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Expanding professional pharmacy services in European community setting: Is it cost-effective? A systematic review for health policy considerations

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ABSTRACT

Objective: To synthesize cost-effectiveness analyses on professional pharmacy services (PPS) performed in Europe in order to contribute to current debates on their funding and reimbursement.
Methods: Systematic review in PubMed, Embase and the Centre for Reviews and Dissemination databases to identify full economic evaluation studies of PPS in community setting from 2004.
Findings: Twenty-one studies were included, conducted in the United-Kingdom (n = 13), the Netherlands (n = 3), Spain (n = 2), Belgium (n = 1), France (n = 1) and Denmark (n = 1). PPS to enhance medicine safety (interprofessional meetings to reduce errors, n = 2) and access to medicines (minor ailment scheme, n = 1) were in favour of their cost-effectiveness in the UK context, but the evidence is not sufficient. Eleven studies assessed PPS to improve treatment outcomes of individual patients—such as pharmaceutical care services, medication review, educational and coaching program, disease support service, medicines management and telephone-based advisory for improving adherence. Findings were contradictory and did not lead to strong conclusion. Screening programs for different diseases showed robust positive results (n = 2) as well as smoking cessation services (n = 5) and should be considered to be more widely available in accordance with national context.
Conclusions: The review provides arguments for the implementation of PPS aiming to improve public health through screening programs and smoking cessation services. However, further full economic evaluations are needed to support or refute the added value of other services.

1. Introduction

The practice of community pharmacists (CPs), as a healthcare professional, has shifted from a traditional role of delivering medicines toward person-centred and collaborative care [1–3]. These changes in quality care standards reflect the definition of "pharmaceutical care" proposed by Hepler and Strand in 1990 [4] and were officially adopted

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Table 1
The four dimensions of the mission of community pharmacist by the Pharmaceutical Group of the European Union (PGEU).

Dimension 1: to enhance medicine safety and access to medicines • To prevent falsified medicines and medicines shortages. • To deliver medicines to care homes and the patients' home and assist patients who have complex treatment regimes in managing their medications (individual dosage systems). • To have the possibility to dispense prescription only medicines without a medical prescription in emergencies, under strict conditions and in collaboration with physicians.	Example of professional pharmacy services: supplementary/independent prescribing [62] and Minor ailment Scheme [63] in United Kingdom, Automated dose dispensing of medicine in Denmark [64]
Dimension 2: to improve treatment outcomes of individual patients • To manage medication while further empowering patients to self-manage their condition. • To engage in collaborative care, e.g. while assisting in detecting and managing chronic disease. • To ensure the continuity of pharmaceutical care during the patient's transition between acute care settings and home.	Example of professional pharmacy services: pharmaceutical care services in United-Kingdom [48], Medicines Use Reviews in United-Kingdom [48], Questions to Ask About Your Medicines campaign in Finland [65]
Dimension 3: to improve public health • To support safe and effective self-care and self-medication. • To improve drug reactions reporting. • To spread public health messages • To develop screening programmes and further contribute to immunisation strategies	Example of professional pharmacy services: medication counselling in Finland [65], Screening programs for diabetes, osteoporosis, hypertension, coronary heart disease in Germany [51], Smoking cessation services in United Kingdom [48], Needle exchange program for drug users in Spain [66], Methadone substitution program in Portugal [67]
Dimension 4: to contribute to the efficiency and quality of the health system • To deliver services aiming to improve adherence and rationalise care of polymedicated patients. • To promote and facilitate greater use of cheaper medicines (substitution) • To encourage services such as dispensing repeat prescriptions and monitoring pharmacotherapy of individual patients, recommending dosage adjustments when appropriate	Example of professional pharmacy services: generic substitution in Denmark [64], Adherence-enhancing interventions in Switzerland [68], Drug waste management program in Portugal [67], Quality circles physicians–pharmacists in Switzerland [53]

in 2011 by the World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) [5,6]. The mission of pharmacy practice is to contribute to health improvement and to help patients with health problems to make the best use of their medications [6]. In practice, a variety of services are now available in pharmacies, ranging from screening services to the renewal of prescriptions, medication reviews, adherence-enhancing interventions, and so on. These services are integrated into daily practice and have developed differently across countries according to the national context, including pharmacist education, patients' and healthcare professionals' needs or health policy priorities. From a European perspective, differences in definition and name for approximately the same concept of CP practices make difficult the acceptance of a consistent denomination or classification of these services. Recently, Moullin et al. defined a professional pharmacy service (PPS) as "*an action or set of actions undertaken in or organized by a pharmacy, delivered by a pharmacist or other health practitioner, who applies their specialised health knowledge personally or via an intermediary, with a patient/client, population or other health professional, to optimise the process of care, with the aim to improve health outcomes and the value of healthcare*" [7]. PPS were divided into pharmaceutical services, i.e., those relating to drug therapy (including pharmaceutical care services, medication management services, clinical services and cognitive pharmaceutical services), and other healthcare services, i.e., those relating to health promotion and primary care [7]. Moreover, in 2012, the Pharmaceutical Group of the European Union (PGEU) proposed a classification delineating the CP's mission into four dimensions [8]. To optimise health outcomes of individual patients and add value to health systems across Europe, a CP must (1) enhance medicine safety and access to medicines, (2) improve treatment outcomes of individual patients, (3) improve public health, and (4) contribute to the efficiency and quality of the health system (Table 1). Although boundaries across these dimensions can be permeable, this classification seems to be the only one emerging from a European consensus.

Published literature suggests that PPS are likely to be effective in improving patient outcomes and delivering quality care [9–13]. Randomized controlled trials demonstrate that Spanish and Belgian pharmacists can ameliorate glycaemic control in diabetic patients through pharmaceutical care programs [14,15]; Dutch pharmacists can improve adherence in patients with heart failure [16]; and those from the United Kingdom (UK) can help people stop smoking with a structured approach in a community setting [17]. However, these practices are often local experiments and in spite of an international trend, the funding and reimbursement of PPS are not yet the general rule in Europe [18,19]. Their integration in healthcare systems and their sustainability require a demonstration of their cost-effectiveness [20]. In a context of financial constraints, economic evaluation leads to provide information about