

VIEWPOINTS

Pharmacist Licensure: Time to Step It Up?

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Significant evolutions in pharmacy education have occurred over the last century, including the emergence of the doctor of pharmacy (PharmD) degree as the sole professional degree for entry into practice. Over the last 40 years, colleges and schools of pharmacy have devoted significant resources to reengineering curricular paradigms from a product orientation to a patient-centered focus. These curricular changes have involved significant modifications in both the depth and breadth of instruction. Pharmacotherapeutic coursework as a component of overall credits in most programs has increased dramatically, as has instruction in patient communication and physical assessment. Early and continuous exposure to patients and practice settings is now an expectation of PharmD programs.¹ Pushing the envelope further, some have proposed a vision where postgraduate residency training is a requirement for direct patient care activities.² Finally, the influence and popularity of Board of Pharmaceutical Specialties certification also has increased, with over 7,000 pharmacists being certified in 1 of 5 recognized areas through 2009.³

Two central elements which have accompanied the curricular changes associated with making the PharmD degree the first-professional degree have been the incorporation of active or high-impact learning and a collateral focus on assessment. The increased emphasis on active learning has led many colleges and schools to move toward small-group and team-based learning, thus increasing the interactivity of pharmacy classrooms and coursework. Meanwhile, mandates to improve assessment processes have resulted in more authentic and innovative evaluations, including but not limited to the use of standardized mock patients and simulated patient encounters.¹ Often these encounters approximate real-life practice and are designed so that interactions can be captured digitally to improve future performance.

While significant modifications to pharmacy curricula have occurred in recent years, few alterations have been made to the North American Pharmacist Licensure Examination (NAPLEX). Design of the NAPLEX is guided by a blueprint document that is modified on a semi-regular basis. The most recent modifications to the NAPLEX blueprint took effect in March 2010.⁴ The blueprint consists of 3 competency areas with an associated percentage breakdown for each in terms of examination emphasis. The competency areas fall into 1 of 3 domains: pharmacotherapy and therapeutic outcomes (56% of the examination); safe and accurate dispensing (33% of the examination); and public health (11% of the examination).⁴ The competency areas were the same as those prior to March 2010, but modifications were made to the percent distribution of test items for each area. In the previous blueprint iteration, dispensing comprised 35% of the examination, pharmacotherapy comprised 54%, and public health comprised 11%.⁴ Students generally perform exceptionally well on the NAPLEX examination. Pass rates by colleges and schools of pharmacy for first time candidates ranged from 83.5% to 100% in 2008 and 81.9% to 100% in 2009.⁵ National examination pass rates in 2008 and 2009 for first-time candidates were 95.5% and 97.5%, respectively.⁵

In comparison to the United States, Canada appears to employ a more comprehensive pharmacist examination process. The Canadian qualification examination is designed to measure both understanding and application of pharmacy-based knowledge and the ability to perform critical practice-based functions and tasks.⁶ The licensing examination is a 2-part assessment consisting of both a written and performance-based evaluation.⁶ The written assessment is comprised of multiple-choice items aimed at evaluating a candidate's ability to make judgments and apply knowledge to pharmacy practice-based scenarios. The performance-based component of the examination is designed as an objective structured clinical examination (OSCE). Several OSCE stations are used to evaluate a candidate's ability to interact with standardized patients and/or other health care providers. A trained examiner using standardized assessment criteria observes, records, and assesses the candidate's interactions and ability to

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complete the given OSCE task.⁶ Similar to the Canadian pharmacy model, the US National Board of Medical Examiners employs both a written examination and a performance-based component as part of the US Medical Licensing Examination (USMLE).⁷ The USMLE is designed to assess a physician's ability to apply knowledge, concepts, and principles, and to demonstrate patient-centered skills. The examination consists of 3 complementary steps.⁷ Step 1 focuses on the application of sciences basic to the practice of medicine and employs an objective multiple-choice format. Step 2 focuses on the application of medical knowledge and skills with an emphasis on disease prevention and health promotion. Step 2 consists of both an objective multiple-choice examination (known as the clinical knowledge section) and a hands-on component (known as the clinical skills section). The clinical skills component of the USMLE involves assessment of communication and interpersonal skills utilizing standardized patients. Step 3 of the USMLE employs both multiple-choice questions and computer-based case simulations. The computer-based case simulations are designed to allow candidates to assess a simulated clinical scenario and subsequently request data and formulate treatment plans that include monitoring and follow-up. This final step focuses on clinical and biomedical knowledge with an emphasis on clinical decision-making skills essential for the unsupervised practice of medicine. Candidates for the USMLE may complete steps 1 and 2 while enrolled in medical school, while step 3 is typically completed following 1 year of postgraduate training. National pass rates for step 1 were 92% in 2007 and 91% in 2008.⁸ For the step 2 clinical knowledge section, pass rates were 94% in both 2007 and 2008.⁸ For the step 2 clinical skills section, pass rates were 97% in 2007 and 2008. For Step 3, pass rates were 95% in 2007 and 94% in 2008, respectively.⁸

