RESEARCH ARTICLES

Preceptors, Interns, and Newly Registered Pharmacists' Perceptions of New Zealand Pharmacy Graduates' Preparedness to Practice

Therése Kairuz, PhD,^a Christy Noble, MEd,^a and John Shaw, PhD^b

^aThe University of Queensland, Queensland, Australia

^bThe University of Auckland, Auckland, New Zealand

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Objective. To determine the perceptions of pharmacy interns and newly registered pharmacists and preceptors regarding the preparedness of graduates to enter professional practice.

Methods. A questionnaire was developed from the New Zealand Competence Standards for the Pharmacy Profession (pharmacist level), with additional questions on communication skills included. The instrument contained 16 items and was mailed to preceptors (n=141), interns (n=72), and newly-registered pharmacists (n=101). Microsoft Excel (pivot tables) was used to analyse the quantitative responses. The final question asked respondents to provide free-text comments about the questionnaire, graduates and the program and responses were analyzed quantitatively and thematically.

Results. The response rates were 54.6% (n = 77) for preceptors, 100% (n = 72) for interns and 45.5% (n = 46), for newly registered pharmacists. The majority of responses (87.6%; n=2,562) were in agreement that the degree had prepared graduates for practice. Overall, preceptor perceptions of graduates' preparedness for practice were less favorable than graduates' self-perceptions of their preparedness. Four themes were identified from the free-text comments: the need for improved skills, more professional attitudes, better English communication, and additional training in extemporaneous compounding.

Conclusion. Feedback elicited from graduates and preceptors was helpful in identifying the strengths and weaknesses of a new bachelor of pharmacy (BPharm) program and proved useful in both the accreditation and curriculum revision processes.

Keywords: competence, accreditation, BPharm degree, preceptor, pharmacy practice

INTRODUCTION

Internationally, pharmacy education shares common areas of teaching and professionalism. Each country has specific requirements for its pharmacy graduates, and pharmacy programs must prepare students for practice in their respective countries.¹

Pharmacists in New Zealand must be registered with the New Zealand Pharmacy Council in order to practice. A pharmacy preceptor is a pharmacist who has been registered and practicing in New Zealand for at least 3 years and who has agreed to provide guidance to pharmacy students and interns. Each preceptor must complete Workplace Assessor Training Unit Standard 4098 on the New Zealand Qualifications Authority framework and the pharmacy site must meet certain criteria, including offering a comprehensive range of pharmacy services and products.²

(Registration to practice as a pharmacist for overseas pharmacy graduates is not discussed here and the reader is referred to the Pharmacy Council Web site for additional information.³)

In New Zealand, pharmacists are required to have successfully completed an undergraduate pharmacy degree program of a minimum of 4 years' duration from an accredited university and an approved internship program lasting a minimum of 44 weeks, prior to undertaking pre-registration assessment supervised by the New Zealand Pharmacy Council. After successful completion of the assessment, an intern may apply for registration as a pharmacist. In order to register, interns must meet the competence requirements for pharmacists.⁴ Preceptors are required to evaluate the progress of interns on a regular basis by providing feedback on the level of competence according to a 4-point scale of "well below," "below," "meets," or "exceeds" the required standard. A copy of each evaluation is submitted to the Intern Training Program of the Pharmaceutical Society of New Zealand. At the end of the internship year, competence is assessed using an objective

Corresponding Author: Dr. Therése Kairuz, School of Pharmacy, The University of Queensland, PACE Precinct, Woolloongabba Qld 4103, Australia. Tel: +61-7-334-67782. Fax: +61-7-3365-1688. E-mail: t.kairuz1@uq.edu.au

structured clinical examination (OSCE) that incorporates a variety of scenarios covering different aspects of practice.

