Chapter 14
Pharmaceutical Care in Europe

Filipa Alves da Costa

Abstract This chapter focuses on pharmaceutical care provision in Europe. It describes the pharmacy structure, pharmacists' workforce and research in pharmacy practice in Europe, while highlighting selected countries with particularities. The diversity of pharmacy services, their complexity, and their influence on the evolution of more structured services is explored. There is a tendency for a greater uptake of simpler services like medication review (type I) with a greater difficulty in establishing long-term care that requires interprofessional collaboration. Examples of milestone research studies are given due to their influence on service provision. The progressive spread of pharmaceutical care from central and northern Europe to south and more recently to eastern countries is also briefly mentioned. The influence of incentives, such as legal recognition, professional collaboration, and remuneration for service provision, has been mentioned contextually, as described in Fig. 14.1. However, it should be noted that the role of the citizens as an engine determining successful implementation has not been explored (see Chap. 3). Similarly, the theoretical influence of the illustrated boxes is not detailed in this chapter (see Chap. 18).

Keywords Pharmaceutical care · Europe · Pharmaceutical services
Medication review · Remuneration

14.1 Pharmacy Practice in Europe

Pharmacy practice may be defined as the act of delivering products and services in a pharmacy by any member of staff.

The original version of this chapter was revised: The affiliation of editor, Professor Filipa Alves da Costa has been updated. The erratum to this chapter is available at https://doi.org/10.1007/978-3-319-92576-9_41

F. Alves da Costa (✉)
Instituto Universitário Egas Moniz (IUEM), Monte da Caparica, Portugal
e-mail: alvesdacosta.f@gmail.com

F. Alves da Costa et al. (eds.), *The Pharmacist Guide to Implementing Pharmaceutical Care*, https://doi.org/10.1007/978-3-319-92576-9_14

Good pharmacy practice (GPP) is defined as "*the practice of pharmacy that responds to the needs of the people who use the pharmacists' services to provide optimal, evidence-based care. To support this practice it is essential that there be an established national framework of quality standards and guidelines*" [1].

Currently, in a European pharmacy, we may find the traditional services focused on the product, where the pharmacist's role is mainly to produce or eventually trade the pharmaceutical, while ensuring the formulation is correct, and the dose and route are appropriate to treat a medical indication. Then, we may find the more patient-centered services which encompass a vast range of services, which will depend not only on the legislation in place but also on the incentives for implementation. These may be classified using different definitions. The Pharmaceutical Group of the European Union (PGEU) is an international association whose members are national associations and professional bodies of community pharmacists from 33 European countries. PGEU aims to advance the contribution of community pharmacists to the healthcare system working through legislative and policy initiatives. The PGEU in 2010 proposed a three-level classification of pharmacy services [2]:

- Core services: essential services provided by all licensed pharmacies during core pharmacy opening hours;
- Basic services: may require separate consultation facilities and special training of pharmacy staff; may need to be available outside core pharmacy opening hours; and
- Advanced services: require separate consultation facilities in the pharmacy and accredited pharmacists to provide it.

Examining sequentially these annual reports issued by PGEU, it becomes quite clear that the core services are easier to implement and disseminate. Surely, every pharmacy in all European countries will dispense prescriptions. In the majority of countries, night services and disposal of medicines are also available. The measurement of biomarkers is another service also consistently reported as implemented in the majority of European countries, although with varying numbers according to the parameter considered (e.g., weigh measurement, blood pressure, glycaemia, etc.) [2–6]. Smoking cessation has also progressively been spreading as a pharmacy service in Europe [6].

14.2 Community Pharmacy Structure

Pharmacies do not look the same in all Europe or are even homogenous within the same country. The legal framework of the country may impose restrictions applicable to the ownership, geographic location, and number of inhabitants served by a pharmacy, minimum areas for the pharmacy to be set, for services, medicines, and products allowed to be made available and even to the professions allowed to work within pharmacies. The variation is enormous within such a small continent and very well portrayed in PGEU reports. In all Europe, you may find prescription-only

medicines, over the counter medicines, medical devices, and cosmetics [7] and in the vast majority, pharmacy-only medicines. Ownership is restricted to pharmacists in an insignificant number of countries (e.g., Spain), although the presence of a supervising pharmacist is compulsory. This pharmacist's role is to supervise all members of staff, to ensure they are adequately trained to provide a good service to the population and to supervise the premises and the enforcement of the legal framework. In most countries, the staff is restricted to pharmacists and pharmacy technicians, although in a few countries there are allied healthcare professionals.

