Practice Analysis of ABC Certified Assistants in the Disciplines of Orthotics and Prosthetics

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Acknowledgements

On behalf of the American Board for Certification in Orthotics, Prosthetics and Pedorthics, Inc. (ABC), I am pleased to present the *Practice Analysis of ABC Certified Assistants in the Disciplines of Orthotics and Prosthetics*. This report describes the contemporary practice of ABC Certified Orthotic and/or Prosthetic Assistants practicing in the United States, and presents recommendations regarding ABC examination construction initiatives. It represents the culmination of eleven months of planning, execution, data analyses and writing.

A project of this scale depends on the hard work and commitment of many professionals, and I am pleased to acknowledge their contributions to the final product. ABC is indebted to the 11-member Practice Analysis Task Force (PATF) for the direction it provided. Its members—Michael J. Allen, CPO, FAAOP, William D. Beiswenger, CPO, FAAOP, Curt A. Bertram, CO, FAAOP, Jonathan D. Day, CPO, Dennis W. Dillard, C.Ped., CTO, Stephen B. Fletcher, CPO, Bernard D. Hewey, CPO, M. Edward Hicks, CO, C.Ped., Robert S. Lin, CPO, FAAOP, Robert M. Tardell, CFo, CFts—worked with us diligently throughout the conduct of the study. Steven R. Whiteside, CO, FAAOP served as chair of the task force and devoted many hours to its success.

This project represents a substantial investment of ABC's financial resources and personnel and supports ABC's efforts in continuing to develop exemplary examination programs as well as providing information to primary and continuing education programs. I am grateful to Catherine A. Carter, Executive Director, for her support and guidance during this project. She provided thoughtful and consistent support for the study and developed a highly effective communication program in support of the study.

Donald D. Virostek, CPO
President

Introduction

The American Board for Certification in Orthotics, Prosthetics and Pedorthics, Inc. (ABC) contracted with Professional Examination Service (PES) to conduct an updated practice analysis of orthotic and/or prosthetic assistants including a validation survey of the entire population of ABC Certified Orthotic and/or Prosthetic Assistants (CPOA, CPA, COA).

WHY DO A PRACTICE ANALYSIS?

The goal of a practice analysis study is to determine current trends in patient care, technology and practice management by ABC Certified Orthotic and/or Prosthetic Assistants.

WHY DO A VALIDATION STUDY?

The goal of the validation study was to identify unique priorities in the delivery of orthotic and prosthetic patient care, e.g.: What highly critical tasks are performed by ABC certified orthotic and/or prosthetic assistants? What subset of knowledge and skill is essential at the time of initial certification? What procedures are the most frequently implemented?

WHAT WILL ABC DO WITH THE RESULTS OF THE STUDY?

The results are being used to generate defensible credentialing test specifications designed for entry-level orthotic and/or prosthetic assistants. The results will also be used to identify specific topics for in-service and/or continuing education and to provide guidance for education program enhancement in regard to curriculum review and/or programmatic self assessment.

Executive Summary

The specific objectives of the study were to:

- conduct a comprehensive practice analysis of the disciplines of orthotic and prosthetic assistants by updating and validating the domains of practice, the specific tasks performed, the associated knowledge and skills required to perform each task and the practice areas and devices used
- develop profiles of practice of certified prosthetic and/or orthotic assistants, including time spent in each domain and the criticality of domains
- quantify time spent and tasks performed with regard to various orthotic and prosthetic devices
- explore expected trends in the profession for the next three years
- develop defensible test specifications for orthotic and prosthetic assistants in connection with the multiple-choice certification exam administered to candidates for the credentials

THE DELINEATION

Subject-matter experts identified by ABC were appointed to a Task Force and attended a meeting to review and refine the existing delineation of practice to ensure that the delineation of domains, tasks, knowledge and skills was comprehensive and contemporary, and that the delineation was in line with the ABC *Scope of Practice* for certified orthotic and/or prosthetic assistants.

REVIEW

Subsequent to the meeting, Task Force members performed a critical review of the revised delineation. In addition to the Task Force, independent subject matter experts were invited to participate in the review of the delineation. Task Force members and independent reviewers made suggestions to further refine and update the draft delineation, and edited the document to ensure clarity and completeness. All suggestions were compiled into a master document that was reviewed during a meeting that included a sub-committee of the Task Force.

