

Movement to the Professional Master's In Orthotics and Prosthetics  
Questions and Answers for the Profession

The National Commission on Orthotic and Prosthetic Education (NCOPE) is in the process of developing and creating an educational pathway for the orthotist and prosthetist level of practice. Currently these individuals are educated at the bachelor's level. Individuals either obtain a bachelor's in orthotics and prosthetics (O&P) or a post-baccalaureate certificate in orthotics and/or prosthetics then proceed on to an NCOPE accredited residency.

A brief history of O&P education pathways and its roots can be traced to several landmark meetings on education. In the 70's Ponte Vedra I and II identified the need to move to a minimum of a bachelor's degree for orthotist and prosthetist with the next meeting on education not held until 1990. The next landmark conference on education was held in April 2005 and a report was produced titled "O&P Education Summit: Forecasting the Future." This meeting and report has been the catalyst for NCOPE on implementing in the future an O&P master's level degree.

There are a lot of questions on the rationale for such a move. Short of having to review all the reports and resources that helped guide this decision, NCOPE would like to provide a set of questions and answers that should assist the profession in understanding the rationale and reasoning for this movement.

### **Education Programs**

There are currently a limited number of O&P schools in the US and a finite number of slots available within each of those schools.

Question: ***Would the addition of a Master's degree as an entry-level requirement increase the number of future clinicians?***

Answer: There is no current data to cite that would unequivocally support the claim that movement to a professional master's degree would increase the number of future clinicians. However, there is also no data to support that such a movement would not increase future clinicians.

NCOPE is currently in discussions with three potential O&P programs that will likely seek CAAHEP accreditation within the next two years. Representatives from each of these schools indicated that they would want to come in at the master's level despite the current entry-level bachelor's. Based on this initial trend and discussions with the school representatives it seems unlikely that future schools will want to come in at the bachelor's level. This appears to be less marketable compared to other allied health professions existing at higher levels of education. Based on the recent NCOPE/AOPA workforce study two additional schools within the next 30 years would decrease projected practitioner's shortages from 9.5% to 4.2%. The addition of a third program will decrease the projected shortage even further.

Question: ***Would the requirement of a professional master's deter more prospective O&P students than it attracts, as some individuals may turn to other allied healthcare professions where the entry-level educational requirements are less extensive; or perhaps where a master's requirement allows entry into a perceived more prestigious profession.***

Answer: Several studies have shown a fluctuation in numbers of students in graduate level education over the last two decades. However, since 1999 there has been a general upward trend. In particular we are beginning to see a greater number of female students taking graduate education specifically in engineering programs (see chart). This is important as many of the O&P schools accept students with an engineering background. Moreover we are seeing greater numbers of female students entering O&P primary education programs. This is further supported by the Physician Assistant (PA) profession and their transition to the master's degree. In the case of the

PA's they found that after moving to a master's degree they had an increase in female and foreign student enrollment.

Additionally it is important to consider that current O&P certificate programs have offered accredited post-baccalaureate programs for over 10 years with this avenue being the single biggest educational pathway that individuals choose. This suggests that individuals are willing to expand their education beyond the bachelor's level and take course work that in some instances is equivalent, in terms of pure length of time, to a master's.

Finally, dialogue with counselors from several higher learning institutions indicate that post bachelor's certificate programs are not likely recommended by counselors, but rather master's level education is recommended for those students after completing their bachelor's degree.

One additional consideration should be the current perception by high school students of the educational requirements for O&P education. In a 2006 study, by then resident John Federick, CO, titled "The Awareness and Perception of High School Students of Orthotics and Prosthetics as a Profession", 170 high school students it was found that 64.2% thought that educational requirements were at the doctorate level and 25.5% at the master's level. This is an important consideration as prospective students looking to enter the profession have a higher expectation of educational requirements.

Text table 2-10.

**Female enrollment in U.S. graduate S&E programs among racial/ethnic groups and foreign students, by discipline: 1999**  
(Percentages)

Race/ethnicity and citizenship	Total S&E	Natural sciences	Mathematics	Computer sciences	Social and behavioral sciences	Engineering
<b>Total</b> .....	41	43	37	30	59	20
White .....	44	44	37	25	60	19
Asian/Pacific Islander .....	42	49	44	38	63	25
Black .....	58	58	45	45	66	33
Hispanic .....	50	50	39	24	63	24
American Indian/Alaskan Native .....	52	49	60	32	62	28
Foreign students .....	30	37	35	30	45	18

NOTES: Foreign students include those on temporary visas only. Values are percentages of total enrollment for each subgroup within each field. Natural sciences include physics, chemistry, astronomy, and biological, agricultural, earth, atmospheric, and ocean sciences.

SOURCE: National Science Foundation, Science Resources Studies (NSF/SRS), *Graduate Students and Postdoctorates in Science and Engineering: Fall 1999*, NSF 01-315 (Arlington, VA, 2001).

