetes Medication Assistance Service, the Pharmacy Asthma Management Service, and Dose Administration Aids [20,24].

3.3.2. Budget

Within the context of a fixed budget, the decision to remunerate PPS implies that other health care resources receive less remuneration. If PPS remuneration is part of the pharmaceutical budget, PPS vie with medicines for the limited available funds. To inform such choices, studies need to assess the impact of pharmaceutical policies. For instance, a new remuneration model for community pharmacy is under discussion in Belgium which, for the first time, would provide remuneration for specific PPS. However, this model is being developed subject to the constraint of budget neutrality, implying that fewer resources are available to fund other pharmaceutical expenditure. The need to balance budgets will become more challenging given that more new and expensive medicines are likely to gain marketing authorisation in the near future [32]. In this context, it is important to introduce incentives for pharmacists that are oriented to supporting effective, cost-effective and high-quality medicinal therapy.

3.3.3. Payer

PPS remuneration models are influenced by the way in which health care financing is organised in a country. For instance, in the US, the federal government pays for some services (e.g. through Medicare), the different states for some services (e.g. through Medicaid) and private insurances for some services. Payments for PPS are included in some of the federal and state programs, but very seldom in other programs.

3.3.4. Physicians

The number of physicians as compared to the perceived social need appears to influence the expansion of the role of pharmacists. A shortage of physicians has been reported as one factor explaining the British effort to gradually extend the community pharmacist’s role [33]. Conversely, the existence of a physician surplus in a country may inhibit the development and remuneration of PPS. Additionally, physicians may be concerned about the expansion of the pharmacists’ role [34].

3.3.5. Pharmacists

Pharmacists have the competence to perform multiple roles. As a result, changing professional aspirations have driven the transition in the role of community pharmacists towards developing PPS [35]. However, pharmacists
themselves sometimes argue against PPS because of time constraints, insufficient education and training, poor pharmacy layout and absence of separate area for consultation, low staff levels, and poorly developed relationships with physicians [16,36].

3.3.6. Patients
In a context of rising public expectations, research has demonstrated that patients tend to value PPS and are willing to pay for PPS related to, for instance, over-the-counter medicines [37,38]. However, even though patients might welcome the opportunity to talk to a pharmacist about their medicines, they still regard the physician as the health professional in charge of their medicines. They therefore do not always appreciate the pharmacist recommending a change in their medicine therapy.

4. Discussion
Overall, countries have used different strategies towards developing and remunerating PPS. In Canada, the prime focus has been on internal change from within the profession. In Australia, emphasis is placed on proving the cost-effectiveness of PPS. In Scotland, the government is driving towards a more clinical role of the pharmacy profession when it negotiates with the profession for developing and remunerating PPS. Many countries use a mix of strategies. In this section, we propose a strategy for developing and remunerating PPS that involves changing the pharmacy profession, setting up quality standards for PPS, documenting the value of PPS, and viewing the pharmacist as a member of a health care team.

There is a need for a strong and active professional organisation, which supports the development and remuneration of PPS. For instance, in Canada, eight critical steps have been identified as part of a strategy aimed at changing the pharmacist’s profession [39]. These include establishing a sense of urgency, form a powerful guiding coalition, create a vision for practice, communicate the vision, remove obstacles to the vision, plan and create short-term wins, consolidate improvements and produce more change, and institutionalize new approaches. In Australia, the Fourth Community Pharmacy Agreement negotiated between the Government and the Pharmacy Guild of Australia provides funding for a number of professional programs and services, including one aiming specifically at assisting the profession in changing to a more service-oriented model [40].

There is a need to adopt a definition and specification of PPS. In Brazil, a proposal for national consensus on PPS was published in 2002 and was confirmed by the national policy of pharmaceutical services of the Department of Health. This consensus provided a definition of PPS and listed different services [41]. In Spain, the Pharmaceutical Care Forum was established in 2004 to debate the strategies needed for the adoption and development of PPS [42]. The Belgian legislator recognized the importance of PPS by providing a definition in 2006 and by starting the work on a remuneration system [43].

Community pharmacy service has shifted from the mere supply of medicines to being responsible for safe and effective use of medicines. Pharmacists must be competent to deliver PPS aimed at promoting quality use of medicines. This not only requires the necessary education and training, but also the implementation of clinical governance and accreditation standards to develop and follow-up PPS provision. For instance, the UK model suggests that pharmacy should display advance practice licenses that are visible to the public and the payers, and should market those pharmacists who are accredited [15].

There is a need to document and demonstrate the value of PPS and to scientifically test new services to show them to be cost-effective. Demonstrating the value of PPS has been shown to be instrumental in attracting remuneration for such services [20,24,30,31]. Economic evaluation techniques can be used as a tool to assess the efficiency of PPS by linking their impact on clinical and humanistic outcomes to the resources required to achieve these outcomes. Additionally, as policy makers appreciate the need to evaluate projects on the basis of their costs and benefits, the application of economic evaluation techniques to PPS may serve as a way of communicating with policy makers and informing policy on PPS [44]. For instance, an evaluation of the Minnesota Medication Therapy Management Program showed that the clinical outcomes achieved in the program were positive, as well as the quality of care provided. Although there was a slight increase in health expenditure, it was concluded that the improvements in clinical outcomes and quality of care were worth the additional expenditure [27].

Team work where the pharmacist is part of a health care team is essential to the delivery of PPS. The ability of pharmacists to provide PPS may depend on the extent to which work can be shared or delegated within the pharmacy team. For instance, to address the issue of lack of time to provide PPS, it has been suggested that routine dispensing tasks be assigned to pharmacy technicians [45]. Teamwork also implies that the pharmacist works together with other health care professionals. For instance, pharmacists in England and Wales now have the right to prescribe independently, or supplementary in collaboration with the responsible physician, both after having been accredited. To date, little evidence is available about the perceptions of various stakeholders to pharmacist prescribing or the clinical and economic impact of pharmacist prescribing [46]. In Alberta (Canada), the adjustment of prescriptions by pharmacists can go as far as choosing a therapeutic (not generic) equivalent.

5. Conclusions
Pharmacists have the competence to support the appropriate use of medicines by patients. Pharmacy professional organisations need to formulate a clear strategy for developing PPS with a view to gaining remuneration for these services. It is therefore necessary for pharmacists not only to document and demonstrate the value of PPS, but also to assure the quality of services provided. A holistic approach
that takes into account organisational aspects, regulation, education and research is called for.

Conflict of interest

The authors have no conflicts of interest that are directly relevant to the content of this manuscript.

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