SURVEY OF PRACTICE

PES developed a survey of practice, the Practice Analysis Survey of O&P Assistants, including the following components:

- **Introduction**, including a description of the purpose of the survey and instructions for completing the survey
- **Screening questions**, to ensure that the respondents were currently working as an orthotic and/or prosthetic assistant, and asking them to choose the perspective (orthotic or prosthetic) from which they would complete the survey
- **Section 1: Tasks**, including 40 tasks delineated in association with five domains of practice
- **Section 2: Domains**, including five domains of practice
- **Section 3: Knowledge and Skills**, including 42 knowledge statements and 20 skills statements
- **Section 4** (Two Versions): Depending on the perspective respondents chose in the screening question, either orthotic or prosthetic **Practice Areas and Devices**, including percent of assistant work time spent in areas of practice and activities performed in connection with orthotic and prosthetic devices
- **Section 5: Qualitative Questions**, including open-ended questions regarding anticipated changes in technology, responsibilities, credentialing and quality of care. In addition, ABC used the study to explore respondents' reasons for pursuing the certified assistant credential and their perceived benefits of certification
- **Section 6: Background Information**, including questions about the respondent's educational and professional background, work setting and demographic characteristics

REVIEW OF DATA

PES analyzed the data, developed a description of practice and developed empirically derived test specifications.

SURVEY RESPONSE RATE

One hundred ninety-five (195) Certified Assistants, including orthotic, prosthetic and dually certified assistants (COAs, CPAs and CPOAs) responded to the survey for an overall response rate of 32%. The response rate was derived by dividing the number of completed surveys by the number of valid invitations sent, defined as the number of invitations emailed minus those returned as undeliverable or where the respondent was routed out of the survey due to not being in active practice. This is a very high response rate for an online survey such as that administered in the present study, and provides sufficient data to develop profiles of practice and test specifications.

SECTION ONE

Results Related to Professional Background, Work Setting and Demographic Information

This section provides background information for the sample of respondents. The survey included a questionnaire regarding professional history and then addressed the respondent's work environment, educational background and demographic information.

Survey respondents had an average of 14 years of experience in the O&P profession, as shown in Table 1, with very little difference in experience between orthotic and prosthetic assistants.

TABLE 1
Years of Experience, Summary Data

	Orthotics	Prosthetics
Years	14.1	14.0

TABLE 2
Years of Experience, Frequency Distribution

	Orthotics	Prosthetics
Up to 5 years	21.6%	18.8%
6 to 10 years	18.0%	16.3%
11 to 15 years	21.6%	28.8%
16 to 20 years	16.2%	17.5%
21 or more years	22.5%	18.8%
Total	100.0%	100.0%

TABLE 3
Years of experience as O&P Assistant

	Orthotics	Prosthetics
Up to 3 years	56.5%	55.1%
4 to 6 years	18.5%	14.1%
7 to 10 years	13.9%	19.2%
11 to 15 years	4.6%	7.7%
16 or more years	6.5%	3.8%
Total	100.0%	100.0%

One of the goals of the current study was to explore the employment histories of those obtaining the ABC Certified Assistant credential. Not surprisingly, the perspective from which the respondents completed the survey was reflected in their past employment in positions indicating specialization in either orthotic or prosthetic-related fields.

TABLE 4
Positions held before becoming O&P Assistant

	Orthotics	Prosthetics
O&P Technician	65.4%	89.6%
Orthotic Fitter	57.0%	28.6%
Medical assistant	5.6%	2.6%
Physical therapy assistant	4.7%	2.6%
Occupational therapy assistant	1.9%	.0%
Administrative assistant in O/P facility	13.1%	10.4%
Total	29.0%	15.6%

Totals do not sum to 100%. Multiple responses permitted.

TABLE 5
ABC Credentials Held

	Orthotics	Prosthetics
CPA	.9%	67.1%
COA	70.8%	.0%
CPOA	28.3%	32.9%
CTO	8.0%	1.2%
CTP	1.8%	19.5%
CTPO	3.5%	4.9%
CFo	26.5%	8.5%
CFm	2.7%	1.2%
CFom	3.5%	.0%
CFts	.9%	.0%
C.Ped	16.8%	6.1%
CP	8.0%	.0%
CO	.9%	7.3%
CPO	.0%	.0%

Totals do not sum to 100%. Multiple responses permitted.

Respondents indicated obtaining numerous intangible benefits from their certified assistant credential, including 78% gaining increased responsibility and 61% gaining increased independence. There was little difference between the experiences of the orthotic and prosthetic perspectives, except that those answering from the orthotics perspective were slightly more likely to have gained an increase in pay than did the prosthetic respondents (34% versus 27%, respectively). Of those mentioning Other benefits, the most common responses were increased knowledge and pride.

TABLE 6
Benefits of Obtaining ABC Assistant Credential

	Orthotics	Prosthetics
Increased independence	64.6%	56.1%
Increased responsibility	77.0%	79.3%
Increased respect	54.0%	54.9%
Increased job opportunities	53.1%	54.9%
Increased pay	33.6%	26.8%
Other	15.0%	14.6%

Totals do not sum to 100%. Multiple responses permitted.