Competence is defined by the pharmacy profession in New Zealand as “the ability to do a task to a set standard on a repeatable basis.”⁴ In comparison, *competency* incorporates skills, attitudes, and other attributes including values and beliefs.⁵ Although the terms are sometimes used interchangeably, competence is the “ability to perform a task” whereas competency is “ability based on behavioral trends.” For the purposes of this paper, competence as defined by the New Zealand Pharmacy Council will be used and refers to the 7 Competence Standards (Table 1) which were ratified by the Council in 2001.

Undergraduate pharmacy programs have to be accredited in order for their graduates to enter a registered internship program. Accreditation of pharmacy programs in New Zealand occurs through a national body, the Australian Pharmacy Council (APC), which was established in 2008 and of which the New Zealand Pharmacy Council is an Associate Member. Prior to 2008, the APC was called the Council of Registering Authorities (COPRA) and the committee managing accreditation was called the New Zealand and Australia Pharmacy Schools Accreditation Committee (NAPSAC). New Zealand and Australia are 2 independent countries but are linked through the Trans-Tasman Mutual Recognition Act of 1997.⁶ In the pharmacy

Table 1. Bachelor of Pharmacy Graduates and Preceptors' Perceptions of Graduates' Preparedness for Entering Pharmacy Practice

Competence Standard	Related Survey Item(s): Completion of the degree has enabled the graduate to. . . .	Agree or Strongly Agree, %		
		Preceptor (n = 77)	Graduate Pharmacist (n = 46)	Graduate Intern (n = 72)
1. Practice pharmacy in a professional manner	1a. Demonstrate compliance with legal, ethical and cultural requirements in the workplace	99	96	94
	1b. Accept responsibility and work within their limitations	88	93	90
2. Facilitate the rational use of medicines	Utilize basic scientific and therapeutic knowledge in terms of promoting the rational use of medicines	86	91	89
3. Provide primary health care	Respond to symptoms and supply non-prescription medicines, and refer patients as appropriate	73	91	90
4. Apply management and organisational skills	4a. Take responsibility for their own work and professional development	81	87	78
	4b. Contribute to the pharmacy organisation in which they work as an effective team member	90	76	79
5. Research and provide information	Access, evaluate and provide information about medicines and healthcare	96	93	93
6. Dispense medicines	6a. Dispense medicines safely, accurately and in compliance with legal requirements	91	98	99
	6b. Effectively counsel patients about their medicines	86	98	86
7. Prepare pharmaceutical products	Safely and accurately prepare extemporaneous products (non-sterile)	71	65	74
Effective spoken and written English communication with. . .				
	a. Other staff in the workplace	88	89	88
	b. Health professionals	88	89	89
	c. The preceptor	91	80	85
	d. Patients and customers	88	93	94
	e. Other people (suppliers, representatives, receptionists)	73	76	60

profession, this facilitates registration of pharmacists between the 2 countries, although New Zealand and the 7 states within Australia each has specific requirements for pharmacy registration. New Zealand only offers the 4-year BPharm degree as entry into a recognized internship program, while some Australian universities also offer a graduate-entry master of pharmacy (MPharm) degree.

The accreditation process provides assurance that a graduate who has successfully completed an accredited BPharm or master's degree program will possess the knowledge, skills, and attributes to enter the preregistration training period or internship. Accreditation of a pharmacy program involves assessment of program content, structure and delivery, and resources and scholarly environment, and also gathering information on the performance of graduates in the practice setting. New and established pharmacy degree programs undergo interim, preliminary, provisional, and full accreditation through the Australian Pharmacy Council Accreditation Committee. A requirement for full accreditation (which is the final stage of the process for all new pharmacy programs) is to provide evidence of "effective feedback on graduate preparedness from the initial cohort of graduates, after they have been in the workforce for [at least] a year, as well as from the employers" (e-mail correspondence, NAPSAC representative, 2005). Full accreditation can only be sought once graduates have achieved registration as pharmacists and then worked for at least 12 months in pharmacy practice.⁷ The first cohort of BPharm students from the University of Auckland graduated in 2003, and most of them undertook an internship in 2004. This study was undertaken in 2006 when the first cohort of graduates had entered their second year of practice as registered pharmacists.