The term community pharmacy arises historically from the idea of having a pharmacy to serve one community of citizens, deeply embedded in the idea of its major focus being disease prevention and primary care provision. However, not in all countries is the location of pharmacies restricted to communities. In some areas, you may find pharmacies in healthcare centers, in suburbs, or in shopping centers. Also, currently in most countries you may have independent pharmacies and chain pharmacies. In restricted countries, there are virtual chains of pharmacies, which maintain their independent ownership but gather to have more benefits in procurement of medicines or even on standardized service implementation. According to GPP, pharmacies should all have an inviting atmosphere, look professional, and be health-oriented.

14.3 Implemented Services

Some services have been important marks for good pharmacy practice in Europe. These are services that may arise only in one country and never be implemented in neighbor countries. They may even have been interrupted in the original country for various barriers encountered. However, they indirectly contribute to the advancement of pharmacy practice in general and to pharmaceutical care in particular, and are therefore worth highlighting.

Service name, (country where it originated)	Brief description of the service
Disease-based pharmaceutical care programs (Portugal)	Programs targeted at patients with specific chronic conditions, where the pharmacist is continuously responsible for detecting, preventing, or solving DRPs, but also engage in related activities that optimize medication use, such as health education, instruct on the use of medical devices, or promote self-management and medication adherence. Existing for three groups: asthma/COPD, diabetes, and hypertension/hyperlipidaemia
Quality Circles (The Netherlands)	Peer review and quality circles are a method for quality improvement in primary care that involves organizing meetings of small groups of pharmacists and physicians (most frequently, but not always) to discuss what activities can be implemented to improve patient care.

(continued)

(continued)

Service name, (country where it originated)	Brief description of the service
	These may encompass overarching activities such as pharmaceutical care for chronic patients or take on a more specific focus such as improving the quality of prescribing in upper respiratory tract infections
Medicines Use Review (United Kingdom)	Service intended mainly for patients on medicines for long-term conditions, targeting first polypharmacy. The pharmacist reviews the patient's use of medication, focusing on patient's understanding of medicines use and reasons for their need. Pharmacists seek to identify any problems and act upon them and, when necessary, provide feedback to the prescriber. The term MUR comes from the UK, but medication review per se may exist in various formats with slight or major differences elsewhere
Polymedication check (Switzerland)	Service targeted at polypharmacy patients which is considered a level II medication review [8]. If adherence issues are detected, the patient may be referred for another service, e.g., the dose administration aid system (blister pack)
New Medicines Service (NMS) (United Kingdom)	Service intended for people with long-term conditions newly prescribed a medicine. The service aims to improve medication adherence, particularly persistence and patient outcomes. Generally organized according to disease subgroups (e.g., NMS type 2-diabetes). The pharmacist provides an in-depth first counseling to instruct the patient on medicines use, and then follows up potentially arising barriers and monitors medicines use at 1 week and periodically during the first 2 months
Pharmacist Prescribing (United Kingdom)	The possibility for pharmacists to prescribe medicines exists under two formats: independent prescribing and supplementary prescribing. The first assumes that the healthcare professional prescribing must have also the responsibility (and ability) to assess the patient who does not have a medical diagnosis established and decides on the necessary clinical management. The act of supplementary prescribing (formerly known as dependent prescribing) assumes that a diagnosis has been established and serves the purpose of ensuring continuity of care. One possible format is by renewing the prescription, albeit with the autonomy to adjust dose or dosage form to meet patients' needs. The intention of this service if also to increase access to medicines. In the UK, pharmacists (and nurses) can prescribe any drug (including controlled) as long as a clinical management plan exists. This plan is established with the patient and with the independent prescriber

14.4 Medication Review in Europe

Medication review (MR) is integral to pharmaceutical care (see also Chap. 7). It has been defined by Pharmaceutical Care Network Europe (PCNE) as a *structured evaluation of patient's medicines with the aim of optimizing medicines use and improving health outcomes. This entails detecting drug-related problems and recommending interventions* [9]. Medication review may be provided in three main levels depending on the sources of information available: The Simple MR or PCNE Type 1 (based on the available medication history in the pharmacy), the Intermediate MR or PCNE Type 2A (when the patient can be approached for information) or 2B (if GP information is also available), and the Advanced MR or PCNE type 3 (based on medication history, patient information, and clinical information). Obviously depending on the type of information available, the problems possible to detect vary.

