Chaos or Order?  
Some Thoughts on the Transition to a Professional Doctorate in Audiology

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There has been much concern for the future direction of the profession of audiology over the past decade, but especially since the development and advocacy of the professional doctorate in audiology, the AuD. Goldstein (1989) first published a 6-year model for the AuD that, although altered considerably in detail, remains the blueprint for “the” AuD degree. Probably one of the more significant alterations to the original model has been the move to an 8-year model (4 years postbaccalaureate), such as the one endorsed recently by the American Academy of Audiology (AAA, 1991). After careful consideration and deliberation of a variety of alternative educational models, an expanded 6-year bachelor’s/master’s framework was proposed by the authors and several colleagues as a cost-effective transitional solution to the educational growing pains confronting the field of audiology (Humes et al., 1992; Humes, Diefendorf, Stelmachowicz, Fowler, & Gordon-Salant, 1993).

The 6-year AuD model of Goldstein (1989) and the proposed 6-year bachelor’s/master’s framework of Humes et al. (1993) are very similar, as was noted in the latter article. In Goldstein’s model, however, preprofessional students enrolled directly in the AuD program after 2 years of undergraduate preparation, and there was no provision for any other degree to be earned along the way to the AuD. Goldstein’s model could be described as a 2+4 model in which 2 years of preprofessional education were followed by 4 years of professional education in audiology. The 6-year model of Humes et al., on the other hand, could be categorized, although somewhat inappropriately, as a 4+2 model in which students would earn a bachelor’s degree in audiology and hearing science following 4 years of undergraduate study and then would be required to complete 2 additional years of professional coursework in audiology. A more accurate representation of the Humes et al. model, however, would be 3+3 or even 2.5+3.5, in that the final 1–1.5 years of the undergraduate program are devoted exclusively to audiological coursework, clinical laboratories, and practicum. To distinguish between educational models such as those of Goldstein (1989) and Humes et al. (1993), both of which represent 6-year models of postsecondary education, such models will be clarified further in the remainder of this article using notation that breaks down the years of postsecondary education into the number of years of preprofessional education plus the number of years of professional education (e.g., 2+4 for the Goldstein model and 4+2 or 3+3 for the model of Humes et al.).

Debate and discussion of the AuD as the entry-level degree for the profession of audiology reached a crescendo during the meeting of the Legislative Council at the ASHA Convention in November 1992. The final outcome of that process was adoption of a resolution (LC 4-92) stating that: (a) ASHA supports the concept of doctoral degrees as the entry-level academic credentials for the practice of audiology; (b) ASHA affirms its support for the development of the professional doctoral degree in audiology; and (c) the Doctor of Audiology (AuD) is an appropriate descriptor of a professional doctoral degree in audiology. Although this resolution does not endorse the AuD as the only entry-level degree (support for clinical doctorates, PhD or EdD, is reaffirmed elsewhere in LC 4-92), it very clearly eliminates masters’ degrees as one of the possible entry-level degrees. Although elimination of the master’s degree as the entry-level degree for audiologists appears to be in direct opposition...
to the views of the majority of ASHA audiologists (60.9% favored the master’s degree over the AuD as the entry-level degree in the 1992 ASHA Omnibus Survey, and an enhanced bachelor’s/master’s model was not even presented as an option in that survey), the long-term impact of the policies represented in LC 4-92 are clear: Masters’ degrees are out as entry-level degrees in audiology; if not immediately, then relatively soon.

As indicated previously (Humes et al., 1992, 1993), the primary complaint with the rapid move to the 8-year (4+4) AuD as the entry-level degree was the added cost, in time and money, for the 8-year vs. the 6-year model and the difficulty in implementing an entirely new 4-year postbaccalaureate professional doctorate program. The 6-year (4+2) bachelor’s/master’s model advocated by Humes et al. was viewed as a cost-effective, easy to implement, interim educational model that would help bridge the gap between the currently inadequate master’s-level training programs and the enhanced professional-doctorate programs of the presumably distant future. Given the eventual elimination of a 6-year bachelor’s/master’s model as an entry-level alternative, precipitated by the recent passage of LC 4-92, the future is no longer so distant.