The following table shows the percentage of assistant work time respondents spent performing activities related to each discipline. Those answering from the orthotic perspective were more likely to devote most of their assistant work time (90%) to orthotics, with 10% in prostheticrelated activities. Those answering from the prosthetic perspective had a more varied experience, with 78% of their assistant work time devoted to prosthetics and 23% spent on orthotic-related activities.

TABLE 7
Percentage of Work Time in each Discipline

	Orthotics	Prosthetics
Orthotics	89.7%	22.5%
Prosthetics	10.3%	77.5%

Most respondents worked in an orthotic and/or prosthetic facility, (79% for those answering from the orthotic perspective and 85% for those answering from the prosthetic perspective), followed by hospital-based practice.

TABLE 8
Primary Work Setting

	Orthotics	Prosthetics
Orthotic and/or prosthetic facility	78.6%	85.0%
Hospital-based practice	12.5%	11.3%
Physician's office	2.7%	.0%
University-based practice	2.7%	2.5%
Other	3.6%	1.3%
Total	100.0%	100.0%

Slightly more than half of the respondents were the only orthotic/prosthetic assistant at their work setting, and most of the remainder worked at facilities where there were two to four orthotic/prosthetic assistants.

TABLE 9
Number of Orthotic and/or Prosthetic Assistants at Work Setting

	Orthotics	Prosthetics
I am the only orthotic/ prosthetic assistant	51.4%	53.8%
2 – 4	47.7%	43.6%
5 – 7	.9%	1.3%
8 – 10	.0%	1.3%
10 or more	.0%	.0%
Total	100.0%	100.0%

TABLE 10
Number of Orthotists and/or Prosthetists at Work Setting

	Orthotics	Prosthetics
1	20.0%	20.0%
2 – 4	54.5%	57.5%
5 – 7	14.5%	12.5%
8 – 10	2.7%	3.8%
11 or more	8.2%	6.3%
Total	100.0%	100.0%

The highest level of formal education attained by respondents varied somewhat depending on the discipline from which they answered the survey. In general, those answering from the orthotic perspective had higher levels of formal education than did those answering from the prosthetic perspective. Overall, the greatest percentage of respondents had a high school/GED education (42%), followed by an associate's degree (24%) and a bachelor's degree of some kind (19%).

TABLE 11
Highest Level of Formal Education

	Orthotics	Prosthetics
High school/GED	34.8%	53.2%
Associate's degree	25.9%	20.3%
Bachelor's degree in O/P	1.8%	1.3%
Bachelor's degree in other field or discipline	21.4%	12.7%
Master's degree in O/P	.0%	1.3%
Master's degree in other field or discipline	4.5%	2.5%
Other	11.6%	8.9%
Total	100.0%	100.0%

The majority of respondents were male (83%), although the percentage of males was higher for those answering from the prosthetic than from the orthotic perspectives (94% versus 75%, respectively).

TABLE 12
Gender

	Orthotics	Prosthetics
Male	75.2%	93.8%
Female	24.8%	6.3%
Total	100.0%	100.0%

TABLE 13
Age

	Orthotics	Prosthetics
Under 25	1.9%	6.3%
25 – 34	20.4%	23.8%
35 – 44	32.4%	35.0%
45 – 54	34.3%	26.3%
55 – 64	10.2%	8.8%
65 or over	.9%	.0%
Total	100.0%	100.0%

TABLE 14
Racial/Ethnic Background

	Orthotics	Prosthetics
African American/Black	9.3%	2.6%
American Indian/Alaska Native	.9%	5.2%
Asian	4.7%	1.3%
Caucasian/White (non-Hispanic)	80.4%	77.9%
Hispanic/Latino/Latina	1.9%	10.4%
Mixed race	1.9%	1.3%
Pacific Islander	.0%	1.3%
Other (Not specified)	.9%	.0%

SECTION TWO

Results Relating to Domains of Practice

This section presents the results of the ratings related to the five domains that describe practice. Respondents rated each of the domains on two ratings scales:

- *Percentage of Time*: Overall, what percentage of your work time did you spend performing tasks related to each domain during the past year?

- *Criticality*: How critical is this domain to optimizing outcomes for patients and/or caregivers? 1=Not critical, 2=Minimally critical, 3=Moderately critical, 4=Highly critical

Respondents spent the greatest amount of time performing tasks in the *Implementation of the Treatment Plan* domain (33%), followed by time spent in the Assessment domain (21%). Followup of the Treatment Plan took about 19% of time, and the remaining two domains occupied between 10% and 15% of time. Differences in the percentage of time spent in the domains were found between those answering from each perspective, with orthotic respondents spending more time in *Assessment* and *Practice Management* and prosthetic respondents spending more time in Implementation.