The objective of this study was to elicit the perceptions of preceptors and former students regarding the preparedness of pharmacy graduates to enter the profession.

METHODS

A 16-item questionnaire was created based on the 7 Competence Standards for the Pharmacy Profession, Pharmacist Level⁴ (Table 1), including 5 statements related to English communication. In a previous study undertaken to elicit qualitative feedback regarding the new pharmacy program,⁸ concerns about the English communication skills of some graduates became apparent and it was therefore considered important to gain information on how graduates were communicating with other pharmacy staff members, health professionals, patients, customers, business associates, and the preceptor. Although students had to have New Zealand permanent residence status for entry to the pharmacy program, many were born outside New Zealand and English was not their first language.

The questionnaire items did not repeat the Competence Standards word for word. For example, the item assessing the Standard "Provide primary health care" was worded "Completion of the Auckland BPharm degree enabled graduates to respond to symptoms and supply nonprescription medicines and refer patients as appropriate." Three of the standards (standards 1, 4, and 6) required more than 1 statement to elicit sufficient information. The responses were rated using a 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree) plus a "not applicable" option. Data were entered into a Microsoft Excel 2003 spreadsheet for analysis. An "open" section for voluntary comments was included at the end of the questionnaire to allow preceptors and graduates to provide additional information. Thematic analysis of responses was undertaken.

Anonymous questionnaires were mailed in July 2006 (mid-year) to all preceptors (n=141) who had supervised graduates over the 2-year period during which the graduates had been in the workforce. Preceptors were asked to reflect on their overall satisfaction of graduates' performance rather than on individual performance. The following statement also was included in the cover letter sent with the questionnaire: "... please bear in mind that the pharmacy degree is intended to prepare the graduates ...with the knowledge, skills, attitudes and competencies to enter general *pre-registration training*. It cannot claim to produce a fully-fledged pharmacist without the additional practical experience of the internship program." A second mailing was conducted a few weeks later with an appropriately revised cover letter.

Questionnaires were personally distributed to interns (41.6% of graduates; n = 72) by the Pharmaceutical Society during one of its intern training days; interns could decline to participate. Ethical approval for the study was obtained in 2006 from The University of Auckland Human Participant Ethics Committee.

RESULTS

One hundred ninety-five survey instruments were returned, giving a response rate for preceptors of 54.6% (77/141); interns, 100% (72/72); and registered graduates, 45.5% (46/101). Where appropriate, interns and registered pharmacists were referred to collectively as graduates.

The majority (87.4%; n=2,556) of responses were positive and represented agreement or strong agreement with the statements. The responses were calculated as a percentage of the total possible answers (eg, 15 statements x 195 respondents = 2,925). Interns gave more neutral responses (9.7%; n = 105/15x72) than preceptors (8.5%; n = 99/15x77) or registered graduates (7.2%; n = 50/15x46). The highest proportion of disagreement with statements was found among preceptors: 53 'disagree'

responses reflected 4.6% of preceptors ($n = 53/15 \times 77$) compared to 3.3% of interns and 3.8% of registered graduates ($n = 36/15 \times 72$ and $n = 26 \times 15 \times 46$).

Table 1 contains a summary of responses (%) from graduates and preceptors; newly registered graduates are reported separately from intern responses because the latter were still practicing under supervision of experienced pharmacists. There was a higher correlation (0.78) between the perceptions of newly registered pharmacists and interns than between preceptors and newly registered pharmacists (0.56), and preceptors and interns (0.67).

More preceptors (28.4%) and newly-registered pharmacists (29.3%) wrote free-text comments compared to interns (12.5%). Qualitative analysis of the comments revealed 4 main themes (Table 2), including the need for additional skills in extemporaneous compounding (mentioned more frequently by graduates than preceptors) and improvement in English communication among graduates who did not speak English as a first language (mentioned by preceptors). A few preceptors felt that research skills had been fostered at the expense of clinical or practical skills and that some graduates were “arrogant” or “overconfident” and did not demonstrate sufficient personal and/or professional independence.