A rapid move from our current 5- or 6-year (4+1 or 4+2) bachelor’s/master’s-degree model to an 8-year (4+4) AuD model, however, will continue to encounter difficulties associated with both the added program length and the development of an entirely new doctoral level professional degree. It is believed that a transitional 6-year (4+2) educational model, culminating in the awarding of an AuD or equivalent (with equivalency only existing as an option during the proposed transition), will be an easier adjustment for training programs and one that can be implemented in a more timely fashion than the 8-year (4+4) AuD model in order to meet the needs of current audiology students. The proposed 6-year transitional educational model borrows some features from the original 6-year (2+4) AuD model (Goldstein, 1989), but is more heavily based on the 6-year (4+2) model of Humes et al. (1993). As noted below, other health care professions, such as dentistry, optometry, and pharmacy, have adopted 6-year (4+2, 2+4, or 3+3) educational models as a transition between their earlier bachelor’s-degree models and subsequent 8-year (4+4) professional-doctorate models. (Pharmacy, in fact, has not fully completed the transition to a 6-year (4+2) professional doctorate.) Audiology may very well find that the 6-year (4+2) AuD model, which would be adopted uniformly at the end of the transition period as the sole entry-level degree, is adequate to meet the needs both of the profession and of the persons with hearing impairment whom we serve, for quite some time (as was found to be the case in these other health care professions).

Given the passage of LC 4-92 and its eventual elimination of the master’s degree as one of the possible entry-level degrees in audiology, the transitional model being advocated here begins the process of change with the more rigorous bachelor’s/master’s model described recently by Humes et al. (1993) and ends the transition with the proposed bachelor’s/AuD model. During the transition period, the master’s and AuD degrees would be considered equivalent for the purpose of clinical certification, as long as the program requirements for the two degrees were equivalent. At the end of the proposed transition period, the 6-year program would terminate in an AuD rather than a master’s degree. Students entering the 6-year educational program with a bachelor’s degree in another discipline (life sciences, predentistry, psychology, etc.) would be required to complete the preaudiology and audiology coursework required for the master’s degree or AuD, as well as for clinical certification. Depending on the nature of their undergraduate training, this could add from 1 to 3 years of study to the 2-year postbaccalaureate portion of the educational program for these students.

**Transition to a Professional Doctorate—What Can We Learn From Other Professions?**

In making arguments for the creation of a professional doctorate in audiology, comparisons to other health care professions have been frequent. The focus of these comparisons has typically been placed on salary and title, with the conclusion being that “doctors” of audiology would earn more and that a single degree would better identify audiological competence for the consumers of our services. For the most part, the comparisons have been somewhat superficial and have led to some misleading conclusions. For example, regarding the importance of unifying the profession behind a single degree, it is important to note that other successful and well-established health care professions do not all offer a single degree as the lone designator of competence. In dentistry, for instance, 60% of the dentists in the United States hold a DDS (Doctor of Dental Surgery) degree; the rest hold a DMD (Doctor of Dental Medicine) degree (American Dental Association, 1992). In addition, approximately one in seven pharmacists who graduated from schools of pharmacy in 1991 received the PharmD degree; the rest received a variety of bachelor’s degrees. Physical therapy represents yet another health care profession that has a variety of degrees associated with entry-level credentials, including both bachelor’s and master’s degrees. The argument for a single unifying degree designation has also ignored the unifying impact of the primary identifier of clinical competence in audiology, the CCC-A. Nonetheless, it certainly will not be detrimental to have audiologists recognized and identified by both their unique professional degree (AuD) and the CCC-A, as is likely to be the case in the posttransition period of educational evolution. In the interim, the CCC-A should remain as the field’s primary identifier of clinical competence regardless of the academic or professional degree earned in the process of completing the certification requirements.

Over the past several months, the first author has been gathering and analyzing data available from a variety of health care professions. The most significant data in the present context are summarized in Table 1. As indicated in column 1 of this table, the professions surveyed, in addition to audiology, were dentistry, optometry, phar-
macy, physical therapy, and podiatry. Each was included in the survey because of that profession’s focus on rehabilitation, which frequently involves the use of prosthetic devices (bridges, crowns, dentures for dentistry; eyeglasses, contact lenses for optometry; artificial limbs, wheel chairs for physical therapy; and orthotics for podiatry). In pharmacy, rehabilitation is not the emphasis, but is often facilitated by the prescription of stimulants, depressants, analgesics, and other medications.

The next three columns of Table 1 summarize the most recent statistics for each profession regarding the number of training programs in the United States, the mean number of graduates in either 1990 or 1991 (in each case, the most recent available data were used), and the number of professionals estimated to be practicing, either full- or part-time in 1990 or 1991. Several features of the data in these three columns are noteworthy. First, when one divides the total number of annual graduates by the number of training programs for each profession, the typical audiology class size that emerges is ridiculously small. The average graduating class size in audiology is 4.9 students per year per program! Moreover, the number of audiology programs listed in Table 1 is a very conservative estimate in that it represents only those programs that are accredited by ASHA’s Educational Standards Board (ESB). The profession with the next smallest average graduating class size is physical therapy, with 32 students per year per program. The other four professions range in size from 82 to 95 students per year per program.