Science & Engineering Indicators – 2002

Source National Science Foundation Board: Higher Education in Science and Engineering. Science and Engineering Indicators, volume 1, Washington, DC, National Science Foundation, 2002

The current model assumes that a sufficient level of education is gained through either the completion of a bachelor's program that is specific to O&P, or through the completion of a post-baccalaureate O&P certificate program.

Question: ***What differences will there be in the curriculum between a bachelor's and master's program?***

Answer: Additional curriculum content that O&P professional master's level will offer that a bachelor's and certificate programs currently do not is as follows:

1. Evidence-Based Practice
2. Research (consumers of)

3. Ethics (greater depth)
4. Neuroscience
5. Clinical Pharmacology
6. Disability
7. Diagnostic Study
8. Entrepreneurship/ business plans

The addition of this coursework is supported in part by the findings of three reports:

1. “*Research in P&O: Are We Addressing Clinically-Relevant Problems?*” Report on the State-of-the Science Meeting, February 28, 2006. National Institute on Disability and Rehabilitation Research. U.S. Department of Education. Grant Number h133E0330030 State of the Science (2006)
2. O&P Leadership Conference: Developing a Shared Vision (2006)
3. “The O&P Profession: A Workforce Demand Study” (2006)

Question: ***How would that curriculum change do a better job of preparing future practitioners?***

Answer: It is believed that professional master’s will provide orthotic and prosthetic graduates with improved skills, knowledge and ability to critically appraise evidence from clinical research and to integrate such evidence with clinical expertise and patient values.. The ABC practice analysis seems to support these skills and knowledge attributes as common practice for the contemporary O&P practitioner. O & P schools are challenged to effectively manage this content with the current curriculum. This is mainly due to the constraints of the current program length both at the bachelor’s and post-baccalaureate certificate level.

Question: ***Recognizing the importance of the residency requirement within the educational pathway, what additional curriculum can we practically expect to add to justify completion of a master’s program prior to entering the profession?***

Answer: Residency is an important component of education and training of future practitioners. At this point in the process, we are not able to provide a complete answer to the changes that may need to occur to the residency program. We have scheduled a meeting on this topic that is set for late June 2007 with the expectation to have a Residency model crafted by 2009.

Certificate programs were established to focus on a single discipline and to open the field to those who were unable to complete a full-time educational curriculum, secondary to financial limitations or work schedules.

Question: ***Is consideration being given to keep this structure in place as an entry-level requirement with the option to continue on to master’s work?***

Answer: NCOPE envisions that there will no longer be a variety of educational pathways to enter the profession educationally. There will be a transition period set in place for those individuals that have obtained a single certificate and want to extend credential and attend a second certificate. This will be a time-limited time frame and the route would only be available for those individuals extending credential. The details are currently in development. From an accreditation and regulatory standpoint it is important to emphasize that accreditation bodies typically do not look favorably upon multiple pathway’s and levels of education for a particular profession as it can be confusing to the public.

Question: ***Is it possible to obtain a master's degree through continuing or part-time education?***

Answer: NCOPE only deals with primary education and not continuing education. It will be up to the institutions to determine if an individual could apply for and be accepted to a program and work on the curriculum part-time. We may see some institutions create a transitional master's degree. A program designed for those individuals already certified and in the patient care setting, but who desires to obtain a master's degree.

Question: ***Has consideration been given to establishing a parallel track for bachelor's level education or a bachelor's degree with certificate within the foreseeable future?***

Answer: There is no consideration underway to maintain a parallel track of bachelor's level education. The main reason is that bachelor's students would be at a distinct disadvantage in terms of content as compared to master's prepared practitioners due to the changes we are making with the curriculum.

Question: ***The move to a master's requirement is predicated upon providing education in O&P, yet there are numerous practitioners who exhibit an interest in one or the other and seek only one specialization. How will those individuals be served by the proposed change?***

Answer: It is true that numerous practitioners exhibit an interest in one or the other discipline. However, a combined model is in existence today with the bachelor's in O&P. Students that attend an O&P bachelor's program receive education in both and then gravitate towards their interest. Having a professional master's in O&P provides a comprehensive exposure and broad based education in both disciplines, but students still have the option of specializing in one discipline or the other like they do currently.

Question: ***Does the current rate of completion for dual discipline education support the need for a dual discipline master's education?***

Answer: There is no data to support continued dual discipline education over a blended professional master's education.

Question: ***How does the dual discipline master's education proposal incorporate two residency requirements and two certification exams?***

Answer: The details of what residency will look like with the implementation of a professional O&P master's is still in development. Discussions have ranged from keeping it at 12-months per discipline to a shorten O&P combined residency. More meetings and development will be occurring in the near future. We anticipate keeping ABC informed as these developments occur. It is un-known by NCOPE at this point what, if any, affect it will have on the ABC certification exams.