14.4.1 Value of Medication Review

A recent review focusing on service provision in nursing homes, including eight studies, suggested that the service had a positive impact on the identification of drug-related problems and on the appropriateness of medication but neutral or negative impact on the remaining outcomes evaluated [10]. Medication review may be provided in various settings, an aspect dealt with in Chap. 7, and should not be confused with pharmaceutical care. As detailed in Chap. 1, medication review may be considered one component of pharmaceutical care, but pharmaceutical care is more than that. Pharmaceutical care has two core components: the involvement of the patient and the continuity of care. None of these is compulsory in all types of medication review. Therefore, it is not surprising that pharmaceutical care is much more difficult to implement and disseminate and ultimately to generate evidence of positive patient outcomes.

14.4.2 Implementation of Medication Review in Europe

In 2014, quite a comprehensive study was published where the implementation of the service in various European countries was reported [11]. This study reports on the findings from 16 countries, indicating that medication review is spread in the community setting in 9 and 11 countries, for levels I and II, whereas level III was just reported for 6 countries. Overall, in the outpatient setting, one may expect to find at least one modality of medication review in more than 80% of the countries surveyed. Worth remarking that the three countries where the service was reported as inexistent in the community setting, it was reported for the hospital setting (in

France, Latvia, and Iceland). Some limitations of this study that ought to be mentioned are the restricted sample but also the mailing list used, which arose from PGEU, a political organization, hence reporting bias cannot be disregarded. In fact, according to this same organization, in 2016, there were 13 countries providing medication review as a service whereas in 2017, 100% of the countries reported to provide MR type 1 and 53% MR type 2 [12]. Worth noting that the universe judged by the PGEU, albeit not reported, should encompass 33 countries. The sample is obviously more robust but the respondents again have vested interests in the information broadcasted. Additionally, in all these data sources, we only have access to the reported service provision in the country, but is unknown if the service is locally or nationally implemented. Bulajeva and colleagues tried to explore this aspect but found limited information [11].

14.5 The Effect of Pharmaceutical Care in Europe

Pharmaceutical care is the pharmacist's contribution to the care of individuals in order to optimize medicines use and improve health outcomes, as presented in Chap. 1 of this book. It is therefore depending on the legal framework, either a basic service or an advanced service. In most countries, pharmaceutical care is exclusively provided by pharmacists, who are advised to undergo special training to provide a high-quality service. However, the explicit demand to have an independent accrediting body who will attest the pharmacist's competence to provide the service is not that frequent.

Pharmaceutical care may be named differently in various European countries and sometimes even within the same country at different time periods. This fact makes it more difficult to have an overview of the benefit of services or even of the implementation.

Various systematic reviews have been published in the last decade referring to the value of pharmaceutical care. The service may be named slightly different but when comparing the service characteristics, they are often quite similar although perhaps provided in another setting. This is the case for clinical pharmacy, a concept more commonly used in hospital pharmacy.

Author, year	Term used	Number of studies included	Outcome and conclusion
Nkansah et al. [13]	Outpatient pharmacists' non-dispensing roles: patient counseling, **therapeutic management**, health professional education	43 RCTs	Improved prescribing patterns of physicians

(continued)

(continued)

Author, year	Term used	Number of studies included	Outcome and conclusion
Ryan et al. [14]	Interventions to improve safe and effective medicines: medication review, **medication management**, disease self-management, educational programs	75 systematic reviews	Improved medication use; increased knowledge; reduced mortality
Rotta et al. [15]	**Clinical pharmacy** services	49 systematic reviews	Services focusing on specific medical conditions (e.g., diabetes) showed a positive impact on patient outcomes. The results were inconclusive for other medical conditions

One study worth highlighting, although not a systematic review, is the PINCER trial, which involved nearly 500,000 patients and showed that a pharmacist-led information technology-based intervention had a 95% probability of being cost-effective, which is a fundamental aspect to consider when deciding if a new service is worth upscaling [16]. The service delivered in this study focused on the prevention and correction of three specific drug-related problems and suggested each error avoided saved 95€.