Given the breadth of material and depth of coverage that is required to prepare audiology students for the profession, one could easily argue that effective preparation cannot be accomplished with fewer than four or five academic and clinical faculty members in audiology. Given the typical class size of 4.9, this would amount to a fiscally irresponsible student/faculty ratio of approximately one! The number of accredited programs training audiologists in the United States should be reduced considerably so the programs can become more cost effective and deliver better quality training with a full complement of clinical and academic faculty. If an initial goal of 50 graduates per year per program was established and the current graduation rate of approximately 550 students per year was maintained, then 11 AuD programs would be adequate to meet this need by the end of the 11-year transition phase. This would represent a decrease in ESB-accredited programs by a factor of 10 by the end of this transition. Many of the phased-out programs, however, could remain as viable programs that offer the 4-year bachelor’s degree in audiology and hearing science and could serve as feeders to the AuD programs. In several other health care professions, such as dentistry, podiatry, and optometry, colleges and universities that provide appropriate preprofessional preparation far outnumber the schools that provide the professional training.

Another interesting comparison across these six health care professions emerges when we look at the ratio of new graduates in 1990 or 1991 (column 3) to the number of professionals holding the degree in each field (column 4) in Table 1. Dentistry, for example, has the lowest ratio, .029, which means that 2.9 new dentists were graduated for every 100 dentists already in the field. (The ratio is actually smaller because the number of dentists listed in Table 1 represents only those dentists in private practice—the vast majority, but not all, of the dentists in the U.S.) The profession with the highest ratio of new:existing graduates is physical therapy at .075, followed by audiology (.057), pharmacy (.056), optometry (.052), and podiatry (.044). The relative supply rates for physical therapy, audiology, and pharmacy, moreover, would be much higher if only those professionals in private practice were considered, since a minority of members in each of these professions are self-employed. The numbers of professionals appearing in Table 1 for optometry, podiatry, and dentistry, on the other hand, are predominantly or solely based on those members in private practice.

The rate at which new graduates are entering the profession appears to correlate negatively with median salary (column 5) as shown in Figure 1. Those professions supplying graduates at a faster rate than the others also earn less. Although there is no estimate of the demand for the services of each profession and whether the current population of professionals in each group is adequate to meet that demand, it is clear that each of the six health care professions could cite similar factors affecting demand (aging of the populace, legislative initiatives such as the

**TABLE 1. Comparison of six health care professions involved in rehabilitation.**

<table>
<thead>
<tr>
<th>Profession</th>
<th>No. of Programs</th>
<th>Graduates per Year*</th>
<th>No. of Prof.</th>
<th>1992 Median Salary (k$)†</th>
<th>Yr. Doctorate 1st Offered</th>
<th>Yr. Doctorate 1st Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentistry</td>
<td>45</td>
<td>3,995</td>
<td>137,195</td>
<td>91.9</td>
<td>1840</td>
<td>1943</td>
</tr>
<tr>
<td>Optometry</td>
<td>17</td>
<td>1,394</td>
<td>27,000</td>
<td>75</td>
<td>1920s</td>
<td>1965</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>75</td>
<td>7,122</td>
<td>126,675</td>
<td>56.4</td>
<td>1950s</td>
<td>&gt;2000</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>125</td>
<td>4,000</td>
<td>53,000</td>
<td>60.9</td>
<td>moving from Bachelor’s to Master’s</td>
<td>1911</td>
</tr>
<tr>
<td>Podiatry</td>
<td>7</td>
<td>591</td>
<td>13,400</td>
<td>91.3</td>
<td>1911</td>
<td>&gt;1992</td>
</tr>
<tr>
<td>Audiology</td>
<td>116</td>
<td>567</td>
<td>10,000</td>
<td>47.1-72.4</td>
<td>&gt;1992</td>
<td>&gt;1992</td>
</tr>
</tbody>
</table>

*Based on most recent statistics available, either for 1990 or 1991
†See Appendix for details of derivations
Americans with Disabilities Act, etc.) and that audiology is increasing its pool of professionals at a greater rate than several of the other health care professions. Audiology may not only need to reduce the number of accredited training programs by a factor of 10 to produce reasonable class sizes that are economically feasible, but may also need to reduce the number of graduates per year by as much as a factor of two. Other professions may be doing a better job of regulating the supply of professionals so as to have a positive impact on the salary commanded by their members.

