
RESTRUCTURING OPTOMETRY'S "NATIONAL BOARDS": A PLAN FOR RENEWAL

By

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Introduction

During the past three years several internal studies have evaluated the structure and content of the National Board's sequence of examinations known as the "National Boards." This activity is equal in importance to the work carried out in the mid-1980s and then again in the early-1990s that created the current National Board content outline. In 1980 the "National Boards" were structured around 9 separately administered "sections" that had been in existence for many years, no assessment of clinical skills existed, and the knowledge of pharmacology was limited to the diagnostic use of drugs. Today, a 3-Part sequence of examinations covers the knowledge and skills (cognitive and non-cognitive) that are necessary to enter the practice of optometry with the broadest use of drugs for therapeutic purposes. A serious review every decade of the content and the structure of the national examination that has become the single pathway to licensure is both responsible and necessary.

Two National Board task forces, the first reporting in September 1998 (Ref. 1) and the second in October 1999 (Ref. 2), focused most of their attention on the Part I (Basic Science) examination, as this had been the stimulus for their appointment and work. The underlying concern was that as the Basic Science "outline" was built around the subjects taught in the first two years of the professional program, it resembled the contents page of a textbook or a series of course outlines rather than reflecting the clinical conditions encountered in practice which was the approach used for the Part II (Clinical Science) and Part III (Patient Care) examinations. Further, there was concern that the test items comprising the Part I (Basic Science) examination might not be as "clinically relevant" as appropriate, and, potentially, the examination was skewed towards assessing knowledge of facts and principles rather

than the clinical application of basic science knowledge. The two task forces presented the Board with a series of recommendations, all of which were aimed at an overall re-evaluation of the Basic Science outline, along with other recommendations for examination development, including changes to committee structure and personnel.

During this same period, two task forces of the Association of Schools and College of Optometry (ASCO) addressed similar concerns within optometric education. These efforts evolved from the 1992 Summit on Optometric Education series, especially the meeting of educators that focused on curriculum design and content, and the work carried out subsequently by ASCO committees in crafting model curricula. The first task force report, *A Model for Entry Level Determination (MELD)* (Ref. 3), was submitted to the ASCO Board of Directors in October 1998. The second task force report was submitted in June 2000, and titled *Attributes of Students Graduating from Schools and Colleges of Optometry* (Ref. 4). Both of these reports addressed concerns similar to those underlying the National Board's task forces that recommended re-evaluation of the National Board examinations.

Also, for contextual purposes, it must be remembered that the practice of optometry has changed dramatically in the past two decades. From a profession that was not permitted by law to treat eye diseases even though it had the legal obligation to diagnose them, optometrists in essentially all licensing jurisdictions now are permitted to use drugs for therapeutic purposes despite some variations in the scope of this responsibility. Paralleling this practice evolution, and to some in the profession the basic cause of this practice change, have been changes in the curricula leading to the OD degree. Not only have the schools and colleges met the demands of this new practice environment from the standpoint of curriculum content, but

teaching methods also have changed and patient care experiences have been expanded.

In essence, optometry, in both its education and practice, has matured as a true health care profession. As we enter the 21st century it is appropriate that the evaluation process that is the prerequisite to state licensure should be studied carefully to assure that new graduates entering optometric practice are evaluated appropriately to assure that they will competently perform their daily activities.

In November 2000, the Board of Directors undertook another strategic planning initiative, and Objective #3 for the period 2001-2005 was identified as “Restructure the examination consistent with task force recommendations.” The plan presented herein is a reasonable and cost-effective way of making the transition from the current examination structure to one that will continue to meet the needs of the state boards and the profession for at least another decade.