Optimizing medication use is the core of pharmaceutical care, which is achieved by monitoring the occurrence of drug-related problems, which must be prevented or solved by an appropriate intervention, whenever considered that these will benefit the patient's health outcomes. To provide such service, normally pharmacists in Europe use a drug-related problems classification and there are various available, as explored in Chap. 2 of this book. Counseling and other promotion activities mentioned in previous chapters will also contribute to achieve optimal medication use.

14.5.1 Research Conducted Around Pharmaceutical Care Implementation and Practice in Europe

Pharmaceutical Care Network Europe (PCNE) is a research-based organization that joins experts in pharmaceutical care to periodically discuss ways to positively influence practice through research. When this organization was established, one of the initially multicentred projects developed was the OMA (Elderly Medication Analysis) study [17]. This project involved 7 countries in Europe and was set as a controlled trial involving roughly 200 pharmacies monitoring around 2500 elders during 18 months. The most positive outcomes reported were cost savings, and patients' and providers' satisfaction. Additionally, considering this happened at the

end of the 90s, the most important "side effect" was that it created the need for community pharmacists to establish links with the GPs and to initiate collaborative work to rationalize and optimize pharmacotherapy, leading to practice change at least in the participating countries (Northern Ireland, Ireland, Denmark, Germany, Portugal, the Netherlands, and Sweden). However, the sustainability of the interventions was, as in most research studies, limited. Different formats of service provision centered on the elderly and polypharmacy have ever since developed in some of these countries, namely, in Germany, Northern Ireland, and the Netherlands, adopting different names, structures, and even settings (see Chaps. 7 and 26).

Around the same time, the TOM study was initiated. TOM was an acronym created for Therapeutic Outcome Monitoring, which was a model first defined by Hepler for increasing pharmacists' role in primary health care. TOM was based on a continuous quality improvement system applied to pharmaceutical care to detect, prevent, and resolve DRPs in asthma patients. This project was conducted as a controlled intervention study (grouped at the pharmacy level) and focused on medicines optimization for asthmatics, involving close cooperation between pharmacists, GPs and patients. Austria, Belgium, Canada, Denmark, Florida (US), Germany, Iceland, Northern Ireland, and the Netherlands were involved, although some countries reached better results than others. In Denmark, for example, 500 patients were involved and positive outcomes were shown in symptom control, days of sickness, and health-related quality of life [18]. The consumption of β2-agonists decreased aside with corticosteroid increase, suggesting improved asthma treatment [19]. These research projects were important to lead practice, and the TOM project in Denmark is an excellent example of a research initiated service that later culminated in regular service provision, although using a modified structure. Currently, in Denmark, the Inhalation Technique Assessment Service (ITAS) is provided nationwide and remunerated at 8.5 €/session [20]. The service spread to neighboring countries, and currently also exists in Norway with similar implementation level and fee for service. ITAS also exists in the Netherlands.

Simultaneously, the TOMCOR project also developed in Spain, involving over 80 pharmacies and using a similar approach directed at coronary disease patients [21].

The structural aspects of pharmacies, the education, and training of pharmacists and even the social, economic, and political context of the different countries have led to different speeds for service uptake. A series of papers describe the services provided in a selected number of countries around the world, focusing on pharmaceutical care practice, education, and research [22]. Around the same time, an overarching paper describing pharmaceutical care in Europe and focusing on community pharmacy highlighted that in 2006 already pharmaceutical care was included in contracts with insurers, although remuneration was still very limited [23]. A barrier to implementation highlighted at the time was the lack of interprofessional collaboration, often arising during education. A facilitator for implementation was then considered the specialization in a given disease area, which perhaps led to the developments observed in various countries, where disease-led pharmaceutical care programs have become more common.

Nearly a decade later, a survey conducted in 19 countries described the healthcare functioning, education, and training of pharmacists and the state of implementation of various services in pharmacy practice. This study showed that the UK was the country with the widest range of defined services available, including pharmacists prescribing, the sole service unavailable in Portugal. Fourteen countries reported to have pharmaceutical care programs implemented, representing 74% of the sample. Medication review was only reported by 12 of these countries (63%) [7].

