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### Providing color to the pharmacy technician

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# Summary

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The field of pharmacy benefits from higher educated mid-level support staff: the pharmacy technician. This profession is designed to improve pharmaceutical patient care, aims at redirecting the workload of pharmacists, and provides additional education and career development for pharmacy assistants. However, little is known about how the addition of the profession of the pharmacy technician to the pharmacy workforce was received in the field. Therefore, this thesis aims to define the roles and responsibilities pharmacy technicians have taken on and clarifies how the integration and role development of this new profession in existing pharmacy practice is construed.

**Chapter 1** starts by painting a general picture of the reasons why the profession of the pharmacy technician was brought into existence. It provides statistics relating to the pharmacy team and their day-to-day contribution to pharmaceutical care in the Netherlands. Furthermore, the educational set up and goals of the training program of the Dutch pharmacy technicians at the level of higher education are described in this chapter and we elaborate on the current debate in the Dutch pharmacy field regarding this new profession. The presentation of this knowledge and perspectives leads up to the central research questions of this thesis. Firstly, what are the roles and responsibilities pharmacy technicians have taken on, both nationally and internationally? And secondly, how is the addition of this new profession in existing pharmacy practice construed?

**Chapter 2** describes the heterogenous and evolving relationship between pharmacy technicians and pharmacists. Since pharmacy shifts from product-oriented to patient-centred practice, the roles, tasks and responsibilities of pharmacists, pharmacy technicians and other pharmacy support workforce cadres need to be revisited. As this change unfolds, the roles of pharmacists, technicians and other pharmacy support workforce cadres evolve differently in different contexts and countries.

Our scoping review disseminates available heterogeneous literature on the nature of the relationship between pharmacy technicians, pharmacy support workforce and pharmacists and on how this relation varies according to country context. The papers and documents drawn upon are rooted in the increasing interest in utilizing pharmacy support workforce to allow for the extension of clinical roles of pharmacists. Furthermore, the dominant narrative in this segment of the literature comes from high income

countries.

Chapter 2 documents the settings in which pharmacy support workforce cadres can be employed, the ways in which education and regulation can support the profession of the pharmacy technician and what the expected competencies are of pharmacy technicians. Literature shows that the topic of optimal use of supporting pharmacy workforce cadres has gained momentum. Numerous examples provide proof of pharmacists having been able to extend their clinical role by making greater use of pharmacy technicians or other pharmacy support workforce cadres. Furthermore, literature shows that over the years, the roles taken on by pharmacy support workforce have expanded. They moved from performing relatively simple tasks (administrative and supply functions) to conducting more complex pharmaceutical patient care, such as independent checking of prescriptions or the management of patient adherence programs. Following this development and expansion of roles of the pharmacy support workforce, requirements for education, regulation, registration and the need to further develop leadership skills of the pharmacy support workforce are discussed in literature. It also becomes clear in chapter 2 that there is no extensively shared definition of what the profession of the pharmacy technician entails. There seems to be no clear vision on how the pharmacy technician needs to be positioned within the provision of pharmacy services. This underlines the importance of clearly defining the role of both pharmacists, pharmacy technicians and other pharmacy cadres in practice.

**Chapter 3** represents international survey data that adds to the scoping review in chapter 2. Chapter 3 paints a broad picture of the daily practice of training, supervision and regulation of pharmacy technicians and other pharmacy support workforce cadres. This overview of the present global variety in scope, roles, supervision, education and legal framework provides further understanding of how the pharmacy technician is perceived and what the tasks and responsibilities are that can be allocated to a pharmacy technician. Through the data in this chapter we further explored (and compared between different country contexts), how the profession of the pharmacy technician is put into effect.

Through a structured online survey we addressed the topic areas of roles, responsibilities, supervision, education and legislation. The data presented through this research show a vast global variety in all evaluated topics, e.g. responsibilities (from a focus on supply to the delivery of extended phar-

maceutical patient care), supervision requirements (from complete and total supervision to independent practice), education systems (from on-the-job training to 4-year diploma programs) and supportive legislation for pharmacy support workforce cadres (absent as well as highly regulated through e.g. registration obligations).

The data also make clear that more detailed research into specific country practice settings is needed to provide insights into optimal use of pharmacy support workforce cadres and improve patient care.

**Chapter 4** therefore reports on a more detailed understanding of specific practice settings in The Netherlands to inform policy, practice and the design of pharmacy technician education.

The multi-method qualitative research design provides insight into the knowledge, skills and attitudes required to perform as a pharmacy technician. Furthermore, this study sought to develop a competency framework for the profession of pharmacy technician based on the experiences and opinions of stakeholders from the Dutch pharmaceutical field.

