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A Detailed Overview of the Ten Key Professional Roles of Pharmacists and Their Functional Scope

Wouter De Smet[1]*, Liesbeth Van Dam[1], Pieter Janssens[2]

[1]Department of Pharmacy Practice and Professional Development, Faculty of Pharmaceutical Sciences, KU Leuven, Leuven, Belgium.
[2]Department of Clinical Pharmacy and Health Services Research, Faculty of Pharmacy, Ghent University, Ghent, Belgium.

***E-mail** ✉ wouter.desmet@kuleuven.be

Abstract

Pharmacists are a profession that enjoys high public confidence and are the most approachable members of the healthcare team. For this reason, every pharmacist needs a clear understanding of their main professional roles (PR) and the specific professional functions (PF) that flow from them. The present study was undertaken to thoroughly break down the principal PR into an integrated collection of PF. Materials for the analysis included official statements and recommendations issued by the World Health Organization and the International Pharmaceutical Federation, as well as scientific publications dealing with pharmacists' professional roles. Critical analysis, concretization, functional decomposition, and scientific generalization were the principal methods employed. By applying these techniques to the ten core PR defined in the "ten-star pharmacist" concept, a consolidated pool of detailed partial PF was obtained for each role. The decomposition respected the principle of complexity limitation, yielding between three and six partial PF per role: three for the lifelong learner, five each for caregiver, decision-maker, teacher, leader, researcher, entrepreneur, and agent of positive change, and six each for communicator and manager. In total, this systematic breakdown of the ten main PR produced a multifunctional verbal model of pharmacists' complex professional activities comprising 50 distinct PFs. The study underscores the usefulness of this model for formulating professional competencies and expected learning outcomes in pharmacy education programs.

Keywords: "Ten-star pharmacist" concept, Professional role, Decomposition, Professional function, Professional education programs

Introduction

Because they practice a profession grounded in public trust [1], pharmacists occupy a central place in healthcare systems and contribute directly to international health priorities. Their fundamental professional roles (PR) encompass procuring, preparing, compounding, supplying, storing, dispensing, and safely disposing of or destroying medicines, while also ensuring and supervising their appropriate use to secure desired therapeutic outcomes and limit drug-related harm. In recognition of this broad range of responsibilities, the World Health Organization's Advisory Group introduced the "seven-star pharmacist" concept in 1997, later endorsed by the International Pharmaceutical Federation in 2000. That framework highlighted seven essential PR: caregiver, decision-maker, communicator, manager, lifelong learner, teacher, and leader [2, 3]. Continued evolution of the profession has since led to the inclusion of three additional components — researcher, entrepreneur, and agent of positive change — giving rise to the now widely accepted "ten-star pharmacist" concept [4-6]. This expanded model is receiving growing theoretical support and elaboration from investigators in different countries [7-11]. Professional roles can be viewed as relatively stable patterns of cognition, emotion, and behavior shaped by the demands of the profession. However, the existing literature generally

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offers only broad descriptions of these 10 PRs without deeper specification [8, 12-18]. The current work therefore aimed to decompose each of the major PR into a comprehensive set of professional functions (PF).

Materials and Methods

The research was based on documents and position statements from the World Health Organization and the International Pharmaceutical Federation, supplemented by scholarly articles on pharmacists' professional roles. Inductive content analysis [19] was used to explore and interpret the collected materials in relation to the main PR and their component PF. Functional decomposition [20] provided a structured way to identify and clarify individual PF by breaking complex professional activities into smaller elements. Scientific generalization [21] then allowed these partial functions to be logically grouped under the appropriate main PR according to shared features and relationships. A simplified modeling approach [22] was applied to present the decomposition results in an accessible textual and visual form.

Results and Discussion

Decomposition of the ten PR yielded an overall set of partial PF aligned with the main tasks and activities of pharmacists, shown in **Figure 1**. In developing these functions, the principle of complexity limitation [23] was observed to ensure clarity and readability; therefore, each main PR was subdivided into no fewer than three and no more than six partial PF. Specifically, the lifelong learner role was divided into three PF: the caregiver, decision-maker, teacher, leader, researcher, entrepreneur, and agent of positive change. Each of these roles received 5 PF, and the communicator and manager roles each received 6 PF. This process produced a detailed, multifunctional verbal model of pharmacists' intricate professional practice, comprising 50 partial PFs.