In 2006, a PCNE initiated multicentred study led by the University of Belfast was set to assess the provision of pharmaceutical care, using the Behavioral Pharmaceutical Care Scale (BPCS) [24]. The study involved 14 countries and findings suggest a limited provision of pharmaceutical care in Europe. The country attaining the highest score was Ireland. Of notice was the fact that countries where pharmacists were supported by other healthcare professionals in their daily activities, like Ireland or England, higher scores were achieved on the referral and consultation domain. It is worth acknowledging that results may be biased since the survey emerged from one specific healthcare model.

Around 10 years later, this group reassessed the situation in Europe using the same measurement scale in 15 countries and reported that for countries participating in both studies (n = 8) there was a slight but significant improvement in the implementation level. The two countries highlighted as having achieved a more remarkable evolution were Denmark and Switzerland. Additionally, the authors also commented on the wider country uptake. Considering the overall sample, the lowest score was this time found in Moldova and the highest in Switzerland. The trends observed in country distribution suggest countries more recently joining Europe are at a later stage of implementation, i.e. the laggards. There also seem to be clusters of pharmacy practice within Europe with various degrees of differentiation of services, particularly in patient-centeredness. However, it was concluded that the speed of implementation was lower than expected and could be further motivated by external triggers such as remuneration [25]. In fact, remuneration of pharmaceutical care which has been frequently mentioned as a facilitator for implementation has been achieved partly or in full at least in the Netherlands, Switzerland, Germany, and Great Britain. It was once also reported in Portugal, but no longer active.

Acknowledging the varying economic and political context in Europe, and the limitations in previous studies published, the PRACTISE study (*PhaRmAcist-led CogniTIve Services in Europe*) was initiated in 2016 by a working group within PCNE [26]. This project intended to update and explore the existing information on service implementation in Europe and to investigate the associated remuneration for service provision. Remuneration of interest was of a third-party payer, excluding out-of-pocket payments by patients. Preliminary data suggests that the level of implementation varies widely between countries and within each of the countries. The complexity of services seems to be inversely related with the level of implementation, implying core services are implemented in 23–100% of countries in Europe, whereas advanced services range from 3 to 53% of surveyed countries [27].

Although the refinement of data through consensus is ongoing, preliminary analysis suggests that pharmaceutical care may be implemented in 15 countries, representing 44% of the surveyed sample. Worth acknowledging that probably not all respondents understand the essential cornerstones of pharmaceutical care, as defined in this book. The majority considered pharmaceutical care to be an independent service (n = 9), whereas the remainder considered it as part of regular dispensing (n = 6). This may relate to the understanding of the terminology, the legislation in place, and also the existence of a separate fee for service provision.

Reporting PhCare as a separate service	Reporting PhCare to be part of dispensing	Reporting not to have PhCare
Austria	Albania	England[a]
Croatia	Belgium	Estonia
Denmark	Bulgaria	France
Germany	Finland	Georgia
Portugal	Hungary	Iceland
Slovenia	Ukraine	Ireland
Spain		Kosovo
Sweden		Latvia
The Netherlands		Luxembourg
		Macedonia
		Malta
		Northern Ireland
		Norway
		Poland
		Romania
		Serbia
		Slovakia
		Switzerland[b]
		Turkey

[a]MUR is a commissioned service defined differently, but which could be considered as part of pharmaceutical care

[b]Polymedication check is a service intended for improving medication use that may be considered to fit into pharmaceutical care but having particularities

14.5.2 Policy and Practice Around Pharmaceutical Care in Europe

The extent to which pharmaceutical care has been embraced by the different governments in Europe varies widely. In some countries, pharmaceutical care is officially recognized in the legislation, like in Spain or in Portugal. However, that does not imply that the service is structured or standardized, provided continuously and

aiming to detect drug-related problems to optimize patients' outcomes. Also, law recognition does not imply that pharmaceutical care is understood in all Europe as an advanced service, exclusively provided by accredited pharmacists. In some countries, the approach to pharmaceutical care suggested by Strand et al. is used, defined as a practice that encompasses various activities contributing to an improved use of medicines, such as pharmacovigilance, information provision, and adherence programs, to name a few. Interpreting pharmaceutical care as a philosophy where the pharmacist is held accountable for therapy outcomes implies that legal recognition is needed to protect pharmacists from falling into a vulnerable situation. Drug-induced hospitalizations are well documented and mostly preventable.