The mean *Criticality* ratings were highest for *Implementation of the Treatment Plan* domain, indicating this domain is close to highly critical to optimizing care for patients and/or caregivers. All other domains received mean *Criticality* ratings ranging from 3.2 to 3.6, indicating that respondents felt the tasks in these domains were moderately to highly critical. Accordingly, all five domains appropriately focus on activities that are critical to optimizing outcomes for patients and/or caregivers.

TABLE 15
Percentage of Time and Criticality in Each Domain

	% of time		Criticality	
	O	P	O	P
Domain 1–Assessment Participate in a comprehensive assessment of the patient to obtain an understanding of the orthotic/prosthetic treatment plan.	23.0%	18.5%	3.7	3.5
Domain 2–Implementation of the Treatment Plan Perform procedures necessary to provide the appropriate orthotic/prosthetic services, including fabrication.	30.2%	36.8%	3.7	3.7
Domain 3–Follow-up of the Treatment Plan Provide continuing patient care to ensure successful outcomes related to the established treatment plan.	18.5%	19.9%	3.6	3.7
Domain 4–Practice Management Comply with policies and procedures regarding human resources, the physical environment, business and financial practices and organizational management.	16.9%	12.3%	3.3	3.4
Domain 5–Promotion of Competency and Enhancement of Professional Practice Comply with policies and procedures regarding the physical environment, business and financial practices, organizational management and human resources	10.0%	10.7%	3.2	3.3
Other	1.4%	1.8%		

Numeric values of criticality scale: 1=Not critical, 2=Minimally critical, 3=Moderately critical, 4=Highly critical

Results Relating to the Tasks

Respondents rated the tasks using two scales:

- Frequency: How frequently did you perform the task during the past year?

- Criticality: How critical is this task to optimizing outcomes for patients and/or caregivers? 1=Not critical, 2=Minimally critical, 3=Moderately critical, 4=Highly critical

Table 16 provides summary data on the mean Frequency and Criticality ratings for respondents answering the survey from the orthotic and prosthetic perspectives. In the vast majority of cases, there was little difference between the mean Frequency ratings of the respondents in each sub-group: there were only four tasks where the mean difference in rating was 0.4 or greater. In all these instances, the orthotic respondents performed the task more frequently than did the prosthetic respondents. These were Review patient's prescription/referral and Perform procedure (e.g., measure, take impression, delineate, scan, digitize) (both tasks with a mean rating difference of 0.6), Select appropriate pre-fabricated orthosis based on patient measurements and the established treatment plan (difference of 1.0), and Document all findings and actions related to follow-up using established record-keeping techniques (difference of 0.4).

In only one case was there a mean Criticality rating difference of greater than 0.3 between the orthotic and prosthetic respondents; this was Select appropriate pre-fabricated orthosis based on patient measurements and the established treatment plan (difference of 0.6). As might be expected, the instances wherein the Frequency and Criticality ratings differed the most were associated with sub-group specific tasks.

TABLE 16
Task Frequency and Criticality Ratings

	Frequency		Criticality	
	Orthotics	**Prosthetics**	**Orthotics**	**Prosthetics**
Domain 1 – Assessment				
Review patient's prescription/referral	3.7	3.1	3.7	3.4
Review patient history and assessment findings (e.g., previous device use, medical history, physical limitations, activity levels, patient measurements)	3.5	3.4	3.7	3.7
Consult with certified orthotist/ certified prosthetist about patient's condition in order to understand the treatment plan (e.g., diagnosis, amputation level, orthotic or prosthetic requirements)	3.3	3.5	3.5	3.8
Document assessment findings, as directed	3.7	3.5	3.7	3.7
Domain 2 – Implementation of the Treatment Plan				
Provide patient with preparatory care for orthotic/prosthetic treatment (e.g., shrinker, compression garment)	3.0	2.8	3.3	3.5
Select appropriate materials/ techniques in order to obtain a patient model/image	3.4	3.1	3.6	3.4
Prepare patient for procedure required to initiate treatment plan (e.g., information about aspects of the procedure)	3.3	3.1	3.4	3.4
Perform procedure (e.g., measure, take impression, delineate, scan, digitize)	3.4	2.8	3.7	3.5
Select appropriate pre-fabricated orthosis based on patient measurements and the established treatment plan	3.3	2.3	3.5	2.9