How can the supply of audiologists entering the field be reduced while still allowing the profession to meet the needs of an expanding population of persons with hearing impairment? Again, we can gain some insight from the other health care professions we wish to emulate. Every profession listed in Table 1, except audiology, has training programs for assistants who work under the direction of the professional. In the case of podiatry, the assistants are in the nursing profession. Dentists have dental hygienists and dental assistants. Schools of optometry offer degrees to optometric technicians as well as opticians. Pharmacists supervise pharmacy technicians; physical therapists direct the activities of physical therapy assistants. The most common entry-level degree for pharmacy and physical therapy, moreover, is the bachelor’s degree. Audiology, on the other hand, having had the master’s degree as its entry-level requirement for decades and having recently endorsed doctoral-level training as the new entry-level requirement, has no provision for awarding degrees for auditing technicians. The proposed 6-year (4+2) educational model of Humes et al. (1993) may not only offer an effective means of making the transition to the AuD for audiologists, but could also become a useful model for the training and education of audiological technicians. Certification and licensure standards could be developed that would enable those completing the 4-year bachelor’s degree in audiology and hearing sciences to be eligible for employment as audiological technicians. They would not be capable of meeting the educational and practicum requirements for CCC-A, the primary identifier of competence in audiology, and would not be doctors of audiology. At the end of the transition period, it is conceivable that as many as 50 of the 116 ESB-accredited master’s-degree training programs in audiology in the U.S. could instead offer the bachelor’s degree and practicum that would be required for certification and licensure as an audiological technician, with 20–30 students per class per program. The best of these students, using a rigorous entrance exam specifically designed for audiology and patterned after those of other health care professions with professional doctorates, would be admitted to one of the 10–15 programs in the U.S. offering the AuD (or they might decide to directly pursue the universally recognized research degree, the PhD).

It should also be noted that a majority of ASHA audiologists have expressed a need for such support personnel (Slater & Shewan, 1992). Depending on the audiologist’s work site, 64.5%–75% of the audiologists surveyed by ASHA expressed moderate or high need for such professional assistants. In addition, only 6.7%–13.2% of audiologists expressed no need for such support personnel. If the profession of audiology does not take measures to address this need, it may soon find that the educational and clinical requirements for such personnel, as well as their scope of practice, have been defined by other health care professionals needing their services, such as otologists or otolaryngologists.

One could argue that the development of credible training programs for audiological technicians will diminish the importance of the audiologist’s contributions to hearing health care and may threaten its very existence. This is certainly possible, although it is difficult to see how a profession that requires 7 years of education and clinical training leading to a professional doctorate could also be undermined by audiological technicians with only 4 years of training and a fraction of the clinical experience. It is even more likely to happen, however, if audiologists do not take a proactive position and do not participate in the development of educational guidelines and the delineation of the scope of practice for support personnel in our field.

Although the professions listed along the x-axis of Figure 1 have been ordered by the relative rate of production of new professionals, this same ordering would hold for a number of other x-axis dimensions. For example, a dimension based on the number of years of postsecondary education typically required for the entry-level degree in each profession would result in a similar ordering of professions from left to right in Figure 1. That is, the three professions in the left-hand portion of Figure 1 require...
only 4-6 years of postsecondary education to earn the entry-level degree in that profession, whereas the three professions in the right-hand portion of the figure typically require 8 years for their entry-level degree. The three professions on the right, moreover, have professional doctorates as their entry-level degree and the corresponding title of “Doctor”; this is not true of any of the three professions in the left-hand portion of this figure. In fact, for physical therapy and pharmacy, the bachelor’s degree is the most common entry-level degree. Thus, segregation of the three lower-paying professions in the left-hand portion of Figure 1 from the three higher-paying professions in the right-hand portion of this figure could be attributed to relative supply rate, years of postsecondary education, or professional title (doctor vs. nondoctor).

Each of these factors is likely to be at least partially responsible for the dichotimization of these six health care professions into lower-paying and higher-paying categories.

The three higher-paying professions in the right-hand portion of Figure 1 also differ from the three lower-paying health care professions in the left-hand portion along at least two other significant dimensions: professional autonomy and patient satisfaction with the prosthesis. Professional autonomy means that audiologists, physical therapists, and pharmacists require diagnostic information from physicians prior to rehabilitative intervention with their prostheses (or at least, in the case of audiology, a waiver signed by the client waiving his or her right to medical clearance). Dentists and podiatrists, on the other hand, can perform surgery and prescribe medication to facilitate the patient’s rehabilitation without the intervention of other health care professionals. Optometrists also do not have to obtain medical clearance prior to fitting and delivering eyeglasses or contact lenses in many states and, in some states, have the right to prescribe medication.