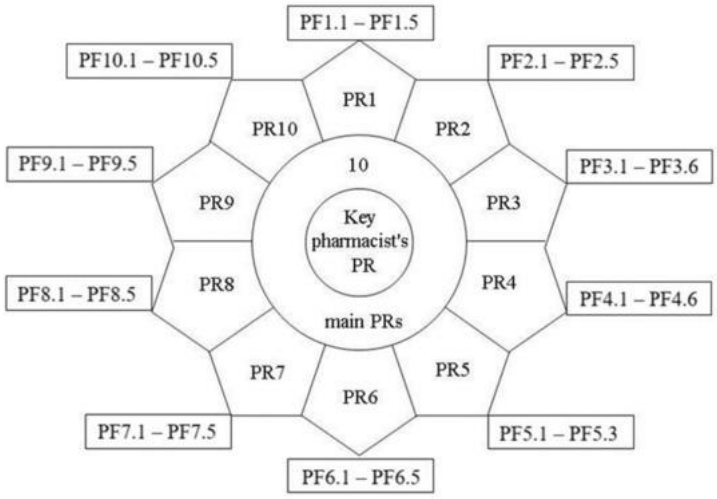


Figure 1. Breakdown of the principal professional roles (PR) of pharmacists.

Following this principle ensures that the detailed professional functions (PF) derived from the main professional roles are systematically organized, clearly presented, and straightforward to interpret [24, 25].

Caregiver

Based on the findings, pharmacists acting in the caregiver role (main PR1) are expected to deliver high-quality pharmaceutical services while situating their practice within the broader healthcare system and in coordination with other healthcare professionals. This role is subdivided into five specific PF:

– Evaluate patients' health status, level of health literacy, and physiological requirements to ensure appropriate pharmaceutical care (PF1.1).

– Facilitate the execution of basic diagnostic procedures (such as blood pressure, pulse rate, and blood glucose measurements) within pharmaceutical settings (PF1.2).

– Deliver high-standard pharmaceutical care characterized by therapeutic concordance, patient-centered outcomes, accessibility (economic and

physical), rational use, safety, effectiveness, timeliness, minimization of medication errors, and continuity of care (PF1.3).
– Possess telepharmacy competencies, enabling remote delivery of pharmaceutical care through the use of organizational frameworks, financial mechanisms, and information and communication technologies (PF1.4).
– Assume responsibility for ensuring the quality of pharmaceutical services, including during routine practice as well as emergencies such as pandemics, conflict situations, and other crises, while also contributing to the reduction of environmental risks across the medicine supply chain (PF1.5).

Decision maker

Under the second major role (PR2), the pharmacist as a decision-maker is responsible for selecting appropriate actions from multiple alternatives, ensuring compliance, making necessary adjustments, and assessing outcomes. This role is further divided into five PF:
– Ensure rational and cost-efficient procurement, as well as safe and effective utilization of resources within pharmaceutical organizations (including medicines, medical devices, active pharmaceutical ingredients, and excipients) (PF2.1).
– Participate in decision-making related to the organization of pharmaceutical services and contribute to medicine production processes in pharmacies and pharmaceutical manufacturing settings (PF2.2).
– Assess factors affecting drug absorption, distribution, metabolism, deposition, and excretion, considering patient characteristics and the physicochemical properties of medicines (PF2.3).
– Make informed and safe decisions based on critical appraisal of evidence-based medicine and pharmacy data, professional judgment, and selection of appropriate pharmaceutical care approaches that reduce pharmacotherapy risks and improve care quality (PF2.4).
– Contribute to national health policy implementation through active involvement in pharmaceutical professional and public organizations, thereby supporting the strengthening of regulatory frameworks in the health sector (PF2.5).

Communicator

Within PR3 (communicator role), pharmacists function as intermediaries between patients and physicians while also providing the public with reliable information about health and medicines. This role is broken down into six PFs, requiring pharmacists to:
– Apply verbal and non-verbal communication skills alongside ethical and deontological principles in professional practice (PF3.1).
– Maintain continuous two-way and multi-directional communication with physicians, healthcare staff, patients, and caregivers during pharmaceutical care processes (PF3.2).
– Demonstrate tolerance, respect, empathy, loyalty, and understanding toward all patients regardless of nationality, religion, political views, socioeconomic status, gender, age, or other characteristics (PF3.3).
– Protect patient confidentiality and safeguard all health-related information as professional secrecy, except where disclosure is legally required (PF3.4).
– Provide accurate, objective, evidence-based, clear, unbiased, and non-promotional information to patients, healthcare professionals, and the public (PF3.5).
– Engage in public education activities aimed at preventing harmful substance use, substance abuse, and communicable and non-communicable diseases, while also supporting early detection, treatment adherence, and awareness of medical and microbiological aspects of diseases (PF3.6).

Manager

The fourth major role (PR4) defines pharmacists as managers who apply organizational and leadership knowledge to guide staff, structure work processes, and interact effectively with other professionals. This role includes six PF:
– Develop strategic planning by defining future goals and directions of pharmaceutical organizations (PF4.1).
– Organize structural systems within pharmaceutical settings by dividing responsibilities into units aligned with organizational objectives and ensuring coordination across hierarchical levels (PF4.2).
– Motivate personnel by fostering engagement and commitment toward achieving both individual and organizational goals (PF4.3).
– Perform monitoring and control functions to support sound managerial decision-making and identify necessary adjustments (PF4.4).
– Implement regulatory actions to address inefficiencies, deviations, and operational issues within pharmaceutical organizations through corrective measures (PF4.5).