General Principles

While the two task forces that reported to the Board of Directors over the past three years were stimulated by a need to re-evaluate the Part I (Basic Science) examination and its outline, several of their recommendations, as well as discussions amongst leaders in both education and licensure over the past two years, suggest that any change to the “National Boards” should not be limited to the Part I (Basic Science) examination only. Therefore, in proposing changes, all components of the “National Boards” must be rigorously and seriously assessed. To assure a consistent review of the examination, a series of general principles should be applied so that a frame of reference will exist for all those who will work on this project over the next

few years. The following are the general principles that have been adopted by the Board, to guide the work to follow:

- 1 All three Parts of the current “National Boards” should be reviewed thoroughly, not only Part I (Basic Science), even if it is determined later that Part I has the greatest need for restructuring.
- 2 Building on the experiences gained from Part II (Clinical Science) and, to some extent Part III (Patient Care), changes to the content outline, or any new developments to the outline, should be based on those clinical conditions regularly presenting in the general practice of optometry. Any new outline should take a “condition-based” approach throughout the whole examination.
- 3 The reason that the current examination is divided into three Parts is more because of tradition, as well as the administrative and logistical realities of presenting a broad domain of content, rather than the need for separate content areas. Therefore, any new outline should be common to all Parts, regardless of the number. This would reflect the continuity of the examination content, rather than the current emphasis on the importance of individual, distinct Parts. Thus, as a general principle, a common “condition-based” outline for the whole examination should be the goal, regardless of the ultimate number of component Parts.
- 4 The National Board examination, however structured, must be designed to assure state boards that those who have completed an accredited Doctor of Optometry program and have passed all the components of the “National

Boards” have demonstrated the knowledge and skills necessary to be permitted to enter the unsupervised practice of optometry. The annual acceptance of the current examination on behalf of all state boards by the National Board Examination Review Committee (NBERC) of ARBO should not be discounted in this process. Nor should the realities of the current language in state statutes, that permit the state boards to accept a national examination in lieu of their own, be overlooked. Consequently, any changes recommended must meet the current, as well as long-term, expectations and needs of the state boards.

One of the task forces used the term “audit” to describe the function of any National Board examination. This is meant to suggest that the “National Boards,” while assuring a comprehensive assessment of the necessary knowledge and skills to enter practice, has no obligation to try to measure everything that has been taught in four years of professional education. Rather, only the most important issues that relate to the competent practice of optometry should be assessed. “National Boards” represent an “entrance examination” for practice to come, not a “comprehensive final examination” of education received.

- 5 Finally, while referring specifically to Part I (Basic Science), a recommendation from the second task force provides another useful guiding principle. That is, the examination, whatever its future form, must assess the knowledge and skills necessary to enter the safe and effective practice of general optometry. Thus, the focus of any change to the content outline and the purpose of the overall examination should be targeted at the point of entry into general practice, rather than be driven by,

or correspond to, the current professional curricula. While other issues must be taken into account, including fairness to candidates to allow multiple opportunities to take portions of the examination, the goal of assessing the knowledge and skills needed to enter the general practice must be held paramount.

The above five general principles will lay a suitable base upon which future discussions and decisions will be made.

Phases of the Work

Phase 1 – Item Re-engineering. This phase has, in fact, already begun, and will continue more aggressively with the acceptance of this plan. During the past two years, and specifically during the Fall 2000 examination development committee meetings for the 2001 examinations, all Part I (Basic Science) subcommittees were required to identify the purpose of every item selected for the Part I examination in terms of how each supported the diagnosis and management of particular clinical conditions identified within the Part II (Clinical Science) outline. In essence, this “linkage” exercise forced those selecting the items for Basic Science to be aware of, and to actively consider, the clinical conditions for which those Basic Science items tested required fundamental knowledge. This was first introduced for the 2000 examinations, but was not mandated, and was implemented as an initial attempt to see whether or not this requirement would impact negatively on examination production. This became a requirement in the second year, and it appears that this has not adversely affected the working methods of the committee members nor has taken an undue amount of time. Certainly there was some discussion regarding this requirement, and its effectiveness. However, at least as a beginning point, all test

items on the 2001 Part I (Basic Science) examination have been “linked” to clinical conditions identified in the Part II (Clinical Science) outline. Admittedly, some of this linkage was done by some committee members after the items had already been selected for the Part I examinations, but the process still resulted in a documented linkage between the Part I and Part II examinations.