Regarding client satisfaction with the prostheses, it is hard to imagine that satisfaction could be rated much lower than it has been for hearing aids (Kochkin, 1992, 1993), although the authors are unaware of any direct comparisons of satisfaction across the various prostheses delivered by each of the health care professions. Client satisfaction is assumed to be much greater for eyeglasses, orthotics, bridges, crowns, and dentures than for hearing aids. If such is the case, then this variable is also likely to have an impact on the incomes earned by the professionals who fit and dispense these prostheses.

Finally, the x-axis in Figure 1 could also be labeled according to the length of time each of these professions has been a doctoral-level profession. As noted in Table 1, for example, dentistry has been a doctoral-level profession since 1840, followed by podiatry in 1911, optometry in the 1920s, and pharmacy in the 1950s.

In summary, the x-axis of Figure 1 could have a variety of labels and still segregate the higher-paying health care professions from the lower-paying ones. It is not likely to change by simply adding the title of “doctor” to the clinician delivering the services or by simply extending the length of postsecondary training to 8 years. These changes must be accompanied by self-monitoring and self-regulating the supply of audiologists entering the field; increasing the rigor, both academically and clinically, of the training programs in audiology; enhancing audiology’s professional autonomy; and improving the client’s satisfaction with the rehabilitation provided by the audiologist.

We can also learn much from these other health care professions regarding the duration of the transition to a profession that requires the professional doctorate as its entry-level degree. The two rightmost columns of Table 1 summarize two key dates in the educational evolution of these health care professions: the year in which a professional doctorate was first offered in the field by a college, university, or nonproprietary school, and the year in which that degree became the entry-level requirement. The first OD degree was offered in optometry in the 1920s, yet the OD did not emerge as the required entry-level degree until 1965. The first PharmD degree was offered in pharmacy in the 1950s, but as recently as 1992 the American Council on Pharmaceutical Education rejected a proposal that the PharmD be required as the entry-level degree by the year 2000 (Chalmers, 1992). In dentistry, the first professional doctorate was offered in this country in 1840 and it became the required entry-level degree more than a century later, in 1943. At the time of this writing, not a single program in the U.S. has been authorized and accredited to award the AuD. The earliest it could possibly be awarded, assuming the 4-year model currently being pursued, would be 1997. Given the history of the other “doctoring” professions we wish to emulate, a decade-long transition—beginning with a 6-year (4+2) bachelor’s/master’s or bachelor’s/AuD model and ending with a 7-year (4+3) bachelor’s/AuD model—would be a remarkably fast transition. Optometry, pharmacy, and dentistry have all had a history, moreover, of first exhausting the resources in a 4-year bachelor’s degree, then progressing to a 5- or 6-year program and, finally, to an 8-year (4+4) educational model (for optometry and dentistry). (The PharmD is currently a 6-year (4+2) model and, as noted above, is still not the required entry-level degree in that profession.) Furthermore, although the 8-year professional doctorate is the most common model for dentistry and optometry, it is not the only educational model followed in these two professions, despite its relatively long period of existence. In 1991, 21% of the dentists and 25% of the optometrists received their professional doctorates following a total of 6 or 7 years of postsecondary education (2+4, 4+2, 3+4, or 4+3), rather than 8 years (4+4).

One could argue that we should learn from the “mistakes” of these other doctoring professions and just jump directly from our current educational model to the 8-year (4+4) AuD model. The assumption, of course, is that these other professions didn’t know what they were doing at the time and, in retrospect, would have also chosen to jump directly from a 4-year bachelor’s model to an 8-year (4+4) professional doctorate, if given the chance to do it all over again. The reality is, however, that it simply takes time for educational institutions, professional organizations, licensure boards, and the professionals themselves to adapt to the changes in the profession and for other cooperating health care professions, as well as the general public, to
recognize the importance of those changes. Undergraduate education, for example, is less costly to the student and the institution than professional or graduate education. It is reasonable and more cost-effective, therefore, to exhaust all resources at the undergraduate level prior to fully using the more costly resources available within professional or graduate schools.

The transition is also needed to establish the viability and earning power of the holders of the professional doctorate. At present, most training programs in audiology are able to offer financial support to many graduate-school applicants in the form of graduate assistships, funded through the university or through federal grants. This is rarely the case in optometry, dentistry, or podiatry. Student loans are the primary or exclusive means of financial support for the students in these professions. They are able to secure these loans, in part, because of the demonstrated viability and earning power of the previous holders of the degree. It will take time for banks and other lenders to recognize the earning potential of the AuD and to invest in the AuD student’s education. In the interim, maximizing the use of less expensive undergraduate training and offering the AuD through existing graduate or professional schools will be essential during the transition to free-standing, self-supporting schools of audiology in the 21st century. Again, we can gain some insight into the added cost of professional training by examining other health care professions. The average tuition for schools of podiatry in 1991/1992 was approximately $15,500 per year. For this same year, the average tuition for dental schools in the U.S. was $10,058/year for in-state residents and $15,387/year for out-of-state residents. Finally, in 1991/1992 the average annual tuition at optometry schools was $7,545 for in-state students and $12,060 for out-of-state students. All figures reported are for tuition only and do not include other fees, books, or living expenses.