– Respond appropriately to managerial directives within both vertical and horizontal structures of organizational governance (PF4.6).

Life-long learner

Regarding PR5, the lifelong learner role emphasizes continuous professional development beginning from formal education and extending throughout a pharmacist's career. This role is divided into three PFs, where pharmacists are expected to:

– Recognize personal learning needs and take responsibility for ongoing acquisition, maintenance, enhancement, and expansion of professional competencies throughout their careers (PF5.1).

– Actively engage in both stages of continuing pharmaceutical education, including formal specialist training and ongoing professional development activities (PF5.2).

– Utilize formal, non-formal, and informal learning approaches, as well as institutionalized and non-institutionalized educational formats (PF5.3).

Teacher

The core PR6 (teacher) defines pharmacists as professionals who educate and train future pharmaceutical practitioners and inform the public. This role is further broken down into five partial PFs, meaning pharmacists are expected to:

– Transmit their knowledge, practical skills, and competencies to the next generation of pharmaceutical specialists while fostering their independent thinking and learning abilities, including through mentorship activities (PF6.1).

– Effectively structure and manage educational activities within pharmaceutical settings in a way that supports trainee learning without disrupting organizational workflow or patient care (PF6.2).

– Engage in patient education on health protection, health promotion, and medical literacy, and actively support healthy lifestyle practices using evidence-based approaches (PF6.3).

– Deliver training that strengthens patients' and communities' capacity for self-management in healthcare, thereby contributing to more efficient resource use, reduced costs, and improved health outcomes at both patient and system levels (PF6.4).

– Instruct patients on preventing the circulation of counterfeit medicines and on proper pharmaceutical waste disposal as part of responsible pharmaceutical practice (PF6.5).

Leader

PR7 characterizes the pharmacist as a leader, referring to a professional who, through personal qualities, motivates colleagues to apply their skills for improving patient and societal wellbeing, and who, when in leadership positions, understands leadership principles and manages responsibility effectively. This role includes five partial PF, requiring pharmacists to:

– Demonstrate strong organizational abilities, build trust, and influence members of interdisciplinary healthcare teams and pharmaceutical staff, coordinating their efforts toward shared organizational and patient-centered goals (PF7.1).

– Develop, sustain, and coordinate constructive professional, interpersonal, and psychosocial relationships within pharmaceutical teams and between pharmacists, physicians, nurses, patients, and caregivers, while upholding ethical standards, managing conflicts, and supporting colleagues throughout their professional tasks (PF7.2).

– Actively introduce innovative and constructive ideas for organizational development, including setting new objectives, defining priorities, and selecting appropriate strategies and methods for achieving team goals (PF7.3).

– Contribute to achieving institutional objectives and high performance outcomes, fostering positive professional development among colleagues, and taking accountability for collective results (PF7.4).

– Enhance the professional image of pharmacy by demonstrating strong ethical conduct and competence, thereby serving as a role model for colleagues, multidisciplinary healthcare teams, and patients (PF7.5).

Researcher

PR8 (researcher) describes pharmacists as professionals who generate and apply scientific knowledge to advance drug development and improve therapeutic outcomes. They support evidence-based practice and contribute to the scientific foundation of pharmacy. This role is expressed through five PFs, requiring pharmacists to:

– Understand research principles and contribute to study design and execution, including hypothesis development, theory building, and data generation to support pharmaceutical research and its application in practice (PF8.1).

– Investigate and develop new medicinal products or improve existing ones, identifying both benefits and limitations, including previously unknown or adverse effects across pharmacological classes, and applying pharmacovigilance principles where necessary (PF8.2).
– Design and refine quality control methods for medicines, including active pharmaceutical ingredients, herbal materials, and excipients, while assessing how environmental and physicochemical factors influence product quality and consumer characteristics such as age, sex, weight, and body size (PF8.3).
– Use audit and evaluation findings to develop and implement improved models of pharmaceutical service delivery, particularly through quality management systems, and ensure continuous refinement of these approaches within organizations (PF8.4).
– Apply contemporary evidence systems to guide rational medicine use within multidisciplinary teams and contribute to expanding and sharing the scientific evidence base to enhance patient treatment outcomes (PF8.5).