	Frequency		Criticality	
	Orthotics	Prosthetics	Orthotics	Prosthetics
Comply with manufacturer's specifications regarding components/ materials	3.6	3.7	3.6	3.8
Prepare delineation/impression/ template for modification/fabrication	3.3	3.3	3.6	3.6
Rectify and prepare patient model/ image for fabrication	3.1	3.1	3.5	3.6
Fabricate/assemble/align orthosis/ prosthesis in order to prepare for initial or diagnostic fitting	3.3	3.6	3.7	3.8
Assess device for structural safety and ensure that manufacturers' guidelines have been followed prior to patient fitting (e.g., torque values, component weight limits)	3.5	3.7	3.7	3.9
Assess alignment of orthosis/ prosthesis for accuracy in sagittal, transverse and coronal planes in order to provide optimal function/ comfort	3.5	3.5	3.8	3.9
Ensure that materials, design and components are provided as specified in the treatment plan	3.6	3.7	3.7	3.8
Complete fabrication process after achieving optimal fit and function of orthosis/prosthesis (e.g., convert diagnostic device to definitive orthosis/prosthesis)	3.1	3.4	3.6	3.7
Re-assess orthosis/prosthesis for structural safety at time of delivery	3.6	3.7	3.8	3.9
Educate patient and/or caregiver about the use and maintenance of the orthosis/prosthesis (e.g., wearing schedules, other instructions)	3.7	3.5	3.8	3.8

	Frequency		Criticality	
	Orthotics	Prosthetics	Orthotics	Prosthetics
Document treatment using established record-keeping techniques to verify compliance with treatment plan	3.6	3.3	3.8	3.7
Domain 3 - Follow-up of the Treatment Plan				
Obtain feedback from patient and/or caregiver to evaluate outcomes (e.g., wear schedule/tolerance, comfort, ability to don and doff, proper usage and function)	3.4	3.3	3.6	3.7
Assess patient's general health, including physical status, skin condition, height and weight	3.4	3.3	3.6	3.7
Assess patient's psychosocial status (e.g., family status, job or caregiver)	3.0	2.9	3.1	3.2
Assess fit and function of orthosis/prosthesis to determine need for changes to meet goals of the established treatment plan	3.5	3.3	3.8	3.7
Assess patient's achievement of planned treatment goals	3.2	3.0	3.5	3.5
Inform certified orthotist/certified prosthetist of all findings that affect the treatment plan	3.4	3.6	3.6	3.8
Adjust orthosis/prosthesis to meet goals of treatment plan	3.5	3.4	3.7	3.7
Assess adjusted orthosis/prosthesis for structural safety	3.6	3.4	3.8	3.7
Evaluate results of adjustments to orthosis/prosthesis, including static and dynamic assessment	3.4	3.3	3.6	3.7
Educate patient to ensure continued proper use of adjusted orthosis/prosthesis	3.5	3.3	3.8	3.7

	Frequency		Criticality	
	Orthotics	**Prosthetics**	**Orthotics**	**Prosthetics**
Document all findings and actions related to follow-up using established recordkeeping techniques	3.7	3.3	3.8	3.6
Domain 4–Practice Management				
Comply with all applicable federal, state and local laws and regulations (e.g., CMS, HIPAA, FDA, ADA, OSHA, state licensure)	3.9	3.9	3.9	3.9
Adhere to professional and ethical guidelines (e.g., ABC Code of Professional Responsibility)	3.9	4.0	3.9	4.0
Comply with established documentation requirements related to patient billing and claims development	3.7	3.5	3.8	3.8
Promote a safe and professional environment for patient care (e.g., universal precautions, ABC Facility Accreditation standards)	3.9	3.9	3.9	3.9
Domain 5–Promotion of Competency and Enhancement of Professional Practice				
Maintain competence by participating in continuing education	3.1	3.2	3.6	3.6
Participate in education of residents, students and staff	2.8	3.1	3.3	3.5
Participate in product development research, clinical trials and outcome studies	2.1	2.2	2.9	3.1

	Frequency		Criticality	
	Orthotics	**Prosthetics**	**Orthotics**	**Prosthetics**
Participate in the development, implementation and monitoring of public policy regarding orthotics/ prosthetics (e.g., provide testimony/ information to legislative/regulatory bodies, serve on professional committees and regulatory agencies)	1.7	1.6	2.8	2.9
Promote public awareness of the profession	2.5	2.7	3.0	3.2

Results Related to the Knowledge and Skills Statements

Knowledge and skills were rated using the following scales.

- *Point of Acquisition*: At what point should this knowledge or skill be acquired by an orthotic/prosthetic assistant?

- *Criticality*: How critical is the knowledge or skill to optimizing outcomes for patients and/or caregivers?