It is also noteworthy that none of the health care professions with professional doctorates listed in Table 1 and reviewed in this paper has the PhD as an equivalent entry-level degree. Given ASHA’s abandonment of the master’s degree as a viable entry-level alternative by the recent passage of LC 4-92, the professional doctorate should eventually be recognized as the only entry-level degree and should be built into the requirements for obtaining the CCC-A. The PhD is not a professional degree, despite our field’s long history of using it in that manner. In each of the other health care professions reviewed here, the PhD can be pursued after, or instead of, completion of the entry-level professional degree. It is a disservice to clinicians and researchers alike to continue to advocate the clinical PhD as an entry-level alternative to the profession of audiology when a professional doctorate is among the viable options also being supported. The clinical PhD should no longer be an acceptable degree option for the certification of clinical audiologists in the posttransition period. As noted by the American Association of Graduate Schools’ Statement of Policy on the PhD in 1979:

“The PhD degree may be awarded in all fields of learning of reasonable breadth, pure and applied, for which there is an adequate research methodology. PhD programs involve scholarly and research activity directed mainly toward the acquisition of new and fundamental knowledge. PhD programs are to be distinguished from practitioner-oriented doctorates which prepare for the application or transmission of existing knowledge and that may be intended to serve as preparation for professional practice, and are also distinguishable from doctorates in the creative arts. PhD programs lead the student to focus on what he or she can do to the subject; professional degree programs are more concerned with what the student can do with the subject.”

Certainly there are other health care professions that have made successful use of the clinical PhD as their entry-level degree. Clinical psychology, for example, is a health care profession that focuses on the diagnosis and treatment of persons with psychological disorders and since the 1940s has advocated a clinical PhD, based on the so-called Boulder model, as its entry-level requirement. In 1968, however, after continued objections by practitioners to the research requirements contained within the typical clinical PhD program, the professional doctorate (PsyD) was developed at the University of Illinois as an alternative education model. By 1991, 22.3% of the 1,411 graduates of American Psychological Association-accredited doctoral programs in clinical psychology received the PsyD, as opposed to the PhD (APA, 1991) and approximately 8% of the 27,161 clinical psychologists in the APA had received the PsyD (APA, 1993). It is clear that the PsyD is becoming an increasingly popular alternative to the clinical PhD in clinical psychology. Moreover, the performance of clinical-psychology graduates with either the PhD or PsyD is equivalent on the APA’s Examination for the Professional Practice of Psychology, a national examination whose scores are used as one of the primary qualifications for licensure in most states (Ross, Holzman, Handal & Gilner, 1991). There is evidence, moreover, that the PsyD is not viewed as a second-rate credential when received from APA-accredited institutions (Hershey, Kopplin & Cornell, 1991), despite the relatively recent emergence of this professional doctorate in a field in which the clinical PhD had been firmly entrenched as the entry-level degree for several decades. Finally, another indicator of the equivalent quality of preparation of PsyD and PhD recipients in clinical psychology may be found in the salaries that are commanded by clinical psychologists with either doctoral degree. The 1992 median salary for full-time clinical psychologists working in private practice was $55,000, regardless of which doctoral degree they held (APA, 1989).

Although the salary figures support equivalence of the two types of doctoral degrees within the profession of clinical psychology, the salaries are more in line with those professions, shown previously in Figure 1 and Table 1, that do not require the doctorate for clinical practice (physical therapy, audiology, and pharmacy). Thus, even though clinical psychologists are required to complete 8 years of postsecondary education (usually 4+4 for both clinical PhD and PsyD) and have a history of being referred to by the title of doctor, their salary is much lower than that of the
other health care professions in Figure 1 that have similar characteristics (optometry, podiatry, and dentistry). The relative supply rate (ratio of new graduates to existing professionals) for clinical psychology, is .052, which is also more in line with the higher-paying health care professions in the right-hand portion of Figure 1. Psychology differs from the higher paying health care professions, however, along several of the other dimensions discussed previously. Clinical psychology, for example, is a relatively new doctoral-level health care profession, having adopted the clinical PhD as its educational model in the 1940s, with the professional doctorate (PsyD) emerging as a viable alternative in the 1970s. Clinical psychologists also have much less professional autonomy than dentists, podiatrists, and optometrists. Prescription of therapeutic medications, for example, is not within the scope of practice of clinical psychologists and requires the intervention of a physician (usually a psychiatrist). Finally, unlike the other health care professions in Figure 1 and Table 1, psychologists are not involved in the dispensing of a rehabilitative device or product, as are all the other professions included in this evaluation. It was primarily for this reason that clinical psychology was not examined in more detail in this particular evaluation of other health care professions.