This effort will be strengthened and made standard operating procedure for the development of the 2002 examinations. Further, work will begin immediately to identify some key Basic Science test items that can be used as sample items for a more clinical based expansion. Recently retired committee members will be contracted to undertake this responsibility by identifying up to a dozen test items each from the 2001 Part I (Basic Science) examination that can be modified to have a more applied, or clinical, orientation. These will become sample items for the development of more items using the same format by Consultant Item Writers (CIWs). Much can be learned from the work of the National Board of Medical Examiners (NBME) that undertook a similar conversion of test items over several years, such that the percentage of more clinically based test questions in the basic sciences were introduced in the USMLE Step I examination. This occurred even before a change in the content outline.

Thus, the outcome of Phase I should be a growing number of test items for the current Part I (Basic Science) examination, across all four sections of the examination. These items should be based not only on the fundamental basic science principles being tested, but equally, if not more importantly, they will more directly test the application of those principles to specific clinical conditions.

While the production aspects of this phase are fairly self-explanatory and conceptually quite simple, the sophistication of what is required should not be overlooked. For example, there is a potential for producing test items that go beyond the level of current clinical knowledge of the candidates. This is because the current Part I (Basic Science) examination is targeted for students who have completed the first two years of the four year professional program, and the earliest a candidate can take Part I is the August administration between years two and three. At this point, a fair amount of clinical exposure has been obtained, but certainly not at the level needed to fully comprehend the integration of basic science principles with clinical conditions. Hence, during the gradual phase-in of these items throughout the current Part I (Basic Science) examination, and before any consideration of delaying eligibility for Part I to later in the 4-year professional program to allow for adequate patient contact, care will be required to avoid testing beyond the clinical experiences of the candidates.

Phase 2 – “Condition-based” Outline Development. The driving concept for this phase is that the content outline will be developed without any consideration at this point for future sub-division into smaller components to allow for a logical grouping of content for purely administrative and/or educational reasons.

A working group of no more than 12 individuals, comprised of former committee members, current committee members, educators, state board members, and a recent student leader, will be brought together to work collaboratively on the development of a common outline for the “National Boards” based on the domain of conditions considered representative of the general practice of optometry. At this point, no decision will be made regarding the logistical breaks (i.e., Parts) to effectively administer the examination. The goal will be to develop a content outline that is

applicable to all elements of assessment necessary to assure competence to enter the practice of general optometry. While the goal will be to create something different than the current outline structure, it is clear that any new outline should at least cover the content of the current structure. This is to assure state boards that nothing is being “left out” as it relates to the language in state statutes that have been carefully studied prior to accepting the current “National Boards.” The new outline will be designed so that it is equally applicable to the current Parts I, II, and III examinations. In fact, the starting point will be the Part III (Patient Care) examination, and specifically the 2-dimensional matrix used for the Patient Assessment and Management (PAM) examination, as this written examination is closest to the point of entry into practice. If the National Board is to subscribe to one of the task force recommendations that its examinations assess knowledge and skills, including clinical problem solving, necessary to enter the safe and effective practice of general optometry, then it is reasonable to assume that the content outline should be based on that point in a candidate’s career.

The PAM outline conveys all aspects of optometric practice: one dimension divides optometry between the profession’s responsibilities for those conditions that are based on organic, or biological, changes and those conditions that are based on the functional aspects of human vision; the other is based on the clinical differentiation between diagnosis and management (in its broadest use of the term to include treatment). Expanding on this paradigm should allow the matrix approach to be applied to all levels and scope of knowledge and skill that must be included in the “National Boards.” However, the approach will need to be tested through debate and application of real conditions at all levels of knowledge and skills. However, if it is found to be operational, this paradigm will provide a “common” outline for all subsequent divisions of content and administrative logistics.

The work on this phase will begin in the fall of 2001, and probably will require two physical meetings of the working group and a number of telephone conference calls. It is also likely that some individuals from the working group will be identified as having both the interest and time to explore more deeply the detail work that will be necessary to finalize this aspect of the content outline. It is anticipated that the proposed new content outline structure and the domain of clinical conditions will be presented to the Board for approval in March 2002.

