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Currents in Pharmacy Teaching and Learning ■ (2015) ■■■■■

Currents
in Pharmacy
Teaching
& Learning

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Short Communication

Development and design of injection skills and vaccination training program targeted for Australian undergraduate pharmacy students

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Abstract

Introduction: In 2014, vaccination was included within the scope of practice for Australian pharmacists. A number of Australian pharmacy schools have either commenced or are planning to incorporate vaccination training into pharmacy curricula. The primary objective of this article is to articulate the process undertaken to develop an Australian vaccination training program with nested injection skills training for pharmacy students.

Material and methods: A set of learning outcomes, assessable knowledge, and assessable skills were developed following a critical review of relevant literature, guided by the Australian Pharmacy Council Standards for the Accreditation of Programs to Support Pharmacist Administration of Vaccines. This ensures that the modules will enable students to demonstrate competency required for vaccination, similar to that of current Australian vaccinators: doctors, nurses, and pharmacists.

Results: A vaccination training program with nested injection skills training was developed and validated. The new teaching and learning concepts will be integrated and delivered via spiral curriculum. Knowledge and skills should progressively improve as students advance through the pharmacy course. Core skills will be assessed on a number of occasions. Integrated modules are embedded into the first year, third year, and fourth year of the pharmacy program.

Conclusion: A vaccination training program with nested injection skills training was developed for Australian pharmacy students.

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Keywords: Pharmacy; Pharmacy education; Vaccination; Injection; Validation

Introduction

In December 2013, the Pharmacy Board of Australia¹ ruled that vaccination is within the current scope of practice for pharmacists. To date, legislation has been modified to allow pharmacist-administered vaccinations in most Australian jurisdictions. As the scope of practice for Australian pharmacists evolves and expands, it is imperative that

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pharmacy school curricula evolve and expand simultaneously to ensure graduate preparedness.^{2,3} Further, incorporation of this type of education into core training helps to address concerns raised by established vaccinator professional bodies, such as the Australian Medical Association. In 2013, Dr. Steve Hambleton, the then president of the Australian Medical Association, stated in response to pharmacists vaccinating, “*the AMA has warned the move is premature, and pharmacists should not be permitted to administer injections until such procedures are included in core training, and were not just an adjunct.*”⁴

It is anticipated that the scope of the Australian pharmacist will continue to expand, to enable pharmacists to administer a number of parenteral medications. Pharmacy student competence to administer vaccinations will be achieved via the successful completion of a vaccination training program (VTP), which includes a nested injection skills training program (ISTP). This article outlines the process undertaken to develop, validate, and integrate a vaccination training program into pharmacy curricula at an Australian University. After several years of development and validation, the inaugural delivery of the training program commenced in semester one, 2015.

Concept

The first stage in the development of the vaccination training program was a review of existing international literature, firstly competency-based education and secondly in vaccination training. In addition, literature outlining how innovative clinical skills were being integrated into pharmacy curricula globally was assessed. Similarly, existing Australian vaccination training programs across health professions including nursing, medicine, and Indigenous Australian health were studied for similarities and differences in content, delivery modes, and assessment strategies. This review process identified a number of similarities and a number of subtle differences amongst material and delivery.

Three notable components including administering injections, managing anaphylaxis, and infection prevention and control were evident in every vaccination training program irrespective of professional background.⁵ The authors identified the three consistent components as “core skills.” Delivery of this content will enable students to attain competency in the administration of injections, including vaccines.

When looking specifically at vaccination training programs delivered to pharmacy students in the United States of America (USA) and to medicine students in Australia, there was an apparent consensus in the foundation skills and concepts taught and subsequently assessed.

Immunology and vaccine development were central topics in vaccination training in both curricula.⁶ Further, Australian medicine students and American pharmacy students are assessed in their abilities to explain and discuss which diseases are vaccine preventable, as well as their

pathogenesis, clinical signs and symptoms, and epidemiology.⁶ Since health professionals should be able to act as vaccine advocates, a common theme amongst training programs was recognition of vaccination myths and refuting them with evidence. The importance of ensuring the stability of vaccine products and the maintenance of the cold chain was incorporated into most training programs. All training programs were at least in part, contextualized to the country in which they were taught.^{7–9} Training programs were also contextualized for individual professions and the practice setting where injections were to be enacted. Vaccination education consistently reflected on, and referred to, relevant jurisdictional legislation and current professional guidelines. Review and mapping of existing training programs identified core topics essential in pharmacy curricula to ensure that students could obtain knowledge and skill acquisition comparable to those of students completing an established degree with incorporated vaccination training.

Curriculum structure—assigning the content of modules to appropriate year levels

Examination of existing injection skills training in Australian nursing school curricula identified that the skills of administering injections could be introduced early in the degree, allowing for mastery of such skills while on placement in the clinical setting. It was noted that nursing students do not participate in vaccination training. Registered nurses complete vaccination training as an elective adjunct course upon completion of their nursing degree.⁹ However, nursing students must become competent to administer both subcutaneous and intramuscular injections for successful completion of individual nursing units and subsequently the nursing degree. The skills of injection are commonly taught in the second year of an Australian nursing degree.

In the US, where vaccination training has been incorporated into pharmacy curricula in some schools since 2004, students are commonly taught the skills of injection either late in their first year or in the second year of the curriculum.⁶ In an environment where competency-based assessment is widely applied, this frequently enables students to be certified as competent in the skills of injection prior to beginning their experiential education. As a result, “credentialed” students completing introductory pharmacy practice experience (IPPE) or advanced pharmacy practice experiences (APPEs) (during which students are placed in practice settings as part of their pharmacy education programs) are available to administer vaccinations under the supervision of a registered pharmacist.⁸ It has been identified that having such a clinical skill is of value to the practice sites where students complete their experiential education.

Noting the emphasis on mastery in the skills of injection administration, recognition and management of anaphylaxis,

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