## **Master's Level Educators**

Prior to the requirement of a bachelor's degree for further O&P education, a significant number of individuals in the profession had completed limited, if any, post-secondary education. Instead, they gained expertise through on-the-job experience based on the technology of the day. Many of those not

formally educated individuals were, in fact, instructing those enrolled in a bachelor's degree or certificate programs.

Question: ***Will the majority of individuals instructing master's students reached that level of education themselves?***

Answer: Currently all but one (and the one is currently matriculating through a master's program) of our program directors have the minimum of a master's degree or higher and in addition to their certification status. With that said there will be an impact on our current O&P faculty as the need to attain a master's degree or higher is typically university required. NCOPE will be working on a transition plan to assure that all current faculty members have adequate time to bring their education in line with their universities requirement and to meet NCOPE's standards.

Question: ***From what base will educators be drawn?***

Answer: O&P program directors will have university resources at their disposal as well as educators from other allied health and related professions from which to draw.

Research has been cited as a reason for the O&P master's program. Research is important, but not to the exclusion of patient care.

Question: ***What is the rationale for making a master's degree mandatory for those who do not wish to pursue research in the O&P profession?***

Answer: Professional master's education is not about a pure academic research model i.e., creating a researcher. The professional master's will educate the vast majority on becoming better consumers of research to have an understanding of evidence based practice.

Question: ***Is interest in research inherent in making a good Orthotist or Prosthetist?***

Answer: Interest in research is not inherent in making a good Orthotist or Prosthetist, but being a good consumer of research creates graduates capable of information-seeking, critical appraisal, and knowledge management skills that are necessary for effective evidence based practice and ultimately better patient care providers. With this knowledge base the practitioner is more likely to make informed decisions about patient care and to provide evidence on the efficacy of the orthotic/prosthetic treatment.

Question: ***What is the market for research positions in the profession of O&P, considering that most current studies show that we have more clinical practice vacancies than practitioners to fill them?***

Answer: NCOPE has no information on what the market is for research positions in the profession of O&P, but again the professional master's is creating consumers not researchers.

Question: ***Will any of the programs be an academic based master's, i.e., creating researchers for the O&P profession?***

Answer: NCOPE anticipates that several currently accredited master's programs as well as some future developed programs will create an academic based master's degree. The profession will need several programs at this level to address the need for future research and supported by the

findings from the state of the science meeting held in the spring of 2006. NCOPE supports and encourages the establishments of these types of programs to address, in part the current and future demand for O&P research. It is recognized, however, that the resource needs for a pure academic model is greater and may take more years to attain than a professional master's degree.

Within the current education model, the market has not exhibited much demand for master's level O&P professionals, nor are many pursuing a master's level of education from within the ranks of those currently practicing in O&P.

Question: ***Has a survey been done to determine the number of individuals, present students, current certifees, or employers interested in a master's program?***

Answer: NCOPE specifically did not perform a survey but did review and use as a resource two survey based studies. They were as follows:

- a) "Assessing the Need for Increased Standards in the Field of Orthotics and Prosthetics", April 2, 2002 by Alicia J. Davis, MPA, CPO. This study surveyed certified practitioners and registered residents.
- b) "A Web-Based Assessment for the Need to Develop Graduate Degree Programs in Prosthetics and Orthotics", 2003 by Mark Edwards, MHPE, CP. This study surveyed registered users of the Orthotic and Prosthetic list-serve (OANDP-L).

The Edward's study cites that 62.8% respondents agreed that the level of education should be advanced to include a graduate degree. The Davis study showed a lesser amount of support for a mandatory master's, however, it is important to point out the higher educated the practitioner responding, the higher level of support for a master's degree.

Question: ***Will there be an expectation of higher salary demands secondary to securing a master's degree?***

Answer: Studies from other professions indicate that movement to the master's level does not increase salary expectations. A PT and OT salary survey reported that individuals with bachelor's degrees had an average salary of \$62,084. PT's with a master's degree reported an average salary of \$64,247 while those with the DPT degree reported an annual salary of \$64,192. For OT's the average salary for the bachelor's degree is \$48,342. Those with an entry level master's degree on average have a salary that is only \$194 more a year. In a study, as reported by Peggy Valentine, Ed.D., in a talk titled "Highlights of Graduate PA Education", the PA's found that educational status had no significant impact on salaries.

Question: ***Will entry-level master's degree holders find themselves unable to compete for jobs against less-educated practitioners with one or two years experience?***

Answer: The issue of competition for jobs will always be in existence, no matter what the person's education and/or experience. We have two master's programs that are accredited and we have not heard any word that graduates of these programs are unable to get hired due to their higher degree. In a related study of PA's (Valentine) findings indicated that job opportunities were comparable between graduates with a certificate (6.3), bachelor's (6.4), and master's (5.6).