Respondents were asked when they thought the knowledge or skill should be acquired. Of the respondents, 94% thought *General musculoskeletal anatomy, including upper limb, lower limb, spinal* and *Anatomical landmarks (surface anatomy)* should be acquired before certification. There were a number of knowledge and skills statements that less than 50% of respondents reported as needing to be acquired by the time of certification. In all cases, respondents did not rate these as not necessary; rather, they felt they should be acquired primarily after certification.

TABLE 17
Knowledge and Skill Statements

Knowledge Statements

General musculoskeletal anatomy, including upper limb, lower limb, spinal
Basic neuroanatomy (e.g., major peripheral nerves of the upper and lower extremities)
Anatomical landmarks (surface anatomy)
Anatomical planes, planes of motion, and normal joint range of motion
Normal human locomotion
Gait deviations
Tissue characteristics/management
Volumetric control (e.g., edema, weight gain/loss)
Biomechanics (e.g., actions of lever arms, application of force system)
Pathologies, including cause and progression (e.g., orthopedic, neurologic, vascular)
Medical terminology
Referral documents
Documentation techniques
Policies and procedures regarding protected healthcare information
Reimbursement protocols (e.g., CMS, Medicaid)
Material safety procedures and standards (e.g., OSHA, MSDS)
Universal precautions, including sterile techniques and infection control
Ethical standards regarding proper patient management, including ABC Code of Professional Responsibility
Scopes of practice related to orthotic/prosthetic credentials
Boundaries of the orthotic/prosthetic assistant scope of practice
Orthotic/prosthetic design
Orthotic/prosthetic fitting criteria

Orthotic/prosthetic fabrication
Clinical examination techniques
Impression-taking techniques, materials, devices and equipment
Rectification/modification procedures as they relate to specific orthotic/prosthetic designs
Measurement tools and techniques
Orthotic/prosthetic forms (e.g., assessment, orthometry, measurement, evaluation, outcomes)
Materials science
Componentry
Alignment devices and techniques
Hand and power tools
Care and maintenance of orthoses/prostheses
Computer-aided design and manufacturing (CAD/CAM)
Item warranty and warranty limitations
Loss control (e.g., risk management, inventory control)
Research and literature
Human development and aging, ranging from pediatric to geriatric, as they relate to orthotic and prosthetic treatment
The psychology of the disabled
Patient educational materials
Federal and state rules, regulations and guidelines (e.g., FDA, ADA, HIPAA)
ABC Facility Accreditation Standards

Skill Statements

Communicating with patient/family/caregiver
Communicating with orthotists/prosthetists and other staff
Identifying gross surface anatomy
Interpretation of physical findings (e.g., recognizing skin pressures, dermatological conditions)
Identifying normal and pathological gait/motion
Impression-taking/measuring for orthoses/prostheses
Use of mechanical measuring devices
Use of electronic measuring devices
Use of computer-based measuring devices
Patient delineation, rectification and/or patient model modification
Orthotic/prosthetic fabrication
Use of safety equipment
Use of hand and power tools
Use of materials and components
Use of alignment devices
Aesthetic finishing
Evaluating fit and function of an orthosis/prosthesis
Adjusting and modifying orthoses/prostheses
Maintaining and repairing orthoses/prostheses
Documentation

SECTION THREE

Results Related to Practice Areas, Devices and Activities

Respondents were asked what percentage of their overall work time they spent performing different activities.

Respondents in general spent less than half their work time providing patient care (47% for orthotic respondents and 41% for prosthetic respondents). Prosthetic respondents spent a greater percentage of their work time than did orthotic respondents doing fabrication (43% versus 29%, respectively), while orthotic respondents spent more time than did prosthetic respondents doing administration (22% versus 14%, respectively).

TABLE 18
Primary Work Performed

	Orthotics	Prosthetics
Patient care	46.7%	41.3%
Fabrication	29.0%	42.6%
Administration (e.g., billing, office management, inventory)	22.2%	14.0%
Other	2.1%	2.0%

Orthotic Practice Areas and Devices

The survey next asked respondents to answer a series of questions from the perspective of either an orthotic or a prosthetic assistant; they were routed to the version of the survey to complete based on their response to the screening question. Those completing the orthotic assistant version were asked the percentage of their time they spent performing activities in orthoticrelated

practice areas, and to provide detailed percentages for specific orthotic devices on which they spent their work time. Lower Extremity comprised the majority of total orthotic assistant work time, with an average of 57% of work time. On average, approximately 20% of work time was devoted to devices in the Spinal area, and followed by the Upper Extremity area and devices (16% of work time) and the Scoliosis area and devices (6% of time).