DISCUSSION

This paper shares the findings of a new school of pharmacy on the perceptions of the first 3 cohorts of pharmacy graduates and of the preceptors who supervised them as interns. In Competence Standard Three (Primary Health Care), most preceptors (73%) agreed or strongly agreed that graduates were competent, compared to 91% and 90% of newly registered graduates and interns respectively. Variances can be explained because different stakeholders (in this case, the preceptors and the graduates) hold different perceptions of competency, which in turn are based on the stakeholder's specific needs and wants.⁹ In the current study, graduates were required to self-assess their preparedness for practice; self-assessment (or self-evaluation) needs to progress through various stages.¹⁰ Arguably, new pharmacy graduates have started only recently on the journey of professional self-assessment and may be inexperienced in its application. Characteristics reported to influence self-assessed competence include age and gender, with younger females perceiving themselves as more competent than older pharmacists.¹¹ The majority of graduates were female, comprising 72.2%, 83.3%, and 77.0% of the 2003, 2004, and 2005 graduate cohorts, respectively. Most of the graduates were younger than their preceptors, as the latter had to be practicing for at least 3 years.

Professional behavior and interpersonal skills are accepted as essential for all-round competence in health

professions.¹² Interestingly, more preceptors (90%) indicated favorable responses to the graduates' organizational skills than either newly registered pharmacists (76%) or interns (79%). The relevant statements in the questionnaire included “taking responsibility,” “professional development” and “contributing to the organization as an effective team member.” Possibly, graduates were still at a more task-oriented level and not able to perceive their behaviourally related competencies to the same extent as the more experienced preceptors.¹³ In addition, many preceptors had the added responsibility of running a business, which may have caused a conflict of interest, and they may have perceived competence from a different perspective.¹⁰

More preceptors perceived graduates to be competent in dispensing a prescription than in extemporaneous compounding, which was the competence rated lowest by all 3 groups of respondents. This may have been due to compounding skills being taught in the junior years (years 1 and 2) of the 4-year program, while counselling and dispensing of proprietary products and aseptic/sterile compounding were the focus of dispensing in senior years. Revision of extemporaneous compounding skills is required to maintain competence and reduce the potential for errors as this is an area of pharmacy in which many errors can occur.¹³

The few comments that were received from interns provided useful feedback, such as “I have great research skills...but clinical skills were lacking” and “...extemporaneous compounding in fourth year as a refresher will be quite helpful.” Curriculum changes were made as a result of this study including additional education in extemporaneous compounding in the final year of the pharmacy program.

From an educational perspective, the findings could indicate a need for undergraduate pharmacy students to develop the skills of self-assessment; this skill could be beneficial for graduates because the New Zealand Pharmacy Council requires evidence of continued competence for renewal of pharmacists' Annual Practicing Certificates. Additional practical undergraduate training could be undertaken through tailored experiential placements. However, this would require preceptor training and the associated costs of implementing and monitoring such an experiential program would be expensive.

English Communication

English is the official language in New Zealand; however, the large number of immigrants reflects a country with diverse cultures and languages. More than half of the pharmacy graduates did not speak English as their first language. Although it is a prerequisite of entry into the pharmacy program that students complete at least 2 years in a New Zealand secondary school, some graduates were

Table 2. Graduates' and Preceptors' Comments About a New Bachelor of Pharmacy Program