Both the Pharmacy Examining Board of Canada and the US National Board of Medical Examiners currently employ some level of innovative assessment meant to better evaluate the hands-on application of skills that are critical to unsupervised pharmacy or medical practice. Similarly most US colleges and schools of pharmacy also employ more authentic assessments meant to simulate practice-based encounters. While the current NAPLEX examination seems to sufficiently assess attainment of the minimal level of knowledge required to practice pharmacy, questions remain in terms of candidates' ability to execute and apply this knowledge. Historically, some states required "wet" or "dry" laboratory components for pharmacy licensing processes. These laboratories were intended to measure the ability of candidates to apply knowledge in the actual compounding and dispensing of prescription and nonprescription products. With the

ongoing evolution of pharmacy from a product to a patient-oriented profession, has the time come to reexamine the validity of the processes used to license new practitioners? At a minimum, the profession should explore the utility of clinical skills examinations as a component of the licensing process. Clinical skills examinations, when conducted in a standardized fashion, afford the ability to delineate more clearly a candidate's ability to apply drug management skills and use basic physical assessment to evaluate and monitor drug therapy. A clinical skills component would also allow examiners to assess a candidate's ability to effectively communicate with patients and other health care providers.

The authority to determine licensing processes is vested in each individual state board of pharmacy, but with each state currently employing the NAPLEX examination at least in part, modifications to this assessment process might have the most far-reaching effects on a national level. Certainly altering an existing and validated examination would be costly and time consuming. Authentic assessments utilizing simulated patients and/or health care providers require significant resources with both the validity and standardization of evaluation criteria being critical. In addition to the need for standardization in delivery and evaluation, these types of clinical examinations are also time intensive and likely would necessitate multi-day test-taking procedures to ensure that the integrity of the examination(s) was maintained.

US colleges and schools of pharmacy continued to be challenged by national and state agencies as well as accrediting bodies to demonstrate that "students can do what we say they can do." An era of intense scrutiny in terms of assessment has led many colleges and schools to reexamine how they teach and evaluate. Certainly accreditation standards demand this level of inquiry and analysis.¹ Has the time come for the NABP to reexamine its procedures given the landscape in US colleges and schools and the general direction of the profession? Much could be learned from our Canadian pharmacy counterparts who have years of experience with authentic assessments and clinical-based skills examinations as components of licensing.⁹ The profession might also explore a model that incorporates both clinical examinations and a step-based approach similar to that used in medicine.

Regardless of the specific approach taken, some discussion seems warranted given the current inconsistencies between teaching and assessment in US schools and colleges and assessment criteria used by the NABP specifically with regards to the NAPLEX. Undeniably, the mismatch between the breadth and depth of assessments used in colleges and schools and that of the NAPLEX sends mixed messages to students and future practitioners.

REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree. <http://www.acpe-accredit.org/standards/default.asp>. Accessed May 27, 2010.
2. Murphy JE, Nappi JM, Bosso JA, et al. American College of Clinical Pharmacy's vision of the future: postgraduate pharmacy residency training as a prerequisite for direct patient care practice. *Pharmacotherapy* 2006;26:722-733.
3. Board of Pharmaceutical Specialties (BPS). BPS 2008 Annual Report. http://www.bpsweb.org/pdfs/2008_Annual_Report.pdf. Accessed May 27, 2010.
4. National Association of Boards of Pharmacy (NABP). NAPLEX Blueprint. <http://www.nabp.net/programs/examination/naplex/naplex-blueprint/>. Accessed March 17, 2010.
5. National Association of Boards of Pharmacy (NABP). School pass rates statistical analysis. <http://www.nabp.net/programs/examination/mpje/mpje-school-pass-rate/>. Accessed March 17, 2010.
6. The Pharmacy Examining Board of Canada. Pharmacy qualifying exam information booklet. <http://www.pebc.ca/EnglishPages/QEX/QEXHomePage.html>. Accessed May 27, 2010.
7. National Board of Medical Examiners. USMLE general information. <http://www.usmle.org/Orientation/2010/readme.html#Gen>. Accessed May 27, 2010.
8. National Board of Medical Examiners. USMLE performance data. http://www.usmle.org/Scores_Transcripts/performance.html. Accessed May 27, 2010.
9. Austin Z, O'Bryne C, Pugsley J, et al. Development and validation process for an objective structured clinical examination (OSCE) for entry-to-practice certification in pharmacy: the Canadian experience. *Am J Pharm Educ.* 2003;67:1-8.