When the bachelor's degree requirement was adopted by ABC in the 80's, practitioners already certified under different criteria were not impacted on their ability to practice without returning to school.

Question: ***Will a master's requirement apply only to new students or all practitioners?***

Answer: It will apply to only new students. The master's level is the educational pathway for individuals just entering O&P. It does not impact an individual's certification or their ability to practice once they have already become certified. Effective 2010 any new program applying for accreditation will have to apply at the professional master's level. We are working on a transition plan to bring all currently accredited programs under the master's level by 2012. There are still items to be developed and worked on to bring this change about. The goal is that all new students entering an education program by 2012 will be working on a professional master's degree

Question: ***Will a master's requirement limit job opportunities for those who became certified under the old model, especially in licensure states?***

Answer: The master's requirement should not limit job opportunities for those who become certified under the old model. We are basing this on the history of when a major shift occurred in O&P from short-term certificate to bachelor's and post-baccalaureate certificate. There was not an impact on job opportunities at that time.

### **Master's Level Education and Reimbursement**

There is no indication that requiring a master's degree to enter the profession of O&P would allow the profession to demand higher reimbursement rates from third-party payers.

Question: ***How does NCOPE justify the added time and expense in obtaining a master's degree when it appears that there is no apparent change to reimbursement rates for O&P services.***

Answer: Increasing the education level to a professional master's was not predicated on the premise that it would change O&P's reimbursement rate. The move is based upon the following:

O&P profession has tried to respond to the increasing body of knowledge in both the technical and clinical arena. Transition to an entry professional master's level education would result in the following:

- a. increased knowledge,
- b. enhancement of patient care skills
- c. opportunities for clinical specialization
- d. increased application of scientific research and evidence-based practices
- e. enhanced collaboration between education institutions and residency sites

In addition, there is not an added time when you consider that currently the majority of students attend/graduate from a post-baccalaureate program. This is added time beyond a bachelor's degree and it has never been a deterrent for individuals to choose O&P as a profession.

Question: ***Would payers eventually limit participation to only master's level practitioners? Placing those without a master's degree at risk of not being able to continue seeing and treating patients?***

Answer: There is no evidence to suggest that payers would limit participation to only master's level practitioners. For years we have had practitioners with master's education/degrees (not in O&P

specifically) and it has not limited the ability of practitioners with a bachelor's, associates or even only high school degrees to receive reimbursement and treating patients. In addition, this also does not appear to be a problem with reimbursement for PT's, OT's and the PA's who have individuals practicing with a variety of degrees levels.

Question: ***With possible use of more off-the-shelf orthotic devices, where is the significance of an entry-level master's requirement, even in an evidence based context?***

Answer: With better educated practitioners and the ability to address treatment from an evidence-based model the profession is in a better position to determine the effectiveness of many off-the-shelf products that currently are assumed to be effective.

Resource references:

1. "O&P Education Summit: Forecasting the Future." (April 2005) - [http://www.ncope.org/summit/pdf/EDSummit\\_final\\_report.pdf](http://www.ncope.org/summit/pdf/EDSummit_final_report.pdf)
2. "The Orthotic and Prosthetic Profession: A Workforce Demand Study" (December 2006) - [http://www.ncope.org/assets/pdfs/workforce\\_studies.pdf](http://www.ncope.org/assets/pdfs/workforce_studies.pdf)
3. O&P Leadership Conference: Developing a Shared Vision (2006) - [http://www.aopanet.org/hot\\_op\\_issues/opsharedvision.php](http://www.aopanet.org/hot_op_issues/opsharedvision.php)
4. "Research in P&O: Are We Addressing Clinically-Relevant Problems?" (2006) - [http://www.medschool.northwestern.edu/depts/repoc/sections/publications/papers/sos\\_reports/SOS\\_2006report.pdf](http://www.medschool.northwestern.edu/depts/repoc/sections/publications/papers/sos_reports/SOS_2006report.pdf)
5. "Assessing the Need for Increased Standards in the Field of Orthotics and Prosthetics" (2002) –
6. <http://www.ncope.org/summit/pdf/AliciaThesis.pdf>
7. "A Web-Based Assessment for the Need to Develop Graduate Degree Programs in Prosthetics and Orthotics" (2003) <http://www.ncope.org/summit/pdf/EdwardsSurvey.pdf>
8. PT salary survey <http://physical-therapy.advanceweb.com/common/Editorial/Editorial.aspx?CC=70497&CP=2>
9. OT salary survey <http://occupational-therapy.advanceweb.com/common/editorial/editorial.aspx?CTIID=885&SEC=PRC>
10. "Highlights of Graduate PA Education" (2006) - <http://www.ncope.org/assets/pdfs/finalreport706.pdf>