



Short communication

# Preceptors' use of hand-held devices and use of drug information resources in Al-Ahsa, Saudi Arabia

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## Abstract

**Objectives:** To assess the use of electronic drug information resources by the clinical pharmacy preceptors engaged in Advanced Pharmacy Practice Experience (APPE) and Introductory Pharmacy Practice Experience (IPPE) clerkships.

**Method:** A total of 27 preceptors who had ever supervised APPE and IPPE clerkships were invited to participate in an online survey. A 29-item questionnaire consisting of three sections: respondents' demographics, personal use of hand-held devices (HDDs), and use of drug information resources in different situations, was used to gather data. Data were summarized and presented using descriptive statistics.

**Results:** The response rate was 66.0%. Eight (44.4%) and seven (38.9%) respondents had supervised IPPE and APPE clerkships, respectively. Overall, 16 (88.9%) of the respondents were active hand-held devices (HDDs) users; while 14 (77.8%) recognized the importance of HDDs to perform dose calculations. Almost all the respondents claimed to use primary, secondary, and tertiary resources to answer drug-related queries but preferred primary resources over secondary and tertiary resources in certain clinical situations—e.g., to check the dosage recommendations for pediatrics, general medicine, and renal failure. However, surprisingly, most of the respondents were unable to distinguish between primary, secondary, and tertiary resources for drug information.

**Conclusion:** The use of HDD-based drug information resources was common among the clinical pharmacy preceptors. However, their knowledge about the use of appropriate drug information resources in certain situations was found to be cursory.

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**Keywords:** Hand-held devices; Drug information; Pharmacist; Preceptor

## Introduction

Advances in information technology (IT) have eased the dissemination of and access to health-related information.<sup>1</sup> In clinical practice, in particular, treatment protocols are updated frequently due to the approval of new drugs and publication of clinical trial results. Through IT, these updates are shared immediately in the form of research articles, online information, and medical software. In recent

years, many medical software companies have provided computer-based solutions to improve medical practice. Moreover, with the invention of “smart” technologies like personal data assistants, tablets, and smart phones, access to such drug and medical resources has become more convenient. Viewing the pharmacist as a drug expert, patients and healthcare providers often request information about routes of administration, adverse effects, drug interactions, pharmacotherapy, and disease management, as well as the use of non-prescription medications and dietary supplements.<sup>2,3</sup> Therefore it is essential for practitioners to stay up-to-date with the current practice trends. Similarly, pharmacists working in academia also need reliable, valid, and up-to-date information in order to fulfill drug-related

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information needs of their students either in the classroom or during clerkship. To assist in meeting these needs, evidence-based literature recommends three drug information resources: primary, secondary, and tertiary.<sup>4</sup> The use of these drug information resources help to minimize any gaps in the pharmacist's knowledge about recent updates and information about newly approved drugs.<sup>5</sup>

Furthermore, to ensure the availability of these drug information resources at the patient's bedside, the use of hand-held devices (HHDs) has increased markedly among all healthcare professionals.<sup>1</sup> About 80% of healthcare professionals (i.e., physicians, pharmacists, and residents) were found to be active users of HHDs.<sup>2</sup> Moreover, 60–70% of students and residents use HHDs to meet their educational and practice needs.<sup>6–9</sup> Keeping in mind customer demand, programmers of HHDs are offering a variety of medical applications that pharmacists can use to provide drug information (DI) and keep records of clinical interventions and perform dosage calculations.<sup>3–8,10</sup>

With the advancement in clinical pharmacy practice, the scope of pharmacy education has also broadened. In developed countries, such as United States, programs like the Doctor of Pharmacy (PharmD) were developed to equip pharmacists with necessary clinical knowledge. To harmonize their pharmacy programs with developed countries such as United States (US), developing countries have also extensively updated their curricula. For example, in Saudi Arabia, in the past decade most of the universities have upgraded their Bachelor of Pharmacy programs (BPharm) to PharmD programs or modified their BPharm program content as per global and regional needs. Moreover, with the introduction of these programs, it has become essential for the institutions to incorporate Introductory Pharmacy Practice Experience (IPPE) and Advanced Pharmacy Practice Experience (APPE) in their curricula. These practice-oriented activities are preceptor-monitored educational capstone experiences to ensure that graduates have mastered the learning outcomes of PharmD programs. Most of the pharmacy institutions have their own human resources to execute IPPE and APPE modules. However, in some cases, due to limited number of staff, practicing pharmacists are also hired as honorary faculty to achieve the program goals. The prime objective of IPPE and APPE modules is to expose the students to current practice trends so that they can apply their theoretical knowledge to further improve their clinical skills. However, in Saudi educational settings, the types of drug information resources that are used by the preceptors to share practice updates with their students remain largely unknown. There is no previous study that assesses the use of HHD-based drug information resources by pharmacy preceptors in Saudi Arabia. Therefore, the current study aims to assess the pharmacy preceptor's use of common HHD-based drug information resources in Al-Ahsa, Saudi Arabia.

## Materials and methods

A questionnaire-based survey was conducted among the preceptors that had ever participated in APPE and IPPE modules offered by the college.

### Study sample

The study sample comprised of current honorary faculty members (preceptors) at the college. In addition, those pharmacists practicing in hospitals who had ever participated in APPE and IPPE modules were invited to participate. At the start of the questionnaire, respondents were instructed that smart phones, tablets, pocket personal computers, iPads, and personal data assistants are categorized as HHDs.

### Sampling method

The study tool, an online survey form, was generated using Google<sup>®</sup> forms. E-mail addresses of the preceptors were collected from the college administration. A test e-mail was sent to all preceptors ( $n = 43$ ) with an invitation to participate in this survey. Those responding to the test e-mail ( $n = 27$ ) were sent the link to the online survey to complete.

### Literature search

In order to design a good questionnaire, it was essential to search for previous literature that addressed a similar issue in other regions. To search the relevant literature, databases like PubMed<sup>®</sup>, EBSCO Host<sup>®</sup>, and EMBASE<sup>®</sup> were selected. Furthermore, publisher websites (Science Direct<sup>®</sup> by Elsevier, Springer, and WileyBlackwell) were also used.

### Study tool

A 29-item questionnaire was developed to investigate the use of HHDs among preceptors. Some of the contents of the questionnaire were adapted from previously published literature.<sup>8</sup> However, further subsections were added to address issues in local practice. The study tool comprised of three sections.

Section one contained six items focusing on demographic information, area of practice, and type of clinical rotations supervised (Table 1).

Section two comprised of 12 items that mainly focused on the personal use of HHDs, the use of drug information resources, and the importance of HHDs on rotation sites. The first three items in this section dealt with the availability of the HHDs and the common purpose associated with their use in routine matters. The next three items sought to determine the availability of drug information resources accessed through HHDs. For the respondent's convenience, a list of drug information resources was provided. In

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