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Research Note

Use and accessibility of health and medication information sources among pharmacy students during their community pharmacy internship

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ABSTRACT

Introduction: Evidence-based health and medication information (HMI) sources and databases have a growing importance in daily professional practice in community pharmacies. Previous research suggests that students learn practical skills at the workplace through self-directed learning and practical experience rather than formal training. Thus, pharmacy internship is a key in ensuring pharmacy students' competency to use HMI sources and databases. This study assessed what HMI sources pharmacy students had used and accessible during their first internship in community pharmacies in Finland.

Methods: The data were collected as part of the obligatory assignments of the second year pharmacy students at the University of Helsinki during their first three-month internship in a community pharmacy in 2013 (n = 152, response rate 100%).

Results: The most commonly used HMI sources during the first internship period were electronic product-specific databases assisting in medication counselling, such as the checklist type generic prescription medication information database integrated into pharmacy prescription processing system, used daily by 74% of the students having access to the database (n = 121). Databases assisting in medication reviews were less commonly used although they were available in the majority of the pharmacies.

Discussion and Conclusion: Although the majority of students had access to a wide range of HMI sources and databases during their internship, the actual use of sources other than product-specific medication information was limited, particularly the use of databases in assisting in medication reviews. It is important to facilitate their use in the second internship to acquire competences needed for their further use after graduation.

Introduction

Availability of evidence-based health and medication information (HMI) is essential in all healthcare settings for rational drug therapy.[1,2] Availability of HMI needs to be accompanied by competency to use HMI sources and databases, which are increasingly in electronic formats, facilitating their prospective effective use in clinical practice.[3] These competencies can be acquired through undergraduate and continuing education and in-house training. Internships and workplace learning experiences in authentic workplace settings are valuable for undergraduate students for learning professional skills, such as using HMI sources.[4–6]

Community pharmacists are important healthcare team members in medication management of ambulatory care patients,

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particularly in medication counseling and identifying, solving, and preventing medication-related problems.[7,8] Community pharmacies have several clinically relevant, up-to-date and evidence-based HMI sources to support these tasks.[3,9] The HMI sources can be classified as: (1) product-specific medication information sources based on manufacturer provided information approved by regulatory agencies (e.g., summaries of product characteristics and package leaflets within European Union); (2) electronic HMI information systems that combine information from different databases and assist in clinical medication reviews; and (3) current care guidelines and other medical information accessible online (Table 1).

In Finland, the majority of the above mentioned HMI sources, used in community pharmacies, are the same used throughout health care (both inpatient and outpatient care). During the obligatory internship included in the pharmacy undergraduate curriculum in Finland, pharmacy students complete learning assignments that deepen their theoretical knowledge and develop their skills to use different HMI sources in practice.[10,11] However, little is known whether these efforts will lead to the actual use of HMI sources during the internship, and thus, will prepare students for using them actively after graduation. The aim of this study was to identify the HMI sources accessible and actually used by pharmacy students during their first internship in community pharmacies in Finland. Even though this study has been conducted in Finland, the research issue is global, as digitalization in healthcare will dramatically change working patterns of all healthcare providers, including community pharmacists.

Finland has a 2-tier university training program for pharmacists consisting of BSc and MSc degrees, which is in line with the Bologna Process for harmonizing higher education in the European Union (EU).[11–14] The BSc (Pharm) degree consists of 180 European Credit Transfer System (ECTS) credits and takes three years to complete. The MSc (Pharm) degree takes an additional two years to complete (total 300 ECTS credits), including a Master's Thesis (40 credits). According to EU regulations, one of the pharmacists' competency areas is medication information and medication counseling.[15] Thus, teaching about HMI sources and practices, including medication counseling skills have been integrated into pharmacy education throughout the curriculum in Finland.[16,17] During the didactic studies in the University, pharmacy students acquire basic knowledge and competencies on how to use different HMI sources. These competencies include: designing and executing basic search strategies; identification of relevant information; critical evaluation of information; and making use of HMI in medication-related problem solving and counseling patients.[15,16] For that purpose, students' learning on how to use HMI sources is integrated throughout the studies they must complete before their internship (Table 2). Their HMI knowledge and skills are deepened during their obligatory 6-month internship (30 ECTS credits), which is an essential part of the pharmacy curriculum in the EU, and in Finland.[11,15,18]

The internship can be taken in a community pharmacy open to the public (minimum three months/15 ECTS credits), or in a hospital under supervision of that hospital's pharmaceutical department (maximum three months/15 credits).[15] In Finland, the internship is divided into two three-months periods during BSc (Pharm) studies, one at the end of the second year and one during the spring semester of the third year (Fig. 1). The internship is carried out in close collaboration with the university and the teaching pharmacies.[11,19] The University of Helsinki, one of the two major pharmacy schools in Finland, has 332 community pharmacies and 21 hospital pharmacies as training pharmacies for an annual volume of approximately 350 students completing the internship (total number of community pharmacies in Finland was 617, and the number of hospital pharmacies 24, in June 2013 when the study was conducted). The learning objectives of the internship are designed to facilitate learning in key areas of pharmaceutical practice in teaching pharmacies.[19] In addition to facilitating learning, these assignments assure and standardize minimum quality of internship. The first three-month internship period is for learning basic skills needed in pharmaceutical tasks in community and hospital pharmacy settings (e.g. in dispending, compounding, and patient counseling). During both internship periods, students reflect on their learning through reflective assignments.[11] The assignments are organized as workbooks [20] covering the core contents of each internship period.

Methods

Data collection and analysis

The data were collected as part of the obligatory self-reflective assignment for 2nd-year pharmacy students at the University of Helsinki after completing their first three-month internship in a community pharmacy in 2013.[20] An obligatory assignment with a link to an electronic evaluation form (eForm version three) was included in the students´ workbook.[11,20] As an assignment, the students were instructed to report the use of HMI sources during the internship via the eForm within two weeks of the completion of their internship. The primary aim of the assignment was to enable students to evaluate their learning to use HMI sources, which had started in the university, and was planned to continue during the internship. The secondary aim was to help the faculty get an understanding of the students' competency level reached in using HMI sources, by the end of the first internship period.

In the assignment, the students were asked to report what HMI sources were available in the teaching pharmacy and how often they used each of the available sources during the internship. The assignment included a structured list of HMI sources available in Finland for health care professionals and community pharmacists at the time of the internship (Table 1). The list was developed by updating a list used in a previous study on practicing pharmacists´ utilization of different medication information sources in community pharmacies.[21] The special focus was on the use of electronic HMI sources during the internship. HMI sources were classified into the following four categories based on their content and purpose of use as described in the Introduction: (1) Product-specific medication information sources, (2) Medication review tools and databases, (3) Current care guidelines and health/medical information sources, and (4) Other electronic HMI sources, and medication information centers (Table 1). As background information, the students were asked to provide their name and student ID-number, the teaching pharmacy's annual prescription volume and location. The structured responses were analyzed using the Statistical Package for the Social Sciences software (SPSS version 22). The