Representative samples of pharmacy technicians and pharmacists originating from public, hospital or outpatient pharmacies participated in focus groups. The iterative thematic analysis of the collected data, led to an initial framework, which was refined using a modified Delphi-method. This Delphi panel consisted of pharmacy technicians and pharmacists, in addition to representatives of stakeholders such as patient organizations, health policy makers and all levels of pharmacy education. Unfortunately, pharmacy assistants were reluctant to participate in this study, which may have been caused by assistants' unfamiliarity with the pharmacy technician profession.

During the focus group discussions and conversations between the members of the Delphi panel, the participants took much effort to pinpoint certain definitions in the framework (e.g. the meaning of hierarchy and leadership in pharmacy practice). The rich and elaborate data showed a competency framework comprising six domains: Communication in patient care, Interdisciplinary collaboration, Pharmaceutical expertise, Organization of care practice, Collaborative leadership and Personal development. All domains are considered equally important; all competencies add to good pharmaceutical patient care.

The research-based competency framework in this chapter reflects and contributes to the discourse on how to best prepare pharmacy technicians

for practice. It benefits curriculum development for entry-to-practice training and supports professional career development for pharmacy technicians. It can also contribute to further understanding of the profession of the pharmacy technician within pharmaceutical care.

**Chapter 5** elaborates on barriers and facilitating factors that influence the development and implementation process of the role of pharmacy technician in public, hospital and outpatient pharmacies. Empirical research on pharmacy technicians within community and hospital pharmacy practices tends to focus on the practical outcomes of the addition of pharmacy technicians to the team. The research thus mostly addresses the 'WHAT' of the service delivered by pharmacy technicians. The data in chapter 5 adds to the knowledge on the 'HOW' of their role development. This qualitative study used on site, individual and small-group interviews with pharmacy technicians, and two close colleagues with whom they were collaborating on a daily basis: pharmacists and pharmacy assistants. The researchers were able to obtain multiple perspectives and views on the integration and development of the new role by asking the participants to describe specific incidents and organisational, relational and pharmaceutical care perspectives that were illustrative of the process of developing and implementing the pharmacy technician role in their own setting. Template analysis was used to develop a list of codes representing themes that were identified in the data.

This process yielded five interrelated themes, influencing the development and implementation of the pharmacy technician role. Two of them were at a more contextual level: (a) experiencing a lack of vision on the added value of the new role within the field of pharmacy and (b) learning climate. The other three were related to personal interactions between staff members: (c) role expectations and organisational fit, (d) personal traits of pharmacy technicians and (e) support of pharmacy technicians through task delegation and role enhancement.

Chapter 5 shows that the development and implementation of this role and profession is a slow and complicated process that may withhold pharmacy technicians from reaching their full potential. The results may encourage pharmacists and pharmacy technicians to design a shared goal for their pharmacy practice, in which pharmacy technicians can rise to their full potential.

**Chapter 6** summarizes the main findings of this doctoral thesis. It discusses these results in light of recent literature on other advanced practice professionals in health care, such as nurse practitioners, dental hygienists and physician associates. The research in this thesis shows that there is no clear-cut worldwide recognition of the profession, that the assigned tasks and responsibilities differ in different countries and practice contexts and that the profession is still evolving, in practice, over time. These findings resonate with the knowledge on advanced practice professionals. This also goes for the influencing factors on role development, of which boundary strategies between professions is an example of a hampering influence on role development for advanced practice professionals and mentorship an example of a facilitating factor.

Subsequently, the strengths and limitations of this thesis are discussed. Its main strength relates to the qualitative research manner in which this thesis was set up. It provided layered and in-depth data, leading up to subsequent research aims, thus aligning the chapters of this thesis. The most important limitation pertains to the lack of involvement of patients, resulting in data solely influenced by the pharmacy view.

Additionally, chapter 6 discusses various practical implications within the context of education for both pharmacy technician and pharmacist, based on the research in this thesis. They come down to discussing the future role of pharmacy technicians, involvement in leadership programs regarding change, participating in peer groups and benefitting from role modelling, more attention to professional identity formation and last but not least, interprofessional education.

The chapter then considers the directions for future research regarding the profession of the pharmacy technician. This thesis took a first step in clarifying the 'how' of a pharmacy technician, by studying how these professionals work in practice. The next step would be to understand the mechanisms behind role development in relation to outcome measures, e.g. safe and effective pharmaceutical patient care.

Finally, the chapter ends with a call to action. The field of pharmacy would benefit from creating its own research agenda with regards to training and educating professionals who provide excellent pharmaceutical patient care.