Phase 3 – Filling in the Gaps. Once Phase II has been completed and approved by the Board, each existing examination committee, along with adjunct members added for this purpose and one member from the working group, will be required to re-write their content outlines to fit the new generic “condition-based” content outline model and domain of conditions typical of general practice. For example, the Human Biology Subcommittee members, with augmentation by adjuncts and a working group member, will be expected to review the current outline and rework it according to the new content outline model. Without predicting the outcome of the new condition-based content outline model, the content from the current Human Biology section will be re-phrased in terms of those basic scientific principles that are needed to underpin each of the clinical conditions in the adopted domain of conditions. Given the scope and breath of the disciplines in Human Biology, it is likely that the outcome will be the identification of basic principles that support the diagnosis and treatment of many clinical conditions, which will again emphasize the value and the general applicability of basic science knowledge to the evaluation and solution of clinical conditions presented by patients seeking optometric care. The basic science principles that cannot be linked to the clinical conditions identified will be discarded as not necessary for inclusion on the “National Boards,” or, if

considered important for future practice changes, they could be grouped into a small “General Principles” sub-content area.

One other critical element at this stage of development will be to undertake a review of the potential to move to computer based testing (CBT) for some or all written components of the “National Boards.” It is likely by this point in the sequence, that the experiences of other national examination programs will be more stable and available for analysis and application to our examinations. Also, the availability of computer delivery systems for such a change in the test administration will have had time to further mature, stabilize, and diminish in cost.

The goal for completion of this work will be the spring meeting of the Board of Directors in 2003.

Phase 4 – Comment Period. This phase will follow approval of the new “condition-based” content outline and the domain of conditions by the Board in the spring of 2003, through distribution to the state boards, the schools and colleges of optometry, and leaders within the profession during the spring and summer of 2003. This will require significant staff travel as well as travel by members of the working group and, perhaps chairs of committees and others who demonstrate an understanding and involvement in this project as it proceeds, to regional and national meetings of state boards, the ASCO Board of Directors, and other interest groups, including the governing boards of sister organizations (AAO, AOA, AOSA, etc.).

Phase 4 will essentially be a “public reaction” period in response to the proposed changes to the “National Boards.” No reliable timetable can be established for this phase, because past experience in the 1980s and 1990s has demonstrated that at this

point in the development of a new content outline, several political issues can develop that create difficulty in maintaining a rigid timetable for implementation. However, it is projected that this effort will be completed by the spring of 2004, with final reports presented to the annual meetings of ASCO and ARBO that summer, such that the new content outline will be ready for committee use when developing the 2005 examination.

Also during this period, restructuring of the committees will take place, as needed, such that the committees to meet in the fall of 2004 to prepare the 2005 examinations will be ready to undertake the new examination program. The transition from the current examinations to the new “National Boards” in 2005 will be immediate and comprehensive; there will be no phase-in. Equivalency statements will be generated to cover those candidates who will begin the examination sequence under one content outline and complete the process under the new content outline. Our experience with previous content outline changes confirms that this need not be onerous for candidates or difficult for state boards to accept.

Summary

The National Board has evolved an excellent examination program during the past 20 years. It has stood the test of time and challenges from many quarters. Changing a good product for the sake of change alone is not worthy of the National Board. However, there is now enough evidence with the changes that have occurred in optometric education and practice over the past 20 years, and the approaches of national organizations that assess competence for other health professions, to support the conclusion that the time is now right for the National Board to consider another overall restructuring and redevelopment of its examinations.

The plan outlined above is based on a number of events that have occurred during the past three years, and summarizes the key elements that have evolved through that process. As with everything the National Board has accomplished, consensus decision-making and evolutionary thinking are important to a successful outcome.

With the Board of Director's adoption of this general plan of action on March 3, 2001, this document is now released to the schools and colleges and the state boards, other organizations in the profession with an interest in the "National Boards," current and former members of the examination development committees, and clinical examiners. Comment and input from all interested parties during the course of this project will be welcome at any time, by communicating with Dr. Norman Wallis, Executive Director, National Board of Examiners in Optometry, 4350 East West Highway, Suite 1010, Bethesda, MD 20814, tel: 301-347-4780; e-mail; wallis@optometry.org.

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