Proposed Transition

Based on the preceding evaluation of the education and clinical training of other health care professionals, as well as their historical development and current status, a transitional educational model is proposed. The general features of this model are summarized in Figure 2. There are several key elements involved in the proposed transition. First, the Certificate of Clinical Competence in Audiology (CCC-A), and not the degree, should remain as the primary professional identifier of competency in audiology. This should minimize some of the threat perceived during the profession’s transition to the AuD by many current holders of CCC-A with master’s degrees. Moreover, this will not negate the decades of effort that have been expended by countless individuals to have the CCC-A recognized by the public and various licensing agencies as the primary credential for the practice of audiology. Over time, the AuD and CCC-A will become synonymous and redundant as more new AuD recipients replace those with master’s degrees who are leaving the field for various reasons. During this transition period, certification requirements for the CCC-A should be gradually and continually improved so that more fundamental coursework will be required in the physical, life, and behavioral sciences, more audiology courses will be required to expand the breadth and depth of preparation, and the amount and diversity of clinical experience that is required will be expanded. As noted previously (Humes et al., 1993), current certification guidelines encourage mediocrity in clinical training, rather than ensure excellence.

These changes, however, must be phased in. For example, to meet the goal of more diverse and extensive clinical practicum, the practicum requirements for the CCC-A could be doubled to 700 hours upon implementation of the 6-year (4+2) transitional model (and 3-5 years after notification of ASHA’s intention to do so), then increased by 10% every year for 11 years, at which time the requirement will be 2,000 hours of supervised clinical

**FIGURE 2.** Schematic representation of the time line for the proposed transition from the current master’s-degree programs to AuD programs of the future.
The Clinical Fellowship Year (CFY) could be retained initially as part of the requirements for CCC-A, but the length of the CFY would be decreased by 10% each year over the same 11-year period and eventually eliminated as a postdegree certification requirement. This phased-in transition is illustrated in Figure 2, but implemented in feasible 300-hour increments and decrements to the required practicum and CFY. During this 11-year transition period, moreover, the AuD or equivalent would be the required academic preparation. This would allow training programs to make a rapid move to enhance the education and clinical preparation of current students, using the already existing bachelor’s/master’s framework as the vehicle of change, while the more time-consuming change to a new professional doctoral degree was being explored and implemented at various institutions. Note that, at the end of this 11-year transition period, the AuD would become the only degree recognized for the clinical certification of individuals entering the field of audiology and that the AuD program will have grown by this time from a 6-year (4+2) model to a 7-year (4+3) model to accommodate the incorporation of the CFY into the degree program. In a similar fashion the academic requirements, both in audiology and in preaudiology coursework, could be gradually enhanced over a period of 10–11 years from the date of initiation of the 6-year (4+2) transitional model. If, at the end of the decade of transition, the resulting 7-year (4+3) AuD model is no longer adequate, expansion to an 8-year (4+4) model could be implemented easily over a shorter transition period.

Two additional changes must take place during the transition, however, for the CCC-A to remain as the primary identifier of clinical competency in audiology. First, a program of recertification should be developed and implemented in which the CCC-A is only issued and valid for a limited time period, such as 5 or 7 years. To be recertified following initial issuance of the CCC-A, minimum continuing education and continuing practicum requirements should be met. In this way there will be greater equivalence between individuals currently holding the CCC-A and those receiving it during and after the proposed transition. Many current holders of the CCC-A may not elect to be recertified during the transition or might choose to become certified as audiological technicians. It is not being suggested here, however, that all pretransition recipients of the CCC-A must take all of the coursework in the transitional or posttransitional curriculum that they have not had previously, nor that it has to be formal coursework for college credit. The ASHA continuing-education unit (CEU), with some modifications, may be an adequate vehicle for implementing this recertification requirement.