Service delivery, improvement, and implementation follow different paces, and can be of different qualities. Conscious of that, a policy document has been proposed by the European Directorate for the Quality of Medicines & HealthCare in 2012, intended to capture very general pharmaceutical care indicators, so that they could be used in low-, middle-, and high-income countries and for both community and hospital pharmacy [28]. With the help of these indicators, the implementation level of the quality of care in pharmacy can be monitored. The four basic indicators are number of pharmaceutical care interventions delivered, number of patients counseled about their medicines, number of formal written feedback responses from patients during treatment, and number of adverse drug event reports.

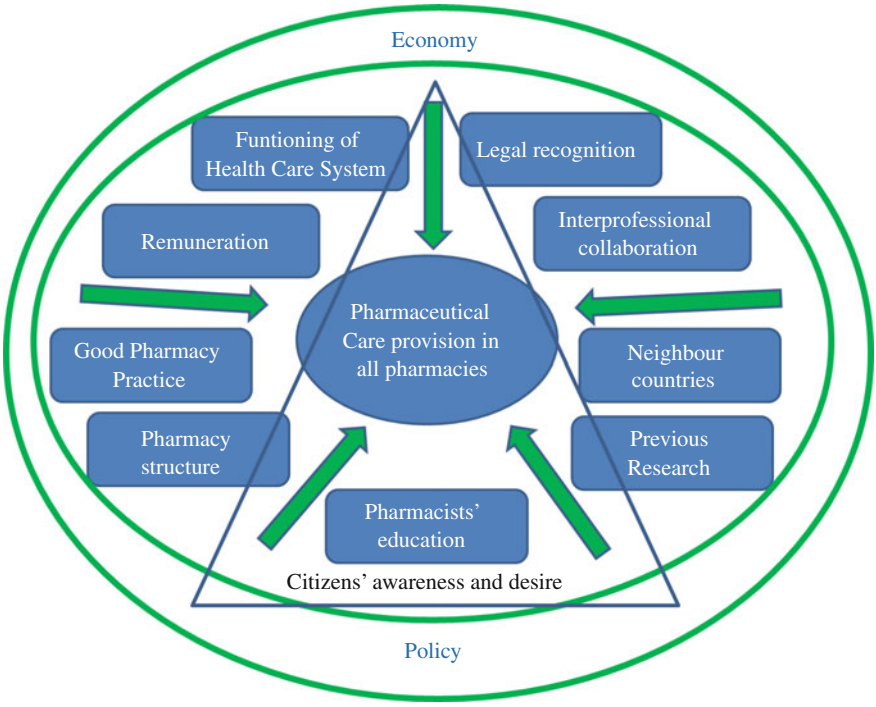

Fig. 14.1 Summary illustration of concepts described in this chapter

References

1. FIP. Joint FIP/WHO guidelines on good pharmacy practice: standards for quality of pharmacy services. Geneva. 2011.
2. Pharmaceutical Group of the European Union. Providing Quality Pharmacy Services to Communities in Times of Change. Annual Report. 2010.
3. Pharmaceutical Group of the European Union. Community Pharmacy, the Accessible Local Healthcare Resource. Annual Report 2013.
4. Pharmaceutical Group of the European Union. Promoting Efficiency, Improving Lives. Annual Report 2014.
5. Pharmaceutical Group of the European Union. Pharmacy with you through life. Annual Report 2015.
6. Pharmaceutical Group of the European Union. Community pharmacy, a public health hub. Annual Report 2016.
7. Pharmaceutical Group of the European Union. Measuring health outcomes in community pharmacy. Annual Report 2017.
8. Martins S, van Mil JWF, Costa FA. The organizational framework of community pharmacies in Europe. Int J Clin Pharm. 2015;37(5):896–905.
9. Hersberger KE, Messerli M. Development of clinical pharmacy in Switzerland: involvement of community pharmacists in care for older patients. Drugs Aging. 2016;33(3):205–11.
10. Hersberger KE, Griese-Mammen N, Kos M, Horvat N, Messerli M, van Mil FJW. PCNE Position Paper on Medication review, April 2016.
11. Alldred et al. Interventions to optimise prescribing for older people in care homes (Review). The Cochrane Library 2013, Issue 2.
12. Bulajeva A, Labberton L, Leikola S, Pohjanoksa-Mäntylä M, Geurts MME, De Gier JJ, Airaksinen M. Medication review practices in European countries. Res Soc Adm Pharm. 2014;10(5):731–40.
13. Nkansah N, Mostovetsky O, Yu C, Chheng T, Beney J, Bond CM, Bero L. Effect of outpatient pharmacists' non-dispensing roles on patient outcomes and prescribing patterns (Review). The Cochrane Library 2010, Issue 1.
14. Ryan R, Santesso N, Lowe D, Hill S, Grimshaw J, Prictor M, … Taylor M. Interventions to improve safe and effective medicines use by consumers: an overview of systematic reviews (Review). The Cochrane Library 2014, Issue 4.