TABLE 19
Percentage of Orthotic Assistant Work Time in Practice Areas

Lower Extremity	56.8%
Spinal	20.1%
Scoliosis	5.5%
Upper Extremity	16.0%
Other	1.7%

Respondents were also asked to indicate the percentage of time they spent performing activities related to specific orthotic devices.

TABLE 20
Orthotic Assistant Percent of Time with Regard to Orthoses

	% of time
Lower Extremity	**56.8%**
Shoes	11.1%
FO	11.0%
AFO	16.7%
KO	8.9%
KAFO	4.5%
HO	2.2%
HKAFO	1.5%
Other	0.9%
Spinal	**20.1%**
LSO	8.7%
TLSO	7.0%
TLO	1.2%
CTO	1.1%
CO	1.9%
Other	0.2%
Scoliosis	**5.5%**
LSO	1.8%
TLSO	3.3%
CTLSO	0.4%
Upper Extremity	**16.0%**
HO	1.6%
WHO	6.5%
WO	2.0%
EWHO	1.1%
EO	2.7%
SEWHO	0.5%
SO	1.3%
Other	0.2%

Respondents were asked which of six specific tasks they performed with patients with respect to the devices in each of the orthotic practice areas. Because assistants may be involved in these activities under the supervision of a practitioner, or may be acting in a supervised role, the somewhat high percentages found for some of these activities may reflect participation in, rather than independent performance of, the activities.

TABLE 21
Percentage of Orthotic Respondents Performing Activity for Orthotic Devices

	Participate in initial patient evaluation	Measure/ mold/ digitize/ scan	Rectify model	Fabricate	Fit	Perform follow-up
Lower Extremity						
Shoes	74%	71%	46%	38%	79%	73%
FO	77%	78%	66%	69%	82%	78%
AFO	88%	79%	67%	58%	86%	81%
KO	81%	75%	48%	34%	82%	76%
KAFO	66%	52%	42%	42%	58%	60%
HO	51%	46%	27%	24%	50%	50%
HKAFO	37%	35%	30%	26%	33%	38%
Spinal						
LSO	80%	75%	41%	27%	79%	73%
TLSO	78%	71%	40%	33%	70%	74%
TLO	41%	34%	17%	10%	36%	39%
CTO	38%	33%	18%	10%	36%	38%
CO	65%	56%	25%	13%	64%	58%
Scoliosis						
LSO	55%	51%	25%	20%	51%	49%
TLSO	63%	55%	27%	23%	52%	56%
CTLSO	31%	27%	12%	8%	30%	31%
Upper Extremity						
HO	52%	50%	26%	19%	53%	48%
WHO	74%	67%	39%	32%	75%	68%
WO	50%	45%	26%	19%	48%	46%
EWHO	41%	40%	22%	15%	41%	39%
EO	65%	58%	28%	18%	64%	57%
SEWHO	27%	25%	12%	11%	26%	26%
SO	51%	47%	17%	15%	53%	50%

Prosthetic Practice Areas and Devices

Respondents answering from the perspective of prosthetic assistants were likewise asked the percentage of time they spent performing tasks associated with each prosthetic practice area. In addition, they were asked to provide detailed percentage of time distributions for the prosthetic practice areas in which they worked.

TABLE 22
Percentage of Prosthetic Assistant Work Time in Practice Areas

Transtibial	52.8%
Transfemoral	26.3%
Transradial	9.3%
Transhumeral	5.0%
Symes	6.6%

Details of the practice areas and the time spent on various devices are presented below.

TABLE 23
Prosthetic Assistant Percent of Time with Regard to Prostheses, Sockets, Control Schemes and Suspension Mechanisms

Transtibial	**52.8%**
Sockets	
Patella tendon bearing	8.3%
Total surface bearing (no locking mechanism employed)	7.0%
Suspension Mechanisms	
Roll-on liner with lock	17.5%
Roll-on liner with valve	5.5%
Sleeve	6.0%
Vacuum	6.7%
Supracondylar	1.8%
Transfemoral	**26.3%**
Sockets	
Quadrilateral	0.8%
Ischial containment	7.4%
M.A.S. design	0.9%
Control Schemes	
Fluid control	0.8%
Microprocessor	3.4%
Mechanical	2.6%
Suspension Mechanisms	
Roll-on with locking mechanism	4.9%
Vacuum-assisted	1.1%
Traditional suction with expulsion valve	3.8%
Hip joint/pelvic band/waist belt	0.6%

