



Research

# Development of the veterinary medicine rotation component of the Introductory Pharmacy Practice Experiences curriculum

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## Abstract

**Objectives:** To develop the veterinary medicine rotation component of the Introductory Pharmacy Practice Experiences (IPPE) curriculum, to assess pharmacy students' performance and perceptions toward the veterinary medicine rotation, to assess student performance on a subjective, objective, assessment, and plan (SOAP) note, and to evaluate preceptor performance of the rotation.

**Methods:** The curriculum was designed to expose students to a veterinary clinical setting. Formative and summative instruments were distributed via E\*Value™ for student self-assessment, rotation evaluation, and preceptor evaluation. Quantitative and qualitative data were used to assess the outcome of student visits to a veterinary clinical site during the third year of a pharmacy curriculum. Data were collected and analyzed following the completion of the rotation.

**Results:** Of 85 students, 84 finished the survey (98.8%). Results revealed that the rotation benefitted students' pharmacy education and roles as pharmacists (88.1%). Students reported improved confidence in their ability to educate clients whose animals require prescriptions (95.2%). Students also reported an increase in such "customer service" areas as the importance of a "caring attitude" and the proper behavior of a health care provider (89.3%). Active learning sessions helped students meet the learning objectives of the rotation.

**Conclusion:** Students found the rotation to be useful and beneficial to their pharmacy education and roles as pharmacists. The rotation enhanced students' performances, attitudes, and perceptions in providing assistance to veterinarians, animal patients, and clients of veterinarians. A pharmacy curriculum integrating a realistic veterinary clinical setting is a useful and novel method to inspire students about veterinary medicine.

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**Keywords:** Veterinary pharmacy; Pharmacy students; Introductory Pharmacy Practice Experience; Caring behaviors

## Introduction

The need for pharmacists and veterinary practitioners to collaborate is clear. In 2013, an estimated 55 billion dollars will be spent on pets in the United States alone.<sup>1</sup> Of this

estimate, over 13 billion dollars will be spent on supplies and over-the-counter (OTC) medications or drugs that are sold without a prescription, and over 14 billion dollars on veterinary care and pharmaceuticals.<sup>1</sup> Because of this growth, it is crucial for pharmacists and veterinarians to collaborate. Despite their important expertise, however, pharmacists are currently highly underutilized except in veterinary teaching hospitals. This is especially true in states where veterinarians are licensed to prescribe, dispense, and administer medications, and as such house their own pharmacies within their clinics without a practicing

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pharmacist. Such under-utilization may result in part from the fact that while veterinarians depend highly on pharmacology and pharmacy, the majority of pharmacy curricula fail to adequately introduce pharmacy students to the world of veterinary medicine. Pharmacy curricula should address the need to familiarize pharmacy students with veterinary medicine and veterinary compounding. Having an appreciation of the veterinary profession can start the transformation process needed in pharmacy education.<sup>2</sup> The transformation process in veterinary education can also start with an appreciation of the pharmacy profession.<sup>2</sup> Education of each profession should ideally incorporate knowledge of the other, thus enhancing pharmacy student and veterinary student preparation for practice.<sup>2</sup> Providing students with exposure to veterinarians and the animals they care for builds pharmacist appreciation and awareness in the area of veterinary medicine.

The Accreditation Council for Pharmacy Education (ACPE) Standards and Guidelines Version 2.0<sup>3</sup> and the Center for Advancement of Pharmacy Education (CAPE)<sup>4</sup> both emphasize that student pharmacists must achieve the ability to provide patient care in cooperation with an interprofessional health care team. Standard 12: Professional Competencies and Outcome Expectations and Pharmaceutical Care Outcomes both specifically address this outcome. And while the literature denotes that some colleges have didactic courses of veterinary compounding and electives with animal-centered learning activities, none require students to complete a rotation at a veterinary clinic. However, there is much to be said about the human–animal bond.

The human–animal bond has been defined as a relationship between human and animal that is loving and sociable,<sup>5</sup> shown to make people feel important, needed, and cared for,<sup>6</sup> and connected with innate caring happenings like closeness, fostering, and being in touch with nature.<sup>7</sup> The bond, which should relax a person the way quiet reading does,<sup>8</sup> has been in development for hundreds of years.<sup>9</sup> Many humans have needs to nurture and be nurtured.<sup>9</sup> It gives them pleasure, companionship, and higher self-esteem, and thus improves quality of life.<sup>9</sup> In addition to improving patient health, animals have been found to be beneficial in the classroom setting in an atypical way. Animal-centered activities are engaging, helpful in building professional caring outlooks and behaviors, and useful in supporting a modern learning atmosphere for the application of veterinary pharmacy proficiency, erudition, and improvement of mannerisms toward animal patients.<sup>10</sup> Direct contact with animals also enhances student empathy, compassion, caring, and self-awareness.<sup>10</sup> Even in cases where they are forced to interact with species they may dislike, such as reptiles, they are able to learn to cope with subsequent situations where they must care for and empathize with “problem” human patients or patients they may initially dislike for some reason.<sup>10</sup>

Human behaviors toward animals may predict human-to-human empathy.<sup>11</sup> There is an association with gender,

empathy degrees, feelings toward animals, and companion animal possession.<sup>11</sup> Encouraging animal welfare and humane caring behaviors early in a student’s career can promote human–human empathy and thus halt antisocial conduct.<sup>11</sup> Women’s attitudes toward animals and human-related empathy are higher than those of men.<sup>12</sup> Instilling caring behaviors also depends on the type of student.<sup>12</sup> Because caring and empathy can be arduous to demonstrate and measure, innovative teaching can broaden a pharmacy student’s definition of patient population because the student realizes that animals can be their patients too, and that caring and disease treatment are not limited to humans.<sup>10</sup> That is why we, at the Daniel K. Inouye College of Pharmacy at the University of Hawaii at Hilo, felt it was crucial to develop this unique rotation in our Introductory Pharmacy Practice Experiences (IPPE) curriculum.

### Rationale and objectives

The incorporation of a veterinary clinical setting into a human-centered pharmacy program is novel, and to date, there is no inclusion of a veterinary medicine rotation in the IPPE. Our rotation is unique to pharmacy curricula in that all third-year pharmacy students interact at a veterinary clinic under the instruction of a faculty veterinarian (preceptor). The objectives of this study were to (1) develop the veterinary medicine rotation component of the IPPE curriculum, (2) assess pharmacy students’ performance and perceptions toward the veterinary medicine component of the IPPE curriculum, (3) assess student performance on a subjective, objective, assessment, and plan (SOAP) note, and (4) evaluate preceptor performance of the rotation.

The significance of this study was to enhance student appreciation and awareness of veterinary medicine in order to improve interprofessional teamwork between pharmacists and veterinarians. Also, the significance of the study was to foster caring attitudes and behaviors of students as health care providers. Our study may direct colleges to close the gap between pharmacist and veterinarian.

### Materials and methods

The Daniel K. Inouye College of Pharmacy at the University of Hawaii at Hilo requires third-year pharmacy students to participate in a veterinary medicine rotation that is structured accordingly as part of their IPPE series. The goal of the course was to increase students’ appreciation and awareness of veterinary medicine, to increase their caring attitude and behaviors as health care providers, to improve the interprofessional relationship between veterinarian and pharmacist, and to improve animal patient health, management, and safety.

The IPPE veterinary medicine rotation included seven hours across two days at a small-animal veterinary clinic. It was precepted by a faculty veterinarian working closely with a pharmacist who coordinated and directed the

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