The second major change that must accompany this transition has to do with state licensure for the practice of audiology. Currently, only about 75% of the states require a license for the practice of audiology and many of these have so many exemptions (state or federal employees, etc.) that their effect is largely negated. Despite what we as a profession intend to do to improve our profession, including the educational and practicum requirements needed to practice it, these changes will have little impact if these enhanced credentials are not required by every state in the U.S. for the practice of audiology. It is imperative that requirements for the CCC-A be enhanced during the transition, that a program of recertification to maintain the CCC-A be developed during the transition, that every state require licensure for the practice of audiology, and that the CCC-A be recognized as the requirement for licensure.

Many programs simply will not have the resources, either academic or clinical, to offer the posttransition 7-year (4+3) AuD degree. Clearly, program consolidation, revision, and elimination will take place during the transition. These changes must be guided by an accreditation process that ensures quality and excellence, rather than mediocrity. The 10–15 posttransition programs that emerge, each with larger faculty and large class sizes, should be located in areas of the country capable of offering practicum opportunities of considerable breadth and depth during the program. In our opinion, this requirement practically dictates that the programs be located in metropolitan areas with sufficient clinical resources to provide each of the 50 students per class with the required 2,000 hours of clinical practicum and that the programs have a close affiliation with hospitals, medical centers, or a medical school to ensure caseload diversity. Many of the current training programs in audiology that do not emerge among the 10–15 capable of offering such depth and breadth of training will either be eliminated, with faculty and other resources consolidated into one of these larger programs, or revised, with the bulk of the current master’s program and requirements shifted to the undergraduate level. In the latter case, these programs will serve both as feeders to the larger posttransition AuD programs and as training programs for audiological technicians.

Audiology is clearly entering an exciting, yet confusing, period of transition. It is hoped that the new Vice President for Professional Practices in Audiology, a position established at the same ASHA Legislative Council meeting that sounded the death knell for the master’s degree as an entry-level option, will develop a plan of transition for the next 10–20 years that will be based on what we can learn from careful examination of the histories of other similar health care professions. Such a plan is needed to assure that order and fairness prevail over chaos and special interests during the transition to the professional doctorate as the entry-level degree in audiology. Most helpful would be a broad, far-sighted plan that had as its emphasis not just creation of the first AuD degree program, but development of a revised set of rigorous standards for program accreditation and individual certification to assure that those holding the AuD degree and CCC-A have not simply changed in title, but in knowledge and clinical competence as well. A plan for periodic recertification of individuals holding the CCC-A, and continuing education to facilitate members’ efforts to achieve such recertification, will also be needed during the transition to a more rigorous degree. Efforts should be redoubled to have every state in the U.S. require a license for the practice of audiology, with no exemptions, and to have the CCC-A as the requirement for licensure. Such a transitional plan should also be comprehensive enough to
incorporate guidelines for the education and certification of audiological technicians to assure that the need audiologists have expressed for these support personnel will not only be met, but met in a way that will assure the clinical competence of these support personnel. Professional autonomy will be strengthened by rigorous standards and accreditation, periodic recertification, and universal mandatory state licensure with a broad view of the audiologist’s scope of practice; but efforts must also focus on reimbursement issues if audiologists are to be recognized as truly independent professionals on the hearing-health care team.

Finally, it is hoped that a part of the transitional plan will incorporate the continual gathering and dissemination of data about the profession of audiology. In the course of gathering data from the various health care professions considered in this paper, the data for audiology were the most scattered and the most difficult to assemble. A thorough appraisal of the nature and status of our profession today is essential for the preparation of educational and professional policies needed for a smooth and orderly transition to tomorrow.

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Appendix

The salary figures for each profession were derived by their professional associations in a variety of ways. Every effort was made to use equivalent procedures and assumptions in making the salary estimates reported here. According to the American Podiatric Medical Association (APMA), the most recent salary data for podiatrists were gathered in 1984 and that association has been using an inflation rate of 6.9%/year since then to adjust salary estimates. Consequently, when data were not available for 1992 in other professions, the most recent data available (none older than 1989, except podiatry) were adjusted by the same 6.9% annual inflation rate. Moreover, some of the professions report gross income and others net income (salary) for their professional activities. The relation between these two was assumed by the APMA to be net = 1/2 times gross for podiatrists. The same relation was applied to estimates of gross annual income in physical therapy supplied by the American Physical Therapy Association (APTA). Finally, when salaries were available for professionals in a variety of settings, all estimates were based on those working full-time and 11–12 months/year in a private/independent practice. To generate such estimates for audiology, two sources were used. Cranmer-Briskey (1992) reported 1991 annual salaries for dispensing audiologists in private practice. The other salary estimate for audiology was derived from data on the salary differential between full-time audiologists and speech-language pathologists (Slater, 1992), then this differential was applied to salary estimates for full-time private practitioners (Keough, 1991).

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