Transradial	**9.3%**
Control Schemes	
Myoelectric	2.4%
Body-powered	2.7%
Passive	0.4%
Suspension Mechanisms	
Self	0.3%
Roll-on	0.8%
Suction	0.7%
Harness	2.0%
Transhumeral	**5.0%**
Control Schemes	
Myoelectric	1.2%
Body-powered	1.4%
Hybrid	0.2%
Passive	0.3%
Suspension Mechanisms	
Roll-on	0.3%
Suction	0.3%
Harness	0.3%
Symes	**6.6%**
Sockets	
Patella tendon bearing	1.4%
End bearing	1.3%
Medial opening	1.7%
Posterior opening	0.5%
Expandable wall	0.7%
Suspension Mechanisms	
Silicone liner with expulsion valve	0.6%
Suspension pad	0.4%

Prosthetic assistants were asked to indicate which of seven specific activities they perform in each practice area. Similar to the orthotic assistants, it is likely that respondents were participating in these activities under supervision, rather than performing them independently.

TABLE 24
Percentage of Prosthetic Respondents Performing Activity for Prosthetic Devices

	Participate in initial patient evaluation	Measure/ mold	Rectify model/ delineation	Fabricate	Initial fit/ align	Delivery	Perform follow-up
Transtibial	85%	73%	72%	82%	88%	83%	90%
Transfemoral	82%	67%	60%	78%	83%	71%	82%
Transradial	39%	37%	33%	55%	57%	45%	44%
Transhumeral	35%	32%	24%	48%	44%	29%	40%
Symes	59%	45%	44%	70%	62%	55%	71%

Qualitative Responses

Each respondent was given the opportunity to respond to a series of four open-ended questions regarding the O&P profession in general and aspects of their own work life in particular. Brief synopses of the most common responses to each question are provided below as well as responses to reasons for pursuing the assistant credential(s).

1. In the next three years, what changes in the profession do you think will occur with regard to changes in technology?
   - Most respondents felt that the technology supporting orthotic and prosthetic practice would continue to improve in all aspects of the profession.
   - New materials and components will be introduced, and current materials would be improved (lighter, stronger, smaller, etc.).
   - Screening techniques and devices would become more sophisticated and accurate.
   - Computer-based/electronic technology in assessment, scanning, design, fitting and documentation will increase.
   - Computer-assisted devices will become more common.
   - Microprocessors will improve (faster, smaller, lighter) and become more affordable.
   - New technologies and devices may be unaffordable for many patients; insurance may not cover new and improved devices.

2. In the next three years, what changes in the profession do you think will occur with regard to increased responsibility?
   - Assistants will have more responsibilities in all aspects of practice, particularly if certified orthotists and prosthetists spend more time on the business aspects of practice.
   - Patient care responsibilities will increase.
   - Assistants will do more patient assessment and initial evaluations.
   - Assistants will have more responsibilities for documentation and billing for insurance purposes.
   - Government and insurance regulations may have an impact on assistants' roles and responsibilities; the scope of practice may need to expand.
   - Assistants will be taking on more responsibilities to allow certified orthotists and prosthetists to grow business and see more patients.

3. In the next three years, what changes in the profession do you think will occur with regard to credentialing (licensing and certification)?
   - Licensure will be required in more states.
   - Educational requirements will increase and be more stringent (there were different opinions on whether this is good or bad).
   - CEUs will be required and will be harder to obtain.
   - Certification will become more expensive.
   - With increasing educational requirements to become a practitioner, more people will opt to become assistants.

4. In the next three years, what changes in the profession do you think will occur with regard to quality of care?
   - Patient care will improve due to increased knowledge and abilities.
   - Patient care will be negatively impacted due to increased workloads and responsibilities.
   - Difficulties with insurance reimbursements will hurt patients who may not be able to obtain needed devices and services.
   - Extension of care provided by assistants will help O&P practitioners provide better services to patients.
   - Patients will be better informed and have greater confidence in care provided by assistants.

Reasons for Pursuing Credential

As part of the study's goal of exploring routes to certification as an O&P assistant, respondents were asked an open-ended question about what had led them to pursue their ABC COA, CPA or CPOA credential. A variety of reasons for obtaining the credential were cited. Among the most common were:

- A desire for career advancement, including better job opportunities and increased pay.
- Respondent already performed the responsibilities of the role and the credential formalized this.
- Respondent is an amputee and wanted to help others in same situation.
- Credential seemed like a logical fit to a career ladder toward increasingly greater levels of responsibility, in some cases on the route to attaining the certified practitioner credential.
- Increased eligibility requirements for CO and CP made it difficult to pursue; the assistant credential is more attainable.
- Employer suggested/required it as a condition of maintaining employment or to provide benefit to employer.
- To provide better care for patients.
- To increase knowledge and skills.
- Personal and professional growth.