Entrepreneur

PR9 (entrepreneur) refers to pharmacists who independently and proactively engage in innovative, risk-involved activities related to pharmaceutical production and service delivery aimed at societal benefit and economic gain. This role includes five PF, where pharmacists must:
– Initiate and integrate diverse resources such as financial, production, material, human, informational, and intellectual inputs within the pharmaceutical supply and distribution process (PF9.1).
– Drive innovation by adopting new medicines, technologies, and business models, exploring new markets, and identifying improved ways to meet consumer needs, including transitioning from conventional to modern management approaches (PF9.2).
– Accept and manage risks related to personal assets, investments, time, labor, and professional reputation during entrepreneurial activities (PF9.3).
– Make strategic decisions throughout pharmaceutical operations aimed at organizational success, while recognizing that outcomes remain uncertain due to dynamic economic conditions (PF9.4).
– Implement the integrated pharmaceutical business model to generate economic value while ensuring organizational sustainability, employee welfare, and consumer satisfaction (PF9.5).

Agent of positive change

PR10 (agent of positive change) defines pharmacists as drivers of transformation in pharmaceutical practice, aiming to enhance patient care, service quality, and interdisciplinary collaboration. This role is detailed into five PF, requiring pharmacists to:
– Critically assess the current state of pharmaceutical practice, determine strategic priorities for service quality improvement, and contribute to the development or revision of national policies, professional standards, and legislation guiding the profession (PF10.1).
– Educate and support the pharmaceutical community on key practice development issues, provide guidance on complex or uncertain problems, and encourage knowledge-sharing and expert collaboration to strengthen patient care (PF10.2).
– Engage pharmacists in initiatives focused on improving patient outcomes and service quality using both digital and in-person communication channels (PF10.3).
– Adapt proactively to contemporary hybrid challenges while maintaining social responsibility, including participation in community and public initiatives that promote behavioral change and address emerging societal threats (PF10.4).
– Encourage voluntary participation in professional and public pharmaceutical organizations to support collective development and service improvement (PF10.5).

Based on the findings of this analysis, the ten principal professional roles (PR) of pharmacists were further elaborated into a comprehensive multifunctional framework of complex pharmaceutical practice, resulting in a total of 50 partial professional functions (PF), specifically:

- Three partial PF are associated with the role of a lifelong learner
- Five partial PF correspond to each of the roles of caregiver, decision-maker, teacher, leader, researcher, entrepreneur, and agent of positive change
- Six partial PF are attributed to the communicator and manager roles

However, earlier studies indicate that only 38.4% of practicing pharmacists, 34.6% of pharmacy students, and 10.0% of pharmacy clients in Ukraine correctly understood the elements of the “ten-star pharmacist”

framework [9]. On the one hand, insufficient awareness among students and pharmacists regarding this concept may lead to suboptimal delivery of pharmaceutical care. On the other hand, limited public understanding of the pharmacist's role contributes to the perception of pharmacies as mere retail outlets rather than healthcare institutions, reinforcing a societal—and at times professional—misconception that equates pharmacists primarily with sales personnel.

Patient perception of pharmaceutical services plays a crucial role, shaping future expectations and guiding the direction of professional role development and corresponding functions. This, in turn, highlights the pharmacist's importance and contributes to improving the overall quality of pharmaceutical care [26, 27].

Findings from another study examining educational and professional programs (EPPs) for Master of Pharmacy training across twenty-two Ukrainian universities revealed considerable variability among curricula. Specifically, only 12 of 15 general competencies and 16 of 35 professional competencies were consistently present across programs. Moreover, key professional roles—such as life-long learner, decision-maker, and teacher—were insufficiently represented, despite accounting for approximately one-third of the "ten-star pharmacist" framework. The absence of standardized coordination among EPPs limits the development of uniform competencies among future pharmacists and hinders their full preparation for all ten professional roles required in practice [28].

Comparative analysis with the Canadian Model Standards of Practice for pharmacists and the United Kingdom's pharmaceutical education standards also demonstrates a strong emphasis on most professional roles, except for the entrepreneur and agent of positive change roles [29, 30].

Therefore, strengthening the professional image of pharmacists and clarifying the multifunctional nature of their responsibilities remains essential, particularly in distinguishing between professional roles (PR) and professional functions (PF), both among pharmacists themselves and within the wider public.

When developing EPPs for pharmacists, it is recommended that professional competencies and learning outcomes be structured around this multifunctional model of complex pharmaceutical practice, while also reinforcing pharmacists' role as agents of positive change.

Conclusion

The breakdown of the ten primary professional roles (PR) of pharmacists into three to six corresponding partial professional functions (PF) has resulted in a comprehensive multifunctional model of complex pharmaceutical practice comprising 50 PF in total. The proposed definitions of pharmacists' PF remain open to further discussion and refinement among pharmaceutical researchers and practitioners.

Consequently, universities are encouraged to integrate this multifunctional model into the development of professional competencies and learning outcomes within Master of Pharmacy educational programs. In addition, greater emphasis should be placed on cultivating multifunctional competencies among students to ensure effective performance across all professional roles and corresponding functions in their future pharmaceutical practice within the healthcare system.

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