Themes Identified	Preceptor Comments	Graduates' Comments
Skills	<p>"Great if the programme can provide info on pharmacy management/retail skills."</p> <p>"I find that many of the skills referred to in these competence standards are really only developed during the interne year with practical experience and guidance from the preceptor."</p> <p>[Graduates appear to] "have an 'over confidence' in their ability/knowledge and [there is] a need to remind than that they are now dealing with real people and that relying on memory is not always the best option.. "</p> <p>"I have found students to vary between 'very good' for a few, to a large number with an inability to demonstrate their knowledge or skills."</p>	<p>"I feel that the clinical skills that were taught. . . is not quite up at a level that was accepted at my job and hence I had to work hard in my internship with my clinical skills. . . "</p> <p>"Dispensing accurately and being able to communicate with other health professionals can only come from experience."</p>
Attitudes	<p>"Confidence and personality tend to develop more on the job – probably it is not so easy to teach and prepare for this. [It] does depend on the individual."</p> <p>"...many have never left home. . .are very immature, egocentric. . .certainly many life skills are yet to develop. . .they struggle to organise themselves or take responsibility in a busy work environment. Their clinical training is fine."</p>	<p>"Having practised as a pharmacist for almost two years now in Australia and [the] UK, I have the utmost respect for the course . . . I have no hesitation is saying that the Auckland University BPharm degree is a worldclass degree."</p>
English communication	<p>"We have had some problems with English as this is a second language and not always thinking in English but doing translation in (his/her) head. Often they are not totally aware of what is happening in the surroundings of the pharmacy."</p> <p>"Communication skills are quite variable depending on nationality and language skills."</p>	<p>"May be good to train about communication and relationships with colleagues (e.g. preceptor)."</p>
Extemporaneous compounding	<p>"I think the degree is well-structured at present. A little more experience with compounding would be useful."</p> <p>"Very competent in manufacturing, particularly sterile"</p>	<p>"I believe more extemp labs would be a good idea, perhaps in later years of the degree. A lot of knowledge is lost as no extemp is done after second year."</p> <p>"I find that spacing extemporaneous compounding throughout the degree would be better, or a few sessions in final year to refresh our memories."</p>

not sufficiently proficient in everyday spoken English to converse professionally. In addition to the grammar, vocabulary, and pronunciation problems described by preceptors, the Pharmacy Council of New Zealand has expressed concern over increasing reports of inappropriate language and unprofessional and informal styles of communication (letter from the Pharmacy Council of New Zealand, July 31, 2006).

Communication skills, both written and oral, are of ever-increasing importance in pharmacy with patient

counselling in particular requiring good communication skills.¹⁴ Most preceptors (86%) perceived communication by the pharmacy graduates to be not as effective as the graduates; nearly all interns and newly-registered pharmacists (98%) thought their communication was effective. The poor command of oral and written English of undergraduates has also been reported in the United Kingdom.¹⁵

The value of this study is that it elicited the perceptions of the graduates of a new BPharm program on their

preparedness to practice as pharmacists; this information was used as evidence contributing to the accreditation of the program which was approved in 2007. The study also identified areas for improvement in the undergraduate curriculum and in the future, the questionnaire may be used to obtain feedback for ongoing accreditation which occurs every 5 years.⁷ Feedback on the performance of graduates is a requirement for accreditation and there appears to be no published data from both graduates as well as preceptors in either New Zealand or Australia. Findings may be useful to pharmacy education in other countries.

Limitations

The response rate from preceptors (54.6%) and newly registered pharmacists (45.5%) was somewhat disappointing considering that this was a new program; there are various factors that could have contributed to this. In June 2006 the reciprocal registration agreement between New Zealand, Australia, and the UK was discontinued; information from the New Zealand Pharmacy Council on graduate numbers for registration indicated that 74% (90 of the 122 graduates from the 2003 and 2004 cohorts) had registered to practice in New Zealand at the time of the study. We assumed the rest of the graduates were practicing in the UK prior to termination of the reciprocal registration agreement. In addition, because pharmacists receive research-related requests from various health disciplines, the target groups may not have responded due to "survey burnout."

CONCLUSIONS

The study elicited the perceptions of graduates of a new pharmacy program and from their preceptors regarding the graduates' preparedness for and performance in, the workplace. Graduates felt that they were more prepared for practice than the preceptors perceived them to be in most areas of competence, professional behavior, and interpersonal communication skills. However, preceptors felt graduates were more organized than graduates perceived themselves to be. Improved skills, including English communication, professional attitudes, and additional training in extemporaneous compounding, were identified from free-text comments.

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