15. Rotta I, Salgado TM, Silva ML, Correr CJ, Fernandez-Llimos F. Effectiveness of clinical pharmacy services: an overview of systematic reviews (2000–2010). Int J Clin Pharm. 2015. https://doi.org/10.1007/s11096-015-0137-9.
16. Avery AJ, Rodgers S, Cantrill JA, Armstrong S, Cresswell K, Eden M, Prescott RJ. A pharmacist-led information technology intervention for medication errors (PINCER): a multicentre, cluster randomised, controlled trial and cost-effectiveness analysis. The Lancet. 2012;379(9823):1310–9.
17. Bernsten C, Björkman I, Caramona M, Crealey G, Frøkjær B, Grundberger E, McElnay J. Improving the well-being of elderly patients via community pharmacy-based provision of pharmaceutical care. Drugs Aging. 2001;18(1):63–77.
18. Herborg H, Søndergaard B, Frøkjær B, Fonnesbæk L, Jörgensen T, Hepler CD, Grainger-Rousseau T-J, Ersbøll BK. Improving drug therapy for patients with asthma—Part 1: patient outcomes. J Am Pharm Assoc. 2001;41(4):539–50.
19. Herborg H, Søndergaard B, Jörgensen T, Fonnesbæk L, Hepler CD, Holst H, Frøkjær B. Improving drug therapy for patients with asthma—Part 2: use of antiasthma medications. J Am Pharm Assoc. 2001;41(4):551–9.
20. Kaae S, Søndergaard B, Stig L, Traulsen JM. Sustaining delivery of the first publicly reimbursed cognitive service in Denmark: a cross-case analysis. Int J Pharm Pract. 2010;18(1):21–7.

21. Miragaya LC, Riera TE, González PA, Toledo FA, Sanchez GA. Evaluación económica de la atención farmacéutica (AF) en oficinas de farmacia comunitarias (Proyecto TOMCOR). Rev Esp Econ Salud. 2002;1(4):45–59.
22. Farris KB, Fernandez-Lllimos F, Benrimoj SI. Pharmaceutical care in community pharmacies: practice and research from around the world. Ann Pharmacother. 2005;39:1539–41.
23. Van Mil JWF, Schulz M. A review of pharmaceutical care in community pharmacy in Europe. Harvard Health Policy Review, 2006;7(1):155–68.
24. Hughes C, Hawwa AF, Scullin C, Anderson C, Bernsten C, Bjorndottir I, et al. Provision of pharmaceutical care by community pharmacists: a comparison across Europe. Pharm World Sci. 2010;32(4):472–87.
25. Costa F, Scullin C, Al-Taani G, Hawwa A, Anderson C, Bezverhni Z, et al. Provision of pharmaceutical care by community pharmacists across Europe: is it developing or spreading? J Eval Clin Pract. 2017. https://doi.org/10.1111/jep.12783.
26. Isenegger T, Soares MI, Costa FA, Hersberger K. PRACTISE—PhaRmAcist-led CogniTIve Services in Europe—a survey on remuneration of pharmacist-led cognitive services with a focus on medication review: study protocol and pilot study. Int J Clin Pharm. 2017;39:208. https://doi.org/10.1007/s11096-016-0404-4.
27. Soares IB, Imfeld-Isenegger T, Makovec UN, Horvat N, Kos M, Hersberger KE, Costa FA. On behalf of PCNE PRACTISE team. PRACTISE—PhaRmAcist-led CogniTIve Services in Europe: preliminary results. Transl Res Innovation Hum and Health Sci, Ann Med. 2018;50 (1):S10–S170. https://doi.org/10.1080/07853890.2018.1427445
28. European Directorate for the Quality of Medicines & HealthCare (EDQM). Pharmaceutical Care. Policies and practices for a safer, more responsible and cost-effective health system. Strasbourg, 2012.